सत्यमेव जयते

Annual Report
2012-13

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. R.R. Hanchinal
Chairperson
Protection of Plant Varieties &
Farmers' Rights Authority, New Delhi

Foreword

It is indeed my great privilege to present the Annual Report of the Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA), New Delhi for the year 2012-13. The Authority is responsible for the implementation of PPV&FR Act, 2001 in the country. India is among the first few countries of the world to enact the PPV&FR Act on the *sui generis* system as per the national requirement and fulfilling the obligations of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization on one hand and spirit of the ITPGRFA on the other.

The Authority has provided a framework for an effective system for protection of plant varieties, the rights of farmers, researchers and plant breeders and to encourage the development of new varieties of plants. In a short span, the Authority has created system and processes for protection of different category of plant varieties, and has established Plant Varieties Registry, National Gene Bank, Field Gene Banks, DUS testing centres, created databases of extant varieties, Varieties of Common Knowledge (VCK) and registered varieties, publishes the Plant Variety Journal of India and established a techno-legal cell to assist Registry and for defending the interest of the Authority in different courts to meet its objectives and goals. The Authority has expanded its basket for registration of varieties to 57 notified crops / species and another set of 15 crops / species are going to be added to this basket shortly for registration. About two dozen DUS guidelines in respect of tropical and temperate fruits, vegetables, ornamental plants are in various stages of development.

The Authority has instituted the coveted "*Plant Genome Saviour Community Awards, Farmers' Reward and Recognition*" from the National Gene Fund to recognize the contributions of the farming communities in the conservation of agro-biodiversity hotspots. On the eve of International Day of Biological Diversity i.e. on 21 May, 2012, the Authority celebrated the 4th Plant Genome Saviour Award ceremony at A.P. Shinde Auditorium Hall at NASC Complex, New Delhi. During this event Dr. Charan Das Mahant, Hon'ble Minster of State (Agriculture) and Prof. M.S. Swaminathan, Hon'ble Member of Parliament, Rajya Sabha conferred Plant Genome Saviour Community Awards to four farming communities and seven Plant Genome Saviour Recognition certificates to farmers across the country. During the year, two Review meetings of the DUS centres / projects were also convened with the Nodal and Co-nodal scientists of the DUS centres/ projects to take stock of development and to resolve their problems, if any. The Authority also conducted training and awareness programmes by providing financial support to various institutions / NGOs across the length and breadth of the country and also participated in the Kisan Mela, Kisan Utsav at various places including IARI, HAU, Hisar, Delhi Haat, Pragati Maidan putting stalls showcasing the activities of the Authority through exhibitions, posters and charts,

publications and freely distributed pamphlets / fliers depicting the role of PPV&FR Authority. The Authority is also in the process of constructing of its independent corporate office and residential complex in Pusa campus, New Delhi.

I feel privileged in placing on record the able guidance and direction provided by the Hon'ble Union Minister of Agriculture and Food Processing Industries Shri Sharad Pawar for the growth and development of the Authority. I also acknowledge the keen interest shown by both Hon'ble Minister of States for Agriculture and Food Processing Industries Dr. Charan Das Mahant and Shri Tariq Anwar.

I am also equally indebted to Shri Ashish Bahuguna, Secretary, DAC and Dr. S. Ayyappan, Secretary, DARE & Director General, ICAR for their guidance, leadership and their constant support. I express my sincere gratitudes to Shri Avinash Kumar Srivastava, Additional Secretary, DAC & Dr. Atanu Purkayastha, Joint Secretary (Seeds) for their keen interest and valuable support extended to the Authority. I gratefully acknowledge the contributions of the members of the Authority and other officers who have served various Committees / Task Forces with dedication and helped the Authority in touching the new horizon.

I am profoundly grateful to former Chairpersons for their catalytic role, farsightedness, leadership and their continuous support in the progressive development of the Authority during their tenure. I am also thankful to Nodal Officers of the DUS Centres of the Indian Council of Agricultural Research (ICAR), State Agricultural Universities (SAUs), Council of Scientific and Industrial Research (CSIR), Indian Council of Forest Research and Education (ICFRE) for providing untiring selfless services and continuous support to Authority for achieving its goals. With deep sense of sincere gratitude, I wish to convey my thanks to the officers of the DAC, Ministry of Agriculture, ICAR, ICFRE, CSIR, Ministry of Law and Justice, Ministry of Environment and Forests for their continuous support & guidance time to time. I am also thankful to Director, Indian Agricultural Research Institute (IARI), New Delhi & National Bureau of Plant Genetic Resources (NBPGR) and their Divisions for successfully shouldering various responsibilities assigned to them from time to time by the Authority. I acknowledge with thanks the services of our esteemed bankers i.e. State Bank of India and Syndicate Bank for their financial services and support. I am highly grateful to the CAG for their timely support, guidance and direction.

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

(R.R. Hanchinal)

Acknowledgements

I would like to express my sincere gratitude to Dr. R.R. Hanchinal, Chairperson, PPV&FR Authority for his valuable support, motivation and enthusiasm and comprehensive views in the preparation of the Annual Report 2012-13 of the Authority.

I am profoundly thankful to Dr. P.L. Gautam, former Chairperson and Dr. S.K. Datta, DDG (Crop Sciences), ICAR and also acting Chairperson of the PPV&FR Authority (w.e.f. 19 December, 2012) onwards for their valuable cooperation, guidance and support.

I owe my special words of appreciations to Shri D.S. Mishra, Joint Registrar for his sincere efforts in writing, compiling and synthesizing manuscript continuously for the last two years for the Authority. My appreciation are also due to Shri Dipal Roy Choudhury, Joint Registrar for his critical comments and valuable suggestions in shaping the Annual Report of the Authority.

I am also thankful to Registrars namely Dr. Manoj Srivastava, Dr. Tejbir Singh & Dr. Ravi Prakash for providing necessary inputs in the preparation of Annual Report. I am equally grateful for the inputs provided by all the officers of the Authority including both the Deputy Registrars, Guwahati and Ranchi, Shri D.S. Raj Ganesh and Shri Rabi Raman Pradhan, Legal Advisors, Dr. D.S. Pilania, Technical Assistant, Mrs. Shipra Mathur, Shri Shyam Narayan, Shri Sanjay Gupta, Computer Assistants and other officers of the Registry in particular. I am also thankful to other Consultants Shri T.D. Tiwari, Shri Roshan Lal, Shri B.K. Bansal, Shri Alexander Berty, Mrs. Jasbir Kaur, Mrs. Bhawna & Ms. Shikha Malhotra.

My special words of thanks goes to Shri Jatin Kumar, Office Assistant for giving his valuable support in the secretarial assistance in typing, formatting and giving a beautiful shape to the Annual Report of the Authority 2012-13 in a time bound manner.

We sincerely cherish the partnership that PPV&FR Authority has built overtime with DUS Centres/Projects at various institutes/centres of the ICAR, SAUs, CSIR & ICFRE for their best co-operation and providing timely valuable inputs for the preparation of this Annual Report.

(R.C. Agrawal)
Registrar-General

Executive Summary

India is one of the members to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO). Article 27 (3)(b) of the TRIPS states that Members may also exclude from patentability plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. India enacted the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act in 2001 (53 of 2001) by adopting *sui-generis* system. The main objective of the PPV&FR Act is to provide for the establishment of an effective system for protection of plant varieties, the rights of farmers and plant breeders and to encourage the development of new varieties of plants of economic importance. It is a unique Act, which fulfills the spirit of International Treaty on Plant Genetic Resources for Food & Agriculture on one hand and conforms to UPOV, 1978 Convention on the other. It also strikes a balance between the rights to breeders and the farmers as per the national requirement. For the purpose of this Act, the PPV&FR Authority was established on 11 November, 2005. The Authority has put in place the processes for implementation of different provisions of the Act including the registration of plant varieties, farmers' rights, National Gene Fund, National Gene Bank etc.

So far, the Government of India notified 57 crop species on the recommendations of PPV&FR Authority for plant variety registration. During the financial year 2012-13, the Authority has finalized 15 new DUS guidelines for different crops. Out of these nine DUS guidelines of cattleya, phalaenopsis, pomegranate, casuarina, eucalyptus, bitter gourd, bottle gourd, cucumber and pumpkin have been recommended by the respective Task Forces and also published in the Plant Variety Journal. These guidelines are now in the process of gazette notification in consultation with the Central Government and will be notified shortly. These crop species represent flower, fruit, forestry species and cucurbits. It is expected that the Casuarina and Eucalyptus, the two forestry species will open way forward in the registration of tree species.

During the year, 785 applications, representing 30 crops were received by the Authority for registration and for protection under the Act. The applications belonged to three categories viz., new (176), extant (243) and farmers' varieties (359) and essentially derived varieties (7). The maximum number of applications belong to farmers' varieties category (360), followed by private (297) and public (128). Out of the 176 new category applications received, 16 applications were from public sector, 159 from private sector (including 7 EDV) and one from farmer.

The applications were received for cereals, coarse cereals, pulses, commercial crops, oilseeds, vegetables, spices, flowers and fruits. Highest numbers of applications were received for cereals (429) followed by fibre crops (112), vegetables (105), oilseeds (61), sugarcane (33) and others (45).

Rice with highest number of varieties (368) received topped the list followed by cotton (111), brinjal (53), maize (48), Indian mustard (37), tomato (35), sugarcane (33), pigeon pea (12), pearl millet (11), wheat (10) and others (67).

Out of 98 applications of extant notified varieties received during the year, 67 belonged to Indian Council of Agricultural Research (ICAR), 23 to State Agricultural Universities (SAUs) and 8 from private sector. Passport data of the recommended varieties were published in the Plant Variety Journal (PVJ) for information of general public and also for inviting oppositions, if any, within 90 days of publication. Thereafter, applicants were requested to provide the prescribed fees for registration and specified quantity of seed material for medium term conservation in the National Gene Bank during the period of protection.

Four hundred fifty five (455) candidate varieties of various crops were tested in the first year at different DUS test centres during *Kharif*, 2012 and *Rabi*, 2012-13. It includes 205 new varieties, 174 VCKs, 8 EDVs and 68 farmers' varieties. In addition, 79 varieties belonging to new category were under second year of testing. Ninety five candidate varieties completed two years of DUS testing under new variety category. The Authority also supported 114 DUS centres including new projects across the country located at institutes of ICAR, Council of Scientific and Industrial Research (CSIR), Indian Council of Forestry Research and Education (ICFRE) and State Agricultural Universities (SAUs). During the period under report, an amount of ₹ 620 lakh were released to these DUS centres / projects for strengthening of laboratory and field facilities to carry out DUS testing, maintenance breeding and development

of DUS criteria/testing guidelines as per details in ***Annexure-IV & V***.

The Authority issued 254 certificates of registration **(*Annexure-IX*)** during the period of reporting. Among these 216 varieties belonged to extant category and 34 to new category, 3 farmers' variety and the remaining one to EDV category. The highest number of certificates were issued in rice (63), followed by maize (43), cotton (43), bread wheat (30), pigeon pea (16), chick pea & sorghum (14 each), sugarcane (11) and remaining 23 in others.

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

The Authority has established National Gene Bank for the conservation of seeds of the protected varieties. In addition, four Field Gene Banks have been established at Dr. Balasaheb Sawant Konkan Krishi Vidhyapeeth, Dapoli, Maharashtra; Birsa Agricultural University, Ranchi, Jharkhand; Regional Horticultural Research Station at Mashobra of Dr. Y. S. Parmar University of Horticulture & Forestry, Solan, Himachal Pradesh for asexually/vegetatively propagated crops and Central Arid Zone Research Institute (CAZRI), Jodhpur, for arid zone species **(*Annexure – VII*)**.

The Authority celebrated its Foundation Day on 12 November, 2012 in a simple ceremony followed by Project Appraisal Committee (PAC) meeting to review and finalize the fate of different project proposals received by the Authority.

The Authority has established and supported new DUS centres in ornamental and horticultural crops for validation of DUS descriptors, development of DUS guidelines and generation of databases of reference varieties. The crops covered included bougainvillea, gladiolus, canna, china aster, jasmine, tuberose, marigold, 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 has developed databases and maintains Indian Information System as per DUS guidelines (IINDUS). It also maintains database of Notified and Released Varieties of India (NORV) in collaboration with NBPGR, New Delhi and is maintaining these databases for the selection of most similar reference varieties, and also verifies the denomination and notification details. Development of Online Application submission and payment processing for registration of plant varieties is in final stage of its implementation for hosting by National Informatics Centre (NIC), Govt. of India. The Authority is also developing its own portal which shall have all the functionalities of content management system to maintain its website in dynamic manner with role based access.

Two meetings of the Authority were held during the reporting period and important decisions were taken regarding construction of Authority Bhawan, guidelines for supporting the conservation and sustainable use of Plant Genetic Resources (PGR) for *in-situ* and *ex-situ* conservation and for strengthening the capability of the Panchayats, procedure for release and accounting of DUS test fee, recommendations of the Extant Variety Recommendation Committee (EVRC), approval of the Annual Accounts of the Authority for the Year 2011-12, recommending a proposal to DAC for consideration of exemption of farmers from payment of Annual and Renewal Fee, regularization of incumbents to the posts of Joint Registrar, Deputy Registrar and Senior Technical Officers, for substantive appointments etc.

The Legal Cell of the Authority pursued the cases filed in different Courts of India. The Cell was involved in drafting of amendments of Rules and Regulations made under PPV&FR Act, 2001 and 11 notifications were published in the Gazette of India relating to various legal affairs of the Authority as per details given in the chapter-7 under Legal Cell.

The Right to Information (RTI) Cell received 31 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 frame. Similarly, the replies to five Parliament questions relating to Authority were attended to and provided in time to the Department of Agriculture & Cooperation (DAC). The comments of the Authority on draft Cabinet notes received time to time from various Ministries / Departments were also submitted to DAC.

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 for conducting training and awareness programmes across the country. The Authority participated in kisan melas, festivals, agriculture fairs held at various places including at IARI Pusa, New Delhi to disseminate the information on provisions of PPV&FR Act, 2001 among stakeholders. Farmers' varieties of rice from the state of Odisha were evaluated through grow out tests at Central Rice Research Institute (CRRI), Cuttack; Directorate of Rice Research (DRR), Hyderabad and Tamil Nadu Agricultural University (TNAU), Coimbatore. The process was initiated for screening and selection of applications for Plant Genome Savior Community Awards and recognition certificates to individual farmers for 2011-12. Proposals for Plant Genome Savior Community Awards 2012-13 were invited through advertisements published in the important newspapers of the country as well as on the website of the Authority.

The Authority has been givena piece of land by IARI/ ICAR in Pusa campus for construction of its own campus and Tribunal.

The Authority was also consulted by the DAC on various technical matters, including International issues relating to ITPGRFA, CBD, UPOV, WIPO and other international instruments/Conventions. An Inter-Ministerial Joint Working Group (JWG), constituted by DAC, led by Chairperson of the PPV&FR Authority had meetings to prepare country position on various matters related to ITPGRFA and CBD including Intergovernmental Committee for the Nagoya Protocol (ICNP-2). The JWG also functions as think tank for matters related to the Treaty and CBD on regular basis capitalizing the collective wisdom of the stakeholders. Plant Genome Savior Community Awards was celebrated on 21 May, 2012 at NASC complex, New Delhi and Chief Guests Hon'ble Dr. Charan Das Mahant, Ministers for State for Agriculture & Food Processing Industries distributed Plant Genome Savior Community Awards and Recognition Certificates for the year 2010-11 were distributed by Prof. M. S. Swaminathan, Member of Parliament (Rajya Sabha) to the communities of farmers, farmers and tribal people.

During the period of reporting, three officers of the Authority participated in training/meetings in the Netherlands. Foreign delegations from the Netherlands, Germany and Ecuador visited the office of PPV & FR Authority and had meetings with officers of the Authority in connection with bi-lateral co-operation in the field of Protection of Plant Varieties, Plant Breeders Rights (PBRs), DUS testing, capacity building, PBRs etc.

The Authority received ₹ 1602.33 lakh as grants-in-aid from DAC, during the year 2012-13 and utilized ₹ 1588.82 lakh leaving a balance of ₹ 13.51 lakh as on 31 March, 2013. The Annual Report of Authority were timely forwarded to the DAC for placing before both the houses of Parliament. The Annual Accounts of the Authority for the year 2011-12 were finalized and audited within the prescribed time schedule and placed before both the houses of the Parliament within statutory time limit.

1. General Background

Enforcement of legal protection for innovation in plant breeding by the plant breeders and farmers/ farming communities in producing suitable varieties of food, fodder, fibre, fuel and other commodities, 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 Trade Related Aspects of Intellectual Property Rights (TRIPS) of 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 economic importance. 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 SO 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.

1.2 Salient Features of the Act

The Act is based on a *sui generis* system and 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 creating 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 for the award to farming communities/farmers for their contributions in agro-biodiversity conservation.

1.3 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 and it is functioning from a rented 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 as on 31 March, 2013.

1.4 Plant Variety Registration

The PPV & FR Authority has finalized the distinctiveness, uniformity and stability (DUS) test guidelines for registration of 57 crop species covering cereals, pulses, millets, oilseeds, spices, vegetables, flowers, medicinal plants and fibre crops. The Authority has issued 254 certificates of registration for plant varieties (under new, extant notified and farmers' variety category) during the reporting year. To attract more applications, the Authority regularly organizes/supports awareness and capacity building programme (s) for the benefit of different stakeholders.

The PPV&FR Authority has also 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. The data recorded as per the DUS test guidelines is submitted by these centres to Authority for further analysis. The Authority, in consultation with the ICAR institutes and SAUs has identified potential crop species of economic importance and supports projects for the development of the DUS guidelines. The Authority has established its National Gene Bank and Field Gene Bank(s) across the country. It regularly publishes Plant Variety Journal of India and maintains the National Register of Plant Varieties at Headquarters and also at its branch offices.

1.5 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 between filing of application for registration and the final decision taken by the Authority. Similarly, researcher's rights is also granted. However, for repeated use of a registered variety as an initial source of variety for the purpose of developing 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 categories:

- New variety of such genera and species as specified under section 29(2) of the Act;
- Extant variety;
  - Notified under section 5 of the Seeds Act, 1966;
  - Variety of common knowledge (VCK);
- Farmers' variety;
  - Traditionally cultivated and evolved by the farmers in their fields;
  - Wild relative or landrace of a variety about which the farmers possess common knowledge; and
- 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 varieties of common knowledge & for 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).

The Act provides following rights to the farmers:

- **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 recognition.
- **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.

1.6 Rewards to Farmers/Farming Communities

Section 45(2) of the Act reads 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, particularly in areas identified as agro-biodiversity hot spots. To operationalize these provisions, *Plant Genome Saviour Community Award* was instituted in 2009-10. Annually, a maximum of five such awards can be conferred. The award consists of ₹ 10.00 lakh in cash, a citation and a memento. Four farming communities i.e. Shyamsunder Sister Nivedita Sangha, Burdwan, West Bengal; Pokkali Rice Farming Communities, Ernakulam & Wayanad District Development Action Council, Wayanad from Kerala and Tamil Nadu Banana Hill Banana Growers' Federation, Dindigul were the awardees of Plant Genome Saviour Community Awards for the year 2010-11. Besides, seven Recognitions were also awarded to the farmers for their contributions in the conservation and sustainable use of Plant Genetic Resources. The selection of awardees is made by a committee of experts/scientists headed by an eminent scientist.

2. Progress of Plant Varieties Registry

2.1 Publication of Crop Specific DUS Test Guideline for Crop Species

The Authority has published the guidelines in Plant Variety Journal (PVJ) for conducting DUS Test for following nine crop species.

Table 1: Crop species/Published during 2012-13

S. No.	English Name	Hindi/Local Name	Botanical Name	Issue
1	Cattleya	Orchid	*Cattleya* Lindl.	November, 2012
2	Phalaenopsis	Orchid	*Phalaenopsis* Blume	November, 2012
3	Pomegranate	Anar	*Punica granatum* L.	December, 2012
4	Casuarina	Jungli jhau	*Casuarina* L.	February, 2013
5	Eucalyptus	Safeda	*Eucalyptus camaldulensis* Dehnh., *Eucalyptus tereticornis* Sm.	February, 2013
6	Bitter Gourd	Karela	*Momordica charantia* L.	March, 2013
7	Bottle Gourd	Lauki	*Lagenaria siceraria* (Mol.) Standl.	March, 2013
8	Cucumber	Kheera	*Cucumis sativus* L.	March, 2013
9	Pumpkin	Sitaphal	*Cucrbita moschata* Duch. ex Poir.	March, 2013

These crop species represent flowers, fruit, forestry species and cucurbits. The foreign breeders will be encouraged to file application for registration of their varieties of flowers particularly orchids and other crop species which may increase the availability of new varieties and technologies for the benefit of Indian farmers and plant breeders. It is expected that the casuarina and eucalyptus, the two forestry species will provide an opportunity in the registration of tree species for the paper industry.

2.2 Applications received

The Authority received 785 applications, representing 30 crops for plant variety protection under the Act (Fig 1 and 2). The applications belonged to new (176), extant (243) farmers' (359) and Essentially Derived Variety (EDV) (07) category.

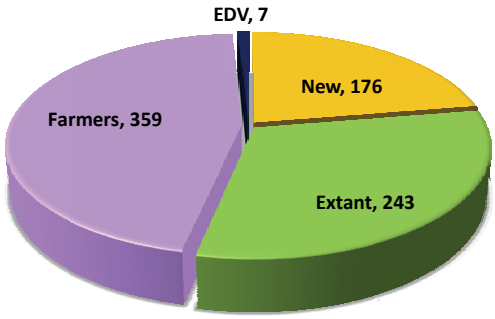


Fig. 1. Category wise applications received

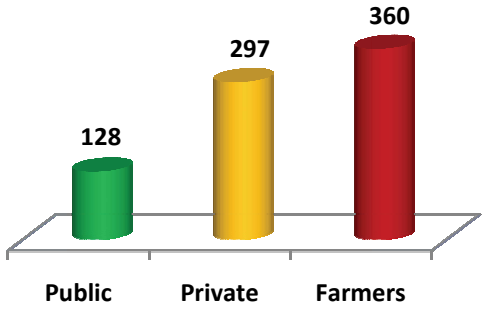


Fig. 2. Sector wise applications received

Applications received during the reporting year for registration of plant varieties belonged to 13 different families as under:

Table 2. List of crops with their families received for registration

S. No.	Plant Family	Crops
1	Poaceae	Bread wheat, Rice, Pearl millet, Maize, Sorghum and Sugarcane
2	Fabaceae	Chickpea, Pigeon pea, Field pea, Green gram, Black gram, Kidney bean, Soybean and Groundnut
3	Malvaceae	Cotton and Okra
4	Tiliaceae	Jute
5	Solanaceae	Brinjal, Tomato and Potato
6	Brassicaceae	Indian mustard, Rapeseed
7	Zingiberaceae	Small cardamom
8	Asteraceae	Sunflower, Safflower
9	Euphorbiaceae	Castor
10	Anacardiaceae	Mango
11	Arecaceae	Coconut
12	Amaryllidaceae	Onion
13	Rosaceae	Rose

The applications were received for cereals, coarse cereals, pulses, commercial crops, oilseeds, vegetables, spices, flowers and fruits. Highest numbers of applications were received for cereals (429) followed by fibre crops (112), vegetables (105), oilseeds (61), sugarcane (33) and others (45).

Table 3. Crop wise details of applications received for registration

Crop	*Public Sector*	*Private Sector*	*Farmers' Variety*	*Total*
Black Gram	-	-	3	3
Brinjal	12	41	-	53
Castor	1	1	-	2
Chickpea	2	-	-	2
Coconut	-	-	1	1
Fieldpea	7	1	-	8
Greengram	-	-	2	2
Groundnut	1	-	-	1
Indian Mustard	28	9	-	37
Jute	1	-	-	1
Kidney Bean	1	-	1	2
Maize	2	41	5	48
Mango	-	-	1	1
Okra/Lady's Finger	-	7	-	7
Onion	-	-	1	1
Pearl Millet	-	11	-	11
Pigeon Pea	-	2	10	12
Potato	-	9	-	9
Rapeseed	8	1	-	9
Rice	5	33	330	368
Rose	-	2	-	2
Safflower	3	-	-	3
Small Cardamom	-	-	1	1
Sorghum	3	-	-	3
Soybean	4	-	-	4
Sugarcane	33	-	-	33
Sunflower	4	1	-	5
Tetraploid Cotton	-	111	-	111
Tomato	10	25	0	35
Bread Wheat	3	2	5	10
Total	128	297	360	785

Rice (368) topped the list with highest number of applications received followed by tetraploid cotton (111), brinjal (53), maize (48), Indian mustard (37), tomato (35), sugarcane (33), pigeonpea (12), pearl millet (11), wheat (10) and other crops (67).

2.3 Registration of New/Essentially Derived Varieties

Out of 176 applications received, 16 applications were from public sector, 159 from private sector and one from farmer. Seven applications filed under EDV are from private sector. The applications filed under New/EDV varieties were examined by the Plant Varieties Registry and clarification (s) was sought wherever necessary. It was observed that generally the clarification(s) pertain to the proof of sale of the varieties, proof of legal acquirement of parental material, details in technical questionnaire (grouping/distinct/other characters), pedigree/genealogy, breeding techniques, comparison with reference varieties etc. The Authority has been regularly interacting with the stakeholders including seed industry utilizing various fora to address their grievances and problems, if any to streamline and expedite the registration process.

So far, 62 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 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 for new category and one crop season for VCK and farmers' variety for one season grow out test (GOT).

2.4 Registration of Extant Varieties

The extant varieties include varieties notified under section 5 of the Seeds Act, 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*, dated 3 September, 2009. It says, (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, 602 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 Expert Committee on Essentially Derived Variety (EDV)

The Authority has already constituted an Experts Committee for registration of EDV under the Chairmanship of Dr. B. S. Dhillon, Vice Chancellor, PAU, Ludhiana. During the reporting year the committee has recommended registration of first Essentially Derived Variety of cotton having denomination VICH 5 BG II (REG/2010/210) of tetraploid cotton filed by M/s Vikram Seeds Limited, Ahmedabad and was issued Certificate of Registration No. 212 of 2012 dated 21 November, 2012.

2.4.2 Extant Variety Recommendation Committee (EVRC)

The Authority has constituted a seven member EVRC to examine and recommend for registration of suitable varieties, committee are as follows:

Chairman

Prof. D.P. Ray, Vice-Chancellor, Orissa University of Agricultural & Technology (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, New Delhi

Shri 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 2012-13 and recommended 98 applications for the purpose of registration under extant variety category notified under the Seeds Act. Out of 98 applications, 67 belonged to ICAR, 23 to State Agricultural Universities (SAUs), 8 to the private sector. The crop wise position of varieties recommended is given as under:

Table 4. Crop wise applications

S. No.	Crop	Numbers	S. No	Crop	Numbers
1	Sugarcane	37	10	Pigeon pea	2
2	Rice	17	11	Soybean	1
3	Wheat	9	12	Safflower	1
4	Groundnut	9	13	Maize	1
5	Sorghum	6	14	Chickpea	1
6	Sunflower	4	15	Brinjal	1
7	Pearl Millet	3	16	Indian Mustard	1
8	Cauliflower	2	17	Gobhi Sarson	1
9	Tetraploid Cotton	2			

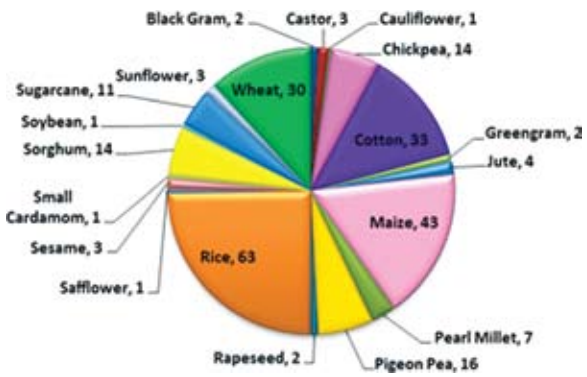
Passport data of the recommended varieties were published in the *Plant Variety Journal of India* (PVJ) for information of stakeholders and also for inviting objections, if any, within 90 days of publication. Thereafter, applicants were directed to submit specified quantity of seed material for medium 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 a 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.

2.4.3 Progress of Registration of Extant Varieties

During 2012-13, certificates of registration were issued for 254 varieties of different crops (***Annexure IX***). The highest number of certificates were issued in rice (63), followed by maize (43), cotton (33), bread wheat (30), pigeon pea (16), chick pea (14), sorghum (14), sugarcane (11), jute (4), sunflower (3), sesame (3), castor (3), black gram (2), green gram (2), rapeseed (2), safflower (1), cauliflower (1), small cardamom (1) and soybean (1). Out of 254 certificates issued, 216 belonged to extant notified varieties, 34 to new category, 3 to farmers' and the remaining one to EDV 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 Special Test

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 and molecular techniques 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. During the reporting year, the Authority considered the proposals for special test and funds were released to five institutes for the purpose as referral laboratories as indicated in ***Annexure-VI***.

2.7 DUS Test Centres/Projects

2.7.1 Directorate of Rice Research (DRR), Hyderabad

One hundred and twelve rice varieties of public sector have undergone the maintenance breeding during the reporting year. Twenty six (26) candidate varieties of rice belonging to 3rd set (2011) of DUS tests were evaluated for 2nd year of testing along with 21 new candidate varieties of 4th set of DUS tests (2012). Also nine VCKs (Extant varieties) and 623 farmer's varieties were also included in the DUS testing and grow out test respectively. These DUS trials were monitored by an expert committee duly constituted by PPV&FR Authority.

DUS Monitoring at DRR farm at ICRISAT campus was held on 5-6 November, 2012. Dr. S.S. Malik, Chairman of the Monitoring team and Dr. L V Subbarao, PI, (DRR), Dr. Tejbir Singh,Registrar from PPV&FRA and several representatives of private seed companies attended the monitoring. The field data for all the candidate varieties and reference varieties and the claimed characters and observed characters were compiled.

2.7.2 Central Rice Research Institute (CRRI), ICAR, Cuttack

The Centre is responsible for DUS testing in rice. During the reporting period, a set of 32 rice reference varieties of CRRI were under maintenance breeding. Another set of 22 new candidate varieties of rice were tested against 50 reference varieties for DUS testing for the second year. The observations were recorded as per the

DUS test guidelines and supplied to the coordinating centre as well as the PPV&FR Authority. Another set of 17 test entries (new variety) along with 31 reference varieties were taken up for the first year of DUS testing. The observations were recorded as per the guidelines and supplied to the coordinating centre (DRR). Another set of four variety(s) of common knowledge were tested with 11 reference varieties and for testing the uniformity of panicle progenies of a set of nine new test entries were evaluated in the field. In addition to above, a set of 607 farmers' varieties were subjected to grow-out test (GOT). Their characterization as per the DUS test guidelines has been completed. Out of these entries, set of 535 farmers' varieties were subjected to panicle progeny row testing for determination of their uniformity. The panicle progenies were having more uniformity as compared to the bulk progenies. Another set of 37 farmers' varieties were subjected to grow out test.

2.7.3 Tamil Nadu Agricultural University (TNAU), Coimbatore

The Centre undertakes DUS testing for rice and sunflower as Co-nodal centre. During the reporting year the progress of DUS testing is as under:

Rice

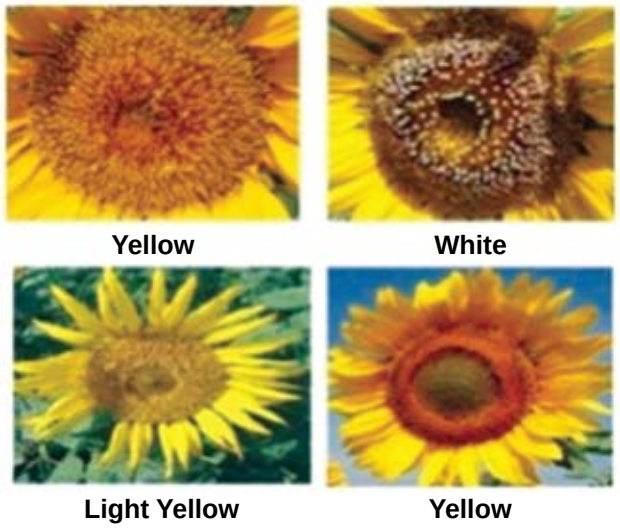
In rice 14 reference varieties belonging to ICAR and SAUs were under maintenance breeding/characterization. The progress of DUS testing for rice is given in the table given below;

Table 5. Progress under DUS testing during 2012-13

Crops	New		VCK	FV	EDV IV	Total
	1st year	2nd year	1st year			
Rice	1	-	5	6	3 (panicles for uniformity test)	15
Sunflower	14	22	3	-	16 (reference varieties)	55

Monitoring of DUS rice trials was undertaken under the Chairmanship of Dr. S.R. Dhua, Principal Scientist, CRRI, Cuttack on 6 December, 2012. The crop was in the flowering stage and most of the candidate varieties of DUS trials expressed the claimed characteristics at the time of monitoring and observations were recorded accordingly.

Sunflower



Sunflower hybrids and parental lines (A, B and R) were received from PPV&FRA, New Delhi and reference varieties received from Directorate of Oilseeds Research, Hyderabad were raised in the field for DUS testing during *Rabi*, 2012-13. The details of the sunflower hybrids and parental lines are given below.

Table 6. Number of sunflower entries for DUS testing

S. No.	Entries	No. of entries	Date of sowing
1.	A, B and other inbred lines Candidate entries i. 2nd year test ii. 1st year test Reference entries Total	 15 11 6 32	5 December, 2012
2.	R lines Candidate entries i. 2nd year test ii. 1st year test Reference entries Total	 5 5 5 15	10 December, 2012
3.	Hybrids Candidate entries i. 2nd year test ii. 1st year test Reference entries Total	 2 1 5 8	14 December, 2012
	Grand Total	55	

2.7.4 Directorate of Wheat Research (DWR), Karnal

Following reference varieties of *Triticum aestivum*, *T.durum*,*T.dicoccum*, *Triticale* and example varieties of bread wheat were maintained at nodal centre as per the table.

Table 7. Progress of wheat maintenance breeding/ characterization

Name of the species	*No. of varieties*
Triticum aestivum	293
Triticum durum	45
Triticum dicoccum	05
Triticale species	05

2.7.5 Indian Agricultural Research Institute (IARI), Regional Station, DWR, Indore

Fourteen candidate wheat varieties comprising seven new and seven farmer's varieties were tested for DUS characteristics along with reference varieties. The data collected as per DUS guidelines and the field trials were monitored under the Chairmanship of Dr. H.N. Pandey, former Head, IARI Regional Station (Indore) on 16 March, 2013. The monitoring team was satisfied and the varieties expressed the claimed characters in the field. Farmers' varieties JP 151, JP 197, JP 209, JP 8661 and Kudrat 7 were found non uniform in DUS characters during monitoring which is also subsequently confirmed by the Nodal centre at DWR as noted. One hundred thirty reference and example varieties of *T.aestivum*, *T.durum* and *T.dicoccum* were also being maintained at co-nodal centre.

Three trials comprising of 35 varieties i.e., six candidate varieties KRL 210, KRL 213, DBW 39, HPW 249, NW 72 and NW 404 and 30 reference varieties submitted to PPV&FR Authority were sown for the second year. All these materials were characterized for 36 morphological characters, data compilation was done. The data for DUS trials and reference varieties was compiled and sent to Directorate of Wheat Research, Karnal and Registrar, PPV & FRA, New Delhi for preparation of final report of DUS testing in wheat.

Table 8. No of varieties undergone DUS testing in 2012-13

Crops	*New*		*FV*	*Total*
	1st yr	*2nd yr*		
T. aestivum	- W07NV037	KRL 210 KRL 213 DBW 39 HPW 249 Vinay (NW 404) Ajay (NW 72)	JP 209 JP 197 JP 151 JP 8661 Astha Gold Kudrat 7 Kudrat 11	14
Total	1	6	7	14

2.7.6 Punjab Agricultural University (PAU), Ludhiana

Punjab Agricultural University, Ludhiana is a designated DUS test centre for cotton and wheat from 2011. The Centre is testing different candidate varieties of cotton and wheat along with the respective reference varieties for their registration and protection. Forty six varieties of cotton including 27 candidate varieties and 19 reference varieties were received for testing during *Kharif*, 2012.The crop was raised using DUS recommended practices as per DUS test guidelines. Data was recorded on all 37 traits.

The monitoring team under the Chairmanship of Dr. M.S. Kairon, former Director, CICR, Nagpur visited the field trial of DUS on cotton on 8 August, 2012 in the presence of Dr. Geeta Bassi, Co-Nodal Officer of PAU,

Ludhiana Centre. Dr. K. Rathinavel, Nodal Officer DUS project, CICR, Regional State Coimbatore and Dr. Manoj Srivastava, Registrar, PPV & FRA, New Delhi. The team observed that the layout and maintenance of the trial was very good with overall satisfactory performance and proper records of observations.

Eleven varieties of wheat including three candidate varieties *i.e.* HD 2987 (Pusa Bahar), HD 2985 (Pusa Basant) and HD 2967 along with their reference varieties *i.e.* K 816, HD 1941, HD 1949; WH 542, WH 711, HD 2385, HP 1761 were raised for 2nd year of testing during *Rabi*, 2012-13. Data was recorded on all traits and monitoring of DUS trials was conducted under the Chairmanship of Dr. H.N. Pandey, Dr. Sushila Kundu, DWR, Karnal, Dr. Geeta Bassi, PAU, Ludiana and Dr. Ravi Prakash, Registrar who represented PPV&FR Authority.

2.7.7 Directorate of Maize Research (DMR), IARI, Pusa, New Delhi

The Centre has maintained and characterized 61 reference varieties of maize which belongs to SAUs and the centre itself**.** During *Kharif*, 2012 two trials viz., hybrids and inbreds trials were conducted. The hybrid trial consisted of 35 candidate hybrids, six Open Pollinated Varieties (OPVs) with 15 references. The inbred comprised of 17 candidate inbreds with nine inbred references. Out of 82 entries, 58 candidate entries and 24 references were evaluated. Of these, four hybrids and two OPVs were evaluated for second year of DUS testing under new category. Twenty five hybrids, three OPVs and 15 inbreds were evaluated for first year of DUS testing under new category. Six hybrids and two inbreds were evaluated for one year of DUS testing under VCK category. One farmer's variety namely Mohini evaluated for one year of DUS testing under FV category. Data was recorded on 31 traits as per DUS guidelines. Under new category, one public-bred hybrid namely, HM 11 and two Open Pollinated Varieties (OPVs) viz., Bajaura Makka 1 and Vivek Sankul Makka 35 completed second year of DUS testing in *Kharif*, 2012 whereas, five hybrids viz., DHM 117, HQPM-4, Vivek Maize Hybrid 39, Vivek Maize Hybrid 43 and PMH 4 and three OPVs namely, Vivek Sankul Makka 31, Jawahar Pop Corn 11 and Vivek Sankul Makka 37 have undergone first year of DUS testing at two locations.

Under new category, three proprietary hybrids (NMH-713, KMH-3426 and NMH-731) completed second year of DUS testing while, twenty hybrids and fifteen inbreds, have undergone first year of DUS testing at two locations. Two inbreds namely M 15-1 and M 101 and six hybrids (BISCO X 5129, KMH-225, M 34, M 104, 31Y45 and BIO-22027 H) completed one year of DUS testing under Variety of Common Knowledge (VCK) category. The progress of DUS testing is given in table as under:

Table 9. Progress under DUS testing in 2012-13

Crops	*New*		*VCK*	*FV*	*Reference*	*Total*
	1st yr	*2nd yr*				
Hybrid	25 (5 Public + 20 Proprietary)	4 (1 Public + 3 Proprietary)	6 (Proprietary)	-	15	50
OPVs	3 (Public)	2 (Public)	-	1		6
Inbred	15 (Proprietary)	-	2 (Proprietary)	-	9	26
Total	43	6	8	1	24	82

The monitoring of DUS trials was conducted on 7 September, 2012 under the Chairmanship of Dr. Sain Dass, former Director, DMR, New Delhi. Crop growth was excellent and traits were recorded as per DUS guidelines. In hybrids, most of the claimed traits matched their phenotypic expression under field conditions; however this was not the case with open pollinated varieties. During the year 2012, two applications of hybrids namely BPCH-6 and HM-12 were filed for protection under PPV&FR Act, 2001.

2.7.8 Directorate of Sorghum Research (DSR), ICAR, Hyderabad

DSR is responsible for DUS testing in sorghum. During the period under report, a total of 43 candidate varieties were tested for DUS traits in the *Kharif* season and 12 candidate varieties were tested in the R*abi*, 2012-13 along with the corresponding reference varieties. A total of 104 reference

and example varieties (varieties/parental lines/hybrids) were maintained during *Rabi*, 2012-13 season. The progress of DUS testing during 2012-13 is as under:-

Table 10. Progress of DUS testing

Crops	New		VCK	FV	Total
	1st yr	2nd yr			
Sorghum bicolour (*Kharif*)	7	15	20	1	43
Sorghum bicolour (*Rabi*)	5	5	2	-	12
Total	12	20	22	1	55

The monitoring of sorghum DUS trials was conducted under the Chairmanship of Dr. D.M. Hegde, former Director, Directorate of Oilseeds, Hyderabad on 5 September, 2012 for *Kharif* season and 22 January, 2013 for *Rabi*, 2012-13. The overall conduct of the DUS testing was satisfactory. It was suggested that the candidate varieties which have completed 2 years DUS testing and certificate has been granted by the Authority, may be used as reference needed in future trials. Optimum plant population has to be maintained in all the entries and plots. Sufficient space from the borders may be left for avoiding shade effect, water logging, etc. Appropriate reference varieties may be selected based on the grouping traits/field expression of candidate variety and data may be included in the proforma, even if the applicant has not given that as a reference variety/identified from IINDUS data base search.

The overall conduct of the DUS testing was satisfactory and as per the guidelines of the PPV&FR Authority. It was suggested during monitoring that only the relevant varieties of the relevant season may be used as reference varieties. Though reference varieties of *Rabi* adaptation are limited, comparison of the *Rabi* candidate varieties with *kharif* adapted reference varieties needed to be avoided. Optimum plant population has to be maintained in all the entries and plots.

Maintenance breeding of reference varieties has to be taken up at MPKV, Rahuri also, at least for the most commonly used reference varieties so that there is no need for DSR to send the reference variety seeds every time. Possibility of reduction in number of replications, number of rows per plot or total plants per entry for observation has to be worked out and suggested to PPV&FR Authority. Also, suitability of plant geometry/spacing as followed in AICSIP trials may be suggested. Candidate varieties which appear similar in many DUS traits may be reported and comparative study of essential/grouping characters of both may be provided in the report. The grain characteristics in case of male sterile lines, if claimed by the applicant, may be recorded in the seed supplied by the applicant through PPV&FRA for sowing or in the corresponding maintainer line supplied.

2.7.9 Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri

The Center is responsible for DUS testing in sorghum, pearl millet and chick pea. Eighty eight varieties of sorghum and pearl millet were tested in the *Kharif* and *Rabi* DUS trials conducted during 2012-13 at Seed Technology Research Unit, Mahatma Phule Krishi Vidyapeeth, Rahuri. Trials were conducted as per guidelines. The population of each entry in the trial in all replications was properly maintained. The quality of the trial was very good. All the traits suggested by applicant(s) and the detailed observations were recorded in the prescribed form. *Rabi* trials were planted positively by mid-September to represent *Rabi* sorghum correctly and seeds shall be made available to the centre latest by 31 August by the PPV&FRA.

2.7.10 All India Coordinated Pearl Millet Improvement Project (AICPMIP), Mandor, Jodhpur

About 64 varieties of pearl millet (*Pennisetum glaucum (L.)* procured from various SAUs, ICAR Centers and others were under maintenance breeding and characterization during *Kharif*, 2012. Thirty seven entries

including nineteen new varieties and eighteen VCKs of private sector were under the 1st year DUS testing. The monitoring of DUS testing was conducted by a team under the Chairmanship of Dr. Sain Dass on 1 October, 2012 and the brief technical progress of monitoring is as under:-

- The DUS testing was undertaken as per approved guidelines of PPV and FRA during *Kharif*, 2012. Two candidate varieties for second year and thirty five candidate varieties for first year along with seventeen reference/example varieties were tested at AICPMIP Mandor, Jodhpur and MPKV, Rahuri.
- The monitoring team led by Dr. Sain Dass visited the DUS experiments at AICPMIP, Mandor on 6 September, 2012 and at Rahuri on 1 October, 2012.
- Sixty four genotypes including B lines (24), R lines (16) and hybrids (24) were studied for DUS characteristics and maintained (B and R lines only) at AICPMIP, Jodhpur.

In addition to 26 hybrids and varieties already registered during previous years, four other hybrids and varieties have been registered with PPV & FRA, New Delhi.

2.7.11 Central Research Institute of Jute & Allied Fibres (CRIJAF), Barrackpore

A new tossa jute variety CO-58 was tested for first growing cycle during 2012-13 to observe distinctiveness, uniformity and stability at CRIJAF, Barrackpore and CSRSJAF, Budbud. All the characters as specified in the crop specific guidelines were observed critically for distinctiveness, uniformity and stability. Candidate variety CO-58 was found distinct for leaf shape. Monitoring for jute DUS trials was conducted on 16-17 August, 2012 under the Chairmanship of Dr. M. Hossain, former Prof., Department of Plant Breeding, BCKV, Kalyani, West Bengal. Confirmation of uniformity and distinctiveness of CO-58 was revealed by monitoring team visited during 16-17 August, 2012. Varieties of olitorius jute namely JRO 632, JRO 3690, JRO 66, JRO 524, JRO 7835, JRO 878, JRO 8432, S-19, JRO 128, JRO 620, Chinsurah Green, Sudan Green, Tanganyika-1, JRO 36E, JRO 2345, KOM 62, TJ 40 and Bidhan Rupali and varieties of capsularis jute namely JRC 212, JRC 80, JRC 698, JRC 7447, JRC 4444, Padma, JRC 321, Monalisa, UPC 94, Bidhan Pat 1, Bidhan Pat 2, Bidhan Pat 3, KC 1, KTC 1 and D 154 were maintained. Registration certificates of 10 varieties, 7 (2011) and 3 (2012) (six varieties of white jute - JRC 80, JRC 698, Monalisa, Bidhan Pat 1, Bidhan Pat 2, Bidhan Pat 3 and four of tossa jute - S 19, JRO 8432, JRO 128, JRO 66) as extant variety have been received from PPV&FR Authority. One new candidate variety, CO-58 (Sourav) have been tested along with five reference varieties viz. viz. JRO 632, JRO 128, JRO 524, JRO 7835 and JRO 8432 during this period.

2.7.12 Central Institute for Cotton Research (CICR), Nagpur

The Centre has maintained and characterized 25 reference varieties of cotton under *Gossypium arboretum* and 3 reference varieties of *Gossypium herbaceum* belonging to ICAR / SAUs. During the year, 39 candidate varieties along with 30 reference varieties were grown for DUS characterization. All characters except fibre traits have been recorded and entered in the data sheet. The lint samples have been sent for quality testing. Twenty eight desi cotton (*G. arboreum* as well as *G. herbaceum*) varieties have been maintained for reference seeds. Gossypol gland density has also been documented for above varieties and found stable when tested in the selfed progeny of reference varieties. Monitoring team observed that weeding and additional plant protection sprays shall be done at the trial plots.

Table 11. Progress of varieties under DUS testing during 2012-13

Crops	*New*		*VCK*	*Total*
	1st yr	*2nd yr*		
Gossypium *spp.*	14	3	22	39

Monitoring of DUS cotton trials was undertaken on 28 September, 2012 under the Chairmanship of Dr. M.S. Kairon, former Director, CICR, Nagpur. Stigma exertion was found to vary with environment and within single plant both exerted as well as embedded stigma was observed.

2.7.13 Central Institute for Cotton Research (CICR), Regional Station, Coimbatore

Maintenance of reference collection assumes to be paramount for the successful conduct of DUS testing. Varieties and parental lines of *G. hirsutum* (145), *G.barbadense* (6), *G.arboreum* (28), and *G.herbaceum* (8) were sown for seed multiplication and purification through removal of off types. Harvested bolls were ginned and seeds were stored for use as a reference variety for trials to be conducted in the ensuing seasons.

During monitoring conducted on 21-22 December, 2012 under the Chairmanship of Dr. M.S. Kairon the cotton DUS layout and maintenance of the trial, recording of observation was found satisfactory and as per the DUS test guidelines. In tetraploid cotton 54 candidates and 35 references varieties were grown, apart from 10 EDVs grown in a separate trial along with their initial variety for comparison. One variety JK Varun Bt, in EDV trial, did not germinate and no observation could be recorded. The Crop growth was moderate and expression of morphological characters was good in most of the candidate varieties. The incidence of sucking pest was observed, however, plant protection measures were used while conducting trials. The fields were weed free and the plants were capable of expressing all the morphological characters. The data were recorded as per the DUS test guidelines and data sheets were maintained.

Table 12. Progress of DUS testing in 2012-13

Crops	New		VCK	EDV IV		Total
	1st yr	2nd yr		EDV	IV	
Gossypium hirsutum	27	3	25	10	10	75
Gossypium arboreum			1			1
Total	27	3	26	10	10	76

The trials were conducted as per the test guidelines of tetraploid and diploid cottons, respectively. From seedling stage onwards, complete expression of morphological characteristics of seedling (Hypocotyl pigmentation), leaf colour, hairiness, appearance, gossypol glands, nectaries, petiole pigmentation, shape, plant stem hairiness, stem pigmentation, height, growth habit, bract type, time of flowering, petal colour, petal spot, stigma, anther filament colouration, pollen colour, male sterility, boll bearing habit, colour, shape, surface, prominence of tip, opening, weight of seed cotton, seed fuzz, fuzz color, index ginning % and fibre color, length, strength, fineness, uniformity, maturity were observed through measurement as well as visual assessment in randomly selected 10 plants. The characters were compared with those of reference varieties for establishment of distinctiveness, uniformity and stability of candidate genotypes. Another trial with ten essentially derived varieties in comparison with ten initial varieties (IV) was conducted and all traits were recorded for establishment of DUS.

The filing of application for registration of extant and new cotton varieties was initiated during 2008-09 and since then 87 applications were filed with requisite fees and seeds were deposited with national gene bank. During 2011-12, Plant Variety registration certificate for 21 cotton extant varieties have been received followed by eight during 2012-13.

The database of varieties released by CVRC through central or states, available in common knowledge, farmer's varieties, etc., was documented and updated. The database has information about the names of variety(ies), species, notification number, year of notification, institution responsible for release, state of release, pedigree, status of notification, average yield (q/ha), ginning percent, fibre length (mm), bundle strength, mic value, spinning potential (counts), area of adaptation, ecosystem for which the variety was recommended. In this database *G.hirsutum* (160), *G.barbadense* (3), *G.arboreum* (60), *G.herbaceum* (15) varieties; intra hirsutum (50), interspecific (19), intra arboreum (9), and herbaceum (4) and arboreum hybrids were documented along with 91 varieties of common knowledge.

The overall performance and the conduct of DUS trials on cotton was satisfactory in all the locations. However, at CICR, Nagpur the team remarked for additional plant protection measures and weeding of DUS plots.

2.7.14 Chaudhary Charan Singh Haryana Agricultural University (CCS HAU), Hisar

The Centre conducted DUS testing trial on cotton. Forty-five varieties (23 candidate varieties with 22 reference varieties) of both tetraploid and diploid cotton were characterized for different characters. The monitoring team consisting of Dr. K. Rathinavel, Nodal Officer (Cotton), CICR, Coimbatore and Dr. S.S. Verma, Co-Nodal Officer, HAU, Hisar under the Chairmanship of Dr. M.S. Kairon inspected the DUS trials on 7 August, 2012. Representatives of private seed companies and Head of the Department, Prof. R.K. Kayshap were also present. The

committee observed that the maintenance and layout of the trials was excellent and conducted as per the national test guidelines.

2.7.15 Indian Institute of Sugarcane Research (IISR), Lucknow

The Centre has maintained and characterized 104 reference collections eg. CoPant 12221, CoPant 12222, CoPant 12223, CoPant 12224, CoPant 12225, CoPant 12226, CoPant 03220, CoSe 03234, CoSe 05451, CoSe 01434, CoSe 08457, CoSe 01421,Co 0124, Co 0232, Co 0233, CoPk 05191, CoPant 05224, Co 05011, CoS 07250, UP 05125, Co 98014 and BO 153 during the reporting year. Three new varieties of sugarcane viz. Co 0118, Co 0238, Co 0239 were under DUS testing at SBI, Karnal and also at this centre. Monitoring was conducted at SBI, Regional Centre, Karnal on 7 February, 2013 and at Lucknow on 11 February, 2013. The crop at IISR, Lucknow was timely planted and well managed as per DUS test guidelines. Most of the claimed DUS characters were expressed at the time of monitoring and the breeders of the candidate varieties were present. The candidate variety Karan-4 (CO 0238) was found to be distinct from other varieties. But, the remaining two candidate varieties i.e. Karan-2 (CO 0118) and Karan-6 (CO 0239) were exactly identical in all the morphological characters but distinct from reference varieties. It was recommended that these two candidate varieties may be closely observed during the second year of DUS testing.

Out of 36 sugarcane varieties submitted to PPV&FR Authority for registration under the category of extant notified, registration certificates have been issued in favour of 11 varieties.

2.7.16 Sugarcane Breeding Institute (SBI), Coimbatore

SBI, Coimbatore has maintained 181 reference varieties of sugarcane which were planted on 10 February, 2012. The DUS characteristics of 30 reference varieties which were not recorded earlier, were recorded during this period. No tropical sugarcane varieties were entered for DUS testing. For maintenance purpose, 182 reference varieties were planted on 12 February, 2013 and the establishment of the varieties was good.

2.7.17 Sugarcane Breeding Institute Research Centre (SBIRC), Agali, Palakkad, Kerala

A collection of 176 reference and example varieties of tropical sugarcane were maintained in the field after clonal replanting. These reference varieties originated from different sugarcane research centers in Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Maharashtra, Madhya Pradesh and Gujarat. The stability of the DUS characters in reference varieties at different growth stages was studied. Some of the DUS characters which were observed at 10^{th} or 12^{th} months after planting were not stable or difficult to observe due to flowering at 8^{th} or 9^{th} months, when planting was done in February, the normal planting time. The bud characters such as size of bud, bud tip in relation to growth ring, bud cushion, prominence of growth ring were found to be not stable or uniform at 300 days in many varieties. All the reference varieties were raised in polybags after heat treatment of single budded sets and were transplanted in the field in the first week of February, 2013.

2.7.18 Directorate of Onion and Garlic Research (DOGR), Rajgurunagar, Pune

DOGR is responsible for DUS testing of onion and garlic. It is maintaining 49 varieties of onion and 21 varieties of garlic under maintenance breeding and characterization as given in the table on next page:

Table 13. Progress of maintenance of reference varieties

Name of the species	*No. of varieties*	*Source*
Common onion (*Allium cepa* L.)	19	ICAR & Own
	7	ICAR & Own
	23	SAU's/others
Multiplier onion (*Allium cepa* L.)	5	SAU's
Garlic (*Allium sativum* L.)	4	ICAR & Own
	2	ICAR & Own
	15	SAU's/others

Out of these varieties, long day onion and garlic varieties are being maintained at CITH, Srinagar; multiplier type onion varieties are being maintained at TNAU, Coimbatore and rest of the varieties are being maintained at DOGR, Pune and IARI, New Delhi. The onion varieties are being maintained as per the mandate during *Kharif* and *Rabi* season whereas garlic varieties were maintained during *Rabi* season.

During the reporting year, DUS testing was initiated in one farmer's variety i.e. Balwan Pyaz for its registration. Eight *Kharif* onion varieties *viz.*, Agrifound Dark Red, Arka Kalyan, B-780, Bhima Raj, Bhima Red, Bhima Shubra, Bhima Super and N-53 were sown on 15 June, 2012 and transplanted on 28 July, 2012 in 3 replications on raised beds. All the observations were recorded as per DUS test guidelines.

During the reporting year, thirty-five *Rabi* onion varieties *viz.*, Agrifound Rose, Agrifound White, Agrifound Light Red, Arka Bindu, Arka Niketan, Arka Pitamber, Arka Pragati, Bhima Kiran, Bhima Raj, Bhima Red, Bhima Shakti, Bhima Shweta, Early Grano, GWO-1, Hisar-2, Kalyanpur Red Round, N-2-4-1, NHRDF Red (L-28), NHRDF Red-2, Palam Lohit, PKV White, Phule Safed, Phule Samarth, Phule Suwarna, Phursungi Local, Pilipatti Junagadh, Punjab Naroya, Pusa Madhavi, Pusa Red, Pusa White Flat, Pusa White Round, Telagi Local, Udaipur-102, Sukhsagar and VL Piaz-3 were sown on 7 November, 2012 and transplanted on 6 January, 2013 in 3 replications. Crop was harvested after recording all the necessary observations. In case of garlic, sixteen varieties *viz.*, Bhima Omkar, Bhima Purple, G-1, G-41, G-50, G-282, G-323, G-386, GG-2, GG-3, GG-4, Godawari, Ooty Local, Phule Baswant, Rani Bennuar Local and Sikkim Local were planted on 23 November, 2012 in 3 replications.

2.7.19 Directorate of Soybean Research (DSR) Indore

About 100 varieties of soybean procured from ICAR and SAUs and also released by DSR were under maintenance breeding/characterization during *Kharif*, 2012. Only two varieties of soybean (one new and the other VCK from private sector) were under the first year of DUS testing at DSR and at UAS, Dharwad during *Kharif*, 2012. Monitoring of candidate varieties (at flowering stage); NSO 15 and NSO 84 at DSR, Indore was carried out by the monitoring team comprising of Chairman, Dr. O.P. Joshi, Emeritus Scientist, DSR Indore; Shri D.S. Mishra, Joint Registrar from PPV&FR Authority, New Delhi and Dr. M.K. Kuchlan, Nodal Officer, DUS project, DSR, Indore on 22 August 2012. The trials were laid as per DUS test guidelines and the varieties expressed the claimed characters in the field stage.

Monitoring of DUS testing of candidate varieties of soybean "NSO 15" and "NSO 84" was conducted at UAS, Dharwad by the monitoring team comprising of Chairman, Dr. O.P. Joshi; Dr. Tejbir Singh, Registrar, PPV & FRA, New Delhi; Dr. M.K. Kuchlan, Nodal Officer, DUS Project on Soybean, DSR Indore and Dr. N.K. Biradar Patil, Co-Nodal Officer, DUS Project UAS, Dharwad on 11 September, 2012.

2.7.20 Directorate of Groundnut Research (DGR), Junagadh

Thirty groundnut reference varieties were multiplied to obtain fresh stocks of seeds. These varieties were separately grown in three rows for the expression of traits concerned, to avoid overlapping of branches and for

proper pod setting. The pods were harvested, cleaned, and packed separately and conserved in the medium term cold storage module at 4°C and 30% RH. In addition, 50 single uniform true-to-type plants were selected on uniformity, high yield and harvested, preserved separately for further multiplication.

A total number of 175 released groundnut varieties were grown during *Kharif*, 2012. These varieties were characterized in the prescribed reference traits for DUS. The seeds of all the thirty reference varieties was enhanced. A set of three candidate varieties was received from Authority for DUS testing at this Directorate. The three new, typical groundnut varieties were Dhiraj-101, Western Varadan and Krishna. Two sets of 17 suitable reference varieties were made, one for use at DGR and the other for TNAU, Coimbatore. The sowing of test and reference varieties was undertaken on 11 July, 2012 in a randomized block design with three replications. Each replication for Spanish bunch types comprised four 6 meter rows while under Virginia bunch group, it was six rows of 7 meter length. All the recommended package of practices has been followed to raise a successful crop. Monitoring of DUS trials was conducted under the Chairmanship of Dr. K.L. Dobariya, Head, Dept. of Oilseeds, JAU, Junagadh and Dr. T. Radhakrishnan and Dr. A. L. Rathnakumar, Nodal and co-nodal officers, DGR, Junagadh and Shri D.S. Mishra, Joint Registrar, PPV&FR Authority on 21 October, 2012. The team critically verified the claimed traits for candidate varieties and other related DUS traits of reference varieties at the flowering stage. The reference varieties claimed for each of the test varieties did not fit well either for the grouping characters or for the claimed distinct characters. Off-types were well within the prescribed limit and the test varieties conformed to the genetic purity.

2.7.21 Junagadh Agricultural University (JAU), Jamnagar

Pearl Millet Research Station, Junagadh Agricultural University, Jamnagar (Gujarat) is the Co-Nodal centre for castor DUS test along with Directorate of Oilseeds Research, Rajendranagar, Hyderabad as the Nodal centre. The Centre conducted the castor DUS trial for the first time as per DUS guidelines during the year 2012-13. Three candidate castor varieties/hybrids viz., NBCH-2008-2 (New hybrid), NBCH-206 (Extant hybrid) and DCS-107 (New variety) with five reference varieties/hybrids were tested during *Kharif*, 2012 at Pearl Millet Research Station, Junagadh Agricultural University, Jamnagar. This was the first year of testing. During the year 2012-13, eight genotypes comprising five hybrids and three varieties were sown on 14 September, 2012 in randomized block design with three replications. The observation on 30 characters of above eight castor hybrids/varieties (candidate & reference) was recorded as per castor DUS guidelines. The monitoring of DUS trials was conducted on 22 October, 2012 under the Chairmanship of Dr. P. R. Padhar, Research Scientist (Pearl millet), Nodal Officer (DUS), JAU, Jamnagar and Shri D.S. Mishra, Joint Registrar represented the Authority. The results were submitted to Dr. N. Mukta, Principal Scientist & Nodal Officer (DUS), Directorate of Oilseeds Research, Rajendranagar, Hyderabad and PPV&FR Authority.

2.7.22 Directorate of Oilseeds Research (DOR), Rajendranagar, Hyderabad

The Directorate is responsible for conducting DUS testing for grant of Intellectual Property Rights and registration for oilseeds namely castor (*Ricinus communis* L.), sunflower (*Helianthus annuus* L.) and safflower (*Carthamus tinctorious* L.). One parental line of sunflower from AICRP (Bengaluru) and four parental lines of castor have been evaluated for characterization and maintenance breeding. During the reporting year three varieties of castor and thirty nine varieties of sunflower were tested which include 41 varieties from private sector and one castor variety from public.

DUS testing for castor started in *Kharif*, 2012 with 3 candidate varieties of which 2 were New while one was categorized as VCK. The hybrid trial comprised of 2 candidate entries along with 3 reference hybrids, the varietal trial consisted of one candidate variety along with 2 reference entries in two replications sown on 31 July, 2012. The Centre was complimented for conducting DUS testing in castor in a very systematically manner and there was excellent expression of all the entries with excellent plant stand.

During *Rabi*, 2012-13, three separate replicated trials of sunflower were conducted and sowing was made on 19 November, 2012 for A-lines and 20 November, 2012 for hybrids and R-lines trials. The hybrid trial comprised of three candidates among which 2 as new which were characterized for 2nd year and one VCK with 5 reference entries. The R-line trial comprised of 10 candidates of which 5 were characterized for 2nd year, four for 1st year and one as VCK along with 5 reference entries. The A-line trial comprised of 26 candidates of which 15 were characterized for 2nd year, 10 for 1st year and 1 as VCK along with 6 reference entries. Consolidated report of DUS data for 12 VCK's of sunflower tested during *Rabi*, 2011-12 for two centres was submitted in the required format along with photographs of claimed traits. The monitoring of the castor was done on 11 November, 2012 under the Chairmanship of Dr. S.S. Malik, former Head, NBPGR, New Delhi whereas the sunflower monitoring was conducted on 22 January, 2013 under the Chairmanship of Dr. D.M. Hegde, former Director, DOR, Hyderabad.

2.7.23 Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), Jabalpur

Characterization of sesame varieties was undertaken at PC Unit (Sesame & Niger), Jabalpur during the reporting year. Evaluation of the extant varieties of sesame for various traits at different locations was also undertaken. Eighty varieties of sesame procured from ICAR institutes, SAUs and own released varieties were under the maintenance breeding and characterized.

Under evaluation of the extant varieties**,** fifty varieties of commercial cultivation were grown in *Kharif*, 2012 at Nagpur, Tikamgarh and Jabalpur. The analysis of variance indicated significant difference among the entries for seed yield at all the locations. The mean over locations indicated that among all the entries, TKG – 55 recorded the highest mean seed yield of 916 kg/ha followed by Amrit (896 kg/ha), RT-351 (873 kg/ha) and Savitri (789 kg/ha). Days to 50% flowering ranged from 39 days in TKG-55 to 48 in AKT-101 and Swetha with a mean of 43 days. TKG-55 (39 days), TKG-22 and TKG-21 (40 days), TKG-306, RT-54, RT-103 and RT-125 (41 days) recorded least number of days to 50% flowering. The days to maturity ranged from a minimum of 90 days in RT-103 to a maximum of 102 days in Swetha and E-8 with a mean of 96 days. RT-103, AKT-64 and RT-125 were found to be early in maturity. UMA, Kanak, YLM-17 and RT-54 recorded lower plant height, whereas Swetha, Rajeshwari, E-8, Purva-1, Hima and DSS-9 recorded more plant height. The number of branches/plant varied from 1.8 in PKV-NT-11 to 3.9 in SVPR-1 with a general mean of 2.7. SVPR-1 and Amrit recorded higher branches/plant. The number of capsules/plant varied from a minimum of 26 in RT-46 to a maximum of 48 capsules/plant including RT-127 and SVPR-1. The variation in 1000 seed weight of the varieties was from 2.51 gm in Amrit to 3.43 gm in Prachi with a mean of 3.00 gm. Highest 1000 seed weight of 3.43 gm was recorded in Prachi followed by 3.35 gm in JLT-408 and 3.31 gm in VRI-2. Among all the entries, JLT-408 recorded the highest oil content of 51.28% followed by TKG-22 (50.76%) and Swetha (50.20%).

2.7.24 Indian Institute of Horticultural Research (IIHR), ICAR, Bengaluru

The Vegetable Division of the IIHR is responsible for DUS testing of tomato, brinjal, okra and garden pea. As both tomato and garden peas are highly self-pollinated crops, seeds were collected from selected plants as a part of maintenance breeding. In case of brinjal and okra, seeds were collected from selfed flowers, as both the crops are often cross pollinated. In tomato, 28 reference varieties were raised for maintenance breeding and seeds were multiplied for further use in DUS testing. In brinjal, 34 reference varieties were raised for maintenance breeding and seeds were multiplied for further use in DUS testing. In okra, 10 reference varieties were raised for maintenance breeding and seeds were multiplied for further use in DUS testing. Whereas in garden pea, 26 reference varieties were raised for maintenance breeding and seeds were multiplied for further use in DUS testing.

In *Rabi*, 2012-13, a total of 39 candidate varieties of tomato along with 3 reference varieties were evaluated for forty seven DUS characteristics, in brinjal a total of 23 candidate varieties along with 10 reference varieties were evaluated for forty seven DUS characteristics and in okra a total of 8 candidate varieties along with 10 reference varieties were evaluated for thirty one DUS characteristics.

DUS Monitoring was conducted on 2 January, 2013 in

the presence of Dr. K. R. M. Swamy, Chairman monitoring team and Dr. Manoj Srivastava, Registrar from PPV&FR Authority. During monitoring in tomato, if the off types were more than 3% such entries were rejected. Okra crop growth was not up to the mark due to cold weather and all other observations were recorded as per the DUS test guidelines provided by the PPV&FR Authority. The committee suggested that the next DUS test should be conducted during *Kharif*, 2013 with same set of varieties to express proper morphological traits. Data base was created for all the reference varieties in all the four crops in the form of digital library. The progress of DUS testing in different vegetables is as under:

Table 14. No of varieties tested under DUS

Crops	*New*		*VCK*	*FV*	*EDV IV (if any)*		*Total*
	1st yr	*2nd yr*					
Tomato	39 + 3	-	-	-	-	-	42
Brinjal	23 + 10	-	-	-	-	-	33
Okra	8 + 10	-	-	-	-	-	18
Garden Pea	-	-	-	-	-	-	-
Total	93	-	-	-	-	-	93

A Dutch delegation headed by Mr. Wim Sangster, Specialist (Variety Testing), Naktuinbow, the Netherlands, accompanied by Shri Dipal Roy Choudhury, Joint Registrar, PPV&FR Authority, imparted a training programme on DUS testing for rose, chrysanthemum, tomato and French bean to the scientists (45) of IIHR and 25 representatives of private seed companies on 5-6 December, 2012.

2.7.25 Central Plantation Crops Research Institute (CPCRI), Kasaragod

The Institute is responsible for the DUS testing in coconut (*Cocos nucifera* L.). The maintenance breeding/ characterisation of 11 coconut reference varieties *viz.* COD, WCT, Kalpa Pratibha, Kalpa Dhenu, Kalpa Mitra, Chandra Kalpa, Kera Chandra, Chandra Sankara, Kera Sankara, Chandra Laksha, and Kalparaksha released by ICAR/SAUs was in progress. About 50 healthy seed nuts of the varieties COD, WCT, Kalpa Pratibha, Kalpa Dhenu, Kalpa Mitra, Chandra Kalpa, Kera Chandra, Chandra Sankara, Kera Sankara, Chandra Laksha, and Kalparaksha were sown and 30 healthy sprouts were selected and shifted to polybags. As per the notified DUS guidelines, the DUS characteristic in coconut seedlings were recorded on one year seedlings. However for comprehensive documentation of seedling traits, seedlings observations were taken from six months.

Observation on seedling length, seedling girth and number of leaves produced, number of split leaves was recorded at 6th, 9th and 12th months after sowing. Observations indicated variation among varieties with Kera Chandra showing higher plant height, girth and number of leaves as well as number of split leaves. The time taken for emergence of individual leaf in different varieties was also recorded in the seedlings. On an average, it was observed that it takes about 30-40 days for complete emergence of a leaf in one year old seedlings. Further, on-site DUS characterization was undertaken in the 8 parent palms of these varieties and observations on inflorescence, fruit morphology and tender nut characters have been collected for creation of database. Detailed study of inflorescence and tender nut was taken, which showed variation among the varieties, especially hybrids showed higher values compared to varieties. Among the varieties Chandra Kalpa had more number of spikelet's and female flowers, while Kalpa Pratibha had higher volume of tender nut water and COD had sweet tender nut water with higher TSS.

2.7.26 Central Potato Research Institute (CPRI), Shimla

CPRI is maintaining 162 potato (*Solanum tuberosum* L.) reference varieties including 46 own released varieties, 62 indigenous varieties, 29 UPOV varieties, 18 exotic varieties and 7 state varieties. With regards to progress of DUS testing, three candidate varieties of private sector were tested in the first year as new variety. The monitoring of DUS trials was undertaken under the Chairmanship of Dr. P.C. Pande, former Principal Scientist, CPRI, Modipuram on 4 March, 2013.

2.7.27 National Research Centre for Orchids, Pakyong, Sikkim

DUS test guidelines of Cymbidium, Dendrobium and Vanda were developed by the NRC for Orchids, Pakyong, Sikkim. These three species have already been notified for registration on 27 March, 2012.The applications for registration of extant varieties of the above mentioned crop species will be accepted up to 26 March, 2015 by the Authority. The Centre has maintained and characterized 137 reference varieties of orchids which were mostly VCKs or collected from SAUs as per details in table on next page:

Table 15. Orchid varieties under maintenance breeding

Name of the species	*No. of varieties*
Cymbidium	30
Dendrobium	14
Vanda	23
Phalaenopsis	30
Cattleya	8
Oncidium	24
Paphiopedilum	8
	137

First meeting of Orchid Task Force was held at Centre for Orchid Gene Conservation of Eastern Himalayan Region, Hengbung, Senapati Distt., Manipur on 20-21 March, 2013 and morphological descriptors of *Paphiopedilum* (76) and *Oncidium (*60) were developed.

2.7.28 Indian Institute of Vegetable Research (IIVR), Varanasi

Tomato

Eighty-one tomato reference varieties collected from different centres were maintained during *Kharif* - *Rabi* 2012-13 at Institute and data was recorded for 47 morphological characters as per DUS guidelines. These varieties were collected from various centers *i.e.* IARI, New Delhi; IARI, Regional Station, Katrain; IIVR, Varanasi; BCKV, Kalyani; CSAUA&T Kanpur; DARL, Pithoragadh; UAS, Dharwad, GBPUA&T, Pantanagar; HAU, Hisar; HARP, Ranchi; IIHR, Bengaluru; JAU, Junagadh; PAU, Ludhiana; TNAU, Coimbatore; YSPUHF, Solan; etc.

Brinjal

Eighty-nine brinjal reference varieties collected from different centres were maintained. Data was recorded for 46 morphological characters as per DUS guidelines. These varieties were also collected from various centers *i.e.* IARI, New Delhi, IIVR, Varanasi; APHU, Rajendranagar, Hyderabad; CSAUA&T Kanpur; JAU, Junagadh; GBPUA&T, Pantanagar; HARP, Ranchi; IIHR, Bengaluru; JNKV, Jabalpur; KAU, Kerala; OUA&T, Bhubaneswar; PAU, Ludhiana; PDKV, Akola; RAU, Samastipur; TNAU, Coimbatore, etc.

Twenty three candidate varieties from private sector were tested during the year 2012-2013. Out of which SBJH-32, SBJH-227, SBJH-183, SBJH-305, SBJH-038, JK Kamini-333, JK Vijay Kiran, MEBH-39 Improved, MHBJ-111, NBH-538, Mahanandi Plus, Hansa, NBH-801 Priyanka have been observed for all the grouping characters according to claimed grouping characters.

Okra

Thirty-eight okra varieties were collected from different centres for evaluation during *Kharif*, 2012 and data were recorded for 31 morphological characters and maintained as reference varieties for DUS testing. These varieties were collected from various centers *i.e.* IARI, (RS), Katrain; IIVR, Varanasi; PDKV, Akola; JAU, Junagadh; GBPUA&T, Pantanagar; HAU, Hisar; MPKV, Rahuri; PAU, Ludhiana; SKAUAS&T, Jammu; AAU, Anand etc.

Cauliflower

Twelve cauliflower varieties were collected from AICRP (VC) centres for evaluation during *Rabi* 2012-13 and data were recorded for 28 characters and maintained as reference varieties for DUS testing. These varieties were collected from various centers *i.e.* IARI, New Delhi, IARI, Regional Station, Katrain, IIVR, Varanasi, SKUA&T, Jammu and GBPUA&T., Pantanagar.

Cabbage

Six cabbage reference varieties collected from different AICRP (VC) centres were maintained during *Rabi* 2012-13 and data was recorded of 28 morphological characters as per DUS guidelines. These varieties were collected from various centers *i.e*. IARI, New Delhi and IARI, Regional Station, Katrain.

Vegetable pea

Forty-five garden pea varieties were collected from AICRP (VC) centres for evaluation of 20 characters and maintained as reference varieties for DUS testing during *Rabi*, 2012-13. These varieties were collected from various centers *i.e.* IARI (RS) Katrain; IIVR, Varanasi; GBPUA&T, Pantanagar; HAU, Hisar; HARP, Ranchi; PAU, Ludhiana; MPKV, Rahuri; Dr. YSPHU&F, Solan; VPKAS, Almora, etc.

French bean

Twenty four French bean varieties were collected from AICRP (VC) centres for evaluation of 21 morphological characters and maintained as reference varieties for DUS testing during *Rabi*, 2012-13. These varieties were collected from various centers *i.e.* IARI, New Delhi, IARI, Regional Station, Katrain; IIVR, Varanasi; Dr.YSPH&F, MPKV, Rahuri; BHU, Varanasi; CSAUA&T, Kanpur; CHES, Ranchi; VPKAS, Almora.

Table 16. Progress of DUS Test monitoring (1st year) at IIVR, Varanasi

Vegetable	*New*	*VCK*	*Total*	*Monitoring date*	*Chairman*
Okra	4	4	8	10 October, 2012	Dr. A.N. Maurya
Brinjal	3	20	23	03 December, 2012	Dr. Mathura Rai
Cauliflower	8	4	12	03 December, 2012	Dr. Mathura Rai
Cabbage	6	-	6	11 January, 2013	Dr. A.N. Maurya
Tomato	24	15	39	27 February, 2013	Dr. A.N. Maurya
Total	42	46	88		

All varieties of vegetables were from private sector only. The DUS monitoring was done by different teams constituted under the Chairmanship of Dr. A.N. Maurya and Dr. Mathura Rai, former Director, IIVR, Varanasi for various crops. During monitoring, it was observed that one variety of cauliflower was not uniform (SCFH-2178), another variety of tomato (KTL-3279) was also not uniform.

During the reporting period, a Dutch delegation from Naktuinbouw visited IIVR, Varanasi in connection with imparting of DUS testing training for vegetables from 4-6 December, 2012. The Centre has also the privilege for conducting 7th Review Meeting of DUS Centres/Projects at IIVR, Varanasi on 28 February-01 March, 2013 under the Chairmanship of Dr. R.R. Hanchinal, Hon'ble Vice-Chancellor, UAS, Dharwad.

DUS Testing

DUS testing of brinjal (23), tomato (39), cauliflower (12), okra (8) and cabbage (6) entries were tested along with reference varieties and the highlights of the DUS testing are as under:

Okra

Eight candidate varieties from private sector were tested during the year 2012-2013. Out of which NOKH-1004, BIO-228H and SLFH-7777 have been observed for all the grouping characters according to claimed grouping characters.

Brinjal

Twenty three candidate varieties from private sector Sungro (13), Nuziveedu (5), J.K. Agri Genetics (3) and Mahyco (2) were tested during the year 2012-2013. Out of

which SBJH-32, SBJH-227, SBJH-183, SBJH-305, SBJH-038, JK Kamini-333, JK Vijay Kiran, MEBH-39 Improved, MHBJ-111, NBH-538, Mahanandi Plus, Hansa, NBH-801 Priyanka have been observed for all the grouping characters according to claimed grouping characters. Whereas, only one variety *i.e.* NBH-801 Priyanka has expressed all the claimed and grouping characters.

Cauliflower

Twelve candidate varieties from private sector were tested during the year 2012-13. All the varieties have been observed for all the grouping characters according to claimed grouping characters except SCFH-50 and NCFD-60. Whereas, only one variety *i.e.* SCFH-2178 has expressed all the claimed and grouping characters.

Tomato

Thirty nine candidate varieties from private sector were tested during the year 2012-2013. Out of which Avitha-1032 , Improved Bhagya, BA-1031, STH-7007, JKTH-5202, STH-3585, JK Akshay, STH-7008, MHTM-401, HTM-8021, MHTM-256, RX 15660814, RX 15672356, RX 15660635, KTH-331, KTH-354, KTL-3287, KTL-3285, KTL-3290, Pratham, SYN-TO-1952, SYN-TO-1389, Nirmal 2257 have been observed for all the grouping characters according to claimed grouping characters.Whereas, the varieties *i.e.* Improved Bhagya, BA-1031 and KTL-3285 have expressed all the claimed and grouping characters.

Cabbage

Six candidate varieties from private sector were tested during the year 2012-2013. None of the varieties have been observed for grouping and claimed characters according to claimed characters.

2.7.29 Seed Research & Technology Centre (SRTC), Andhra Pradesh Agriculture University, Rajendranagar, Hyderabad

This Center has been ear marked for DUS testing in maize, green gram and black gram. The details of DUS testing conducted during 2012-13 is as under:-

Table 17. Progress of DUS Testing

Crops	*New*	*VCK*	*Farmer*	*Total*	
	1st yr	*1st yr*	*1st yr*	*1st yr*	*2nd yr*
Maize (Hybrids) Inbreds	43	08	01	52	06
Green gram	01	01	-	02	-
Black gram	0	01	-	01	-

The monitoring team was constituted under the Chairmanship of Dr. Sain Dass, Dr. Jyoti Kaul, P.S, DMR, Dr. A.Vishnu Vardhan Reddy (Nodal Officer) and Dr. M.Sudha Rani (Member) from Seed Research & Technology Centre and Dr. Tejbir Singh,Registrar from PPV&FR Authority, conducted the monitoring of maize, green gram and black gram on 26 September, 2012. Brief remarks of the monitoring team on DUS trials are as under:

Maize

- The trial has been conducted as per the DUS test guidelines. The expression of the claimed traits in the candidate varieties has been recorded and compared with appropriate and relevant references.
- The DUS testing of open pollinated varieties may be discouraged unless claimant indicates 1-2 stable essential traits in majority of the plants in the variety.
- Replications may be reduced from three to two with 6 rows of 4 meter. By doing so, expression of traits will not be affected in the uniform material with smaller plot size.

Black gram

The trial has been conducted as per the DUS test guidelines. One entry of black gram was tested and observed that claimed characters matched with the observed characters of the monitoring team. The candidate entries were compared with appropriate and relevant references.

Green gram

The trial has been conducted as per the DUS test guidelines. Two entries of green gram was tested and observed by the monitoring team that claimed characters matched with the observed characters. The candidate entries were compared with appropriate and relevant references.

2.7.30 University of Agricultural Sciences (UAS), Dharwad

The University has maintained 98 varieties of soybean

and 132 varieties of wheat for maintenance/breeding and characterization which were mainly procured from ICAR, SAUs or their own released varieties. Sixty one candidate varieties of cotton comprising of 20 essentially derived varieties (EDV + IV) and 32 reference varieties were tested during *Kharif*, 2012. The EDV experiment was laid out in RBD with 2 replications under protected and unprotected conditions. Further, 132 varieties of wheat and 98 varieties & 2 candidate varieties in soybean were also tested for their DUS characteristics. The progress of DUS testing in all the three crops are as under:

Table 18. No. of varieties under DUS testing & characterization during 2012-13

Crops	New	VCK	EDV + IV)	Total
	1st year		1st year	
Cotton	16	25	20	61
Soybean	1 (New) + 1 (VCK)	98 (Reference)	-	100
Wheat		132 (Reference)	-	132
Total	18	255	20	293

Cotton Monitoring

DUS trials of cotton was excellent with good growth and development in three replications. The crop was in boll formation stage. There were 61 candidate varieties including 32 reference varieties. One candidate variety JK Varun Bt did not germinate. The claims made by the applicants of candidate varieties were in conformity with the observations, in general. However, there were some discrepancy with respect to some traits, viz., leaf and stem hairiness, flower petal and pollen colour which were noted. The monitoring was conducted on 2-3 November, 2012 under the Chairmanship of Dr. M.S. Kairon, former Director, CICR, Nagpur along with Dr. N.K. Biradarpatil, Special officer (Seeds), UAS, Dharwad and his team mainly Dr. Suma Mogali, Scientist (Genetics and Plant Breeding), Shri Sandeep Dangi, Senior Research Fellow in DUS testing, and Shri Dipal Roy Choudhury, Joint Registrar were present in the monitoring. Representatives of private seeds companies were also present.

Soybean Monitoring

The monitoring of soybean was conducted on 22 August, 2012 under the Chairmanship of Dr. O.P. Joshi, former Director, DSR, Indore and Authority was represented by Dr. Tejbir Singh, Registrar.The crop was in the flowering stage and crop condition was satisfactory at the field. Monitoring team recommended that one row spacing between the varieties in the maintenance and candidate variety testing plots should invariably be left. There should be separate planting of candidate varieties to ascertain plant growth type as per the crop specific guidelines. In soybean observation on Plant: Growth Type (Stem Termination) should be also recorded. Chairman advised that one of the scientists/SRF may visit Directorate of Soybean Research, Indore to learn nitty-gritty of the DUS testing and data recording on various morphological characteristics and also see the useful breeding materials/ advanced breeding lines for the breeding programme at DSR, Indore.

2.7.31 Indian Institute of Pulses Research (IIPR), Kanpur

The progress report of different projects is as under:-

Mungbean, Urdbean, Pea, Lentil and Rajmash

The Centre has maintained 74 varieties of mung bean and 46 varieties of urd bean during *Kharif*, 2012. Besides, fifty five varieties of pea, 36 varieties of lentil and 13 varieties of rajamsh were also maintained. For maintenance of these varieties, 10 single plants were selected from each variety and harvested individually during *Rabi*, 2012-2013. During *Kharif*, 2012 two varieties of mungbean (NVL 605, NVL 1) & one variety of urdbean (NUL 7) was tested along with reference varieties & data recorded as per DUS guidelines and in *Rabi*, 2012-13 two farmer's variety in rajmash (Safed jhulu swant & Safed swant) tested along with reference varieties & data were recorded as per DUS guidelines.

Table 19. Reference varieties under maintenance breeding

S. No.	Crop Species	Name of the Varieties
1.	Green gram [*Vigna radiata* (L.) Wilczek]	Reference Varieties (74) PDM 11, PDM 54, PDM 139, Pant M 1, Pant M 2, Pant M 3, Pant M 4, Pant M 5, PS 10, Pusa 105, OBGG 52, Pusa 9531, Pusa Baisakhi, Pusa Vishal, PS 16, Pusa 9072, Pusa Ratna, Pratap, PKVM 8802, RMG 62, RMG 268, RMG 344, RMG 492, Sujata, Salimar M 1, Sona, SML 32, SML 134, SML 668, TARM 1, TARM 2, TARM 18, TAP 7, T 44, Vamban 1, Asha, AKM 8802, AKM 8803, AKM 9910, AAU 34, BM 4, BPMR 145, BDN 2, CO 4, OUM 11-5, CO 6, COGG 912, Dholi, Ganga 1, GM 3, GM 4, Ganga 8, HUM 1, HUM 2. HUM 6, HUM 12, IPM 99-125, JM 721, Kopergaon, K 851, Lam M 2, LGG 407, LGG 410, LGG 450, LGG 460, ML 5, ML 131, ML 267, ML 613, ML 818, MGG 295, MH 96-1, MUM 2, NDM 1

2.	Black gram [*Vigna mungo* (L.) Hepper]	Reference Varieties (46) Azad U 1, Azad U 2, AKU 9904, CO 5, GU 1, JU 2, KU 96-3, LBG 17, LBG 611, LBG 623, LBG 645, LBG 648, LBG 685, LBG 402, Manikya, Mash 1, Naveen, NDU 1, PDU 1, Pant U 19, Pant U 30, Pant U 35, RBU 38, Shekhar U 1, Shekhar U 2, Shekhar U 3, Sarla, TU 94-2, TAU 1, TAU 2, T 9, TMV 1, TPU 4, Uttara (IPU 94-1), UL 338, Vamban 1, Vamban 2, WBU 108, G 338, LBG 20, Mash 1-1, Mash 414, UG 1008, Pragya, Pant U 40, Pant U 31
3.	Lentil [(*Lens culinaris* Medik]	Reference Varieties (36) DPL 15, DPL 62, IPL 81, PL 406, PL 639, PL 4, PL 5, PL 234, L 4147, L 4076, Asha, Ranjan, Subhrita, JL 1, JL 3, LH 84-8, K-75, NDL 1, VL 1, VL 4, VL 103, PL 77-12, LL 56, LL 147, LL 699, VL 507, KLS 218, IPL 406, VL 126, HUL 57, PL 24, PL 63, WBL 77, Barahiya Local, Vidokhar Local, IPL 315
4.	Peas [*Pisum sativum* L.]	Reference Varieties (55) Arkel, Azad P 1, Azad P2, Azad P3, Azad P4, Azad P5, Azad P31, Ageta 6, DDR 23, DDR 27, VRP 3, VRP 5, VRP 6, VRP 7, VRP 22, VRPMR 9, DDR 44, HUDP 15, HFP 4, HFP 529, HFP 8909, IPFD 99-13, IPFD 1-10, IPFD 6-3, Jayanti, KPMR 144-1, KPMR 400, KPMR 522, LFP 48, PG 3, Pant P 74, Swati, VL 3, B 22, DMR 7, HUP 2, IM 9101, IM 9102, IPF 99-25, IPF 4-9, IPF 4-26, IPF 5-19, JM 6, JP 885, KFP 103, Pant P 5, Pant P 42, Rachna, TRCP 8, VL 1, VL 42, VL 45, VL 46, HFP 9426, HFP 9907B
5.	Rajmash [Phaseolus vulgaris L.]	Reference Varieties (13) PDR 14, IPR 96 – 4, HUR 15, HUR 137, IPR 98-5, HPR 35, IPR 98-3-1, HUR 203, IVFB 1, Anoop, Swidha, Komal, Gujrat Rajma 1.

2.7.32 IARI Regional Station, Karnal

The Centre has characterized 441 rice cultivars till date (2004-2010). During the reporting year, DUS testing of three candidate varieties and grow out test (GOT) of two farmers' varieties was conducted viz., (i) Signet 44 (new, typical) (ii) Signet 5050 (new, hybrid) (iii) Signet 5051 (new, hybrid) along with seven reference varieties (RVs) and GOT of two farmers varieties (FVs) viz., (i) Bhindi (ii) Dhania were undertaken at Indian Agricultural Research Institute, Regional Station, Karnal during *Kharif*, 2012. The nursery was sown on 7 June, 2012 and transplanting was done on 7 July, 2012. Observations were recorded at various stages as per DUS test guidelines. The DUS monitoring team under the Chairmanship of Dr. S.S. Malik, former Head, NBPGR, New Delhi monitored the conduct of DUS testing of candidate varieties and grow out test of farmers' varieties on 26 October, 2012. Monitoring team observed that general crop growth was good and uniform for DUS trials and farmers' varieties. The observation recorded by the centre were in order. The DUS data and report was submitted to Nodal Officer (Rice), DRR, Hyderabad.

2.7.33 Assam Agricultural University (AAU), Jorhat

The Centre has maintained 48 rice reference varieties during the reporting year. The DUS testing (2nd year) of 4 new candidate varieties and grow out test of 23 farmers' varieties of rice was conducted successfully during the reporting year. Maintenance/characterization of 48 reference varieties and farmers' varieties were also conducted. Data relating to DUS test and grow out test were submitted to the Nodal Centre. Nodal and Co-Nodal Officers participated in training/awareness programme on PPV&FR Act conducted under the banner of IPR Cell of the University. The monitoring of rice DUS trials was conducted on 20 November, 2012. The trial has been laid out properly as per the DUS test guidelines and crop growth as well as stand was satisfactory.

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

Directorate is mandated to provide DUS testing for Isabgol, a medicinal plant. It has maintained and characterized 11 reference varieties of Isabgol (*Plantago ovata* Forsk.). Development of DUS descriptors and characterization of lines in Kalmegh (*Andrographis*

paniculata Nees.) have also been under progress. DUS descriptors were identified in ten morphological characters and accordingly distinct lines were developed. The major characteristics considered were plant habit (erect or trailing); leaf type: narrow (long narrow or short narrow); broad (short broad or long broad); leaf colour (light green or dark green); leaf lamina (inwardly closed or outwardly curved); branching pattern (open or close); plant canopy shape (conical, round); flowering pattern (early, normal and late); inflorescence type (flower buds closely arranged or distantly arranged); plant height (tall, normal, dwarf), stem inter node length (normal or compact), etc. DMAPR AP 11, 16, 19 and 35 were erect types and DMAPR 21 was trailing type. Plant canopy was conical in DMAPR AP 39, 40 and round in DMAPR AP 35 and 6. DMAPR AP 6 had short narrow leaves and DMAPR AP3 had long narrow leaves. DMAPR AP 18, 19, 25 were long broad leaf type and DMAPR AP 24 was short broad leaf type. DMAPR AP 6 and DMAPR19 had light green colour and DMAPR AP 3 and 42 had dark green leaves. Leaf laminae were inwardly curved in DMAPR AP 15 and outwardly curved in DMAPR AP 16. DMAPR AP 36 was early flowering type and DMAPR AP 1 and 2 were late flowering types. Flower buds were closely placed in DMAPR 3, 33 and 34 and distantly arranged in DMAPR AP 37. DMAPR AP 21 and 22 were tall type and DMAPR AP 42 was dwarf. Accordingly, 45 distinct reference varieties were identified. Study was also carried out to evaluate the selected lines based on herbage yield and andrographolide content. Andrographolide content was estimated by HPLC method. Andrographolide content varied from 3.25 to 1.05% and 0.97 to 0.22% in leaves and stem, respectively among the lines.

2.8 National Review Meeting of DUS Centres/ Projects

During the reporting year, the Authority conducted two review meetings of DUS Centres/Projects which were held first on 21-22 May, 2012 at NASC Complex, New Delhi on the occasion of Plant Genome Saviour Community Award function. In the Sixth review meeting, more than 125 representatives of the DUS Centres/Projects participated in different sessions which were chaired by different experts An exhibition of posters and charts on various themes prepared by various DUS Centres/Project were also showcased in the atrium of the A.P. Shinde Hall. The Recommendations are as under:

- More emphasis be given on maintenance breeding and funding may be considered favourably.
- Relaxations were already given for "off types" for farmers' varieties (FVs) for uniformity and some of the unique FVs will act as genetic base for further breeding and centres conducting testing of FVs can be given funds.
- DUS test guidelines for specific crops, like sweet sorghum, forage sorghum, specialty corn, ornamental sunflower to be developed.
- Field gene banks must be established for varietal gene banks, not for germplasm bank.
- Pocket manuals may be developed for recording of field data.
- New centers developing guidelines shall only restrict to morphological descriptors generate varietal databases including all the varieties of common knowledge, landraces and existing database also need to be strengthened.
- UCs for the preceding financial year need to be submitted by 31st May of the current financial year and statement of expenditure (SoEs) for DUS test fee need to be submitted separately.

Subsequently, seventh DUS Review meeting was convened at Indian Institute of Vegetable Research (IIVR), Varanasi, Uttar Pradesh during 28 February–1 March, 2013. Chairperson designate, Prof. R. R. Hanchinal, Hon'ble Vice Chancellor, UAS, Dharwad, was the Chief Guest and nearly 100 participants from the DUS Centers/ Projects participated and presented physical and financial progress of their work for the year 2012-13 and plan of

work in 2013-14. Dr. P. S. Naik, Director, IIVR made a keynote lecture on "*Biotechnological Tools in Plant Variety Protection*" and deliberated on the manner of EDV testing and use of molecular markers in DUS testing.

Salient recommendations of the review meeting are as under:

- Maintenance breeding is required to be strictly enforced so that a proper referral collection is maintained which can be used reliably in DUS testing and the availability of seeds of reference/example varieties shall be discussed with ICAR and DAC.
- Database need to be strengthened and made accessible for all public sector institutes. All the Nodal centres shall submit data of maintenance breeding before the end of the financial year 2012-13.
- Authority shall ensure that yearly grants-in-aid and number of technical manpower must commensurate with the candidate entries under DUS testing and centres where a large number of varieties are being tested, better facilities, contingencies and more technical manpower is required to be given.
- Authority may examine the possibility of another centre for conducting DUS tests to record flowering/ seed characters in Cabbage/Cauliflower.
- All crop Directorates may conduct training programmes on how to record DUS descriptors in the crop season and invite public and private sector breeders and Authority may extend financial assistance.
- Public sector varieties need to be protected and SAUs/ ICAR institutes need to give emphasis in a time bound manner.
- CICR, Coimbatore shall submit the protocol for efficacy analysis and insect bioassay, gene expression study for EDV testing and CICR Nodal Centre may forward a proposal to identify another centre in Cotton(central/western India).
- Innovative mechanisms like FM Radio and Community Radio, Village Road show is required to be initiated for generating awareness for PPV&FR Act, 2001 and Farmers' Rights.
- CTCRI, Thriruvananthapuram will develop DUS descriptors for cassava & sweet potato considering descriptors available in UPOV in Indian context.
- Forestry crop descriptors may be discussed with AICRP Agro Forestry group meeting in consultation with Project Coordinator (Agro-forestry).
- Guidelines for "on-site" DUS testing need to be discussed and finalized by a Task Force.
- IIHR, Bengaluru may facilitate a meeting with commercial breeders, nursery man and researchers to discuss about DUS guidelines.

2.9 National Gene Bank

The necessity of having a separate facility for storage and maintenance of seeds of registered varieties was felt during the inception years and after a detailed discussion with relevant stakeholders during 2007, the National Gene Bank of PPV&FR Authority was established at the old building of National Bureau of Plant Genetic Resources (NBPGR), Pusa, New Delhi. PPV&FR Authority is managing the rented facilityfor safe custody under Medium term storage. True ("orthodox") seeds of registered varieties under the medium term storage conditions and the seed samples for varieties undergoing DUS test/grow out test are being stored. Section 27 of the PPV&FR Act, 2001 provides 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, sanitary and phyto-sanitary standards. The mandated activities are significantly different in comparison to any *ex-situ* germplasm bank such as storage under medium term, seed handling, re-packaging, dispatch for field-testing at DUS test centers required for plant variety protection, evaluation of seed quality parameters etc. and the legal necessities are to be followed. The seeds stored for registered varieties can also be utilized for resolving dispute settlement, compulsory licensing and other such issues as deemed fit under the requirements of the Act.

2.9.1 Medium Term Storage of Seeds of Registered Varieties

Seed samples of 516 extant varieties notified under section 5 of the Seeds Act, 1966; 22 VCK varieties, 56 of new varieties, one EDV and 6 farmers' varieties (for which the registration certificates were already issued) are being kept in seed cabinets designed specifically for seed storage. These are being kept under controlled climatic conditions at 4^0 C with 30±5% relative humidity to ensure that seed samples are physiologically viable for a long duration. The seed samples of registered varieties are stored upto the period of protection and viability will be checked at prescribed intervals as per crop specific standards and requirement.

Table 20. Progress of seed samples of registered varieties conserved in the National Gene Bank under medium term storage condition (as on 31 March, 2013)

S. No.	Crop	Till 2011-2012	2012-2013			Grand Total
			Public	Private	Total	
1	Black Gram	10	02	---	02	12
2	Chickpea	15	14	---	14	29
3	Cotton	36	11	22	33	69
4	Castor	---	03	---	03	03
5	Cauliflower	---	01	---	01	01
6	Field Pea	20	---	---	---	20
7	Green Gram	20	02	---	02	22
8	Jute	07	04	---	04	11
9	Kidney Bean	05	---	---	---	05
10	Lentil	10	---	---	---	10
11	Maize	76	08	35	43	119
12	Pearl Millet	40	05	02	07	47
13	Pigeon Pea	02	16	---	16	18
14	Rice	21	60	02	62	83
15	Rapeseed	---	02	---	02	02
16	Sorghum	20	13	02	15	35
17	Sesame	---	02	---	02	02
18	*Small Cardamom	---	01	---	01	01
19	Sunflower	---	03	---	03	03
20	Soybean	---	01	---	01	01
21	Safflower	---	01	---	01	01
22	*Sugarcane	---	11	---	11	11
23	Wheat	62	28	---	28	90
	TOTAL	344	188	63	251	595
	Farmers	03			03	06
	Grand Total	347			254	601

*Planting/propagating material not stored in Gene Bank

2.9.2 Short Term Storage of Seeds of varieties undergoing DUS test

Conducting of DUS test(s) are as per the statutory provisions as under:

- Two years and at two locations for varieties under new category;
- One year at two locations for varieties of common knowledge (VCK); and farmers' varieties;

The applicant is required to submit quantities of seeds as per crop specific standards along with registration and DUS test fee for new and VCK category. For farmers' varieties, the applicant is required to submit only the prescribed quantities of seeds as farmers are not required to pay any fee for DUS testing/growout test.

Seed samples of new varieties (841), VCK (745) & EDVs (both including parental materials) and farmers' varieties (926) are being maintained under short term storage as on 31 March, 2013. 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 advised to supply fresh seed samples for storage under medium term condition.

2.9.3 Seed Standards

Applicants are required to submit seeds sealed in triple layer aluminium foil pouch(s) of prescribed size with proper labeling as under:

- Denomination of candidate variety;
- Application acknowledgement number as allotted by the plant varieties registry;
- Category (new/extant/VCK/farmers' etc);
- Year of harvest; and
- Seed quality parameter (moisture %, germination % and physical purity %).

The entire seed lot shall be equally divided in ten (for new varieties) or five (for VCK or Farmers' varieties) or two (extant varieties notified under the Seeds Act, 1966) seed packets/pouches. Seed lots must adhere to the prescribed standards as per the crop specific DUS guidelines. An illustrative list for seed standards for some of the major crops are given in Table 21 on next page:

Table 21. Seed Standards for medium term storage and DUS testing

S. No	Crop	Seed Requirement Candidate/Parental line Hybrid (each) in gm		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	Barley	1500	1000	95	8	98	Aug-Sep	230x300
3	Bread Wheat	3000	1500	95	8-9	98	*Rabi*-Aug	230x300
4	Other Triticum species	3000	1500	95	8-9	98	Same as wheat	230x300
5	Maize	3000	1500	80 (inbred/SCH) 90 (var/DCH)	8-10	98	*Kharif*-Mar-Apr *Rabi*-Aug	230x300
6	Sorghum	3000	1500	80 (inbred/SCH) 90 (var/DCH)	10-12	98	*Kharif*- March *Rabi*-Aug	230x300
7	Pearl Millet	1000	500	80 (inbred/SCH) 90 (var/DCH)	10-12	98	*Kharif*-March	165x220
8	Green Gram	1000	n.a.	80	8-9	98	*Kharif*-March	230x300
9	Kidney Bean	3000	n.a.	80	8-9	98	June-July	230x300
10	Chick pea	2000 (desi) 3000 (kabuli)	n.a.	80	8-9	98	*Rabi*-Aug	230x300
11	Pigon pea	2000	1500	80	8-9	98	*Kharif*-Mar	230x300
12	Lentil	1000	n.a.	80	8-9	98	*Rabi*-Aug	230x300
13	Field Pea	2000	n.a.	80	8-9	98	*Rabi*-Aug	230x300
14	Black Gram	1000	n.a.	80	8-9	98	*Kharif*-March	165x220
15	Jute	1000	500	85	9	97	Pre-*Kharif*-early Jan	165x220
16	Cotton	2000	1000	75	10	98	*Kharif*- North- Feb Peninsular- South-May	230x300
17	Tomato	15 (open field) 8 (Greenhouse)	same	85	8	98	April- May	165x100
18	Cabbage	15	15	*	*	*	April- May	165x100
19	Cauliflower	15	15	*	*	*	April- May	165x100
20	Brinjal	15 (open)	15 (open)	85	8	98	April- May	165x100
21	Bitter gourd	300 m or 1500 no	-	80	8	98	April	230x300
22	Bottle gourd	250 gm or 1500 no	-	80	8	98	April	230x300
23	Cucumber	50 gm or 1500 no	-	80	8	98	April	230x300
24	Pumpkin	200 gm or 1500 no	-	80	8	98	April	230x300
25	Rapeseed-Mustard	500	250	85	8	98	Aug-Sept	165x100

S. No	Crop	Seed Requirement Candidate/Parental line Hybrid (each) in gm		Germination %	Moisture %	Physical Purity %	Tentative Season – Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
26	Soybean	3000	---	70	9	98	Apr-May	230x300
27	Sunflower	3000	2000	70	9	98	July-Aug	230x300
28	Safflower	3000	1500	80	9	98	June-July	230x300
29	Groundnut	3000(Spanish & Valencia) 8000(kernel) for Virginia bunch and runner type	1500 4000	80	9	98	*Kharif*: May-June *Rabi*:Aug-Sep	300x450
30	Linseed	500	250	85	9	98	Jul-Aug	165x100
31	Castor	6000	2500	70	10	98	April-May	300x450
32	Sesame	500	250	80	9	97	April -May	165x100
33	Onion	100 1200 bulblet (multiplier) 50 bulbs(MS lines)	50	70	*	*	As per respective sowing seasons	
34	Garlic	2000 viable clove	--	*	*	*	Aug-Sep	-
35	Coriander	250	-	80	8-9	98	Aug-Sep	165x100
36	Fenugreek	250	-	80	8-9	98	Aug-Sep	165x100

*as per breeder seed standards

2.10 Field Gene Banks

2.10.1 Regional Horticultural Research Station (RHRS), Mashobra

During the reporting period, the station has established maintenance breeding block of apple consisting of 222 varieties including 158 varieties in 2011-12 and 64 new varieties in the current year. Maintenance breeding blocks of pear & sweet cherry was established along with establishment of reference/example variety of apple, pear and sweet cherry. Characterization of old varieties of apple, sweet cherry was undertaken and for walnut, tree, leaf, flower & fruit characters were recorded. Characterizations of varieties of old maintenance breeding block of pear was made for leaf & shoot characters. The collected bud wood of apple, pear & sweet cherry during February, 2013 for enrichment of field gene bank from CITH, Srinagar; PCDO, Bajaura; RHRS, Seobagh; THRS, Kotkhai; PCDO, Annu; Department of Horticulture, Navbahar and grafted in the nursery.

RHRS, Mashobra has been maintaining the repository of apple, pear, sweet cherry and walnut to be used as reference material for *on-site* DUS testing of the above crops. The progress of maintenance & characterization of reference varieties is as under:-

Table 22. Number of varieties of horticultural crops species wise

Particulars	Apple	Pear	Sweet Cherry	Walnut
Maintenance	222	63	35	-
Characterization	57	55	13	9

2.10.2 Dr. Balasaheb Konkan Krishi Vidyapeeth (BSKKV), Dapoli

As per the objectives of the project, this centre has maintained the previously collected germplasm in mango, banana, citrus, turmeric, cardamom. Characterization of 39 varieties of turmeric is completed. During the year 2012-13 the centre has collected 36 new ecotypes of 15 varieties of mango. The grafts will be made during 2013-14. Leaf characterization of the newly collected germplasm is completed, whereas inflorescence and fruit characterization of the ecotypes available during this fruiting season is completed. Characterization of 30 varieties of banana was in progress and total 113 characters of banana will be recorded.

The details of maintenance of various reference varieties of fruit crops during the reporting year are as under as given in Table 23.

Table 23. Details of varieties/ecotypes of fruit crops

S. No.	Crop	No. of varieties/ ecotypes under maintenance	Location
1	Mango	17 Varieties (Ref. block)	Ratnagiri, Sindhudurg, Goa region and Andhra Pradesh and Gujarat
		34 Ecotypes (Ref. Block)	
		19 Varieties (Nursery)	
		37 Ecotypes (Nursery)	
2	Ginger	9	Maharashtra region
		23	AICRP spices, Dr. BSKKV, Dapoli
3	Turmeric	13 Ecotypes	Kerala and Maharashtra
		31 Varieties	AICRP spices, Dr. BSKKV, Dapoli
4	Cardamom	5	Karnataka and Indian Cardamom Research Institute, Myladumpara, Kerala
		5	Cardamom Research Station, Appangala
5	Citrus	3 Species	National Research Centre for Citrus, Nagpur
		1 Species	Dr. B.S. Konkan Krishi Vidyapeeth, Dapoli
6	Black pepper	6	Pepper Research Station, Panniyur, Kerala
		9	Indian Institute of Spices Research Farm, Peruvannamuzhi, Kerala
7	Banana	30	National Research Centre for Banana, Trichi, Tamil Nadu

Thirty six mango ecotypes were identified from Sindhudurg and Goa region during 2012-2013. Characterization of 30 varieties of banana was in progress and observation on about 113 characteristics were recorded.

2.10.3 Central Arid Zone Research Institute (CAZRI), Jodhpur

Central Arid Zone Research Institute, CAZRI, Jodhpur was assigned a project for establishment of Field Gene Bank for Arid Region species by the PPV& FR Authority. During the reporting year, the center was engaged in collection, evaluation, characterization and documentation of major arid crops/varieties such as moth bean (*Vigna aconitifolia*), clusterbean (*Cyamopsis tetragonnoloba)*, pasture grass (*Cenchrus ciliaris, C. setigerus*) and arid fruit (ber) under rainfed field condition. Apart from these crops, the center is also collecting the perennials (for species like Henna, *Prosopis cineraria*, *Salvadora* and *Acacia senegal* etc.) and establishing them under field condition. The details of species of different crops of arid zone are as under:

Table 24. Progress of collection by CAZRI

1	Moth Bean (*Vigna aconitifolia*): 12 varieties RMO-40, RMO-225, RMO-257, CAZRI Moth-1, CAZRI Moth-2, CAZRI Moth-3, Maru Moth, GMO-1, GMO-2, IPCMO-880, RMM-12, Jwala
2	Clusterbean (*Cyamopsis tetragonnoloba*): 34 varieties RGC 986, MARU GUAR, RGC 1078, BG 1, M 83, RGC 1066, BG 2, NUZIVEEDU, HG 258, HG4-875, BG 3, NEO, RGC 471, RGR-6, HG 365, M 83, HVG 2-30, SUVIDHA, HFG 119, KOMAL, HG 563, PMB, RGC 1031, Thar Bhadri, NPBGR PHB, HG 884, RGM-112, ANKUR SUNNY, RGR 7, FS 277, RGC 1003, HG 75, RG 1088, RGC 936
3	Cenchrus species (*Cenchrus ciliaris* and *C. setigerus*) Five genotypes: CAZRI 358, CAZRI 585, CAZRI 2178, CAZRI 2221, CAZRI 75 and IGFRI 3018 of C. ciliaris and CAZRI 76 of C. setigerus
4	Ber (*Ziziphus mauritiana*): 25 varieties CAZRI Gola, Aliganj, Dandan, Rashmi, Kaithali, Umran, Bagwadi, Chhuhara, Illaichi, Mundia, Maharwali, Tikadi, ZG-3, Thornless, F1(SebxKatha), Katha, Gola, F1(SebxTikadi), Banarasi Karaka, Jogia, BC1=F1(SebxTikadi)xSeb, Banarasi Pebandi, Sanaur-5, Seb, Kali

2.10.4 Birsa Agriculture 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*" was initiated on 1 April, 2009 at BAU, Ranchi. The mandated crops assigned for the centre being mango, aonla, pineapple, guava, bamboo, citrus and banana (Eastern Region) with the objectives to evaluate the important varieties of Eastern India by means of DUS for its morphological characterization and to establish and maintain live repository of registered/extant/farmer's varieties and development/refinement of descriptors for regionally important fruit crops. In the initial year of the project the basic infrastructure facilities (land development, land leveling, fencing, creation of temporary water bodies etc.) were created. In addition, iron gates and watchman room with little facilities to keep small farm equipment were also developed. The planting material related to

different fruit crops and their scions were collected from different centres of its own resources and other places. Thirty six mango varieties and one farmer variety have been put under DUS observations and data were recorded. Under citrus, acid lime, mosambi and Nagpur mandarin were collected from NRC, Nagpur and Khasi Mandarin from ICAR – Barapani, Shillong.Thirty varieties of conventional banana suckers have been collected from NRC, Trichy and put in the field gene bank. Four varieties of guava have also been put in field gene bank and in case of citrus, Kagzi Kalan varieties was transplanted during July, 2013.

Dr. R.C. Agrawal, Registrar General visited the project site on 5 August, 2012 followed by the visit of Dr. P.L. Gautam, Chairperson on 5 November, 2012. Both the dignitaries expressed satisfaction with the progress made under the project.

3. Activities Related to Farmers' Rights

The PPV&FR Act, 2001 is relatively a new legislation on IPR in plant varieties and requires massive awareness amongst the farmers, breeders, scientists and other relevant stakeholders. The Authority believes in close relation with the farmers, researchers, plant breeders, scientists, students, NGOs, and public and private organizations. During the past eight years, Authority has released funds for training-cum-awareness programmes, Kisan Melas, Kisan Utsavs, Agricultural Fairs, International conferences on agriculture, National seminars and agricultural workshops. In order to create awareness amongst the farmers about their rights, as envisaged under the PPV&FR Act, 2001, Farmers' Cell has been established in the Authority. The Farmers' Cell looks after the implementation of provisions of the Farmers' Rights in the Act. The Cell is also responsible for recommending financial assistance for training–cum–awareness programmes organized by various organizations/ stakeholders after scrutiny and examinations of proposals received. The details of training programmes organized/ supported during the period under report are as under:

- More than 100 training-cum-awareness programmes were organized through 68 SAUs/ICAR institutes, Government Departments and NGOs with financial support from the Authority as per details in ***Annexure-VIII***.
- The Authority has sponsored and participated in five exhibitions organized by various Organizations as under:
  - "*Cocotech*" organized by Coconut Development Board held from 2-6 July 2012 at Kochi.
  - "*8th International Agriculture & Hort. Expo-2012*" held from the 27-29 July 2012 at Pragati Maidan, New Delhi by NNS Event & Exhibition Pvt. Ltd
  - "*Global Agri. Connect 2012*" held from 2-4 November, 2012 at IARI, New Delhi organized by National Skills Foundation of India (NSFI).
  - "*Indian Seed Congress 2013*" held from 8-9 February, 2013, organized by National Seed Association of India at Gurgaon, and
  - "*EXPO-U.P Science Congress-2013*", held from 2-4 March, 2013 organized by DDU, Gorakhpur. During the exhibitions, video, posters, charts depicting the various activities of the Authority were displayed. Various publications, brochures, literatures etc., published by the Authority were distributed to the visitors.
- The Authority has sponsored and participated in four workshops organized by various Organizations as under:
  - Regional workshop for the Agricultural functionaries and farmers of eight States of NE Region held at IPR Cell, Department of Plant Breeding & Genetics, AAI Jorhat, Assam from 24-26 March, 2013, conducted by AAU, Jorhat.
  - National Workshop on "*Prosperity through Diversified Agriculture*" on 23 December, 2012, Kisan Divas organized by Haryana Kisan Ayog at Hisar.
  - "*100th Indian Science Congress (ISC)*" organized by Indian Science Congress Association from 3-7 January, 2013 at Kolkata.
  - "*8th Convocation of NVA Fellows*" held on 28-29 October, 2012 was organized by M.S. Swaminathan Research Foundation at MSSRF, Chennai.
- The Authority has also sponsored and participated in eight National and International Seminar/Conferences as under:
  - "*7th International Society for the Development of Natural Products*" held from the 15-17 November, 2012 organized by Amity institute for Herbal and Biotech Products Development in Kerala.
  - "*Statistics and information in Plant Variety Protection*" held from 18-20 December, 2012 conducted by Indian Society of Agriculture Statistics at IASRI campus, New Delhi.
  - "*International Conference on Creativity and Innovation at Grass roots-ICCIG*" held on the 7-8 December, 2012 organized by National Innovation Foundation at IIM, Ahmedabad.
  - "*National Convention on Gramin Gram Gyan Abhiyan*" in the month of October, 2012 organized by M. S. Swaminathan Research Foundation(MSSRF) at Chennai.
  - "*Conservation of Island Biodiversity*" organized by the Central Agricultural Research Institute, Port Blair held from 20-22 December, 2012.
  - "*Emerging Challenges & Paradigm for Sustainable Agri-Rural Development*" organized by Dr. Y.S.

Parmar University of Horticulture & Forestry, Solan (H.P) from the 18-20 December, 2012.

- "*Production, Productivity and Quality of Spices*" organized by National Research Centre on Seed Spices, Tabizi, Ajmer on 2-3 February at Ajmer; and
- "*National Dialogue on Orchids-2013*" organized by National Research Centre for Orchids on 8-9 March, 2013 at Sikkim.

3.1 National Gene Fund

The National Gene Fund was constituted by the DAC, Ministry of Agriculture, Government of India under the PPV&FR Act, 2001 by giving 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 include:

- Benefit sharing received from the breeder of a variety or an essentially derived variety registered under the PPV&FR Act, 2001;
- Annual fee received by PPV & FR Authority;
- Compensation deposited; and
- Contributions by National and International organizations.

As per the Act, the National Gene Fund can be applied for meeting:

- Any amount payable by way of benefit sharing;
- Compensation payable;
- The expenditure for supporting the conservation and sustainable use of genetic resources including *in-situ* and *ex-situ* collections and for strengthening the capability of the Panchayat in carrying out such conservation and sustainable use; and
- The expenditure of the schemes relating to benefit sharing.

Table 25. Status of National Gene Fund during 2012-13

Items	*₹ in lakh*
Opening balance as on 01 April, 2012	157.47
Contribution to Gene Fund	50.00
Annual fee received	8.50
Bank interest	11.44
Total	227.41
Less: Expenditure incurred on PGSC Award (2010-11) including administrative expenses	46.85
Closing balance as on 31 March, 2013	180.56

3.2 Plant Genome Saviour Community Awards for the year, 2010-11

On the eve of International day for Biological Diversity, the Chief Guest Dr. Charan Das Mahant, Hon'ble Minister for State for Agriculture & Food Processing Industries distributed Plant Genome Saviour Community Awards and Recognition Certificates for the year 2010-11 were distributed by Prof. M. S. Swaminathan, Member of Parliament (Rajya Sabha) to the communities of farmers, farmers and tribal people in the presence of galaxy of guests from India and abroad, Chairperson, PPV& FR Authority, senior officers of the Ministry of Agriculture, farmers, scientists from Indian Council of Agricultural Research, State Agricultural Universities and Members of the Authority, were present in the function held on 21 May, 2012 at A.P. Shinde Symposium Hall, NASC Complex, DPS Marg, Opposite Todapur Village, New Delhi.

The Plant Genome Saviour Community Award carries ₹ 10 Lakh in cash, citation and memento which are 4 in number; Plant Genome Saviour Farmer Reward carries ₹ 1 lakh each, citation and memento which are ten in number and twenty Plant Genome Saviour Farmer Recognition certificates. The details of the Plant Genome Saviour Community Rewards 2011-12 presented to four farming communities are as under:

- **Shyamsunder Sister Nivedita Sangha, Burdwan, West Bengal:**The Shyamsunder Sister Nivedita Sangha is engaged in developmental services to rural and agricultural sector including conservation and preservation of traditional rice varieties. The area falls under the Gangetic Delta Agro-biodiversity hot-spot of India. The Sangha facilitates cultivation of local traditional rice varieties through the farming community and protects the varieties in organic farming. A large number of farmers of the Sangha grow local rice varieties like Gobindabhog, Gopalbhog, Jhingasal, Daharnagra, Sarunagra and Sungokalma etc. They grow the varieties with traditional techniques and preserve their seeds with ancient methods.
- **Pokkali Rice Farming Community, Ernakulam, Kerala:**The Pokkali tract belongs to Thrissur, Alappuzha and Ernakulam districts of Kerala. It represents the low lying coastal saline areas where no other type of agriculture would ordinarily be possible. The area falls under the Malabar Agro-biodiversity hot-spot of India. Pokkali is the most gifted saline tolerant rice variety of the coastal saline ecosystem which is the donor of Saltol gene recognised by the International Rice Research Institute (IRRI), Manila,

Philippines. Many institutions within and outside India utilized the germplasm from the Pokkali tract for traits such as tolerance to salinity, acidity and submergence. This valuable source of genome has been recognized by the Govt. of India through awarding a Geographical Indication registration certificate during the year 2007. The Pokkali Rice Farming Community (Kadamkudy-Varapuzha Jaiva Pokkali ICS Ernakulum) developed a system of organic farming for sustainable system of growth of rice in low saline phase. Pokkali variety selected and conserved by farmers is inherently tolerant to salinity and submergence.

- **Wayanad District Development Action Council, Wayanad, Kerala:** The Wayanad District Tribal Development Action Council is engaged in overall development of the tribal communities of Wayanad and adjoining district of Kerala in Malabar Agro-biodiversity hot-spot of India involving major tribal communities, viz, Peniya, Kuruma, Kurichya, Kattunaikka Adiya and Urails. The efforts of this Council are dedicated to the conservation of traditional landraces of rice and to encourage traditional agricultural system. The conservation efforts of the Council not only promoted bio-diversity, indigenous and cultural diversity but also played an important role in enhancing the food and nutritional security.

- **Tamil Nadu Banana Hill Banana Growers' Federation, Dindigul, Tamil Nadu:**The Pulney hills in Dindigul district of Tamil Nadu is the home of famous Virupakshi Hill Banana. The bunchy-top virus disease wiped out thousand acres of Virupakshi Hill Banana and it was listed as endangered species in 1980. Due to the conservation and preservation efforts of Tamil Nadu Hill Banana Growers' Federation it got revived and was brought under cultivation in Pulney hills. The area and production has been increased with consequent increase in the income of the growers. The Federation was able to successfully get Geographical Indication Registration certificate for Virupakshi Hill Banana and Sirumalai Hill Banana during the year 2008.

Dr. Charan Das Mahant, Minister of State (Agriculture) appreciated the efforts of PPV & FR Authority which will go an extra mile in conserving and using our agro biodiversity to have a resilient Indian Agriculture. Besides, four Plant Genome Savior Community Awards, seven Recognitions were also awarded to the farmers for their contributions in the conservation and sustainable use of Plant Genetic Resources as under:

- Adarsh Gyan Vikas Trust, Adadara, Panchmahal, (Gujarat) has been engaged in the distribution of propagating material of bitter gourd, squash and teak among local farmers so as to conserve germplasm in natural (*in-situ*) habitat. It is doing a commendable service by spreading awareness among farmers about importance of agro-biodiversity and its conservation.
- Shri Babulal Dahiya, Sarjana Samajik Sanskritik Sahitiyak Manch, Pithorabad, Satna (Madhya Pradesh) has developed a number of varieties and preserved landraces of rice in local region. All landraces are drought and pest resistant. These landraces are being grown by local community and farmers by traditional methods. Shri Babulal Dahiya through his Manch has been engaged in conservation of biodiversity and natural resources for sustainable agriculture in adjoining areas among tribal community. He also initiated a seed bank with his own efforts and conserved more than 80 local rice varieties. Being a grass-root worker in the area of conservation and preservation of bio-diversity, his work has been recognized by many organizations.
- Jai Siddheshwar Shetkari Vigyan Mandal, Bharari, Aurangabad (Maharashtra) works in the area of conservation, preservation and improvement of traditional varieties of wheat. Through the intervention of the Mandal, traditional wheat varieties were exchanged among farming communities of the region for conservation and preservation purposes. The wheat crop grown through traditional methods has been gifted with bold seed and resistance to many diseases and, therefore, better in yield. The work of Mandal is commendable in preservation and conservation of traditional landraces of wheat.
- Shri Jose Mathew, Kerala developed a nutmeg variety 'Kochududy' after careful selection of high-yielding plants from his collection of 15 varieties. This variety

is resistant to wilt and performs better over ordinary varieties of nutmeg trees. The nutmeg cultivation of this variety has become very popular in Kerala recently and it was also approached by buyers from Germany.Infam, a movement of farmers in Kerala, has also conferred him with award. Shri Mathew has made significant contribution in scientific farming techniques during over more than two decades. Shri Mathew has also focused on rubber, pineapple farming and germplasm conservation.

- Krishi Vigyan Kendra located in Sadau, Kutch,(Gujarat) since 1992 is supporting agricultural and rural activities. The datepalm is a major commercial fruit crop of Kutch and has no specific variety. The KVK made survey to identify the elite datepalm varieties on farmers' field and prepared directory, created awareness among farming community for its protection, established tissue culture laboratory for large scale propagation, and preserved datepalm varieties and distributed it among farmers.
- Late Shri N. Seetharma Iyer has contributed to rice development programme of Tamil Nadu Rice Research Institute (TRRI) of Tamil Nadu Agricultural University (TNAU) by lending seeds of landraces and farmers varieties. For the TRRI rice breeding programme, he has contributed landraces such as *Karunguruvai, Oosi ponni, Anilvalsamba, Thangasamba, Kudiraivalsamba and Seeragasamba*. He has also made commendable efforts to promote quality seed production practices among the farmers of Cauvery Delta Zone. Late Shri Iyer was also involved in the development of cost effective practices Indigenous Traditional Knowledge (ITKs) which improve seed germination of rice landraces. He was also aware of the importance of rice marketability and promoted the knowledge of fellow farmers.
- Shri Prakash Singh Raghuvanshi is visually impaired farmer from Tadia Village, Varanasi, Uttar Pradesh. His sheer determination and entrepreneurship led him for developing many varieties of cereals and vegetables which were distributed among farmers. The rice and wheat varieties developed by him namely Kudrat and Karishma are performing well in extreme climatic conditions. The varieties developed by Shri Raghuvanshi are under trials at several agricultural universities and research stations. He has undergone several beej rallies (seed rallies) and distributed his seeds. He also advocated the protection of indigenous varieties. Shri Raghuvanshi has several awards and appreciations to his credit.

4. Development of DUS Test Guidelines

4.1 Task Force on development of DUS Test Guidelines

The PPV&FR Authority is guided by its apex committee known as Programme, Planning and Policy Committee (PPPC) on technical and policy matters. Accordingly, the Authority constituted several Task Forces on development of DUS Test guidelines for the prioritize crops. During the reporting year, DUS test guidelines of nine crops species consisting of 2 species of orchids (cattleya & phalaenopsis), 2 species of forestry (casuarina & eucalyptus), one fruit (pomegranate) and 4 species of cucurbits (bitter gourd, bottle gourd, cucumber & pumpkin) have been published in the Plant Variety Journal on the recommendations of the Task Force. The DUS guidelines for some other crops like barley, ber, banana, datepalm, apple, peach, pear, plum, apricot, almond, walnut and seed spices are under various stages of development. The progress of the DUS Test guidelines for barley, pomegranate, coriander, fenugreek, apple, peach and plum have been finalized by the respective Task Forces as under:

4.1.1 Task Force on the validation of DUS descriptors of barley

The second meeting of the Task Force was held under the Chairmanship of Dr. S.C. Gulati, former, Principal Scientist, IARI, New Delhi on 8 January, 2013 at NASC Complex, New Delhi. During this meeting the DUS descriptors prepared by Directorate of Wheat Research, Karnal were discussed in a meeting to finalize the DUS guidelines. ND University of Agriculture & Technology, Faizabad is another co-nodal centre for developing DUS guidelines. During the *Rabi*, 2012-13, 78 barley varieties were grown and evaluated in RBD design in 3 replications. The observations were recorded on 32 characters right from growth habit to maturity of the crop in the field conditions and various grain parameters were also recorded in laboratory. The draft DUS guidelines were in the process of finalization by the Task Force. The suggestions given by the members were discussed in detail and concerned PI was requested to include these suggestions/comments in the draft DUS guidelines for in-depth discussion in the next meeting of the Task Force.

4.1.2 Task Force on Pomegranate

The DUS guidelines for pomegranate developed by National Research Centre for Pomegranate, Pune were finalized and approved by the Task Force during its two meetings held under the Chairmanship of Dr. S. N. Pandey, former Assistant Director General (Hort.), ICAR. The meetings of the Task Force were held on 29 May, 2012 followed by another meeting to finalize the same on 19-20 November, 2012 at NASC Complex, New Delhi.

Variation in Aril colour

4.1.3 Task Force on Seed Spices (Coriander and Fenugreek

The DUS test guidelines for seed spices (coriander, fenugreek, cummin and fennel) were entrusted to National Research Centre for Seed Spices (NRCSS), Tabiji, Ajmer. The Centre has finalized the DUS guidelines for coriander and fenugreek only which were also approved by the Task Force constituted under the Chairmanship of Dr. G. Kalloo, former Deputy Director General (Hort. & Crop Sciences), ICAR, & former Vice Chancellor, JNKVV, Jabalpur in its two consecutive meetings held on 10 December, 2012 and 11 March, 2013 at Ajmer (Rajasthan).

4.1.4 Task Force on Ber and Datepalm

2nd meeting of Task Force on validation of DUS descriptors of ber and datepalm was held on 8-9 November, 2012 under the Chairmanship of Dr. B.B. Vashishtha, former Director, NRCSS, Ajmer to review the progress of work under the two projects.The meeting was attended by Dr. V. S. Supe, Horticulturist, MPKV Rahuri & Member, Dr R.S. Singh, Prin. Scientist & Nodal Officer, Dr R. Bhargava Co-PI and Dr. Hare Krishna, Shri. D. S.Mishra,

Joint Registrar & Member Secretary was also present on behalf of Authority. Dr. R. S. Singh, PI presented the progress report of DUS centre on datepalm on the 21 morphological and fruiting characters in 23 datepalm varieties for DUS guidelines. Dr. Hare Krishna also presented the progress of DUS descriptors of ber, which were based on morphological and fruiting characters in ber reference varieties.

Variability in shape of the fruit among different *ber* genotypes

4.1.5 Task Force on Apple, Peach, Plum, Pear, Walnut and Almond

The First meeting of the Task Force for validation of DUS test guidelines for temperate fruits (apple, peach, plum, pear, walnut and almond) was held under the Chairmanship of Dr. K.K. Jindal, Emritus Scientist, Department of Fruit Science, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan on 15-16 January, 2013 at NASC Complex, New Delhi. Director, CITH, Srinagar (J&K) to whom these DUS guidelines were assigned presented the guidelines for apple, peach & plum along with the concerned PI. Due to paucity of time the guidelines for the pear, walnut and almond could not be discussed in the above meeting. It was decided that these remaining guidelines will be discussed and finalized by the Task Force in the next meeting to be held at CITH, Srinagar itself.

4.2 DUS Guidelines under development

Besides, the Authority has entrusted the development of DUS test guidelines of other crops/species to different ICAR institutes and agencies of the ICAR, CSIR, ICFRE and SAUs. The progress of development of some of these DUS test guidelines and the institute responsible for the same are as under:

4.2.1 National Research Centre for Citrus (NRCC), Nagpur

Under the project on "*Finalizing Crop Specific DUS testing Guidelines for Citrus i.e. Mandarin (C. reticulata), Sweet Orange (C. sinensis) and Acid lime (C. aurantifolia)*" the NRC developed DUS guidelines for all the three citrus species. Fourteen citrus cultivars of all the four species were characterized at NRC for Citrus. The draft DUS guidelines for the three species will be discussed and finalized in the next meeting of the Task Force. For other three species basic data were collected during the year (*C. grandis, C. jambhiri and C. limonia*) and the DUS Test guidelines will be ready by the next year. Reference collection of targeted citrus species were established at BAU, Ranchi and SBSKKV, Dapoli (MS).

Table 26. Details of Citrus cultivars characterized

1)	Nagpur mandarin (*C. reticulata*)	6)	Coorg mandarin (*C. reticulata*)	11)	Khasi mandarin (*C. reticulata*)
2)	Mosambi (*C. sinensis*)	7)	Sathgudi (*C. sinensis*)	12)	Kagzi Niboo (*C. aurantifolia*)
3)	Pummelo (*Citrus grandis*)	8)	Sai sarbati (*C. aurantifolia*)	13)	Vikram (*C. aurantifolia*)
4)	Balaji (*C. aurantifolia*)	9)	Pramalini (*C. aurantifolia*)	14)	N4 (*C. reticulata*)
5)	N28 (*C. reticulata*)	10)	Chakradhar (*C. aurantifolia*)		

4.2.2 Tocklai Experimental Station, Jorhat, Assam

The Research Station has been given the project on "*Validation of Tea descriptors for developing DUS test guidelines and registration of tea varieties*". The project was initiated with Tocklai Experimental Station, Jorhat, Assam, United Planter's Association for Southern India (UPASI) Tea Research Institute, Valparai, Coimbatore, Tamil Nadu, and Darjeeling Tea Research & Development Centre (DTRDC), Tea Board, Kurseong, West Bengal with the following objectives:

- Characterization and data digitization of plant and seed varieties of tea;
- To study distinctiveness, uniformity and stability (DUS) of the varieties; and
- Registration of tea varieties under PPV&FR Act, 2001

In order to conduct the test for Distinctiveness, Uniformity and Stability (DUS) on tea (*Camellia* spp. L.) for registration of the tea varieties developed by the different tea research institutes/tea industries data for all the morphological characters were recorded for all the released 31 clones from Tocklai Experimental Station, Tea Research Association, Jorhat. Thirty one clones developed by UPASI Tea Research Institute and 20 clones from DTRDC, Darjeeling. Sixteen morphological characters were identified that may be considered as DUS characters. In the first meeting of the Task Force floral characters *viz*. flower diameter, length of style, position of style splitting, position of stigma relative to stamens were considered for inclusion in the DUS characters and data on theses parameter were recorded by all the three collaborating institutes. Another growth behaviour character-flushing behaviour seems to have ability to distinguish the varieties. The DUS guidelines are under the finalization stage.

Table 27. Details of tea clones maintained

S. No.	Clones
1	Tocklai Experimental Station: Vegetative clones (TV1, TV2,TV3,TV4,TV5,TV6,TV7, TV8, TV9, TV10, TV11, TV12, TV13, TV14, TV15, TV16, TV17, TV18, TV19, TV20, TV21, TV22,TV23,TV24, TV25, TV26, TV27, TV28,TV29,TV30, TV31) at Tocklai Experimental Station, Tea Research Association, Jorhat and 11 varieties P-1404,THBo-3,THBo-9,SKM-1, B-157,AV-2, T-253,RR-4,5,T-135,B-668,P-312.
2	UPASI-TRF: UPASI-1, UPASI-2, UPASI-3, UPASI-4, UPASI-5, UPASI-6, UPASI-7, UPASI-8, UPASI-9, UPASI-10, UPASI-11, UPASI-12, UPASI-13, UPASI-14, UPASI-15, UPASI-16, UPASI-17, UPASI-18, UPASI-19, UPASI-20, UPASI-21, UPASI-22, UPASI-23, UPASI-24, UPASI-25, UPASI-26, UPASI-27, UPASI-28, TRF-1, TRF-2, TRF-3 and TRF-4
3	DTRDC, Darjeeling: PHOOBSERING – 312 , BANNOCKBURN – 157 , TUKDAH – 145, AMBARI VALAI – 2 , TUKDAH – 253, TUKDAH – 246, BANNOCKBURN – 777, RUNGLI – RUNGLOIT – 4/5 , BANNOCKBURN – 668, LINGIA – 12 , PHOOBSERING – 1404, KOPATI – 1/1 , HAPPY VALLEY – 39 , SUNDARAM, PHOOBSERING – 1258, TEESTA VALLEY – 1 , SIKKIM – 1 , CHIRAIDEW PARBAT – 1 , TUKDAH – 78, TUKDAH – 135, TUKDAH – 383, RUNGLI – RUNGLOIT – 17/144, BALASUN – 17/1A/76 ,BALASUN – 9/3/76, BADAMTAM – 15/263 , THURBO – 3, THURBO – 9

One interaction session between the scientist advisory officers of Tocklai Experimental Station, Tea Research Association (TRA) and Deputy Registrar of PPV&FRA, branch office, Guwahati was organised. Honourable Chairman Tea Board and Deputy Chairman, Tea Board of India visited the UPASI Tea Research Institute during the reporting year.

4.2.3 UPASI, Tea Research Institute, Valparai

The Institute has been assigned the same project on "*Validation of tea descriptors for developing DUS guidelines and registration of tea varieties*" with the same objectives.

In order to conduct the test for Distinctiveness, Uniformity and Stability (DUS) on tea (Camellia spp. L.) for registration of the tea varieties developed by the different tea research institutes/tea industries with Protection of Plant varieties and Farmers' Rights Authority (PPV & FRA), a test guideline is necessary. Data for all the morphological characters were recorded for all the released 31 clones from Tocklai Experimental Station, Tea Research Association Jorhat, Assam. Thirty one clones developed by UPASI Tea Research Institute and 20 clones from DTRDC, Darjeeling.

Tocklai Experimental Station, Jorhat

To characterize the tea varieties under the project, 31 Tocklai vegetative clones (TV1 to TV 31) at Tocklai Experimental Station, Tea Research Association, Jorhat and 11 varieties (P-1404, THBo-3, THBo-9, SKM-1, B-157, AV-2, T-253, RR-4, RR-5, T-135, B-668, P-312) at Tea Research Association, Ging T.E., Darjeeling has been considered as reference varieties under maintenance at the DUS Test centre.

UPASI-TRF

Clones collected in UPASI Tea Research Institute are UPASI-1 to UPASI-28, TRF-1, TRF-2, TRF-3 and TRF-4.

DTRDC, Darjeeling

Clones characterized under Darjeeling conditions are "phoobsering–312, bannockburn–157, tukdah–145, ambari valai–2 , tukdah–253, tukdah–246, bannockburn–777, rungli–rungloit–4/5, bannockburn–668, lingia–12, phoobsering–1404, kopati–1/1, happy valley–39, sundaram, phoobsering–1258, teesta valley–1, sikkim–1, chiraidew parbat–1, tukdah–78, tukdah–135, tukdah – 383, rungli – rungloit–17/144, balasun– 17/1a/76, balasun – 9/3/76, badamtam – 15/263, thurbo–3, thurbo–9". DUS descriptors for tea were developed / identified and the draft guidelines are under finalization.

4.2.4 Central Institute for Arid Horticulture (CIAH), Bikaner

The Institute has been given three projects on "*Validation of the DUS descriptors for development of DUS Guidelines for ber, datepalm and watermelon & muskmelon*" by the Authority. The progress of each of these projects is given on the next page:

Datepalm

Out of 40 reference variety collection of date palm, which are mostly exotic and introduced from abroad were maintained at the centre. However, six varieties viz. Punjab Red, Bhukso, Khotho, Bikaner Local, Javantri and Gulchati are indigenous and also evaluated for their performance under hot arid conditions. The offshoot of MDP-1 and Sopari a local collection was made from DRS, Mundra, Bhuj, Gujarat and planted for evaluation. Morphological and fruiting characters of datepalm varieties were recorded during the first year of study.

Ber (*Ziziphus* sp.)

Out of 90 varieties of ber maintained at the centre, the maximum varieties were variety of common knowledge (VCK) except three varieties *viz*., Goma Kirti, Thar Bhubhraj and Thar Sevika which have been released at Institute level. Morphological and fruiting characters of *ber* varieties were recorded during the period under report. During the 2nd meeting of the Task Force held at CIAH, Bikaner on 8-9 November, 2012. The committee took stock of validation of DUS descriptors for ber/datepalm for the purpose of developing DUS test guidelines. The observations recorded on various characteristics of ber were validated for second year at CIAH, Bikaner and also at MPKV, Rahuri for developing and finalizing the DUS test guidelines.

Watermelon and Muskmelon

The project on "*Validation of DUS testing Guidelines for Cucurbits* i.e. Watermelon and Muskmelon" given to CIAH, Bikaner and IIVR, Varanasi with the objectives i) to validate the draft descriptors for Watermelon and Muskmelon ii) to assemble and validate the varietal collections available with the Agricultural Universities, ICAR Institutes and other institutions iii) to maintain the reference/example varieties through maintenance breeding iv) to identify specific morphological characters, if required and v) to develop the database for the descriptors of targeted crops to add on to IINDUS.

During the reporting year, nine released varieties of watermelon and 13 of muskmelon were evaluated along with the promising germplasm during *Kharif*, 2012 for validation of various descriptor states according to the DUS minimal descriptors formulated. Seeds of all the varieties under study were maintained through inbreeding. The various traits of muskmelon and watermelon were observed and recorded for developing DUS guidelines as under:

Table 28. DUS descriptors

Watermelon	*Muskmelon*
Traits	***Traits***
Leaf blade: degree of primary lobing	Ovary: pubescence
Leaf blade: degree of secondary lobing	Fruit: shape in longitudinal section
Ovary: pubescence	Fruit: colour of skin
Sex expression (at full flowering)	Fruit: strength of attachment of peduncle at maturity
Fruit: shape in longitudinal section	Fruit: shape at peduncle end
Fruit: stripes	Fruit: shape at blossom end
Fruit: colour of flesh	Fruit: diameter of pistil scar
Seed: colour of coat	Fruit: grooves
	Fruit: sutures
	Fruit: colour of flesh

4.2.5 Indian Institute of Vegetable Research (IIVR), Varanasi

The project on "*Validation of DUS testing guidelines for Cucurbits i.e. Cucumber, Bitter gourd, Bottle gourd, Pumpkin and Pointed gourd*" was assigned to IIVR, Varanasi. Thirty-one bottle gourd reference varieties (31 traits), 25 bitter gourd varieties (31 traits), 24 cucumber varieties (35 traits) and 18 pumpkin varieties (30 traits) were characterized as per the draft DUS guidelines and also finalized in the Task Force meeting and data base for bottle gourd, bitter gourd, cucumber and pumpkin submitted to Authority.

Eighteen pumpkin varieties were collected from AICRP (VC) centres and evaluated as example varieties for preparation of DUS test guidelines. These varieties were collected from various centres *i.e.* I.A.R.I., New Delhi; I.I.H.R., Bengaluru; I.I.V.R., Varanasi; A.A.U., Gujarat; C.S.A.U.A.&T. Kanpur; C.H.E.S., Ranchi; PAU, Ludhiana; AAU, Anand and T.N.A.U., Coimbatore.

Table 29. Details of varieties raised during *Kharif*, 2012

S. No.	*Varieties*	*S. No.*	*Varieties*
1	Arka Chandan	10	Pusa Vikash
2	CM-350	11	Pusa Vishwash
3	Co-2	12	Swarna Amrit
4	HARP-4	13	VRPK-07-01
5	Kashi Harit	14	VRPK-09-1
6	KPS-1	15	VRPK-222-2-1
7	Narendra Agrim	16	VRPK-62
8	Narendra Amrit	17	CO-1
9	Punjab Samrat	18	VRPK-05-01

The crop was raised using the recommended cultural practices during the *Kharif*, 2012 with proper maintenance and selfing programme. The off-types plants were rouged out and only true to type plants were maintained for further seed extraction.

Bottle gourd

Thirty one bottle gourd varieties were collected from AICRP (VC) centres and evaluated as example varieties for preparation of DUS test guidelines. These varieties were collected from various centers.

Table 30. Details of varieties raised during *Kharif*, 2012

S. No.	Varieties	S. No.	Varieties
1	ABG-1	17	Punjab Long
2	Arka Bahar	18	Pusa Naveen
3	CO-1	19	Pusa Samridhi
4	GH-22	20	Pusa Sandesh
5	Jora Botta	21	Pusa Santusthi
6	Kalyanpur Long Green	22	Rajendra chamtkar
7	Kashi Ganga	23	VR-1
8	KBGR-12	24	VR-2
9	Narendra Dharidar	25	VRBG-136
10	Narendra Jyoti	26	VRBG-6
11	Narendra Rashmi	27	VRBG-7
12	NDBG-132	28	Samrat
13	NDBG-619	29	JBG-50
14	Pant Lauki-1	30	JBG-51
15	Pant Lauki-3	31	NDBG-10
16	Punjab Komal		

The crop was raised using the recommended cultural practices during the *Kharif*, 2012 with proper maintenance and selfing programme. The off-types plants have been rouged out and only true to type plants were maintained for further seed extraction.

Bitter gourd

Twenty five bitter gourd varieties were collected from AICRP (VC) centres and evaluated as example varieties for preparation of DUS test guidelines. These varieties were collected from various centers. The crop was raised using the recommended cultural practices during the *Kharif*, 2012 with proper maintenance and selfing programme. The off-types plants were rouged out and only true to type plants were maintained for further seed extraction.

Table 31. Details of varieties raised during *Kharif*, 2012

S. No.	Varieties	S. No.	Varieties
1	Arka Harit	14	Pant Karela-1
2	BBGS-09-01	15	PBIG-02
3	CO-1	16	Phule green gold
4	DARL-43	17	Phule Ujawala
5	DBGS-37	18	Preethi (MC-84)
6	HABG-21	19	Punjab-14
7	HABG-22	20	Pusa Do Mausami
8	Hirkani	21	Pusa Vishesh
9	Kalyanpur Baramashi	22	Sel-1
10	Kashi Urvashi	23	Sel-5
11	Meghna-2	24	Solan Hara
12	NDBT-7	25	VR-333
13	NDBT-9		

Cucumber

Twenty four cucumber varieties were collected from AICRP (VC) centres and evaluated as example varieties for preparation of DUS test guidlines. These varieties were collected from various centers.

Table 32. Details of varieties raised during *Kharif*, 2012

S. No.	Varieties	S. No.	Varieties
1	Phule Shubhangi	13	PCUC-09
2	Punjab Naveen	14	PCUC-10
3	Swarna Ageti	15	KTCS-07
4	Swarna Poorna	16	No-374
5	Swarna Sheetal	17	VR-101
6	Himangi	18	VRC-26
7	K-75	19	DC-54
8	K-90	20	DC-78
9	Kalyanpur Green	21	Goa Local
10	JLG (Kabira)	22	Gujrat Cucumber Long
11	Pant Khira-1	23	Cucumber Seven Star
12	Cucumber Long Green	24	Dev Kamal

The crop was raised using the recommended cultural practices during *Kharif*, 2012 with proper maintenance and selfing programme. The off-types plants were rouged out and only true to type plants were maintained for further seed extraction.

Pointed gourd

Five pointed gourd varieties viz. (IIVR-PG-1, 2, 3, Narendra Parwal-260, Swarna Alankar and Male) were vegetatively planted in the field in September, 2012. The crop was transplanted using the recommended cultural practices with proper maintenance and further data recording and multiplication.

4.2.6 Indian Institute of Horticultural Research (IIHR), Hessarghatta,Bengaluru

Jasmine

"*Validation of DUS descriptors for developing guidelines for DUS testing in Jasmine* spp" was entrusted to IIHR, Bengaluru with the objective to develop DUS test guidelines, establishment of National database, characterization of salient features of important varieties/ genotypes and their documentation and validation of data of descriptors for jasmine. During the reporting period, the center collected, multiplied and established twenty nine accessions of *Jasminum* spread across four commercially cultivated species and four other species viz *Jasminum* sambac (16), *Jasminum auriculatum* (4), *Jasminum grandiflorum* (2) and *Jasminum multiflorum* (3). All these collections have been grown in the fields and have been morphologically characterized for 45 characters and recorded their states, stages and type of assessment. The first draft of the DUS test guidelines was prepared for discussion in the meeting of the Task Force.

Tuberose

A reference collection of 16 genotypes (VCK) of tuberose along with 8 breeding lines were evaluated as per UPOV guidelines for various morphological traits. Some of the important grouping characteristics for which observations were recorded are leaf variegation, pigmentation on leaf base, bud colour, flower type, flower shape, spike length, stigma type, stigmatic lobes, pigmentation on peduncle, days taken for flowering and No. of locules in fruit. Observations were also recorded for other qualitative and quantitative characteristics, both vegetative and floral.

The varieties could be classified as Variegated / Non variegated, Single / Double, Greenish / Pinkish budded types. There was wide variation with respect to pigmentation on base of leaf and peduncle. Flower shape varied from tubular to narrow funnel and broad funnel. Based on length of spike, they could be categorized as short, medium and long. Both pin type and thrum type could be recorded among the genotypes along with variation in the number of stigmatic lobes.

Some varieties exhibited earliness for flowering while others were late. All the genotypes possessed trilocular ovaries while cultivar Arka Nirantara was unique in possessing both trilocular and tetralocular ovaries in association with tetrafid stigma. Wide variation was observed for flower length, flower diameter, flower opening, number of rows of petals, rachis length, length of pedicel, flower tube length, bract size and seed setting ability.

- A special training programme on imparting of DUS testing in rose, chrysanthemum, strawberry, tomato and French bean was conducted at IIHR, Hessarghatta, Bengaluru on 5-6 December, 2012 by Mr. W. J. Sangster, a resource person from Naktuinbouw, Netherlands accompanied by Shri Dipal Roy Choudhury, Joint Registrar, PPV&FR Authority, New Delhi.
- A DUS Review Meeting was held at IIHR, Bengaluru, on 23 March, 2012, under the Chairmanship of Dr. Manoj Srivastava, Registrar, PPV&FR Authority and progress of DUS project on Tuberose was presented and discussed.

Marigold

Developing DUS test guidelines for marigold has also been assigned to IIHR, Bengaluru in 2011-12. During the reporting year, the centre has maintained and characterized 9 reference varieties of marigold. Out of 9, three varieties were released by ICAR and 6 belong to IIHR itself. The DUS descriptors includes anthocyanin coloration in hypocotyl & stem, fragrance, plant height, growth habit, branching, leaf characters like type, length, width, leaflet, leaf margin, flower head and its characteristics like Ligulate floret, shape, length, incision etc.

4.2.7 Forest College and Research Institute (FCRI), Mettupalayam (TNAU)

Development of DUS descriptors and draft guidelines in Neem, Karanj and Jatropha were assigned to Forest College and Research Institute, Mettupalayam by Authority for the last two years. About 44 morphological descriptors for neem, 53 descriptors for karanj and 36 descriptors for jatropha were identified, developed and documented for draft DUS guidelines. The details of descriptors developed in the programme is summarized below:

Table 33. Status of DUS descriptors in forest species

S. No.	Species	DUS characters for developing DUS descriptors	No. of Descriptors (essential & descriptive descriptors)
1	Neem	Crown, Inflorescence, Leaf, Fruit, Seed	20 Essential 24 Descriptive
		Total Descriptors	44
2	Karanj	Crown, Stem, Leaf, Inflorescence, Pod, Seed	38 Essential 15Descriptive
		Total Descriptors	53
3	Jatropha	Crown, Stem, Leaf, Fruit, Seed	24Essential 12Descriptive
		Total Descriptors	36

4.2.8 Central Tuber Crops Research Institute (CTCRI), Regional Station,Bhubaneswar

Regional Centre, Bhubaneswar along with BCKV, Kalyani as co-nodal center, are working on development of DUS test guidelines of two important food cum vegetable crops belonging to the family *Araceae* of aroids, viz., Taro (*Colocasia esculenta* (L) Schott) and Elephant foot yam (*Amorphophallu spaeoniifolius* Denstt. Nicolson).

During the reporting period, seventeen elephant foot yam and 21 taro varieties were planted in three replications with RBD. Characters were defined in accordance to IPGRI descriptors and visual assessment was done using Royal Horticulture Society colour chart. Pre-harvest characters were taken 90-100 days after planting (DAP) for elephant foot yam and 80-90 DAP in case of taro. Thirty one pre-harvest morphological characters are being recorded for elephant foot yam and thirty two pre-harvest morphological characters were recorded for taro varieties. The progress of the validation of characters for developing DUS test guidelines are as under:-

The preliminary observation of the morphological characters on 21 taro varieties revealed some unique characters. Out of 21 varieties, the colour of petiole junction was observed to be green in four & rest showed purple colour. Among the varieties, IGCOL-8 and BCC-22 showed number of suckers in the range of 6-10. Only BCC-47 showed pink coloured sap of leaf blade tip. Majority of the varieties were having low waxiness of leaf, cv. Panisaru-1, BCC-1, Panisaru-2 and Sree-Reshmi recorded to have medium level of waxiness. Some distinct characters were also noticed.

Elephant foot yam

The preliminary observation of the morphological characters on 17 varieties of elephant foot yam revealed certain degree of uniqueness. The leaflet colour was yellow or yellow green in 8 varieties and green with yellow spots in other 9 varieties. Vein colour in leaflets was green in majority (15) of the varieties in contrast to Gajendra and Kovvur whose leaflet vein colour found to be green and light purple respectively. Out of 17 varieties 5 appeared to be in "V" pattern with respect to rachis junction. The colour of the rachis junction also offered uniqueness having light green coloured junction only in Bidhan Kusum with white patch. Majority (11) of varieties found to be in low range with respect to waxiness of leaf. Some distinct characters were highlighted.

The preliminary observations of post harvest characters of taro and elephant foot yam revealed distinctiveness and can be the keystone criteria for DUS testing subjected to their regular and uniform appearance in next seasons and other test locations. The observed characteristics are briefed crop wise as follows:

Taro corm shape

- Corm shape in taro showed uniqueness among 21 varieties. While most of the varieties showed round shaped corm, AAVCOL-46 and Sreekiran were cylindrical.
- Sonajuli, BCC-22 and BCC-35 were elliptical. Similarly Sree Reshmi and RA-1 were found dumbbells shaped.

Corm flesh fibre

- The corm flesh fibre were found to be light yellow in most of the varieties. The varieties viz, BCC-38, Panisaru-2, BCC-1, Telia, RA-1 and Panisaru-1 were found to have corm flesh fibre of brown colour.
- While in majority of varieties, corm skin surface was observed to be slightly fibrous, BCA-22 had high degree of fibrousness.
- The bud colour was found to be pink only in AAVCOL-46 and RA-1 in addition to white in 7 varieties and light green in other 12 varieties.

Cormel characters

- Cormel characters also offered certain degree of uniqueness. The number of cormels were found to be more than 10 in Sonajuli, BCC-39, Sree Reshmi and Sreekiran.

- Less than 5 numbers of cormels were recorded in BCC-47, Sathamukhi, RA-1 and IGCOL-1.

Elephant foot yam corm characters

- Thick corm skin was observed only in BCA-4 with rest of the varieties being thin.
- In most of the varieties the number of cormels were found to be more than 5 while in BCA-2, BCA-3 and NDA-5 the number of cormels were observed to be less than 5.
- Among all the varieties, BCA-5 showed light yellow coloured corm cortex.
- While most of the varieties showed yellow coloured corm flesh, varieties viz, NDA-4, Gajendra and Kovvur showed uniqueness in having light yellow and light orange coloured corm flesh.

Shri Uday Maharaj, Ramkrishna Mission, Deoghar visited DUS field with tribal farmers of Jharkhand on 12 October, 2012 at Regional Centre of CTCRI, Bhubaneswar followed by a visit by Dr. R. C. Agrawal, Registrar General, PPV&FRA on 30 November, 2012 to see the released varieties of taro and sweet potato. Shri J. B. Pattnaik, Hon'ble Governor of Assam visited the Regional Centre of CTCRI, Bhubaneswar and inspected orange flesh sweet potato varieties on 2 February, 2013.

4.2.9 Central Tuber Crops Research Institute (CTCRI), Sreekariyam, Thiruvananthapuram, Kerala

CTCRI has been entrusted by Authority to formulate "*DUS guidelines for cassava and sweet potato*". The institute maintained 37 released varieties of sweet potato and 22 released varieties of cassava in field and 205 cultures of sweet potato and 35 cultures of cassava *in-vitro*. In addition, twenty-eight landraces (reference varieties) of cassava and three reference varieties (landraces) of sweet potato were also maintained for conducting DUS test trial in future.

Under the project, draft DUS testing guidelines were prepared with 53 traits for cassava including 9 grouping traits and 34 traits for sweet potato including 7 grouping traits. In cassava, DUS guidelines included four essential and 40 descriptive traits. Seventeen pre harvest characters for sweet potato and 11 characters of cassava have been validated for uniformity and stability. In sweet potato, guidelines included four essential and 27 descriptive traits. Reference varieties were identified and photographs were documented in both cassava and sweet potato. The draft DUS test guidelines for cassava and sweet potato submitted to Authority for review by Task Force.

4.2.10 Central Tuber Crops Research Institute (CTCRI), Bhubaneswar

Regional Centre of CTCRI, Bhubaneswar has been assigned a project on "*Developing DUS testing guidelines and varietal gene bank for establishment of tropical tuber crops like cassava and sweet potato.*" Thirty seven released varieties of sweet potato and 14 released varieties of cassava have been maintained and characterized in field. Besides, 205 cultures of sweet potato and 45 of cassava were maintained *in-vitro*. Centre has also identified pre-harvest 17 characters for sweet potato and 11 characters of cassava which have been validated for uniformity and stability. The uniqueness of β-carotene rich orange flesh sweet potato ST-14, Gouri and anthocyanin rich purple flesh sweet potato ST-13.

4.2.11 National Botanical Research Institute (NBRI), Lucknow

NBRI, Lucknow has been entrusted for "*developing DUS Test guidelines for bougainvillea, gladiolus and canna*", maintenance of their live germplasm collection, and development of databases for the above flowers for use in the DUS testing and registration of varieties. The progress of work for each of the projects is as under:-

Bougainvillea

A germplasm collection of 200 varieties of bougainvillea was maintained in the DUS test centre at their Botanical Garden. The varieties belong to the four different species- *Bougainvillea spectabilis, Bougainvillea glabra, Bougainvillea peruviana and, Bougainvillea x buttiana.* Characterization of morphological characters, both vegetative and floral have been recorded keeping in view key and diagnostic characters which would be helpful to certain authenticity of the variety. Twenty Bougainvillea varieties have been characterized for stem colour, colour

of young leaf, mature leaf and the leaf size, size of thorn and various inflorescence and flower characteristics like colour.

Canna

A germplasm collection of 50 varieties of canna has been maintained. Varieties belong to the different species - *Canna indica, Canna generalis, Canna flaccida, Canna latifolia, Canna edulis and Canna warscwiczii* . Characterization of morphological characters both vegetative and floral have been recorded to ascertain authenticity of the variety. Fifteen varieties have been characterized for vegetative character like fresh weight of rhizome, number of nodes/ internodes, diameter of rhizome, number of eyes and roots, colour of rhizome, stem diameter, shape, length, colour etc., leaf characteristics like size of leaf blade, apex shape, shape of leaf, variegation in leaf, total number of leaves/ plant, colour of leaf and floral characters include type of inflorescence, length of inflorescence, number of flower per inflorescence, size of flower, colour of flower, staminodes shape, staminodes size.

Gladiolus

A germplasm collection of 100 varieties of gladiolus has been maintained in the DUS test centre at the Botanical Garden. The varieties belong to the *Gladiolus hybridus*. Characterization by recording morphological characters both vegetative and floral have been recorded keeping in view key and diagnostic characters to ascertain authenticity of the variety. Fifteen varieties have been characterized for plant height, size of leaf, total number of leave / plant, colour of leaf, type of inflorescence, length of spike, number of florets per spike, days of spike initiation, flowering duration, size of flower (length and breadth), colour of petals, colour

of petals back, colour throughout, petals shape, petals size (length and breadth) and androeicium length, filament length, anther length, colour of filament, colour of anther, length of style and stigma and their colours.

4.2.12 National Research Centre on Pomegranate (NRCP), Solapur

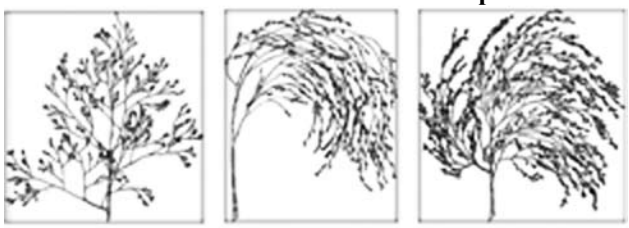
The project on "*Validation and development of DUS test guidelines for pomegranate, database for comparing the new varieties and documentation and recording of salient features of important varieties/genotypes of the pomegranate*" was given to the NRC Solapur. For preparation of pomegranate DUS test guidelines, information was collected from different sources. Ninety two pomegranate exotic germplasm introduced from USDA, California and maintained at Bhowali were shifted at NRCP, Solapur. Maintained 282 germplasm at NRCP field gene bank and nursery which were collected from various sources viz. western Himalayas, Maharashtra, Karnataka, A.P, Gujarat etc. Finalized DUS test guidelines of pomegranate, database of 20 varieties taking 32 characters including morphological, chemical and physical traits has been created which may be useful for

preparation of catalogue of pomegranate. For preparation of photo library, digital photographs of leaf, flower, fruit, aril etc. were taken. For creation of database of pomegranate germplasm, data on growth, fruit quality and morpho-metric traits were recorded which will be useful in registration of genotype/varieties. Documented all the salient features of important varieties/genotypes. During the reporting year the Task Force under the Chairmanship of Dr. S. N. Pandey, former ADG (Horticulture), ICAR finalized the DUS testing guidelines for the pomegranate with National Research Centre on Pomegranate, Kegaon, Solapur as Nodal centre and Central Arid Zone Research Institute, Jodhpur as Co-nodal centre for DUS testing.

4.2.13 University of Agricultural Sciences (UAS), GKVK, Bengaluru

"*Developing guidelines for conduct of test for Distinctiveness, Uniformity and Stability in Small millets (finger millet, foxtail millet, kodo millet, little millet, barnyard millet and proso millet)*" was given to the Project co-ordinator, All India Co-ordinated Research Improvement Project on small millets, UAS, Bengaluru. The project involves identification of test guidelines and DUS traits in small millets. It involves identification and characterization of all the released varieties of small millets for establishing distinctiveness and protection, identification/validation of set of DUS traits for small millets as well as generation of database for all released varieties based on multi location evaluation for various qualitative and quantitative characters.

Little millet - Inflorescence shape



Diffused **Arched** **Globose - elliptic**

Project coordinating centre, Bengaluru has been made as nodal centre and Department of millets, TNAU, Coimbatore, AICRIP on small millets, Dindori and AICRIP on small millets Vizianagaram as Co-ordinating centres have initiated the project during August, 2012. The seeds of all the released varieties were procured from respective centres and sent to the co-ordinating centres for sowing and recording the morphological characters. At nodal centre, seeds of all the varieties have been sown and purified during *Kharif*, 2012. For each crop, two centres are selected keeping the nodal centre as common. The coordinating centre represents different topography i.e., altitude and rainfall condition to assess the expressability and distinctiveness. The progress of characterization of various small millets is as under:-

Table 34. Reference collections of small millets and characterization

Crops	*No. of entries/ locations*	*Characters*
Finger millet	100/Bengaluru and Vizianagaram	• Vegetative stage: Growth habit, plant pigmentation • Flowering stage: Ear shape, days to 50% flowering • Seed setting and harvesting stage: Stem culm branching, finger branching, glume colour, discontinuity of spikelets on finger, stem culm strength, spikelet density, synchrony at maturity, seed shattering, seed covering by glumes, degree of lodging, leaf number on main tiller, finger number, ear size, productive tillers, days to maturity, blade length of flag leaf, blade width of flag leaf, panicle length, finger length, finger width, plant height, seed number per spikelet, panicle length from leaf junction, distance between leaf sheath junction and to thumb, ear weight, grain yield (g/plant), grain yield (kg/plot). • Post harvest stage: Seed colour, seed shape, seed surface, pericarp persistence after threshing
Little millet	48/Bengaluru, Coimbatore	• Vegetative stage: Growth habit, sheath pubescence, blade pubescence, plant pigmentation, ligule pigmentation • Flowering stage: Inflorescence shape, inflorescence compactness, • Seed setting and harvesting stage: degree of lodging, plant aspect over all agronomic eliteness of the accession, senescence, culm branching, 50% flowering, plant height, number of basal tillers, length of peduncle, length of inflorescence and grain yield. • Post harvesting stage: Seed colour, seed shape

Crops	No. of entries/ locations	Characters
Foxtail millet	39/Bengaluru and Vizianagaram	• Vegetative stage: Growth habit, plant pigmentation, leaf colour, blade pubescence, sheath pubescence • Flowering stage: Inflorescence lobes, inflorescence bristles, inflorescence compactness, inflorescence shape, inflorescence colour, days to 50% flowering, • Seed setting and harvesting stage: Degree of lodging, senescence, apical sterility, auricle pigmentation, plant pigmentation at harvest, plant height, number of productive tillers, leaf length, leaf width, leaf sheath length, panicle length, panicle width, days to maturity, peduncle length, ear weight, grain yield (g/plant) and grain yield (g/plot). • Post harvesting stage: Seed shape, seed colour
Barnyard millet	29/Bengaluru and Coimbatore	• Vegetative stage: Growth habit • Flowering stage: Colour of inflorescence, inflorescence shape, inflorescence compactness, 50% flowering • Seed setting and harvesting stage: degree of lodging, shape of lower racemes, degree flag leaf of culm branching, plant height, number of productive tillers, spikelet arrangement, length of peduncle, senescence, length of peduncle and branching at lower racemes • Post harvesting stage: Seed shape, seed colour
Kodo millet	48/Bengaluru, Coimbatore and Dindori	• Vegetative stage: Growth habit • Flowering stage: Sheath pigmentation, sheath base pigmentation, juncture pigmentation, inter nodal pigmentation, nerves in glume, panicle excertion, panicle type, 50% flowering • Seed setting and harvesting stage: Culm branching, degree of lodging, flag leaf at the second primary axis node, spikelet arrangement on rachis, plant height, number of productive tillers, days to maturity, grain yield and fodder yield • Post harvesting stage: Seed shape, seed colour
Proso millet	22/Bengaluru and Coimbatore	• Vegetative stage: Growth habit • Flowering stage: Plant pigmentation, sheath pubescence, blade pubescence, ligule pubescence, inflorescence shape, inflorescence compactness, 50% flowering • Seed setting and harvesting stage: Degree of lodging, senescence, number of basal tillers, plant height, length of peduncle and length of inflorescence • Post harvesting stage: Seed shape, seed colour

4.2.14 Division of Floriculture and Landscaping, IARI, New Delhi

In addition to NBRI, Lucknow as Nodal Center for validation of DUS guidelines for bougainvillea, Division of Floriculture and Landscaping, IARI, New Delhi was also opted to function as Co-nodal centre for the above project. For the strengthening of International Bougainvillea Repository, 24 new bougainvillea varieties were collected from National Botanical Research Institute (NBRI), Lucknow and were added to existing germplasm as reference collection.

Table 35. Bougainvillea collections

Aruna	Golden Glow	Speciosa
Palekar	Jubilee	Elizabeth
Dog Star	Anabella	President
Zinnari Barat	Pixie Variegata	Begum Sikandar
Mrs. Mc Clean	Lateritia	Dream
Zulu Queen	New Red	Dr. P. V. Sane
Mrs. Olever Perry	Killi Campbell	Brilliant
Joe	Glabra Magnifica	Glabra Sandriana

About 75 varieties of bougainvillea were evaluated as per the UPOV guidelines for standardizing DUS characterization.

Publications

- Bougainvillea – Glory of the Garden by T.Jankiram, Ritu Jain, Kishan Swaroop and Nikhil Dileep Narkar, ICAR News Vol.19 No. 1 January- March 2013
- Bougainvillea Repository – Compiled by T. Janakiram, Ritu Jain, Kishan Swaroop, Kamlesh Kumar and Pavan Kumar. Published by Division of Floriculture and Landscaping, IARI and PPV & FR Authority.

4.2.15 CISH, Lucknow (IIHR, Bengaluru; RFRS, Vengurle; HARP, Ranchi; GBPUA & T, Pantnagar)

Table 36. No. of varieties (crop species wise) maintained and characterized during 2012-13

Crop	*CISH, Lucknow*		*IIHR, Bengaluru*		*RFRS, Vengurle*		*HARP, Ranchi*		*GBPUAT, Pantnagar*	
	Accessions	Characterized	Accessions	Characterized	Accessions	Characterized	Accessions	Characterized	Accessions	Characterized
Mango	750	120	550	78	303	47				
Guava	124	24	70	15						
Litchi	35	-					41	24	31	21

- Tentative DUS guidelines were developed for collection of characterization on guava and litchi and used for data collection.
- Characterization of mango varieties own (100), IIHR (78).
- Characterization and recording of data for 24 varieties of Litchi HARP, Ranchi and 21 varieties at GBPUA & T, Pantnagar.
- Information on 150 farmers' varieties of guava was collected for documentation purpose.
- Three farmers fair were organized during the period.

4.2.16 National Bureau of Plant Genetic Resources (NBPGR), New Delhi

NBPGR has been assigned for "*Validation of DUS descriptors in grain amaranth, buckwheat, and faba bean*". The experiment was conducted at two locations viz. grain amaranth at NBPGR, Regional Station, Shimla, Akola and New Delhi, for buckwheat- NBPGR, Regional Station, Phagli, Shimla (H.P) and at RHRS Sangla (HP) and on faba bean crop was carried out at NBPGR, New Delhi and ICAR Research Complex for Eastern Region, Patna. A total of 21 accessions of grain amaranth, 14 accessions of buckwheat and 16 accessions of faba bean were laid down in RBD design. The number of replications laid down for the experiment were 3 and inter plant distance was kept 15 cm in both cases of amaranth and buckwheat, whereas inter row distance was 50 cm in case of amaranth, 30 cm in buckwheat and 45 cm in faba bean. The characters of grain amaranth and buck wheat recorded which included-Leaf length, Leaf width, Leaf colour, Inflorescence colour, Inflorescence length, Petiole length, Plant height, Lateral spikelet length, Stem colour, Days to flowering, Days to maturity, Grain yield , 1000-seed weight, Seed colour.

In buckwheat - Leaf length, Leaf width, Leaf colour, Leaf shape, Plant height, Inflorescence length, Days to flowering, Days to maturity, Grain yield, Plant stem colour, Seed colour.

For faba bean characters recorded included-Seed tannin, Leaf length, Leaf width, Leaf colour, flower colour, Flower length,Wing: melanin spot, colour of melanin spot, Petiole length, Plant height, Stem: anthocyanin coloration, Stem: number, Raceme: number of flowers, Standard: anthocyanin coloration, number of pods, Days to flowering, Days to maturity, Grain yield, 1000-seed weight, Seed colour.

Table 37. Details of varieties under maintenance breeding/ characterisation

Name of Crop	*No. of varieties*	
	Varieties	*Advance line*
Amaranth (*Amaranthus* L.)	Durga, Annapurna , Suvarna, PRA-1, PRA2, PRA3, VL 101, VL 102, GA1, GA2, BGA2, PRA- 2010-1, PRA- 2010-2, PRA 2011-2, PRA 2012-1, PRA 2012-2	IC4226, IC42008, IC42271, IC38136, IC 42328
Buckwheat (*Fagopyrum esculentum* Moench)	Sangla B-1, Sangla B-129, Sangla B-214, Sangla B-5, Sangla B-118, Himpriya, Shimla B-1, PRB-1 and VL-7.	IC42426, IC274425, IC17371, IC202268, IC109728, IC109729
Faba Bean (*Vicia faba* L.)	Vikrant, PRT 12, RFB 3, Pusa sumit	Patna 1 to Patna 7

4.3 Project Appraisal Committee (PAC)

The Authority has constituted a Project Appraisal Committee under the Chairmanship of Dr. H.P. Singh, former Deputy Director General (Horti.), ICAR. The Committee consists of Dr. Salil Tiwari**,** Joint Director, (Agro-forestry), College of Agriculture, GB Pant University of Agriculture & Technology, Pantnagar and Dr. Vilas A. Tonapi**,** Head, Seed Science & Technology, Division of IARI, Pusa, New Delhi as members of the committee. The PAC had a meeting on 12 November, 2012 at NASC Complex, New Delhi. The project proposals received by Authority for funding were considered by the PAC after a peer review by a committee which has recommended 13 out of 15 projects. The PAC recommended projects for financial assistance in accordance with the prioritized list of crops including forestry, horticulture and plantation are as under:

Table 38. Details of the projects approved by PAC

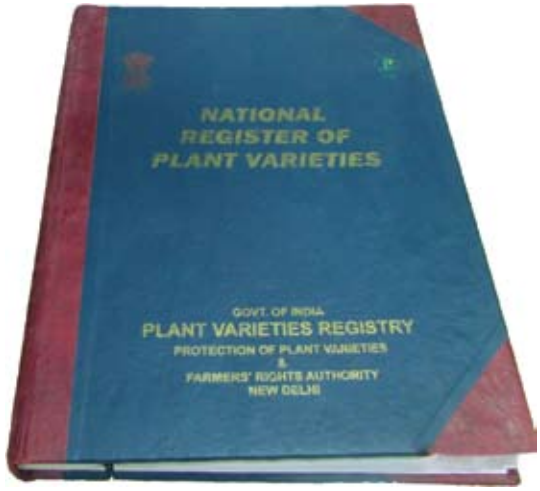
S. No.	*Project*	*Name of the centre*	*Amount (₹in lakh)*
1	Development of Distinctness, Uniformity and Stability (DUS) descriptors for Mulberry (*Morus* Spp.) and its validation	Central Sericultural Research & Training Institute, Mysore	5.00
2	Development of descriptors for Nutmeg (*Myristica fragrans*)	Dr. Balasaheb Konkan Krishi Vidyapeeth, Dapoli	7.00
3	Development of descriptors and DUS testing guidelines for indigenous forest tree species (*Tectona grandis*, *Tamarindus indica* and *Melia dubia*) and establishment of Field Gene Bank	IFGTB, Coimbatore (*Tectana grandis*)	8.13
4	Establishment of Clonal Bank (Nursery) and Development of DUS specific Characterization of Poplar Germplasm	Dr.Y.S.Parmar University of Horticulture & Forestry, Nauni, Solan	5.53
5	Establishment of Clonal Bank (Nursery) and DUS specific characterization of willow (Salix species) germplasm	Dr.Y.S.Parmar University of Horticulture & Forestry, Nauni, Solan	5.25
6	Development and standardization of DUS Characteristics procedures for Noni (*Morinda citrifolia*)	CARI, Port Blair (Noni)	1.62
7	Establishment of Referral Lab/Accreditation to conduct Special Tests for Plant Variety Protection in Horticultural Crops	IIHR, Bengaluru	6.70
8	Validation of DUS descriptors for Chironji (*Buchanania lanzan* Spreng.) and tamarind (*Tamarindus indica* L.)	Central Horticultural Experiment Station, Godhra (CIAH, Bikaner)	6.97
9	Establishment of DUS testing centre for Crossandra (*Crossandra undulaefolia* Salisb)	IIHR, Bengaluru	4.28
		Total	**50.48**

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 & English) publication and is made public on the first working day of each month. This journal has the status of a gazette for the purpose of the Act. During the period under report,nine guidelines for forestry species, cucurbits, flowers and fruits for the purpose of DUS testing, two branch offices &their territorial limits, PPV&FR (Recognition and Reward from the Gene Fund) Rules, 2012, scale of costs allowable under section 11(b) of the Act in respect of proceedings before the Authority or the Registrar, Application form for Registration of Farmers' Varieties, New, Extant and EDV were published. The passport data of 98 Extant notified varieties, one essentially derived variety and 8 Farmers' varieties have been published in PVJ and varieties accepted for DUS test and seeking oppositions, if any, from any person/organization. Besides, the details of registration certificates for inviting claims for benefit sharing under sub section 2 of section 26 of PPV&FR Act, 2001 and with Rule 40 of PPV&FR Rules, 2003 were also published in the PVJ. In this context, the details of 332 registration certificates have been published in PVJ during the reporting period.

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 of reporting 254 candidate varieties including 34 new varieties and 216 extant varieties, 3 farmer's varieties and one EDV 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

Besides, the *Plant Variety Journal of India* which is published regularly by the Authority, two brochures on "PPV&FR Act, 2001" and "Farmers' Rights" were printed and subsequently distributed by the Authority in several meetings, training cum awareness programmes, workshops etc. The other pamphlets 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. During the current year, Authority has developed about 15 DUS guidelines but could publish nine DUS test guidelines representing forestry, cucurbits, flowers and fruit.

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.

5.3 Library

The Authority has been maintaining a library for the reference of the staff/employees. It has 631 books (bilingual in Hindi and English) as on 31 March, 2013 on various subjects including general agriculture, horticulture, intellectual property rights, plant breeding, bio-diversity conservation, genetics, seed science and technology, literature, Rules and Regulations for Central Govt. employees, legal matters etc. The library also subscribe to journals on agriculture, legal and administration. The Library also hosts 69 publications of the Authority on general and crop specific DUS test guidelines, Plant Genome Saviour Community Award's guidelines and application form, agro-biodiversity hot spots and several awareness generation materials on farmers' rights. Several of the Authority's publications are bilingual in Hindi and English.

6. Development of Databases, IINDUS, NORV and Website

6.1 Databases

Two databases namely Indian Information System as per DUS Guidelines (IINDUS) and Notified and Released Varieties of India (NORV) are being maintained and updated for the selection of most similar reference varieties; verify the denomination and notification status. NORV database contains the details of the released plant varieties by Central Variety Release Committee (CVRC), Agricultural Research Institutes and State Agriculture/Horticulture Departments etc. and is mainly used for the verification of the release details of the varieties claimed under the extant-notified category. IINDUS is used for selecting the reference varieties for DUS testing of the candidate varieties.

6.2 Website

The website of the Authority (*www.plantauthority.gov.in)* is maintained in Hindi and English and is hosted with National Informatics Center (NIC). The website contains information regarding members of the Authority, overview of the PPV&FR Act, 2001, status of the total applications received crop-wise, status of the total applications received, details of DUS Centres, publications, list of crop species eligible for plant variety registration, DUS guidelines, status of applications, important judgments, news items of the Authority, vacancies, announcements, tenders and other relevant information. It is regularly updated with the latest information.

6.3 Development of Portal of the Authority

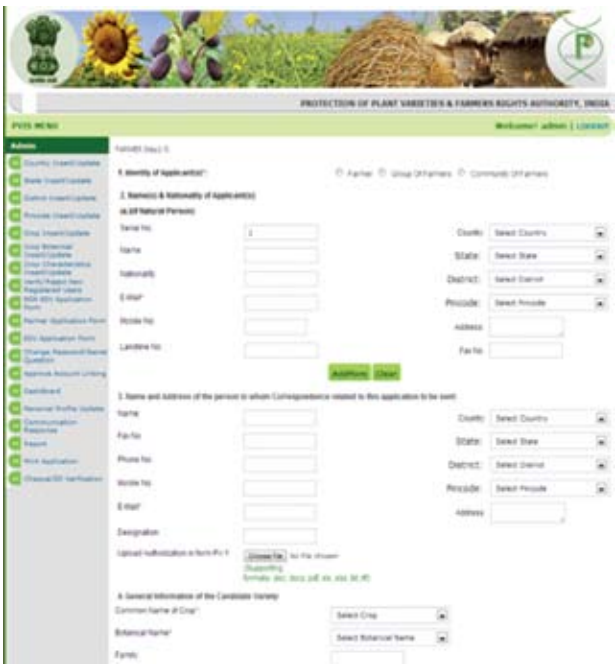
Many features which are necessary to make the website user friendly and interactive are not available in the existing static website, so that effective and dynamic display of data cannot be featured. To incorporate all above features, M/s Sahara Next, a NICSI empanelled firm is developing the Web Portal of the Authority. The web portal of the Authority shall contain 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 to generate more awareness about the Authority. Installation of Drupal CMS and its customization, designing of templates for PPV& FRA 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. The prototype of portal has been loaded on a test server and the proposal for its implantation on NIC server has been submitted.

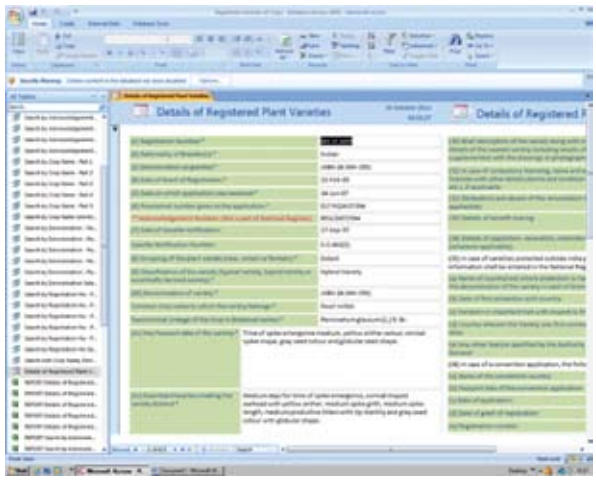
6.4 Online Filing of Applications for Registration

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 hand 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 which is an empanelled software developer with National Informatics Centre Services Inc. (NICSI). The application under test, has been audited by the empaneled auditors and has been hosted at NIC server for test and debugging purpose.



6.5 National Register of Plant Varieties in Digital Format

The database of all the registered varieties in the PPV&FR Authority is maintained in a Register known as National Register of Plant Varieties as mentioned in Para 5.1 of Chapter – 5.The same database is also maintained in digital form in E-national register. Through this software one can search data by registration number, crop name, denomination and can generate report. There are many important entries like Registration No., Nationality of Breeder, Date of grant of registration certificate, denomination as granted, date of gazette notification, essential characters making the variety distinct etc, in this software. The data back-up of this software can be taken in USB, CD, DVD or any other storage devices.



6.6 E-Governance

Initiatives have been taken as under:

- Biometric Attendance system: The system has been installed and is functional at the Headquarters.
- 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 completed. The scanned documents have been uploaded on a server for the role based access through a retrieval system.
- Installation of CCTV cameras: To secure the premises of the Authority, Authority has installed CCTV cameras.

7. Legal Cell and RTI Matters

7.1 Legal Cell

The Legal Cell of the Authority has successfully defended cases filed against the Authority. Further in case of quasi-judicial proceedings before the Registry and Authority, legal inputs were rendered and daily order sheets were dispatched to the parties promptly. During the reporting period, none of the orders passed by Registrar were set-aside. The Hon'ble Delhi High Court vide its Order dated 22 March, 2013 in W.P. (C) No. 4527/2010 and W.P. (C) No. 640/2012 has upheld the Order passed by the Ld. Registrar Plant Varieties Registry. Besides, legal inputs were rendered on international matters relating to various Treaties/Conventions and on issues relating to registration of plant varieties.

The following notifications were published in the gazette of India during the reporting period:-

- Gazette Notification No. 617 dated 27 March, 2012 regarding notification on the crop species Bamboo Leaf Orchid or Boat Orchid, Spray Orchid or Singapore Orchid, Vanda or Blue Orchid for the purpose of registration of varieties.
- Gazette Notification No. 929 dated 27 April, 2012 regarding notification on the two Branch Offices & their territorial limits.
- Gazette Notification No. 1726 dated 31 July, 2012 regarding notification on the Women's organisation Member of Authority.
- Gazette Notification No. G.S.R. 601 dated 31 July, 2012 regarding notification on the PPV&FR (Recognition and Reward from the Gene Fund) Rules, 2012.
- Gazette Notification No. G.S.R. 900 dated 17 December, 2012 regarding notification on the Production and sale of seeds of registered varieties.
- Gazette Notification No. G.S.R. 901 dated 17 December ,2012 regarding notification of the Cost.
- Gazette Notification No. G.S.R. 902 dated 17 December, 2012 regarding notification of Annual Statement.
- Gazette Notification No. G.S.R. 903 dated 17 December, 2012 regarding Notification Use of Denomination.
- Gazette Notification No. S.O. 2931 dated 17 December, 2012 regarding Notification of Documents kept at Branch Offices.
- Gazette Notification No. G.S.R. 115(E) dated 20 February, 2013 regarding Notification of Application form for Registration of Farmers' Varieties; and
- Gazette Notification No. G.S.R. 116(E) dated 20 February, 2013 regarding Notification of Application form for registration of New, Extant and EDV Varieties.

Legal opinion were also rendered on various technical and legal matters including international affairs referred to Authority by the Department of Agriculture & Co-operation.

7.2 Parliamentary and other related matters

During the reporting year, the Authority received five Rajya Sabha questions through DAC and draft replies/ information were sent to DAC, Ministry of Agriculture, Government of India for preparation of draft replies. Comments were also provided on several Cabinet Notes received from Department of Industrial Policy and Promotion, Ministry of Commerce and Industry and also Ministry of Environment and Forests.

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 31 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 application pending before first Appellate Authority.

8. Training–cum–awareness Programmes

8.1 Directorate of Sorghum Research (DSR), Hyderabad

A one day Awareness-cum-training programme on "*Plant Variety Protection and DUS testing*" was conducted on 22 March, 2013 at DSR, Hyderabad. About 100 participants including 6 scientists from public sector, 4 scientists from private sector, 2 seed certification officers and 90 students/research scholars/project fellows participated in the programme. The details of the resource persons and lectures covered are as follows:

Table 39. Details of lectures and resource persons

Lectures	*Resource persons*
Protection of Plant Varieties & Farmers' Rights Act, 2001	Dr. M Elangovan, DSR, Hyderabad
GI Protection in Agriculture	Dr. Soumya Vinayan, Assistant Professor, Council for Social Development (an ICSSR Institute under Ministry of HRD), Hyderabad
DUS testing in Rice	Dr. LV Subba Rao, DRR, Hyderabad
DUS testing in Castor, Safflower and Sunflower	Dr. N Mukta, DOR, Hyderabad
DUS testing in Sorghum	Dr. K Hariprasanna, DSR, Hyderabad
Exercise on filling up of applications for protection of plant varieties & Evaluation of exercise and solutions to problems in filing application	Drs. M Elangovan and K Hariprasanna

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

A training-cum-awareness programme on "*Protection of Plant Varieties and Farmers Rights*" was conducted at NRC for orchids on 21 March, 2013 at Sylvan, KVK, Manipur. About 100 participants attended the program. Chairman & Members of Task Force, Joint Director & Scientists of ICAR Manipur Centres, Scientists, Research workers and other staff of Centre for Orchid Gene Conservation of Eastern Himalayan Region, and Staff of Sylvan KVK, Senapati Dist, FEEDS, Hengbung, Manipur attended this programme. Dr. Manoj Srivastava, Registrar, PPV&FRA inaugurated the programme with his inaugural remarks and highlighted the provisions of the Act. Dr. A.N. Rao, Director (R&D), Centre for Orchid Gene Conservation of Eastern Himalayan Region, Senapati Distt. Manipur delivered a lecture on orchids wealth in NEH Region followed by a lecture on commercial orchids by Prof. P.K. Rajeevan, Kerala Agriculture University, Thrissur. Dr. L. C. De, Principal Scientist (Hort.), NRC for Orchids, Pakyong, Sikkim discussed about the DUS testing on orchids. The secretary KVK, Sylyan, Manipur extended a vote of thanks.

8.3 Indian Institute of Pulses Research (IIPR), Kanpur

One day training programme for farmers on "*Protection of Plant varieties & Farmer's Rights Act*" was held on 15 March, 2013 at Kalyanpur, Kanpur wherein more than 100 farmers were present. Dr. Sanjeev Gupta, Nodal Officer, Dr. P.K. Katiyar and Dr. Bansa Singh delivered lectures on different areas including Farmers' Rights under PPV&FR Act, 2001.

8.4 Central Research Institute for Jute and Allied Fibres (CRIJAF)

A one day "*Training-cum-awareness programme on PPV & FRA*" was organized at CRIJAF, Barrackpore. The objective of the programme was to generate awareness among participants about Intellectual Property Rights, Protection of jute varieties and Farmers' Rights. Dr. D.K. De, Professor, Dept. of Plant Breeding, B.C.K.V. & Member, DUS trial Monitoring team, Dr. A.K. Basu, Head, Dept. of Seed Science & Tech., B.C.K.V., Dr. S.Satpathy, Director, CRIJAF and other dignitaries were present as Guest of Honour to grace the occasion. Around 80 farmers from Baduria, Debak, Swarupnagar, Iswarigacha, Jagaddal, Noapara, Amdanga, Kairapara, Barrackpore and various villages of 24 Paragana (N), Singur, Tarakeswar and other villages from Hooghly, Tarakeshwar, Hooghly,

various villages from Nadia and Murshidabad participated in this programme. In his welcome address Dr. S. Satpathy, Director, CRIJAF briefly narrated the importance and necessity of the plant variety protection. Dr. J. Mitra, Nodal Officer, DUS delivered his speech regarding importance of Protection of Plant Varieties and Farmers' Rights Act, Breeders' Rights, Researchers' Rights, mandate of National Gene Fund and other important aspects. In his address as Guest of Honour, Dr. D.K. De, out of his vast experience described the role of farmers as conserver and custodian of genetic diversity; recognize their immense importance as breeder of new and improved varieties with biotic and abiotic stress resistance. Dr. A.K. Basu and other dignitaries advised the farmers about the features of protection, procedure for registration of plant varieties.Lectures were delivered by Dr. J. Mitra (Nodal Officer, DUS) and other resource persons in various technical sessions under the Chairmanship of Dr. D.K. De and Dr. A.K. Basu regarding Protection of Plant Varieties and Farmers' Rights Act, DUS test guidelines for jute, reference collection of jute and its maintenance, filling up of application forms for protection of new varieties, development of molecular tag for identification of commercial varieties of Jute and status of jute DUS testing. At the end of the programme in valedictory session certificates were distributed by Dr. S. Satpathy, Director, CRIJAF among the farmers.

8.5 Mahatma Phule Krishi Vidyapeeth(MPKV), Rahuri

A training-cum-awareness programme on *"Protection of Farmers' Rights under PPV & FR Act, 2001"* was conducted at MPKV, Rahuri on 26 March, 2013 where about 131 participants including 58 researchers, 46 officers from public sector, 19 farmers, 4 students and 4 representatives of the private sector were present. Another one day training-cum awareness programme was conducted on 26 March, 2013 at Central Campus, Mahatma Phule Krishi Vidyapeeth, Rahuri Dr. H.S. Chawla, Head, Dept. of Genetics and Plant Breeding, GBPUA&T, Pantanagar explained procedure for registration of farmers' varieties. Thereafter, Dr. F. B. Patil, Director, Kirtiman Seeds, Aurangabad and former member of the Authority informed the importance of registration of varieties under PPV&FR Act.

8.6 Chaudhary Charan Singh Haryana Agricultural University (CCSHAU), Hisar

Two training-cum-awareness programmes were conducted on 21 & 30 March, 2013 and more than 100 participants took part in each of the trainings from different organizations. The lectures on the various aspects including objectives of PPV&FR Act, farmers' rights, registration of varieties, importance of Authority, DUS test, DUS centers for various crops in India and their functions etc. were delivered to upgrade the knowledge of the participants in relation to PPV& FR Act, 2001.

8.7 Directorate of Rice Research (DRR), Hyderabad

During the reporting year, two training-cum-awareness programmes were conducted. First was held on 15 November, 2012 & other was held on 25 March, 2013. In each of the programmes more than 100 participants including Researchers, Agriculture Officers and Assistant Director of Agriculture from Department of Agriculture, Horticulture. Sericulture and Forestry, Ph. D Scholars and NGOs participated from different districts of Andhra Pradesh.

8.8 Directorate of Maize Research (DMR), New Delhi

DMR conducted two training-cum-awareness programmes in the reporting year. The first programme on Plant Variety Protection and Farmers' Rights with special reference to maize was conducted on 11 February, 2013 at Murthal, Haryana. About 78 progressive farmers, breeders, NGO's were present. The second training-cum-awareness

was organized at Hyderabad on 9-10 March, 2013 wherein 70 breeders from public and private sector participated. Dr. Sain Dass (former P.D. Maize) and Dr. Jyoti Kaul, Principal Scientist delivered lectures on the provisions of the PPV&FR Act, farmers' rights, Plant Genome Saviour Community Awards, Registration of farmers' varieties etc. for upgrading the information of the participants.

8.9 Junagadh Agricultural University (JAU), Jamnagar, (Gujarat)

One day training-cum-awareness programme on *"Protection of Plant Variety & Farmers` Rights with Special Reference to Castor"* was organized on behalf of PPV & FRA by Seed Technology Research Unit, Pearl Millet Research Station, Junagadh Agricultural University, Jamnagar at this centre on 25 February, 2013. About 200 participants including two University Officers, 20 Scientists of the Pearl Millet Research Station and K.V.K., Jamnagar, 16 staffs of Pearl millet Research Station, K.V.K. and FTC Jamnagar, five staffs of GSSC, Rajkot/Jamnagar, five staffs of GSSCA, Rajkot, 44 gram sevaks of Jamnagar district and 108 farmers/seed producers from different villages of Jamnagar district were present. Director of Research, JAU, Junagadh, Principal, College of Agri., Amreli and Scientists of Pearl millet Research Station, JAU, Jamnagar delivered lectures on the subject. The major theme of the training was to create awareness among the participants on various provisions of PPV & FR Act, 2001 especially to provide an overview of PPV and Farmers` Rights, registration of new varieties, Castor seed production technology, DUS testing of castor, new seed policy and to develop a platform for the scientists and farmers for the exchange of views on various pertinent issues of Intellectual Property Rights in general and plant variety protection in particular.

8.10 Directorate of Wheat Research (DWR), Karnal

One day farmer's awareness programme on "*Plant Varieties Protection and Farmers Rights (PPV&FR) & related issues*" was jointly organized by Directorate of Wheat, Karnal and Krishi Vigyan Kendra, Kumher, Bharatpur, under the activities of Plant Varieties Protection and Farmers Right Authority, New Delhi on 4 March, 2013. Dr. (Mrs.) Indu Sharma, PD, DWR, Karnal addressed to the farmers, and highlighted the provisions of farmers' rights in the Act. Dr. Arun Gupta, Principal Scientist, Crop Improvement presented introduction to the PPV & FR issues in general and highlighted the legal framework and DUS networking system. Dr. R.P.S. Verma apprised status of PPV&FR in barley and modern technology of barley cultivation. He also mentioned the scope of malt type barley cultivation in "Contract Farming System" with private industry as being followed in Punjab and Haryana. Shri Anil Goel, Sawera Samiti, Bharatpur, presented details of activities of Sawera Samiti in the service of farmers in the region and assured their co-operation.

DWR conducted four awareness programmes at Lel (Ladakh), Pali & Baharatpur (Rajasthan) and also Amritsar (Punjab) to sensitize farmers, state agriculture officers about the PPV&FR Act, 2001 as under:

Table 40. Details of Awareness programmes by DWR during 2012-13

Date	*Place*	*No. of participants*	*Topics*
20 September, 2012	Khardunga village, Leh	25 farmers	PPV&FR Act & farmers' Rights including Plant Genome Saviour Award, benefit sharing under the Act.
21 September, 2012	SKAUST, KVK, Leh	50 (KVK scientists, extension officers, farmers & seed growers)	PPV&FR Act, 2001, farmers, community and researchers rights, registration of varieties, Plant Genome Saviour Award, National Gene Fund & benefit sharing, Wheat cultivation in hills, wheat diseases and their control etc
27 January, 2013	Village Veerum, Amritsar	242 (KRIBHCO officers, Chief Agri. Officer, Amritsar, scientists from FASS-Amritsar & PAU, Ludhiana, 60 women participants and farmers	PPV&FR Act, 2001, its Objectives and Functions, Farmers' Rights, Breeders' Rights, Community Rights, Researchers' Rights, procedure of Registration under the Act, National Gene Fund & benefit sharing, Plant Genome Saviour Community Award, gene bank, filing applications for Farmers' variety, weed control, soil conservation, agronomic practices, wheat cultivation, plant protection measures in wheat, rice and vegetable cultivation in Punjab
23 February, 2013	Pali, Rajasthan	180 (15 scientists of KVK, Pali, CAZRI, Jodhpur, 05 state agrl. Officers, DDAs, 160 farmers)	PPV&FR Act, 2001, farmers, community and researchers rights, National Gene Fund & benefit sharing registration of varieties, Plant Genome Saviour Award, Wheat cultivation and latest technologies developed, wheat diseases and their control, weeds and its control, soil testing, wheat varieties and pure seed production, IPR issues and plant genetic diversity etc
4 March, 2013	Bharatpur, Rajasthan	250 farmers	Protection of Plant Varieties, Farmers' Rights, Plant Genome Saviour Community Awards, Rewards & Recognitions

8.11 Central Institute for Cotton Research (CICR), Regional Station, Coimbatore

One day awareness-cum-training programme on "*Protection of Plant Varieties and Farmers' Rights*" were conducted on 7 March, 2013 at Central Institute for Cotton Research, Regional Station, Coimbatore. Dr. S. Usharani, Senior Scientist, CICR, Coimbatore made a welcome address followed by inaugural address by Dr. A. H. Prakash, PC & Head, CICR, Regional station, Coimbatore. There were 90 participants including 36 progressive farmers of Kanjappalli and Allapalayam villages of Annur Taluk. The participants were educated on the aspects such as overview of IPR in Indian Agriculture, IPR in cotton and the status of its Implementation, Protection of Farmers' varieties and Plant Genome Saviour Community Award, Farmers' Rights in PPV & FR Act, 2001, preparation and filing of application for Registration of plant varieties and the status of cotton, PPV & FR Act, 2001 and plant varieties characterization, PPV & FR Act, 2001 and Rights of researchers, farmers and seed producers.

8.12 Central Institute for Cotton Research (CICR), Nagpur

Training-cum-awareness programme on "*Testing of cotton genotypes for Protection under the Protection of Plant Varieties and Farmers' Rights Act, 2001*" was conducted at CICR, Nagpur along with KVK, Nagpur for extension workers of the district on 23 January, 2013. Dr. V. Santhy, Principal Scientist cum Training Organizer welcomed the participants followed by introductory remarks made by Dr. R. B. Singandube, Head I/C, KVK. Inaugural address was delivered by Dr. Sandhya Kranthi, Director I/C, CICR followed by a number of lectures by resource persons on various issues relating to Protection of Plant Varieties and Farmers' Rights.

8.13 Indian Institute of Sugarcane Research (IISR), Lucknow

Awareness programme on "*Implementation of Protection of Plant Varieties and Farmers' Rights Act, 2001 in India*" was organized at Indian Institute of Sugarcane Research, Lucknow along with Exhibition of PPV & FR Authotity activities on 23-24 March, 2013 for scientists, technocrats, farmers, students etc.Lectures delivered on PPV& FR Act, 2001 and DUS testing in sugarcane in Agricultural Research and Development Conclave for Uttar Pradesh and UP Kisan – Vigyan Sangam, 2012.

8.14 Sugarcane Breeding Institute (SBI), Coimbatore

One day PPV&FR Authority awareness-cum-training was conducted at Thenmanallur, Thondamuthur village, Coimbatore on 16 March, 2013. The location was a traditional farming area with progressive farmers with small and medium land holdings. The programme was attended by more than 90 farmers, three extension personnel, besides the resource persons and the technical staff. The Inaugural address was delivered by Shri Palanisamy, retired Additional Director, Department of Agriculture, Tamil Nadu. The Chief Guest, Shri Kandasamy and Shri Vazhukkuparai Balu, a local social worker addressed the participants. The resource persons were Dr. V.A. Amalraj, Principal Scientist and Nodal Officer (DUS), SBI, Coimbatore, Dr. Rajula Shanthy, Principal Scientist and Dr. C. Jaya Bose, Senior Scientist. The lectures and discussions were held in the vernacular language on various topics like IPR in agriculture, PPV& FR Act, Farmers' rights, registration of varieties and Plant Genome Saviour Community Awards. The participants actively engaged in the discussions and were inquisitive on the farmers' varieties registration and the Plant Genome Savior Community Award.

8.15 Central Institute of Temperate Horticulture (CITH), Srinagar

CITH organized one day training-cum-awareness programmeon "*Protection of Plant Varieties and Farmers' Rights Act, 2001*". The programme was organized at CITH, Srinagar. About 100 farmers participated. Professor Nazeer Ahmad, Director, CITH, the Chief Guest at the function emphasized the need for farmers to develop and maintain unique varieties and their entitlement for registration and its benefits under the PPV&FR Act, 2001. He further added that farmers who are utilizing registered varieties have the

right to save, use, sow and sell farm produce of the variety except selling them under brand for commercial marketing arrangement.

8.16 Tamil Nadu Agricultural University (TNAU), Coimbatore

A one day training-cum-awareness programme on "*Protection of Plant Varieties and Farmers' Rights Act, 2001*" was organized by the Department of Plant Genetic Resources, Centre for Plant Breeding and Genetic at Coimbatore campus on 21 March, 2013 with financial support from the Authority. About 150 farmers representing seven district of Tamil Nadu participated. Dr.K. Thyiagrajan, Director, Centre for Plant Breeding & Genetics explained the role of the Department of Plant Genetics Resources in imparting knowledge to the farmers regarding their rights and registration of their varieties. Dr. A. Amalraj, Principal Scientist briefed about the provisions of the PPV&FR Act, 2001. Dr. C.R.Ananda Kumar, Professor, AC&RI, Madurai also shared his personal experience related to registration of GI for Madurai Jasmine.Mr Mohanraj Yadav, Director, VAANGHAI, an NGO working at Nagapattinam, shared his experiences regarding registration of traditional rice varieties of Cauvery Delta.

TNAU, Coimbatore

Besides, three more workshops on awareness on the importance of Protection of Plant Varieties & Farmers' Rights were organized by the University in the reporting year is as per details as under:

Table 41. Details of training and awareness programmes

Date	*Place*	*No. of participants*
4 January, 2013	Department of Seed Science and Technology, Coimbatore	100 (Farmers: 93 Public: 7)
8 March, 2013	Horticultural College and Research Institute, Coimbatore	100 (Farmers: 89 Public: 11)
15 March, 2013	National Pulses Research Centre and KVK Vamban, Tamil Nadu	100 participants

During this training programme the resource persons delivered lectures and presentations on various areas like Importance of protection plant varieties (Dr. M. Bhaskaran), Functions of PPV&FR Authority (Dr. P. Balamurugan), Breeders' rights, farmers' rights and registration of varieties (Dr. K.Vanangamudi), eligibility of varieties - Farmer's variety (Dr. P. Srimathi), extant variety and new variety for registration under PPV&FRA (Dr. Prem Chandar, PS, SBI, Coimbatore), filing of application for registration of crop varieties under PPV&FRA and DUS testing procedure - DUS descriptors – Guidelines for DUS testing – Rice and Sunflower (Dr. J. Renugadevi & Dr. V.Manonmani) and IPR issues like patent and conservation of agro-biodiversity in horticultural crops (Dr. N. Kumar).

8.17 Shiats (Formerly Allahabad Agricultural Institute) Allahabad

Sam Higginbotom Institute of Agriculture Technology of Sciences (SHIATS), Allahabad organized two training–cum–awareness programmes on *"PPV&FR Act, 2001"* during 2012-13 with financial support from the Authority.

The first one day training programme on "*Protection of Plant Varieties and Farmers' Rights Act in relation to Conservation of Plant Varieties*" in eastern Utter Pradesh was held at Department of Horticulture, SHIATS, Allahabad on 21 December, 2012. Over 100 farmers, student and the researchers participated. The second one day training programme relating to Protection of Plant Varieties and Farmers' Rights Act, 2001 was held at Department of Horticulture, SHIATS, Allahabad on 11 February 2013. The scientists and experts addressed the gathering of the farmers, students, researchers. This kind of workshop on PPV&FR Act in relation to conservation of plant varieties in eastern Uttar Pradesh was organized for the first time at the University, and it was well appreciated by the farmers.

8.18 Sher-e-Kashmir University of Agriculatural Sciences & Technology (SKUAST), Jammu

A one day training–cum-awareness programme on PPV&FR Act, 2001 was organized at SKUAST, Jammu during 2012-13. The programme was held at Dak-Banglow, Rajouri on 3 October, 2012 and was attended by more than 100 farmers and members of the Panchayat of nearby villages. The Vice-Chancellor, SKUAST, Prof. D.K.Arora, Associate Director (Research), Rajouri and Dr. A.K. Sharma gave brief account of the programme and farmers' rights under PPV&FR Act, 2001.

Dr. Ravi Prakash, Registrar, PPV&FR Authority emphasized the importance of the contribution of farmers and equating them to plant breeders who evolve and conserve traditional varieties of plants for future generation helping in accelerating the agriculture development of the nation. He added that protection of plant breeders' rights is also mandatory to stimulate investment for Research and Development of new varieties. Dr. A.K. Rajdan, Nodal Officer, highlighted the importance of biodiversity of the region and impressed upon the farmers to register the traditional varieties of the crops pertaining to the area. Krishi Pandit Shri Bakshi Ganesh Das also addressed the gathering.

8.19 University of Agricultural Sciences (UAS), Dharwad

University of Agricultural Sciences, Dharwad in collaboration with Protection of Plant Varieties and Farmers' Rights Authority, New Delhi organized one day awareness training programme on "*Protection of Plant Varieties and Farmers' Rights Act*" at Dharwad on 25 March, 2013. Dr. N.K. Biradarpatil, Special Officer (Seeds), UAS, Dharwad extended warm welcome to the delegates. The programme was inaugurated by Dr. R.R.Hanchinal, Hon'ble Vice-Chancellor of the University.

Dr. S. Prabhukumar, Project Director, South Zone, ICAR, Bengaluru, Dr. A.C. Ghosh, (Director of Agriculture Extension and General Administration), ICAR, New Delhi, Dr. L. Krishna Nayak, Director of Extension, UAS, Dharwad, Dr. G.S. Dasog, Dean (Agri.) UAS, Dharwad, were the Chief guests and Dr. M.B. Chetti, Director of Education, UAS, Dharwad, presided over the function. More than 200 farmers from different districts of North Karnataka attended the awareness training programme and gained knowledge about important issues related to IPR in plant varieties in the present context. Dr. Ravi Hunje, Associate Prof. Seed Science and Technology proposed a vote of thanks.

8.20 Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth (BSKKV), Dapoli

A one day training–cum-awareness programmeon "*Protection of Plant varieties and Farmers' Rights Act, 2001*" was at Swaminathan Hall, Dr. B.S.Konkan Krishi Vidyapeth, Dapoli on 17 December, 2012. About 81 scientists and 142 students participated in the training programme. The inaugural session was Chaired by Dr. K.E. Lawande, Hon'ble Vice-Chancellor, BSKKV, Dapoli. He highlighted the importance of PPV&FR Act, 2001 and the need for filing applications for plant varieties especially in cereals and pulses. Dr. R.K. Choudhury, former Project Director (National Seeds Projects), ICAR, New Delhi, focused on the various provisions of PPV&FR Act, 2001. He informed that the registration certificates can be reviewed and renewed after six years for annual crops and nine years for trees and vines on payment of prescribed fees. Dr. Karim Maredia, Professor, Michigan State University, USA, delivered a lecture on intellectual property policies and technology transfer practices in South Asia region.

Besides, the University conducted three more awareness programmes for farmers, students and scientists/ academic staff as under:

Table 42. Details of awareness programmes

Farmers Awareness Programmes				
S. No.	***Place***	***Date***	***Participants***	***Numbers***
1.	Talsure	16 August, 2012	Farmers & Students	46
2.	Devke	29 August, 2012	Farmers & Students	43
3.	Umbarle	30 August, 2012	Farmers & Students	60

A information folder was prepared in vernacular (Marathi) language consisting information about PPV & FR Authority and its activities for farmers, plant breeders, researchers and seed industries was released with the hands of Dr. Karim Maredia, Sr. Faculty Member, Michigan State University, USA in presence of Dr. K. E. Lawande, Hon. Vice Chancellor, Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli. The folder was freely distributed to the participants including farmers.

8.21 Assam Agricultural University (AAU), Jorhat

Assam Agricultural University, Jorhat organized a regional workshop on "*Protection of Plant Varieties and Farmers' Rights Act, 2001*" on the 25-26 March, 2013 at Jorhat. Dr. K.M. Bujarbaruah, the Vice-Chancellor of AAU was the Chief guest and Shri Jadav Payeng, Environmental Activist and Biodiversity Conserver, was the Guest of Honour. Dr. Bujarbaruah mentioned that the NE region of India is one of the important biodiversity hotspot and many traditional plant varieties are still available and cultivated by the people. He added that PPV&FR Authority was interested in promoting awareness programmes for protecting the germplasm of the NEH region.

8.22 Bidhan Chandra Krishi Viswavidyalaya (BCKV), Nadia, West Bengal

BCKV organized a one day training-cum-awareness programme on "*Protection of Plant Varieties and Farmers' Rights Act, 2001*" at the Farmers Training Centre Kalyani, Nadia with financial support from PPV&FR Authority on 14 January, 2013.The program focused on creating awareness amongst the stake holders regarding the various provisions of the PPV&FR Act, 2001 as well as capacity building of farmers, farming communities, scientists, officers, corporate personnel etc. for maintenance, development, breeding and registration of varieties. Prof. B. Mondal, Pro-Vice Chancellor & Director of Research laid great emphasis on periodic training and activities of PPV&FRA cell of the University. The participants comprised of the farmers from six districts of south Bengal region (Nadia, Burdwan, Murshidabad, Hoogly, North 24 Parganas and South 24 Parganas) amongst others.

8.23 National Seed Corporation Ltd. (NSC), Beej Bhawan, Pusa Complex, New Delhi

National Seed Corporation Ltd. with financial support from the Authority organized two training-cum-awareness programmes on PPV&FR Act, 2001 during 2012-13. The first training programme on "*Creation of awareness among farmers about the provisions of Protection of Plant Varieties and Farmers' Rights with special reference to maize*" was held on 23 March, 2013 at Kugachi, Krishinagar, Nadia, West Bengal in order to create awareness among the farmers about their rights and by encouraging them to produce good quality seeds of hybrid maize and other important crops of the region. Dr Swapan Kumar Datta, Chairman/DDG (Crop Sciences), ICAR was the Chief Guest of the programme. About 150 farmers participated. The second training programme was conducted on 25 March, 2013 at Puja Khildi village, Banswar where about 170 farmers participated.

8.24 Adarsha Rural Development and Training Society, Andhra Pradesh

A one day training-cum-awareness programme on "*Protection of Plant Varieties and Farmers' Right Act, 2001*" was conducted at Vasvi Kalyan Mantapa, Anantpur District, Andhra Pradesh by Adarsh Rural Development and Training Society, Kodikondain funded by the Authority on 9 March, 2012. About 100 farmers participated in the programme. The gathering was addressed by Shri P. Partha Sarthi, Hon'ble M.L.A, Chief Guest and Shri B. Sambasiva Rao, Joint Director of Agriculture, Anantpur. They underlined the need for transferring potent and tested technologies to the farmers to derive maximum benefit. They also spoke about the uniqueness of the PPV&FR Act, 2001 and of the various provisions relating to the farmers and breeders.

8.25 Nand Educational Foundation for Rural Development (NEFORD)

NEFORD is a not-for-profit organization committed to transforming the quality of life for the rural poor and underprivileged. It strives to develop creative and sustainable solutions involving communities, applying best management practices and technologies suiting to their conditions. It values the role of women and children in society, particularly in view of their contribution towards building a better world.

M. S. Swaminathan Research Foundation initiated steps to extend its model of ICT-enabled development activities to different parts of the country including six lakh villages as a network known as Grameen Gyan Abhiyan (Rural Knowledge Movement w.e.f. 15 August, 2007. Academicians, Corporate Sectors and Policy Makers are using this platform for knowledge and technological empowerment. The Authority availed the services of NEFORD in propagating the awareness about PPV&FR Act, 2001 during the reporting year by providing funds for conducting a training programme on 5 March, 2013 at Mau, Varanasi. About 120 farmers and others stakeholders from the neighboring villages participated in the event. In the inaugural session the Chief Guest, Dr. S. Rajendra Prasad, Director, DSR stressed the importance of conservation of plant germplasm and need for its protection. The Director, NEFORD; Dr. Renu, NBAIM

and Dr. Jyotsnendra Singh, IISR spoke about the various provisions of the PPV&FR Act, 2001 with special reference to the rights of the farmers and breeders.

8.26 Centre for Agriculture and Rural Development (CARD)

Centre for Agriculture and Rural Development is a premier Non Government Organisation is playing a vibrant role in the national efforts of developing India through agriculture led transformation. CARD is committed to reaching all parts of the rural society especially farming community and participates actively towards improving the quality of life of rural masses by addressing technical, economical policy issues related to the development of agriculture and rural society.It is engaged in a variety of activities in agriculture, horticulture and rural development with an all India presence.The Authority utilized the services of CARD for organzing three training-cum-awareness programmes on PPV&FR Act with its financial support. The first training programme on PPV&FR Act 2001 was held at Iglas District, Aligarh, Uttar Pradesh on 23 February, 2013 and was attended by 100 farmers. Dr. Mukhtar Alam, Executive Director, CARD and Mr

Santaram Kashyap, Project Manager provided details of the provisions of the PPV&FR Act, 2001 and its benefits. The second one day training programme was held at Karhal District, Mainpuri, Uttar Pradesh on 25 February, 2013 and was attended by 108 farmers. Officers from the Agriculture Department of the State were the resource persons for the programme. The third one day training programme was held at Achhnera District, Agra, Uttar Pradesh on 28 February, 2013 and was attended by 126 farmers of the surrounding villages.

8.27 M.S Swaminathan Research Foundation, MSSRF, Chennai

MSSRF organized three one day workshops on creating awareness and building capacity of farmers on "*The Protection of Plant Varieties and Farmers' Rights Act, 2001*" at Wayanad, Namakkal, Kerala and Jeypore, Odisha. At Wayanad district Kerala 75 participants including 16 females have taken part in the workshop and it was held at Sulthan Bathery on 25 February, 2013. At Namakkal and Kolli hills About 117 participants including 25 females attended the workshop held on 19 March, 2013. Ninety two participants including 2 women's along with NGOs and farmers from Nawarangpur and 34 farmers from MSSRF Kundra site, Koraput Districts of Odisha have taken part in the programme held at MSSRF Jeypore on 29 March, 2013.

The programme highlighted the role of M.S. Swaminathan Research Foundation in creating awareness and building capacity of the farmers on the PVP legislation, particularly on Farmers' Rights; facilitating benefit sharing, recognition and suitable rewards; how farmers & communities may be suitably rewarded under the PPV&FRA; what are the major functions of the Authority; what are the benefits to the farmers under the Act; what are the important rights under the Act; how farmers varieties can be registered; what are the varieties applied so far and how they can go for applying Plant Genome Saviour Community Award. The process of DUS characterization of varieties and the descriptors to be recorded particularly for rice varieties; the process of filing application for variety registration under PPV&FRA; and Plant Genome Saviour Community Award application was also emphasized.

In addition, the significant points were highlighted e.g. rights to save, use, sow, re-sow, exchange, share or sell his farm produce including seed of a variety protected under the Act in the same manner as he was entitled before coming into force of this Act, to register farmers variety, to receive equitable benefit sharing, to receive reward and recognition, to get adequate seeds of registered varieties, to claim and receive compensation for under performance of registered variety, to seek consent of farmer, non cognizance of innocent infringement committed by farmers and exemption for payment of any fees.

In the group discussion, the focus was on the crops currently grown; what are the lessons learnt through the programme; problems being faced by the farmers in cultivating traditional crops; varieties choosen for registration of varieties; how to go for applying registration of varieties; process of filing application; DUS characters and their importance; and their rights for plant genome savior community award, rewards and recognitions.

Participants appreciated the efforts of Foundation in conducting this type of program and they found it was very helpful for them to get better understanding of the importance of the legislation of PPV&FR.

Out of 284 participants including 241 men and 43 women were benefited by attending the programme in three locations. Dr. Geetha Rani, Coordinator of the project, thanked team members at three locations for their support in conducting the program. M.S.Swaminathan Research Foundation was also thankful to PPV&FRA for their financial support for conducting awareness programme in the tribal areas.

8.28 Directorate of Groundnut Research (DGR), Junagadh

Two one day training-cum-awareness programmes were conducted at this Directorate on 18-19, March, 2013. On 18 March, 2013 about 52 farmers from KVK, Rajkot, while on 19 March, 2013 about 56 farmers from KVK, Kodinar participated in this training-cum-awareness programme. The technical guidance and lectures were imparted in vernacular languages so that farmers could understand easily. The pamphlets were prepared in Hindi and Gujarati languages and distributed among the trainees on both the days. A group discussion was also arranged for the benefit of the farmers to clear doubts and to update their knowledge. A team of scientists from the National Innovation Foundation, Ahmedabad and the Faculty from Junagadh Agricultural University, who are associated with the protection of IPR of the farmers acted as resource personnel. *Kesar Mango* – a test case of Geographical Indication (GI) from Gujarat was also discussed. A

representative of National Innovation Foundation (NIF), Ahmedabad also interacted with the farmers and explained their activities. The senior level scientists from DGR also interacted with the farmers and had very fruitful discussions. Literature in local language on Protection of Plant Varieties and Farmers' Rights and the activities of PPV& FRAuthority were provided to the farmers. The participants have been exposed to the various aspects of Protection of Plant Varieties & Farmers' rights, and DUS testing. The training could clear several intricate doubts on the IPRs in general and PPV&FR in particular.

8.29 Central Potato Research Institute (CPRI), Shimla

Three training-cum-awareness programmes by CPRI, Shimla were undertaken as per details given as under:

- First training was organized at Solan where about 128 farmers and students of Gram Panchayat Salogra participated on 26 November, 2012.
- Second training was convened at CPRI, Shimla and 95 farmers of different districts of Himachal Pradesh participated on 10 January, 2013.
- Third training was held at Karsog, Mandi wherein 140 farmers and students attended on 28 February, 2013.

Table 43. Details of lectures and resource persons

1	पौधा किस्म और कृषक अधिकार संरक्षण के उद्देश्य तथा प्रमुख विशेषताएं	डा. दालामु डा. विनोद कुमार डा. विनय भारद्वाज
2	कृषि जैव विविधताओं का संरक्षण व पौधा किस्म और कृषक अधिकार संरक्षण अधिनियम के अंतर्गत संरक्षित फसलें	
3	आलू मे डी०यू०एस० परिक्षण	
4	किसानों के हितों की रक्षा एवं उनके विभिन्न फसलों के प्रजातियों का पंजीकरण का तरीका	
5	राष्ट्रिय जीन बैंक–उद्देश्य तथा प्रमुख विशेषताएं	

8.30 Directorate of Onion and Garlic Research (DOGR), Rajgurunagar, Pune

Two training-cum-awareness programmes on "*Protection of Plant Variety and Farmers' Rights Act with*

special reference to onion and garlic" were organized by DOGR on 19 January, 2013 at DOGR Campus, Rajgurunagar and the other on 14 February, 2013 at KVK Narayangaon, Pune. About 160 and 108 participants including progressive farmers, students, extension workers, agriculture officials, staff from KVKs and private companies attended the programme, respectively. The Chief Guest of first training was Dr. D. G. Bakwad, Director of Horticulture, Govt. of Maharashtra. During the programme, four lectures were delivered. Dr. A.J. Gupta, Nodal Officer DUS and Course Coordinator highlighted DUS testing and varietal details of onion and garlic. Dr. V Mahajan discussed about the benefit sharing whereas Dr. Anil Khar made the audience aware about filling the registration form. This was followed by feedback from the farmers and practical demonstration of recording

data according to DUS guidelines. A field visit was also organized for the farmers to acquaint them with the latest cultural practices in onion and garlic. At the end of the session, participation certificates were awarded to all the participants of the PPV&FRA training-cum-awareness programme. Two publications as mentioned below were also released by the directorate:

- One Technical Bulletin has been published under DUS project.
- Mahajan, V., Khar, A., Gupta, A.J., and Gopal, J. 2012. Onion and Garlic Varieties of DOGR, Technical Bulletin No. 20, Directorate of Onion and Garlic Research, Rajgurunagar, Pune.

8.31 Central Tuber Crops Research Institute (CTCRI), Sreekariyam, Thiruvananthapuram, Kerala

CTCRI conducted a training-cum-awareness workshop on "*Protection of Plant Varieties and Farmers' Rights Act, 2001"* on 26 March, 2013 at their campus. Dr. S.K. Chakrabarti, Director, CTCRI Chaired the inaugural meeting and delivered the presidential address. Dr. Sverup John, Dean, College of Agriculture, Vellayani delivered the inaugural address. Over 125 participants comprising of farmers and Botany/Plant Breeding students of different colleges attended the workshop. Dr. Reji. J. Thomas (CPCRI), Dr. Regeena, S., Special Officer, WTO Cell, and Dr. Wilson, KAU along with scientists of CTCRI handled classes. All the classes were taken in the local language, Malayalam were well received by the audience, who were mostly farmers and students of the southern part of the Kerala. A practical class on DUS characterization of cassava and sweet potato was taken and all the participants visited the varietal gene bank maintained at CTCRI. As the entire programme was in Malayalam, there was a greater dialogue among the participants with the speakers. Literature and a folder on PPV & FR Act was printed and distributed among audience.

8.32 Central Institute of Sub-tropical Horticulture (CISH), Lucknow

Training-cum-awareness programmes conducted as under:

- About 600 farmers' varieties were displayed in International Mango Festival, New Delhi.
- A lecture was delivered on 14-15 March, 2013 at Kanyakumari, Kerala on the registration of off season mango varieties.
- A mango diversity fair displaying 425 farmers' varieties was organized on 2 July, 2012 Kasmandikalan.

8.33 National Botanical Research Institute (NBRI), Lucknow

A National Symposium on Bioinformatics: Role of bioinformatics in biodiversity management was organized by CSIR – National Botanical Research Institute, Lucknow, U.P. and sponsored by Department of Biotechnology, Ministry of Science and Technology, Govt. of India and PPV&FR Authority, New Delhi. More than 200 participants including scientists, professors, research students from various Universities, Research Organizations and Ministries participated at the symposium. The National Symposium provided an excellent opportunity for all participants who were involved in developing databases on bougainvillea, canna, and gladiolus. This symposium provided an excellent forum for interaction of coordinators and students of BTIS national network, to tap a review of status of various databases on biodiversity including cultivated crops, explore areas of sharing and plan new strategies for better utilization on bioinformatics – potential in databases and software development and also evolve sharing mechanisms under national network so as to enhance lead role in dissemination of information in India. The symposium included presentations from various resource persons in eight sessions on various themes.

8.34 National Research Centre for Citrus (NRCC), Nagpur

A one day training-cum-awareness programme on "*Protection of Plant Varieties & Farmers' Rights (PPV&FR) with special reference to Citrus*" was organized by NRC for Citrus, Nagpur on 13 December, 2012 at Social Mobilization Experimentation and Learning Centre, West Garo Hills, Tura, Meghalaya(NEH) region, a biodiversity hot spot area where world first Citrus Gene Sanctuary (at Nokrek) was established by ICAR in 1981. The main objective of the training programme was to sensitize the farmers and professionals about protection of citrus varieties and farmers' Rights. About 75 participants from professional staff/scientists of NEHU, CAU, KVK (ICAR Res. Complex for NEH Region), officers from Agri./Horticulture Deptt. and farmers of citrus growing area of Garo Hills, Tura, Meghalaya participated in the programme.

8.35 Division of Floriculture and Landscaping, IARI , New Delhi

One training-cum-awareness program on Protection of Plant varieties and Farmers' Rights Act, 2001 was organized for dissemination of provisions of farmers' rights among the farmers and stakeholders on 20 February, 2013.

8.36 Directorate of Soybean Research (DSR), Indore

Training-cum-awareness programme on "*Protection of Plant Varieties and Farmers' Rights*" was organized at DSR Indore on 28 September, 2012 which had active participation from progressive farmers, scientists/ breeders and officers from state agriculture department. The participants included the scientists of Directorate of Soybean Research and AICRP centers on Soybean, College of Agriculture, Indore (Rajmata Vijayraje Scindhya Krishi Vishwavidyalaya) and progressive farmers of different villages of Indore District.The Assistant Director of Agriculture, Department of Agriculture, Govt. of Madhya Pradesh, Indore was also present.

Dr. S.M. Husain, Principal Scientist, DSR, Indore delivered a lecture on DUS testing in Soybean and Protection of Plant Varieties (सोयबीन में विशिष्टता, एकरुपता तथा स्थायित्व परिक्षण एवं पौधा किस्म संरक्षण), Dr. Sain Dass, former Director, DMR, IARI, New Delhi also delivered a lecture on DUS testing in Wheat (गेहुँ में विशिष्टता, एकरुपता तथा स्थायित्व परिक्षण) and Dr. M.K. Kuchlan, Senior Scientist, DSR, also delivered lectures on PPV&FR Act, 2001-Provisions of Farmers' Rights (पौधा किस्म और कृषक अधिकार संरक्षण अधिनियम, 2001–कृषक अधिकार के प्रावधान) and also Plant Genome Saviour Community Awards for farmers (कृषको के हितो में पादप जीनोम संरक्षक समुदाय पुरस्कार)

8.37 Central Rice Research Institute (CRRI), Cuttack

A training-cum-awareness programme on PPV & FRAct, 2001 was held on 8 March, 2013. About 106 participants attended this programme who were mostly students and researchers. The emphasis of this training programme was on DUS-Special tests with special reference to response test. The lectures pertaining to Protection of Plant Varieties and Farmers' Rights Act,2001, Plant Variety Registration, plant response to diseases, insects & pests and biotic stress. The resource persons were Dr. B.C. Patra (Economic Botanist); Dr. S.R.Dhua (Plant Breeder); Dr. Urmila Dhua (Plant Pathologist); Dr. Mayabini Jena (Entomologist) and Dr. R.K. Sarkar (Plant Physiologist) from CRRI, Cuttack.

8.38 Central Plantation Crops Research Institute (CPCRI), Kasaragod

Three training programmes were conducted during the year at CPCRI, Kasaragod and CPCRI, Regional stations at Kayangulam and Vittal. At Kayangulam about 160 participants including Officers from the Agriculture Department, 33 farmers, 24 delegates from KAU, NGOs, ICAR Institutes and 47 students, SRF's and CPCRI staff were present in the training programme. During the training lectures were delivered on PPV&FR Act, IPR issues, Coconut DUS guidelines, Plant Genome Saviour Community Awards, Rewards and Recognitions by Dr. C. R. Elsy, Convenor, IPR Cell (KAU) & Professor, Department of Plant Breeding, College of Horticulture, Vellanikkara, Kerala, Dr. S. Regeena, Special Officer, Agri (WTO Cell), Govt. Secretariat, Trivandrum, Dr. V. Niral, Principal Scientist, CPCRI, Kasaragod, Dr. Regi J. Thomas, Senior Scientist, CPCRI, Regional Station, Kayamkulam. Besides, reference to Central Travancore Jaggery and Pokkali Rice, which are registered as geographical indications were also highlighted.

On 23 March, 2013 another training-cum-awareness workshop was conducted at CPCRI, Kasaragod. About 148 participants including farmers, students, State Agriculture Dept., ICAR/SAU and NGO were present. Six lectures were delivered on Present Perspectives of Medicinal Plants in Western Ghats, IPR in agriculture with special reference to PPV& FRA, DUS guidelines of rice, spices, coconut and the testing principles. Shri. Dinesh Nayak, President, Sasyashamala, Vittal, Dr. Johnson George, Principal Scientist, IISR, Kozhikode, Dr. Vanaja, Associate Professor, KAU, Padnakkad, Dr. V. Niral, Principal Scientist, CPCRI, Kasaragod, Dr. B. A. Jerard, and Dr. K. Samsudeen, Senior Scientists, CPCRI, Kasaragod were the resource persons.

Third training-cum-awareness programme at CPCRI (Regional station) was held at Vittal on 26 March, 2013 and about 150 representatives from State Agriculture Dept., ICAR/SAUs, NGOs and Co-operatives societies including 74 farmers were present.

Dr. Niranjan Murthy, Professor, UAS, Bengaluru, Dr. S.V. Hittalmani, Addl.Director of Horti, DOH, Bengaluru, Dr. P. Mahadevu, Professor (G&PB), UAS, Agri. College, Hassan, Dr. S.J. Ankegowda, Head, CRC, IISR, Appangala, Dr. G.S. Mohan, Senior Scientist, DCR, Puttur, Dr. K.S. Ananda, Head, CPCRI, RS, Vittal, Shri Sadashiva Bhat, Deputy Conservator of Forests, Puttur and Shri M Dinesh Nayak, Advisor, (Green Belt), MSEZ, Mangalore were the resource persons and delivered lectures on Protection of Plant Varieties & Farmers' Rights Act, 2001, Geographical

Indicators in horticultural crops, DUS testing in rice, spices, cashew, coconut, arecanut & cocoa, aesthetic and economically important forest species, medicinal plants and endangered species of Western Ghats.

8.39 Directorate of Oilseeds Research (DOR), Hyderabad

An awareness-cum-training programme on "*Protection of Plant Varieties and Farmers Rights*" was conducted at Directorate of Oilseeds Research (DOR), Rajendranagar, Hyderabad on 24 January, 2013. The awareness-cum-training programme was basically aimed at dissemination of the information on provisions of Protection of Plant Varieties and Farmers' Rights Act, 2001 with special emphasis on Breeders, Farmers and Community Rights and DUS Test guidelines of oilseeds. The training was attended by one hundred participants including KVK personnel from Zone V from both Govt. and NGOs, Private Seed Company representatives and innovative/progressive farmers from 5 districts of Andhra Pradesh viz. Mahboobnagar, Kurnool, Sangareddy, Rangareddy and Medak. Dr. N. Murthi Anishetty, former Consultant with the Food & Agriculture Organisation of the United Nations was the Chief Guest for the programme. In his address, Dr. Murthi covered the genesis of plant variety protection and its implications at the global level.

The awareness programme also included interactive lectures by Dr. K. S. Varaprasad (Project Director, DOR), Dr. Harvir Singh Head, Crop Protection (DOR), Dr. Sarath Babu, Principal Scientist, NBPGR Regional Station, Hyderabad, Dr. L.V. Subba Rao, Principal Scientist, DRR, Hyderabad, Dr. C. Lavanya, Principal Scientist and Dr. N. Mukta, Principal Scientist (DOR). In addition, Video film on Farmers Rights under PPV & FR Act, 2001 documented by PPV&FR Authority was screened. The farmers were very eager to learn about provisions for protection of farmer's varieties and other rights for farmer and communities under the PPV&FR Act, 2001 and raised many queries which were clarified by the resource persons. Dr. K. S. Varaprasad, Project Director, DOR advised the farmers and KVK personnel to inventoried the material developed or maintained by them to derive benefit from the provisions of the Act in their own interest.

8.40 Central Arid Zone Research Insitute(CAZRI), Jodhpur

One day programme was organized at CAZRI RRS, Jaisalmer on 18 February, 2013. More than 100 farmers participated from Barmer, Pokran, Chandan and surroundings villages of Jaisalmer along with NGOs and KVKs.

8.41 Indian Institute of Horticultural Research (IIHR), ICAR, Bengaluru

Table 44. Training and awareness programmes

Date	*Programme*	*Location*	*Participants*
17 July, 2012	Event 1	IIHR, Bengaluru	Farmers-95, Scientists-15, students-3
22 January, 2013	Event 2	IIHR, Bengaluru	MNC seed Companies-45, Farmers-6, SAU-9, SRF/TA-16
13 February, 2013	Event 3	KVK, Hirehalli	Farmers-96 and Scientists-15
27 February, 2013	Event 4	CHES, Chettahalli	Farmers-74, Scientists-27, students-13, developmental officers-10, technicians-15

These training programmes were very useful in dissemination of information about the importance of Farmers Rights, registration of farmers' varieties, Plant Genome Saviour Community Awards and other activities of the Authority among the stakeholders.

8.42 Seed Research & Technology Centre (SRTC), Rajendranagar, Hyderabad

A one day awareness programme was conducted on 23 February, 2012 at seminar hall, RARS, Tirupati. Ninety two participants including progressive farmers, P.G and Ph.D students of Genetics and Plant Breeding, S.V. Agril. College, Tirupati, Plant Breeders of Southern zone, NGOs, Research Associates and Senior Research fellows attended the programme. The lectures were chosen to mainly focus on farmers' rights, protection of plant

varieties. The topics for the lectures were "*Importance of DUS testing in Field Crops*", "*Intellectual Property Rights for Plants in Developed and Developing countries*" by Dr. N. V. Naidu, Associate Dean, S.V. Agril. College, Tirupati, "*Registration of Varieties (including Farmers' Varieties) and Implementation of PPV & FR Act, 2001*" and "*Importance of Genetic Purity with respect to DUS testing*" by Dr. L. V. Subba Rao, Principal Scientist (Crop Improvement Division) Directorate of Rice Research, Rajendranagar and "*Importance of Genetic Purity in Seed Production and Production of Quality Seed at Farmers Level*" Dr. R.P.Vasanthi, Principal Scientist (Plant Breeding) RARS, Tirupati.

8.43 All India Coordinated Pearl Millet Improvement Project (AICPMIP), Mandor, Jodhpur

One day training programme for awareness on "*Protection of Plant Varieties and Farmers' Right and DUS testing*" was organized at AICPMIP, Mandor, Jodhpur on 28 September, 2012 in which 15 scientists/technical persons (12 public, 3 private) were practically trained for recording observation in pearl millet as per DUS guidelines given by PPV & FRA.

8.44 Indian Institute of Vegetable Research (IIVR), Varanasi

First training-cum-awareness programme was organized at IIVR-KVK, Sant Ravidasnagar (Bhadohi) on 16 March, 2013 for the benefit of farmers, students, officers and staff of KVK, State Govt. Departments and NGOs. About 134 participants were present. Lectures were delivered by Dr. B. Singh (Project Coordinator, AICRP-VC, IIVR, Varanasi), Dr. R. N. Prasad (Principal Scientist), Dr. Sudhakar Pandey (Sr. Scientist), Dr. T. Chaubey (Sr. Scientist), Dr. Shailesh Kumar Tiwari (Scientist), Dr. Rajendra Prasad (Programme Coordinator), Shri Rajendra Prasad (Assistant Director Agriculture), Dr. Sanjay Singh (DAO), Shri Subhash Kumar (DHO, Bhadohi), Shri Ravi Shankar Rai (BDO, Aurai, Bhadohi).

Second training-cum-awareness programme was organized at IIVR-KVK, Deoria on 25 March, 2013 to familiarise the farmers, students, officers and staff of KVK, State Govt. Departments and NGOs and 140 participants attended the training. Lectures were delivered by Dr. B. Singh (Project Coordinator, AICRP-VC, IIVR, Varanasi), Dr. T. Chaubey (Sr. Scientist), Dr. Anuradha Ranjan Kumari (Programme Coordinator), Dr. Rajnish Mishra (Assistant Director, NHRDF, Deoria), Shri Ramanuj Singh (SDM), Shri J. M. Srivasatava (Assistant Director Agriculture), Shri Asharphi Prasad (DHO, Deoria).

8.45 Indian Institute of Horticultural Research (IIHR), Hessarghatta, Bengaluru

Awareness programme on "*PPV&FR Act, 2001 and discussion on draft DUS test guidelines of Capsicum annuum L. (chilli, bell pepper & paprika) and cucurbits (bottle gourd, bitter gourd, ridge gourd, watermelon, muskmelon, pumpkin and cucumber)*" was held on 20 February, 2013. Around 50 representatives from several private seed companies participated. Draft DUS guidelines for watermelon and muskmelon were presented and suggestions were taken.

8.46 Punjab Agricultural University (PAU), Ludhiana

One day training–cum-awareness on "*PPV & FR Act, 2001*" was organized at KVK, Samrala of Punjab Agricultural University, Ludhiana on 22 January, 2013. More than 100 farmers, students and extension workers attended the same. Another one day training-cum-awareness on PPV & FRA" was organized at Regional Research

Station, Gurdaspur of Punjab Agricultural University on 23 January, 2013 where about 100 farmers attended the meeting. Awareness and training camps are a regular feature of P.A.U. and during these events information in the form of pamphlets has been provided to the farmers. During the reporting period the University organized Kisan Mela in September, 2012 & March, 2013 wherein short trainings on various topics like seed production for the scientific communities, field staff and farmers were held.

8.47 Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri

One day training-cum-awareness programme on "*Protection of Plant Varieties and Farmers Rights Act, 2001*" was arranged at Mahatma Phule Krishi Vidyapeeth, Rahuri for the scientists and farmers on 26 March, 2013. Hon. Vice-Chancellor, Dr. T. A. More was the Chief guest of Programme. The lectures regarding PPV & FR Act and Plant Variety Registry, Procedure for registration of varieties, process of benefit sharing, farmers' and researchers rights and DUS testing were given by Dr. H. S. Chawala, GBPUA&T, Pantnagar and Dr. F. B. Patil, Director, Kirtiman Seeds, Aurangabad and former member of PPV&FRA during the programme. One hundred thirty one scientists including 19 farmers participated in the said training cum awareness programme.

8.48 Central Institute for Arid Horticulture (CIAH), Bikaner

A training programme on "*Protection of Plant Varieties & Farmers Rights Act 2001*" sponsored by PPV&FRA, New Delhi was organized at its Beechwal campus on 8 March, 2013. More than 100 farmers, students, extension workers, State Govt. officials, representatives of Ambuja Foundation (NGO), Marwar Mundava, Nagaur, progressive farmers from Nohar, Hanumangarh, Anupgarh, Sri Ganganagar and Bikaner districts, Agriculture students of College, Bikaner; P.G. and Ph.D. Scholars from SKRAU, Bikaner, IABM students, research fellows, teachers, scientists from CIAH, Horticulturist from Central State Farm, Jetsar, Sri Ganganagar and women participated.

At the outset, Dr. R.S. Singh, Principal Scientist highlighted the importance of creating awareness among the farmers for PPV&FR Act, 2001. The event was inaugurated by Dr. N. V. Patil, Director, National Research Center on Camel, Bikaner as Chief Guest and Dr. S.K. Sharma, Director, CIAH, Bikaner presided over the function as Guest of Honour. Dr. Patil in his inaugural address highlighted relevance of protection of farmers' rights. Dr. S.K. Sharma, Director, CIAH, Bikaner in his keynote address emphasized the protection of plant varieties and rights of breeders, farmers and the importance of germplasm and old farmers' varieties and their conservation for sustainable uses. Dr. B. D. Sharma, Principal Scientist proposed a vote of thanks.

There were number of technical sessions covering various themes and lectures were delivered on Farmer's Right, Protection of Plant Varieties, breeder's right, PPV&FR Act, 2001, overview of arid horticulture, and DUS testing by various resource persons. The deliberations began with a lecture on role of farmers in conservation of agro-diversity by Dr. J. P. Singh, Head, CAZRI, RRS, Jaisalmer, Rajasthan. He cited many examples of conservation efforts being carried out by farmers in various parts of country, particularly in Thar Desert, which had helped in preserving precious germplasm which are vital sources of genes for stress tolerance. This was followed by a lecture on Intellectual Property Rights (IPRs) issues by Dr. R. Bhargava, Principal Scientist of CIAH, Bikaner. He emphasized on different kinds of intellectual properties like copyright for literary work, patents, designs, trade marks, an individual can claim their right. Some examples were also cited for selling products as Geographical Indications and to protect the same by registration.

Dr. R S Singh, Principal Scientist and Nodal Officer for Date Palm delivered a talk on PPV & FR Act, 2001 and showed a documentary film on farmers' rights developed by PPV&FRA, New Delhi. In his discussion with farmers and students, he clarified the most frequently asked questions (FAQs) by the participants for implementation of this Act and PPV&FRA activities. Dr. B.D. Sharma, Principal Scientist apprised about over view of arid horticulture. Dr. Hare Krishna, Senior Scientist delivered a talk on DUS testing guidelines in view of farmers' right. In his presentation, he highlighted the relevance of DUS testing for protecting the varieties developed by breeders and farmers. During the training programme, a film on CIAH was also showed to the participants to appraise them about Research and Development activities of the Institute.

Visit to the Institute's Museum and Experimental Blocks/Nursery were also arranged for the participants/ trainees/farmers by Dr. S. K. Maheshwari, Senior Scientist. Shri Madan Lal, a progressive farmer, Nohar, Hanumangarh also expressed his views on cultivation of *Aloevera* and organic farming and cultivation of improved variety of various crops.A bulletin in Hindi prepared from the lectures/material provided by resource persons and PPV&FRA brochure were freely distributed to the trainees/

participants. Dr. Manoj Srivastava, Registrar, PPV&FRA, New Delhi also visited Bikaner on 21 September, 2012 and monitored the progress of various projects run at CIAH, Bikaner.

Director, CIAH also organized a meeting of PIs of co-operating centres on 19-20 February, 2013 at CIAH, Bikaner to take a stock of progress of the projects.

8.49 Central Tuber Crops Research Institute (CTCRI), Regional Centre, Bhubaneswar

One day training-cum-awareness programme was conducted on "*Gender sensitizing awareness programme on community based conservation and preservation of genetic resources of tuber crops and protection of plant varieties for livelihood security*" was jointly organized by Regional Centre of Central Tuber Crops Research Institute (RCCTCRI), Bhubaneswar and Protection of Plant Varieties and Farmers' Right Authority (PPV&FRA), New Delhi on 15 March 2013, at Regional Centre of CTCRI, Bhubaneswar. The objectives of the training was to create awareness among the stakeholders comprising of farmers, breeders, researchers and especially farm women about conservation and protection of genetic resources of major food crops and Farmers' Rights and also to sensitize gender, especially farm women on importance of conservation and protection of genetic resources of tuber crops in improving their socio-economic and cultural standards. About 102 participants actively participated in the programme from different parts of Odisha of which 79 participants were women.

Dr. D.P. Ray, former Vice Chancellor of OUA&T inaugurated the programme by lighting the lamp and pressed the mouse for displaying the CD developed by PPV & FR Authority showing the mandate and activities of the Authority.

8.50 Indian Agricultural Research Institute (IARI), Regional Station, Indore

Awareness programme is conducted regularly with various farmers groups attending the institute and around 300 farmers were educated about the DUS testing utility, PPV&FR Act, 2001, farmers, community and researchers rights, National Gene Fund & benefit sharing, registration of varieties, Plant Genome Saviour Community Award etc.

8.51 Central Tuber Crops Research Institute (CTCRI), Sreekariyam, Thiruvananthapuram, Kerala

The PPV& FR Authority and the WTO Cell of the Agriculture Depart of the Govt of Kerla jointly convened a State Level Awareness workshop at CTCRI on 20November, 2012 to sensitize and educate the farmers, scientific community and the civil societies about the provisions of the PPV&FR Act and the farmers' rights. The workshop was inaugurated by the Hon'ble Agriculture Minister of Kerala who stressed about the importance of the conservation of traditional varieties, different developmental schemes of the Govt of Kerala etc. Dr S K Chakraborty, Director CTCRI, gave a brief overview of the activities of the institute and importance of conservation of agro-biodiversity in Kerala. Technical presentations were given on brief overview of the PPV&FR Act, 2001; legal provisions, Farmers' Rights etc. Dr R C Agrawal, Registrar General, PPV&FRA discussed about the beneficial provisions of the Act, PGSC Award, recognition for farmers and related issues.The Authority got an encouraging response from the participants of the workshops particularly the farmers of the neighboring areas who have shown keen interest in the exhibition.

9. General Activities of the Authority

9.1 Foundation Day of the Authority

Eighth Foundation Day of the Authority was celebrated on 12 November, 2012 in the Committee Room III, NAAS at NASC Complex, New Delhi. At the outset, Dr. R.C. Agrawal, Registrar General, welcomed all the officers and staff on the foundation day and briefed about the progress of the Authority especially during the last one year. On the occasion Dr. P.L. Gautam, Chairperson of the PPV&FR Authority addressed the staff of the Authority and congratulated and appreciated the staff of the Authority for their excellent services extended in the progress of the Authority. He urged the staff to work together as a team for the further progress of the Authority and to achieve the set targets. He also distributed the awards to the winners of the Essay competition held during the Hindi Chetna Mas from 1-30 September, 2012.

9.2 Vigilance Awareness Week of the Authority

Vigilance Awareness Week was celebrated in the Protection of Plant Varieties and Farmers' Varieties from 29 October to 3 November, 2012. Dr. P.L. Gautam, Chairperson of the Authority in his keynote address advised to all the officers/staff of the Authority to work with sincerely and honestly. He requested timely disposal of work within the time frame as per Govt. Rules and Regulations. Dr. R.C. Agrawal, Registrar General also addressed the house and requested all the officials to work together as a team to achieve the targets set for the further progress of the Authority. Dr. Manoj Srivastava, Dr. Tejbir Singh and Dr. Ravi Prakash, Registrars and other officers and staff were present on the occasion and Chairperson administered the oath for honestly to all the officers in a simple ceremony.

9.3 Progress of Hindi use in official work

During the reporting period, Hindi Chetna Mas was celebrated from 1-30 September, 2012 at PPV&FR Authority, New Delhi. A competition on essay writing on "Biodiversity", Kavita Lekhen and "Noting & Drafting" in Hindi was organized where employees of the Authority participated in the event and winners were awarded the prizes and appreciation certificates as under:

S. No.	*Name of employee*	*Prize & appreciation certificates*		*Prize*
1.	Dr. D. S. Pilania, TA	Certificate	₹500/- cash	1st prize
2.	Shri Shyam Narayan Prasad, CA	Certificate	₹300/- cash	2nd Prize
3.	Shri Nitesh Verma, CA	Certificate	₹200/- cash	3rd Prize
4.	Smt. Sudesh, OA	Certificate	₹100/- cash	4th Prize
5.	Shri Rajganesh, LA-I	Certificate	₹75/- cash	Santwana
6.	Shri Sanjay Gupta, CA	Certificate	₹75/- cash	Santwana
7.	Shri P. K. Chhbra, Consultant	Certificate	₹75/- cash	Santwana

Dr. P.L. Gautam, Chairperson, PPV&FR Authority gave away the awards and appreciation certificates to the winners in the presence of officers of the Authority.

9.4 Branch Office, Guwahati

The Branch Office, Guwahati of Protection of Plant Varieties and Farmers' Rights Authority started functioning from the campus of Assam Agricultural University (AAU), Khanapara, Guwahati from 20 May, 2011. The Deed of

Agreement between PPV&FR Authority, New Delhi and Assam Agricultural University, Jorhat was signed and the office shifted to new premises on 5 March, 2012. The office is now fully functional with all facilities. The branch office was inaugurated by Shri Nilamani Sen Deka, Hon'ble Minister for Agriculture, Horticulture, Food Processing and Parliamentary Affairs, Govt. of Assam on 15 November, 2012 in the presence of Dr. P.L. Gautam, Chairperson, PPV&FR Authority and Dr. R.C. Agrawal, Registrar General, PPV&FR Authority and Dr. K. M Bujarbaruah, Hon'ble Vice-Chancellor, Assam Agricultural University. The function was followed by a Interface Meeting with the stakeholders which was attended by about 100 participants including scientists, statutory officers, Director of Research, Director of Extension, Chief scientists of Assam Agricultural University, Agricultural and Horticultural Officers of Govt. of Assam, ICAR, Scientists and farmers.

During the reporting year, 121 applications for registration were received and after preliminary examination, these were sent to Headquarters for further processing. Grow out test (GOT) was conducted for 11 farmers' varieties of rice at AAU, Jorhat during *Kharif*, 2012 and monitoring was done on 19 November, 2012. The Task Force meeting for developing the DUS descriptors for Tea, Bamboo and Orchids were also represented by the Branch office. The awareness and training programmes conducted at various places in North-Eastern Region was attended by Dr. A.C. Sarma, Deputy Registrar and also Dr. Amit Dixit, Plant Variety Examiner as under:-

- Deputy Registrar attended a meeting of the Agricultural Officers of Kamrup District, at their monthly A.D.Os meeting on 2 June, 2012 to make them aware about the provisions of PPV&FR Act, 2001 and farmers' rights.
- Deputy Registrar along with Plant Variety Evaluator attended the monthly Zonal Workshop of Agriculture Department at Community Training Centre, Lichubari, Jorhat on 4 June, 2012 and discussed about the PPV&FR Act, 2001 and the importance of the Plant Genome Saviour Community Awards. A farmers meeting was conducted at Gyandeep Library of Burakuri village on 5 June, 2012.
- Addressed the KVK scientists from North Eastern Region in their orientation meeting held at AAU Khanapara on 13 June, 2012 and highlighted the provisions of farmers' rights. Another programme was conducted at KVK, Teok (Jorhat) on 27 December, 2012.
- Visited Central Agricultural University (CAU), Imphal on 23 June, 2012. Discussion for filling of applications for registration was held. Dr. J.M. Laishram, Head, Deptt. of Plant Breeding & Genetics , Dr. N.I. Singh, Dean, College of Agriculture, CAU, Imphal and Shri P. Devakanta, President, All Manipur Trained Medicinal and Aromatic Plant Promoters Consortium took part in discussion.
- Attended one day awareness-cum-training programme at Central Agricultural University, Imphal on 19 December, 2012 where about 100 farmers and scientists were present.
- Deputy Registrar was deputed to Hyderabad in connection with the 11th Conference of the Parties (COP 11) to the Convention on Biological Diversity at Hyderabad from 1-19 October, 2012 besides, Deputy Registrar & PVE also participated in 100th Indian Science Congress at Salt Lake, Kolkata from 3-7 January, 2013 and put a stall showcasing the activities of the Authority through posters and charts.
- The Deputy Registrar, Guwahati and the Plant Variety Examiner at Guwahati Branch Office participated in 100th Indian Science Congress at Salt Lake, Kolkata from 3-7 January, 2013. The Authority used the forum

for showcasing its various activities undertaken for the Protection of Plant Varieties & Farmers' Rights through charts, posters, videos, audio documentary and educated the civil societies including students and common man about the Act. During the event thousands of people visited the stall of the PPV&FR Authority and showed their interest in this area.

9.5 Branch Office, Ranchi

The Branch Office, Ranchi was made functional by appointing contractual officers on the position of Deputy Registrar (Dr. Manoj Kumar), Plant Variety Examiner (Dr. S.P. Yadav) and Senior Technical Officer (Dr. Padminee Das) in April, 2012.

Branch office is located in the premises of Computer Centre Building of the Birsa Agriculture University, Ranchi. The office was inaugurated by Dr. S.K. Datta, Deputy Director General (Crop Science), ICAR in the presence of Dr. M.P. Pandey, Vice Chancellor, BAU and Dr. R.C. Agrawal, Registrar General, PPV&FR Authority on 4 August, 2012. The branch officers were instructed by the Headquarters time to time to participate in Meetings/Seminars/Kissan Melas convened by various Departments/Organizations/Agencies in their jurisdiction for dissemination of information relating to PPV&FR Act, Farmers' Rights, Plant Genome Saviour Community Awards, Rewards & Recognitions, Registration of Farmers' Varieties etc. as under:

- Officials of branch office Ranchi participated in the Task Force meeting of Orchid at Branch Office, Guwahati held from 4-5 May, 2012.
- Officers of the Branch office held a meeting with the Director (Research) and Scientists in Bihar Agricultural University, Sabour (Bihar) in the month of July, 2012.
- Visited the BCKV, Kalyani (West Bengal) and had a meeting with the Director (Research) and other scientists working in different discipline and also met the Principle Investigator of DUS projects on pointed guard and betelnut.
- Visited to the GONTRA Samabaya Krishi Unnayan Samity Ltd. office which is a farmer cooperative society recognized by the Govt. of West Bengal and maintaining about 150 folk landraces of rice.
- Participated in Kissan Mela organized by IGKV, Raipur from 6-9 October,2012.
- Visited Central Agricultural Research Institute (CARI), Garacharma, South Andaman, Port Blair to have a meeting with Director, CARI on 28 November, 2012 and made field visit of the CARI and farmers fields. A presentation on PPV&FR Act, 2001 was made before the officers of the Agriculture Department and farmers.
- Participated in Eastern Zone Regional Agriculture Fair & Agrotech-2013, Kisan Mela organized by BAU, Ranchi, Jharkhand on 22-24 February, 2013. The theme of the fair was "*Ensuring Better Livelihood Security and Income through Secondary Agriculture*".

With the opening of the branch office at Ranchi about 15 awareness programmes were conducted during the year and farmers were made aware about their rights for registration of their varieties. About 161 applications of different crops have been received for registration.

9.6 Meeting of PPV&FR Authority

Meetings	Date	Venue
16th Meeting of the Authority	23 May, 2012	NASC Complex, New Delhi
17th Meeting of the Authority	19 October, 2012	Indian Institute of Sugarcane Research, Lucknow

9.6.1 Major decisions of the Authority taken during meetings

- Authority has notified in the Gazette of India [S.O. No. 617(E) dated 27 March, 2012) three genera of orchids namely *Cymbidium Sw.*, *Dendrobium Sw.*, and *Vanda Jones ex R.* for registration.
- Update on the status of court cases pending in various High Courts (Hon'ble Supreme Court of India - 04, Hon'ble Delhi High Court – 09 and Hon'ble A.P. High Court – 07) monitored and contested effectively.
- Update on the progress of invoking the transitional provision to the effect that Intellectual Property Appellate Board to function as Appellate Authority in respect of orders passed by Registrar and Authority till the establishment of PVP Appellate Tribunal.
- Conferring the Plant Genome Saviour Community Award for the year 2010-11 by Authority and finalization of the list of applicants eligible for the status of the Plant Genome Saviour Community Awards 2011-12 by the Authority.
- Guidelines for supporting the conservation and sustainable use of Plant Genetic Resources (PGR) for *in-situ* and *ex-situ* conservation and for strengthening the capability of the Panchayats through BMCs may be dovetailed for the purpose of financial support from Authority.
- Implementation of e-Governance in PPV & FR Authority including development of Portal of the Authority and online filing of Application for registration by Sahara Next, a NICSI empanelled firm.
- Selection to the various vacant posts of the Authority i.e. Dr. Ravi Praksh, Registrar, HQ, Dr. Manoj Kumar, Deputy Registrar, Ranchi, Dr. S.P. Yadav and Dr. Amit Dixit, Plant Variety Examiner at Ranchi and Guwahati, Dr. Padminee Das and Mrs. Shaptadwipa Bhattacharya, Senior Technical Officers at Ranchi and Guwahati.All the officers were selected on short-term contract except, Dr. Ravi Prakash, Registrar on absorption basis.
- Procedure for release and accounting of DUS Test Fee.
- Recommendations of the Extant Variety Recommendation Committee (EVRC).
- Approval of the Annual Accounts of the Authority for the Year 2011-12 for inclusion in the Annual Report of the Authority and forwarding to the DAC for laying before the Parliament.
- Gazette notifications issued by the Central Government nominating Smt. Neelam Tyagi, Secretary, Laxmijan Kalyan Seva Sansthan, Murad Nagar, Ghaziabad, Uttar Pradesh, as member of the Authority representing Women's Organization and Dr. K.S. Charak as *ex-officio* representative of DBT on the PPV&FR Authority in place of Dr. Natesh.
- Recommending a proposal to DAC for consideration of exemption of farmers for payment of Annual and Renewal Fee.
- Revisiting the Memorandum of Agreement signed between PPV&FRA and NBPGR regarding Seed Gene Bank in accordance with section 27 of the Act was accepted.
- Construction of PPV&FR Bhawan to house the Headquarters of the Authority, Appellate Tribunal, National Gene Bank and Plant Varieties Registry and to accommodate National Rainfed Area Authority and the additional requirement of space by DAC.
- Consideration of request of incumbents to the posts of Joint Registrar, Deputy Registrar and Senior Technical Officers for substantive appointments.

9.7 Construction of Authority Bhawan

The space requirement of National Rainfed Area Authority (NRAA), DAC and PPV&FRA was discussed at length and it was informed that there will be G+8 with basements with 4 star green rating. The revised estimates for the construction have been submitted to DAC for the necessary approval. Out of 8 floors in the building 5 floors will be exclusively for PPV&FRA as per detailed drawing approved earlier. The 6th floor is proposed to be occupied by DAC and the 7th and 8th floor to NRAA. The draft layout design as developed by the architect in consultation with NRAA and DAC was presented.

9.8 Staff Welfare and News

- Dr. Susheel Kumar, Sr. Technical Officer was relieved on 13 April, 2012 in order to join as Asstt. Professor (Horticulture) in the SKRA University, Bikaner (Rajasthan)
- Shri Rajeev Talwar, Senior Accounts Officer was relieved on 30 April, 2012 to join as Sr. Finance Officer in the Indian Institute of Foreign Trade, New Delhi.
- Ms. Jyoti, Computer Assistant was relived on 30 April, 2012 to join as Senior Technical Officer in AFHQ, Ministry of Defence, New Delhi.
- Dr. Ravi Prakash, Registrar joined the Authority on 15 May, 2012.
- Dr. P.L. Gautam, Chairperson, PPV&FRA relinquished on 11 December, 2012.

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

- Round table meeting on preventing Bio-piracy on 4 April, 2012 and Chaired a session on "*Institutions and Instruments to Protect Biodiversity and Traditional Knowledge*".
- Brainstorming session on peri-urban and urban agriculture on 14 April, 2012 at NASC Complex, DPS Marg, New Delhi
- Launch of the Centre for Biodiversity Policy and Law (CEBPOL), followed by a seminar on "Biodiversity and Governance" on 24 April, 2012 in Chennai
- Brainstorming session on Climate Resilient Agriculture on 25 April, 2012 at NASC Complex, DPS Marg, New Delhi
- Global Conference on Horticulture for food, nutrition and livelihood option from 28 – 31 May, 2012 at Odhisa University of Agriculture & Technology, Bhubaneshwar.
- Chaired a session in a meeting regarding National Policy for Higher Agricultural Education on 2 July, 2012 at NAAS Conference Hall, New Delhi.
- 84th Foundation Day of ICAR and Award Ceremony on 16 July, 2012 at NASC Complex, New Delhi.
- Ecuadorian delegation of the National Secretariat of Higher Education, Science & Technology and Innovation (Senescyt) courtesy talk with the Chairperson on 23 July, 2012
- Knowledge Meet on 21-22 August, 2012 at NASC Complex, DPS Marg, New Delhi.
- All India Coordinated Wheat improvement project workshop on 25 August, 2012 held at Agricultural Research Station, Durgapura, Jaipur.
- Workshop on Agriculture & Organic Farming Group India on 27 August, 2012 at Soil Conservation society of India, NASC Complex, New Delhi.
- "*Harnessing Multi-functionality of Agriculture*" on 10 September, 2012 A Dialogue at NAAS Conference Hall.
- "*Committee on Subordinate legislation, Rajya Sabha – framing of Subordinate legislation of PPV&FRA*" on 19 October, 2012 at Parliament House, New Delhi
- Meeting of Genetically Modified Food on 27 Oct, 2012 at NAAS Conference Hall.

9.10 Participation by Registrar General

9.10.1 Meeting with Foreign Delegates

- Attended a meeting on Technical Consultation on the indicators and reporting format for monitoring the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture and on higher-order indicators for PGRFA conservation and use at INIA Headquarters, Madrid, Spain on 24-26 April, 2012.

- Meeting with the Netherlands delegations on 11 July, 2012 regarding the execution of the activities covered under bilateral agreement. Thereafter, participated in preparatory meeting with the Nodal officers for the DUS centres reg. the proposed visit of Indian delegation to Netherlands on 16 July, 2012.
- Dutch delegation visited India from 3-7 December, 2012.

9.10.2 Other Meetings

1) Round Table on "*Preventing Bio-piracy: Protecting Traditional Knowledge*" at India International Centre Max Muller Road, New Delhi.
2) 5th World IT Forum (WITFOR 2012) held at Vigyan Bhavan, New Delhi, India from 16-18 April, 2012 organized by International Federation for Information Processing (IFIP) and the Department of Information Technology, Government of India,
3) National Seminar on "*Plant Genetic Research for Eastern and North-Eastern India*" at ICAR Research Complex for NEH Region, Umiam, Shillong, Meghalaya held on 10-13 May, 2012.

4) 2nd Meeting of the Expert Committee on Agro Biodiversity held at NBA Chennai on 19-20 June, 2012.

5) Third Meeting of the Ad Hoc Advisory Technical Committee on the SMTA and Multilateral System of the ITPGRFA was held on 26-28 June, 2012.

6) Capacity building workshop of ITPGRFA held at Vigyan Bhawan, New Delhi on 30 June-1 July, 2012.

7) Visited Thiruvanthpuramon 12-13, July, 2012 to meet Minister for Agriculture, Govt. of Kerala for discussion about the availability of office space for branch office

8) National Consultation on "*Setting National Biodiversity Targets*" held at NASC Complex, New Delhi on 30 July, 2012.

9) Meeting on Bilateral Co-operation between DAC, NSAI and German Federal Ministry of Food Consumer Protection, German Association Plant Breeders at Krishi Bhawan on 11 September, 2012.

10) Awareness workshop on OECD varietal certification system at Andhra Pradesh State Seed Certification Agency (APSSCA), Hyderabad on 27- 28September, 2012.

11) Meeting of Bilateral Cooperation with Germany at Krishi Bhawan on 5 November, 2012.

12) Meeting to examine the existing procedures, guidelines and criteria, identification and release of varieties at Krishi Bhawan on 6 November, 2012.

13) National Seminar on PPV & FR Act at Thiruventhpuram, Kerala on 19-21 November, 2012.

14) Scientist-Farmer's Interface at OUAT, Bhubaneswar, Odisha on 30 November, 2012.

15) Round Table on "*Potential of Organic Produce in North East*" at Delhi Haat, INA on 14 December, 2012.

16) 2nd National Conference "*Integration of Medicinal and Aromatic plants for Rural Development and Prosperity*" at Directorate of Medicinal and Aromatic Plant Research, Boriavi, Anand, Gujarat on 22-23 January, 2013.

17) Panel discussion of regulations related to seeds at Leela Hotel, Gurgaon organized by National Seed Association of India on 7-8 February, 2013.

18) National Consultative Workshop and Training at UAS, Dharwad on 16 -17 February, 2013.

19) Visited Khekra Village, Bagpat, Uttar Pradesh about the Farmers' Rights on 13 March, 2013.

20) Training & awareness programme at NBPGR about gene bank and PPVFR, Act on 18 March 2013.

21) PPV&FR Act at India International Centre, Delhi jointly organized by BCIL and DBT on 19 March, 2013.

10. International Co-operation

The PPV&FR Authority has signed a Memorandum of Agreement (MoA) with the Netherlands for bilateral co-operation in the field of Plant Variety Protection, DUS testing, and Plant breeder's rights in December, 2011.

Pursuant to this MoA, Dr. Tejbir Singh, Registrar, PPV&FRA participated15th Plant Variety Protection Course at Wageningen, the Netherland held from 18-29 June, 2012. The course was focused for learning the mythology of DUS testing, IPR, flowers export, import, different varieties of flowers, quality of nursery FloraHolland Flower Auction, process of registration of European method, enforcement of breeder rights, researcher rights, safeguard and interest grant of rights of the legitimate interests of the breeder in relation to plant varieties.

Subsequently, a six member Indian delegation comprising Dr. Manoj Srivastava, Registrar, PPV&FRA, New Delhi, Dr. Sushila Kundu, Principal Scientist, DWR, Karnal, Dr. Tejaswini, Principal Scientist, IIHR, Bengaluru, Shri Gorelal Dewakar, Asstt. Commissioner (Seeds) & Shri Mahamani Gunasekaran, Asstt. Director (Seeds) both from DAC, New Delhi and Dr. Poomaruthai Masilamani, Director, NSRTC, Varanasi, U.P. visited the Netherlands from 10-14 September, 2012 to study the effect of Plant Variety Protection (PVP) on the development of the agricultural and horticultural sector and development of Dutch plant breeding industry.The team visited Naktuinbouw, Plantum, NAK, Seed Industries, Breeding Companies, Ministry of Economic Affairs, Agriculture and Innovation as well as Flower exporting organization to understand the impact of Plant Variety Protection on the development of Dutch seed Industries.

A ten member Dutch delegation comprising Mr. Marien Valstar, Ministry for Economic Affairs, Agriculture and Innovation, Mr. Kees van Ettekoven, Mrs. Amanda van Dijk, Mr. Willem Wietsma, Mr. Henk de Greef, Mr. Wim Sangster, Mrs. Marian van Leeuwen, Mrs Jacqueling Straathof, Mr. Henk Bonthuis, Mr. Peter lenlijes, has visited India from 3-7 December, 2012 for bilateral meeting to discuss the progress of the Memorandum of Agreement (signed between PPV&FRA and Naktuinbouw Netherlands in December, 2011) and strategy for future co-operation. The ten member Dutch delegation was divided into four groups with officers of PPV&FRA for meeting at four places i.e. IARI, New Delhi, IIHR ,Bengaluru, IIVR ,Varanasi and CPRI, Shimla/Modipuram.The details of each group and the visiting station for imparting DUS testing training in selected crops are given as under:

- Dutch delegation participated in bilateral meeting at Vegetables Division, IARI New Delhi and also imparted training programme on DUS Testing on Vegetables and Ornaments on 3-4 December 2012.
- Dr. Manoj Srivastava, along with Dutch delegation participated meeting at IIVR, Varanasi on DUS Testing of Vegetables on 5-6 December 2012.
- Dr. Ravi Prakash, Registrar, along with Dutch delegation participated bilateral meeting at CPRI, Shimla/Modipuram in connection with DUS Testing of Potato on 5-6 December 2012.
- Shri Dipal Roy Choudhury, Joint Registrar, along with Dutch delegation participated bilateral meeting at IIHR,Bengaluru on 5-6, December, 2012.

During the stay of the Dutch Delegation in New Delhi, in one of the interface meeting held between the officers of India and the Netherlands it was felt by both sides that the goals of the work plan 2011 were satisfactory

and the co-operation in this phase could be considered as a success. Especially, the visit of the Indian delegation to the Netherlands from 10–14 September, 2012 was referred as very successful as the visiting delegation could clarify and explain the Indian stand on PPV&FR Act to the representatives of the Dutch industry which has helped them in raising the level of awareness and understanding of the specific elements in the Indian law to the Dutch industry.

10.1 Bilateral Co-operation

The PPV&FR Authority took initiatives and proposed to DAC for bilateral co-operation with various countries such as Germany, Greece, Argentina, Spain, Switzerland, Algeria, Albania, Peru, Romania, Ukraine, Uzbekistan etc, which are the members of the International Union for the Protection of New Varieties of Plants (UPOV) and have legislation on protection of plant varieties in their countries.

10.2 Conference of ITPGRFA

On the request of the Secretariat of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) to the Department of Agriculture & Cooperation, Ministry of Agriculture, the PPV&FR Authority convened the 3rdMeeting of the Ad Hoc Advisory Technical Committee on the SMTA and Multilateral System of the ITPGRFAat NASC Complex, New Delhi on 26-28 June, 2012. This meeting was convened prior to the 11th meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD) to be hosted by India at Hyderabad in October, 2012. The meeting was attended by foreign delegates from various countries and the key officials of the DAC, ICAR, NBPGR were also present.

10.3 Participation in the 11th Conference of the Parties(COP)

The eleventh meeting of the Conference of the Parties (COP 11) of the Convention of Biological Diversity was hosted by the Ministry of Environment and Forests,Government of India in Hyderabad, from 8-19 October, 2012. Dr. Manmohan Singh the Prime Minister of India, announced a grant of $50 million for strengthening the institutional mechanism of biodiversity conservation in India and other developing countries by the name of Hyderabad Pledge. The Union Environment and Forests Minister Jayanthi Natarajan assumed the charge of COP-11 as its President for next two years and emphasized on the issue of resource mobilization that remained an unfinished agenda of COP-10 at Nagoya in Japan.

This Conference was the first conference after the launch of Decade of Biodiversity by United Nations in 2011. Side events were organized prior to the main event, from 1-19 October, 2012 at Hyderabad at the margin of major official meetings with a view to sharing experiences and increasing opportunities for informal dialogue among the meetings participants. Authority Participated in Interactive Fair for Biodiversity during the 11th Conference of the Parties to the Convention on Biological Diversity (COP-11) held at Hyderabad from 1-19 October, 2012. Posters, Charts and Videos showing the activities of the Authority and provisions in the PPV & FR Act, 2001 were displayed and the visitors were provided with the pamphlets and other publication of the Authority. The exhibition attracted a large number of visitors from India and abroad participating in COP-11 in addition to the school children.

10.4 Foreign visitors

- Meeting with Prof. Hugh W. Prichard, Royal Botanical Garden at KEW, U.K. discussion on 2 May, 2012 at PPV & FR Authority, New Delhi.
- Meeting with Mr. Bob Nottelmann from California on 15 June, 2012at PPV & FR Authority, New Delhi.
- G2G co-operation (Delegation from the Netherlands) visited PPV & FRA on 11 July, 2012.
- Meeting with Ecuadorian delegation regarding Bi-lateral Co-operation in the field of Protection of Plant Varieties on 23July, 2012.
- Preparatory meeting of the various stakeholders for displaying their activities in the event of Eleventh meeting of the Conference of the Parties to the Convention on Biological Diversity, 1-19 October, 2012 - Hyderabad, India.
- Visit of Dutch delegation to India from 3-7 December, 2012 to impart DUS testing training at various research stations of ICAR. The delegations had a courtesy meeting with Dr. P.L. Gautam, Chairperson, Authority on 4 December, 2012.

11. Financial Statements of the Authority 2012-13

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 The Institute of Chartered Accountants of India (ICAI) and relevant presentational requirements for Central Autonomous Bodies as prescribed by the Controller General of Accounts (CGA). The Authority follows the accrual system of accounting in respect of all items of expenditure & income except where otherwise stated. A copy of Balance sheet as on 31 March, 2013, Income & Expenditure Account and Receipt & Payment Account are as under :

The audited accounts along with audit report and management reply were approved in the 19th PPV&FR Authority meeting held on 18th October, 2013, at New Delhi.

In compliance with section 62(2) of PPV & FR 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. During the year 2012-2013, the Authority received Grants-in-Aid of ₹ 1602.33 lakh and the grant utilized was ₹ 1588.82 lakh leaving a balance of ₹ 13.51 lakh.

Balance Sheet as at 31st March, 2013

		Amount (in Rs.)
CORPUS/CAPITAL FUND AND LIABILITIES	***Current Year***	***Previous Year***
CORPUS/CAPITAL FUND	13,24,08,267	10,12,55,675
RESERVES AND SURPLUS	-	-
EARMARKED/ENDOWNMENT FUNDS	-	-
SECURED LOANS AND BORROWINGS	-	-
UNSECURED LOANS AND BORROWINGS	-	-
DEFRERRED CREDIT LIABILITIES	-	-
CURRENT LIABILITIES AND PROVISIONS	4,03,40,487	1,91,77,979
TOTAL	**17,27,48,754**	**12,04,33,654**
ASSETS		
FIXED ASSETS	2,76,74,241	2,12,03,696
Less: Accumulated Depreciation	1,78,53,194	1,47,54,455
NET FIXED ASSETS	98,21,047	64,49,241
CAPITAL WORK IN PROGRESS	1,78,38,219	-
INVESTMENTS-FROM EARMARKED/ENDOWNMENT FUNDS	-	-
INVESTMENTS-OTHERS	-	-
CURRENT ASSETS,LOANS ADVANCES ETC.	14,50,89,488	11,39,84,413
MISCELLANEOUS EXPENDITURE	-	-
(to the extent not written off or adjusted)		
TOTAL	**17,27,48,754**	**12,04,33,654**

Income and Expenditure Account for the Year Ended 31st March, 2013

Amount (in ₹)

	Authority Fund		*Gene Fund*	
Income	***Current Year***	***Previous Year***	***Current Year***	***Previous Year***
Income from Sales/Services	-	-	-	-
Grants/Subsides	15,32,70,863	14,45,84,986	50,00,000	50,00,000
Fees/Subcrpitions	31,72,900	41,02,650	8,49,983	6,78,000
Income from Investments	-	-	-	-
Income from Royality, Publication etc.	-	-	-	-
Interest Earned	38,22,363	17,67,274	11,44,301	7,62,378
Other Income	2,36,569	3,15,027	-	-
Increase/ (Decrease) in stock of Finished goods and works in progress	-	-	-	-
Deferred Income (Depreciation on fixed asset)	35,83,531	31,00,540	-	-
Prior period Adjustment A/c (Annexure-A)	-	-	-	2,23,473
Total (A)	**16,40,86,226**	**15,38,70,478**	**69,94,284**	**66,63,851**
Expenditure				
Establishment Expenses	3,64,99,570	3,00,50,111	-	-
Other Administrative Expenses etc.	2,84,59,357	2,09,61,424	46,04,021	22,13,178
Expenditure on Grants , Subsidies etc.	6,30,04,554	5,97,39,470	-	-
Interest	3,632	9,562	-	-
Depreciation including Impairement Loss(Net Total at the year-end-corresponding to Schedule 8)	35,83,531	31,00,540	-	-
Prior period Adjustment A/c (Annexure-A)	70,70,668	1,15,98,662	81,191	-
TOTAL (B)	**13,86,21,312**	**12,54,59,769**	**46,85,212**	**22,13,178**
Balance being excess of Income Over Expenditure (A-B)	2,54,64,914	2,84,10,708	23,09,072	44,50,673
Transfer to special Reserve(Specify each)	-	-	-	-
Transfer to/from General Reserve	-	-	-	-
Balance being Surplus (Deficit) Carried to Corpus/Capital Fund	**2,54,64,914**	**2,84,10,708**	**23,09,072**	**44,50,673**

Receipts and Payments for the Year Ended 31st March, 2013

Amount (in ₹)

Receipts	*Current Year*	*Previous Year*	*Payments*	*Current Year*	*Previous Year*
1. Opening Balances			**1. Expenses**		
a) Cash in Hand	5,000	5,300	a) Establishment Expenses	2,75,83,421	2,08,69,459
b) Bank Balances			b) Administrative Expenses(Authority)	2,21,83,390	1,83,08,129
Gene Fund	58,53,950	1,20,923			
Authority Fund(SBI) including mode A/c	4,63,722	99,30,186	**2. Payments made against funds**		
Syndicate Bank	2,41,96,312	25,06,758	a) Existing DUS Centres (Annexure-C&D)	3,24,08,334	3,46,16,124
Guwahati's bank	48,856	-	b) New DUS Centres (Annexure-E & F)	2,96,31,098	2,60,07,244
Ranchi's bank	93,062	-	c) Referral Labs (Annexure-G)	63,70,000	22,10,500
			d) Field Gene Bank (Annexure-H)	53,42,243	71,19,353
2. Grants received					
a) From Government of India	16,02,33,000	15,00,00,000	**3. Expenditure on fixed Assets and Capital Work in Progress**		
b) From State Government	-	-			
c) From Other Sources	-	-	a) Purchase of Fixed Assets(Authority)	68,60,060	46,37,286
			b) Expenditure on Capital Work-in-Progress	64,93,543	-
3. Interest Received	-	-	**4. Advance to Training Centres (Annexure-I)**	81,03,165	53,21,499
a) On Bank deposits					
b) Loans, Advances etc.			**5. Advance to Suppliers (Annexure-P)**	7,16,653	-
Gene Fund	40,268	-	**6. Advance to outsiders (Annexure-J)**	27,53,256	30,98,574
Authority Fund	10,86,257	10,48,775			
	-	-	**7. Advance for construction of Authority Bhawan**	-	1,55,23,604
4. Advance Received	-	1,05,000	**8. Advance Against DUS Test fees (Annexure L)**	51,79,250	9,24,000
5. Recovery of Advance (Annexure-M)	4,12,626	3,41,675	**9. Refilling of Franking Machine**	1,50,000	1,75,000
6. Fees/ Subscriptions/Other Income			**10. Refund to DOC**	-	185
Application/ Registration Fee Received	30,32,000	39,20,000			
PVJ Fees	39,800	49,000	**11. Contribution to Organization/ Institutions**	26,24,015	-
Fees for Notice of Opposition	1,48,500	1,27,500			
Annual Fees - Gene Fund	7,39,983	5,26,000	**12. Advance to Staff (Annexure-K)**	41,43,829	28,41,414

Contd....

Sale of Old Newspapers, Scrap	26,240	600			
DUS Test Fee Received	2,03,61,000	57,97,500	**13. Finance Charges**	7,909	6,908
Other Income	5,693	683			
			14. Payments against advance received	55,000	55,000
7. Recovery of Advance to Staff (Annexure- O)	11,99,503	10,39,389			
			15. Fixed Deposit	13,24,00,000	3,40,00,000
8. Encashment of FD	11,16,80,872	3,67,97,466			
			16. Reversal of Stale Demand Draft	32,600	600
9. Reversal of Stale Cheques	38,503	-			
			17. Payment to DUS Centre against old claim	-	22,38,064
10. Encashment of CPF (F.D)	7,99,394	-			
			18. Statutory Liabilities Paid (Annexure N)	44,09,252	37,04,910
11. Claims of Gratuity received from LIC	2,88,927	-			
			19. Closing Balances		
12. Wrongly Credited in Bank now reversed	200	2,000	a) Cash in Hand	10,000	5,000
			b) Bank Balances		
			State Bank of India(Including Mod)	1,61,84,501	4,63,722
			Syndicate Bank	58,28,425	2,41,96,312
			Gene Fund	1,12,88,001	58,53,950
			Guwahati's bank	17,160	48,856
			Ranchi's bank	14,825	93,062
			Bank in Transit	3,739	
TOTAL	**33,07,93,669**	**21,23,18,755**	**TOTAL**	**33,07,93,669**	**21,23,18,755**

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

- Encourage the development of new varieties of plants and to protect the rights of the farmers and the plant breeders.
- Establishment of National Gene bank for orthodox seed and field gene bank for perennial crops
- Registration of new and extant varieties of plants.
- Developing, characterization and documentation of registered plant varieties.
- Documentation, indexing and cataloguing of farmers varieties.
- Compulsory cataloguing facility for all varieties of plants.
- Ensuring seeds of varieties registered under the Act are available to farmers and providing for compulsory license, if needs arise.
- Ensuring maintenance of National Register of plant varieties.
- Utilization of Gene Fund for supporting the conservation and sustainable use of plant genetic resources and capacity building of the panchayats in carryings 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 of Protection of Plant Varieties and Farmers' Rights Authority are Central Government, State Governments, Union Territories, Research Organizations including State Agricultural Universities, Seed Industries, NGOs and above all the farmers including tribal farming communities.

Services offered

- Providing IPR protection to plant varieties bred by farmers, researchers/plant breeders in the form of plant variety registration.
- Maintaining National Register of Plant varieties wherein details of plant varieties and the rights of respective breeders are mentioned.
- To provide compensation to the farmers in case a registered variety does not perform as per the claim made by the breeders.
- Benefit sharing to the communities/farmers for the contribution/sharing of plant genetic resources.
- To create awareness and capacity building for the rights of plant breeders and farmers towards implementation of PPV & FR Act.
- Providing plant varieties database to stakeholders.
- 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 and 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

RTI Cell

Chief Public Information Officer (CPIO)

Dr. Ravi Prakash
Protection of Plant Varieties and Farmers' Rights Authority
Govt. of India, Ministry of Agriculture,
Department of Agriculture and Co-operation,
NASC Complex, DPS Marg, Opp-Todapur Village,
New Delhi-110 012
Tel: +91-11-25843853
Email: prakash.ravi@nic.in

Dr. R.C. Agrawal
Appellate Authority
Protection of Plant Varieties and Farmers' Rights Authority
Govt. of India, Ministry of Agriculture,
Department of Agriculture and Co-operation,
NASC Complex, DPS Marg, Opp-Todapur Village,
New Delhi-110 012
Tel: +91-11-25843316
Email: rg-ppvfra@nic.in

Annexure-I

Members of the Authority (1 April, 2012 to 31 March, 2013)

1. **Chairperson of the Authority:** Dr. P L Gautam upto 11 December, 2012
   Dr. Swapan Kumar Datta, Deputy Director General (Crop Sciences) , ICAR, Krishi Bhawan, New Delhi, Officiating (as Chairperson) PPV & FR Authority (w.e.f. 19 December, 2012)

Ex officio members

2. Agriculture Commissioner, Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India, Krishi Bhavan, New Delhi
3. Dr. Swapan Kumar Datta, the Deputy Director General in charge of Crop Sciences, Indian Council of Agricultural Research, New Delhi
4. Shri S.K.G. Rahate (upto May 2012)
   Dr. Atanu Purkayastha, Joint Secretary (Seeds) (from 23 May, 2012) Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi
5. Dr. Gorakh Singh, Horticulture Commissioner, Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi
6. Dr. K C Bansal, Director, National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi
7. Dr. K.S. Charak, Adviser Grade-I, Government of India, Department of Biotechnology, CGO Complex, Lodhi Road, New Delhi
8. Shri Satish Chandra, Joint Secretary and Legal Affairs, Department of Legal Affairs, Ministry of Law and Justice, Government of India, Shastri Bhawan, New Delhi
9. Shri Hem Pande, Joint Secretary(dealing with Biosafety), Government of India, Ministry of Environment and Forests, Paryawaran Bhawan, CGO Complex, Lodhi Rd, New Delhi

Nominated Members

10. Shri V Nagi Reddy, Principal Secretary (Agriculture), Government of Andhra Pradesh, D Block, 1st Fl, Room No 270, Secretariat Office, Hyderabad
11. Dr. S N Puri, Vice Chancellor, Central Agricultural University, Manipur, Imphal
12. Shri Roshan Lal, IAS, Finance Commissioner & Principal Secretary (Agriculture), Room No 430, 4th Floor, Sector 17, New Haryana Secretariat Building, Chandigarh
13. Shri Raju Barwale, Managing Director, Mahyco, Resham Bhavan, 4th Floor, 78, Veer Nariman Road, Churchgate, Mumbai
14. Shri P. Narayanan Unny (as Farmers' organisation representative), Navara Eco Farm, Karukamani Kalam, Chittor College PO, Dist. Pallakad, Kerala
15. Shri A. C Zonumawia, Coordinator & Chairman (as tribal organization representative), Centre for Environment Protection (CEP), B-27/1, Tuikual South, Aizwal
16. Smt. Neelam Tyagi, Laxmi Jan Kalyan Sewa Sansthan, Rawli Road, Jeetpur, Gali No. 5, Muradnagar, Ghaziabad, Uttar Pradesh

Member Secretary (ex officio)

17. Dr. R. C Agrawal, Registrar General, PPV&FR Authority, New Delhi

Annexure-II

Sanctioned Posts at PPV&FR Authority

(As on 31 March, 2013)

Head Office (New Delhi)	**Posts sanctioned**
Name of the Post with pay scale	
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**

Annexure- III

Details of Human Resources
Head Office & Branch Office

Name of the post and its incumbent	Filled posts	Vacant posts
Chairperson Dr. P. L. Gautam upto 11.12.2012 Dr Swapan Kumar Datta as officiating chairperson from 19.12.2012 to 31 March, 2013	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	-	1
Senior Technical Officer Dr. A. K. Singh	1	2
Technical Assistant Dr. D.S. Pilania	1	-
Computer Assistants Shri Arvind Kumar Rai Shri Sanjay Kumar Gupta Mrs Shipra Mathur Shri Nitesh Kumar Verma Shri Shyam Narayan Prasad	5	1
Branch Office Guwahati Deputy Registrar Dr. A.C. Sarma, Plant Variety Examiner Senior Technical Officer Executive Assistant	1	3
Branch Office Ranchi Deputy Registrar Plant Variety Examiner Senior Technical Officer Executive Assistant	-	4

Annexure-IV

Statement showing funds released to Existing DUS Centres during 2012-13

S.No	Name of DUS Centres	Amount (₹ in lakh)
1	IIVR, Varanasi	7.74
2	AAU, Jorhat	2.77
3	ANGRAU, Hyderabad	6.39
4	CCS HAU, Hisar	4.28
5	Central Plantation crops Research Institute, Kasargod	4.32
6	Central Potato Res. Instt. (CPRI), Shimla	4.38
7	Central Rice Res.Instt. (CRRI), Cuttack	11.30
8	CICR, Nagpur	4.55
9	CIMAP, Lucknow	6.62
10	CISH, Lucknow	13.96
11	CRIJ&AF, Barrackpore (Bud Bud)	5.69
12	CSAUA&T, Kanpur	3.75
13	Director, IIHR, Bengaluru (Rose)	7.13
14	Director, NRC for Citrus, Nagpur	5.38
15	Director, NRC for Banana, Trichy	17.83
16	Directorate of Maize Res, New Delhi	12.59
17	Directorate of Soybean Research (DSR), Indore	5.26
18	Directorate of Oilseed Research, Hyderabad	7.50
19	Directorate of Rice Res. (DRR), Hyderabad	8.91
20	Directorate of Sorgum Res (DSR), Hyderabad (NRCS)	6.28
21	Division of Floriculture, IARI, New Delhi	2.18
22	DMAPR, Anand	4.59
23	DWR, Karnal	6.85
24	GBPUA&T, Pantnagar	4.26
25	IARI (Division of vegetable Science), New Delhi	1.00
26	IIHR, Hassarghatta, (ornamental crops), Bengaluru	3.78
27	IIHR, Hassarghatta, (Vegetable Crops), Bengaluru	4.07
28	IIPR, Kanpur (MULLaRP)	4.63
29	IISR, Kozhikode	2.88
30	IIVR Varanasi	16.53
31	Indian Instt.of Sugarcane Res (IISR), Lucknow	5.37
32	JAU, Jamnagar	1.88
33	JNKVV, Jabalpur	4.50
34	Mandor, (RAU Bikanaer)	6.90
35	MPKV, Rahuri	10.67

S.No	Name of DUS Centres	Amount (₹ in lakh)
36	NDUA&T, Faizabad (barley)	1.82
37	NRC for Grapes, Pune	5.00
38	NRC for Orchids, Sikkim	3.44
39	NRC on Groundnut, Junagarh	3.33
40	NRC on Onion & Garlic, Rajgurunagar, Pune	3.29
41	NRCR&M, Bharatpur	3.17
42	NRCSS, Ajmer	2.97
43	PAU, Ludhiana	5.61
44	PC, CICR, Coimbatore	9.79
45	PC, Linseed (CSAUA&T), Kanpur	1.87
46	PC, Sesame and Niger JNKV Jabalpur	4.50
47	PDKV, Akola	4.50
48	Regional Station, IARI, Indore	2.20
49	Regional Station, IARI, Karnal	2.60
50	Regional Station, IARI, Katrain	3.93
51	Sugarcane Breeding Institute (SBI), Agali	3.13
52	Sugarcane Breeding Institute (SBI), Karnal	3.11
53	Sugarcane Breeding Institute (SBI), Coimbatore	2.92
54	TNAU, Coimbatore	16.50
55	University of Agril. Sciences (UAS), Dharwad	9.21
56	VPKAS, Almora	4.50
	Total	**324.11**

Annexure-V

Statement showing funds released to New DUS Centres/Projects during 2012-13

S.No	Name of DUS Centres	Amount (₹ in lakh)
1	CIAH, Bikaner (Datepalm)	5.50
2	Agriculture & Food Production, Bhubneshwar	7.32
3	BCKV Kalyani (Pointed Gourd)	3.75
4	BCKV Kalyani (Betel nut)	2.25
5	BCKV Kalyani (Elephant footyam)	2.10
6	CARI, Port Blair (Noni) (Morinda), A&N Islands	1.62
7	CAZRI, Jodhpur (Pomegranate)	4.50
8	Central Sericultural Research & Training Institute, Srirampur, Mysore	5.00
9	CIAH, Bikaner (Anola)	1.00
10	CIAH, Bikaner (Bael)	2.88
11	CIAH, Bikaner (Chironji and Tamarind)	6.97
12	CIAH, Bikaner (Ber)	5.50
13	CISH, Lucknow (Anola)	3.00
14	CISH, Lucknow (Jamun)	3.00
15	Dr.Y.S.Parmar University of Horticulture & Forestry (Carnation)	5.25
16	Dr.Y.S.Parmar University of Horticulture & Forestry (Poplar germplasm)	5.53
17	UAS, GKVK, Bengaluru	8.82
18	ANGRAU, Hyderabad	3.32
19	CTCRI Thiruvananthapuram (Sweet potato & cassava)	5.00
20	CTCRI, Thiruvananthapuram	3.00
21	CTCRI, Thiruvananthapuram (Elephant footyam)	2.75
22	Dir. of Floricultural Research, IARI, New Delhi (Gladiolus)	2.25
23	IGFRI, Jhansi	16.30
24	Central Institute for Arid Horticulture	17.18
25	HFRI, Shimla	2.25
26	Rain Forest Research Institute, Jorhat	7.40
27	Dr. Balasaheb Konkan Krishi Vidyapeeth, Dapoli (Nutmeg)	7.00
28	FCRI, Coimbatore (TNAU) (Neem Karanj, Jatropha)	6.41
29	GBPUA&T, Pant Nagar	4.82
30	Gene Compaign, New Delhi	4.40
31	IARI, New Delhi (Bougainvillea)	5.05
32	IARI, New Delhi (Chilli)	3.30
33	IARI, New Delhi (Amaranth)	3.50
34	IARI, New Delhi (Marigold)	1.10
35	IFGTB, Coimbatore	0.95

S.No	Name of DUS Centres	Amount (₹ in lakh)
36	IFGTB, Coimbatore (*Tectana* grandis)	8.13
37	IIHR, Bengaluru (China Astar)	2.99
38	IIHR, Bengaluru (Jasmine)	4.50
39	IIHR, Bengaluru (Papaya & Custard Apple)	5.50
40	IIHR, Bengaluru (Strawberry)	3.00
41	IIHR, Banglore (Crossandra)	4.28
42	IIHR,Banglore (Amaranth)	4.45
43	IIHR,Banglore (Betelnut)	3.50
44	IIHR,Banglore (Carnation)	4.50
45	IIHR,Banglore (Chilli)	7.50
46	IIHR,Banglore (Marigold)	4.50
47	IIHR,Banglore (Tuberose)	3.00
48	JNKVV, Jabalpur (Small Millet)	10.32
49	NBRI Lucknow (Bougainville)	7.71
50	NBRI Lucknow (Canna)	6.73
51	NBRI Lucknow (Gladiolus)	6.85
52	NRCP, Sholapur (Pomegranate)	4.76
53	CITH, Srinagar (Plum)	12.96
54	PAU, Ludhiana	3.71
55	TNAU, Coimbatore (Papaya & custard apple)	3.50
56	TNAU, Coimbatore	4.15
57	Tocklai Experimental Research Station, Jorhat	8.58
58	Vaanghai, Nagapatinam	1.23
	Total	**296.32**

Annexure-VI

Statement showing funds released to Referral Laboratories during 2012-13

S. No.	Name of Referral Laboratories	Amount (₹ in lakh)
1	CRRI, Cuttack (Rice)	5.00
2	CICR, Nagpur (Cotton)	18.00
3	DOR, Hyderabad (Oilseeds)	24.00
4	IIHR, Bengaluru (Horticultural crops)	6.70
5	DMR, New Delhi (Maize)	10.00
	Total	**63.70**

Annexure – VII

Statement showing funds released to Field Gene Bank(s)/Gene Bank during 2012-13

S. No	Name of centers	Amount (₹ in lakhs)
1	BAU, Ranchi	10.00
2	Dr. Balasaheb Konkan Krishi Vidyapeeth, Dapoli	14.68
3	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	19.34
4	NBPGR, New Delhi	9.40
	Total	**53.42**

Annexure-VIII

Financial support to different Organizations for training-cum-awareness programmes during the year 2012-13

S. No.	Name of Beneficiary	Amount (₹ in lakh)
1	Acharya N.G. Ranga Agri University, Hyderabad	0.80
2	CARI, Port Blair	1.30
3	CICR, Coimbtore	0.80
4	CICR, Nagpur	1.60
5	CIMAP, Lucknow	0.80
6	KAU, Thrissur	0.80
7	GBPUA&T, Pantnagar	0.80
8	TNAU, Coimbtore	3.20
9	TNAU, Hyderabad	0.80
10	AAU, Jorhat	2.80
11	CCS, HAU, Hisar	1.60
12	CSAU&T, Kanpur	0.80
13	CSKHPKV, Palampur	2.40
14	CPCRI, Kerala	0.80
15	CRIJAF, Barackpore	0.80
16	CRRI, Cuttack	0.80
17	Dean of Research, OUAT, Bhubaneswar	0.23
18	VPKAS, Almora	1.60
19	MSSRF, Chennai	2.40
20	DRMR, Bharatpur	0.80
21	IARI, New Delhi	0.80
22	IARI, (KVK Gurgoan)	0.80
23	Directorate of Groundnut Research, Junagrah, Gujrat	0.80
24	Directorate of Medicinal and Aromatic Plants Research, Anand	0.80
25	Directorate of Onion & Garlic Research, Rajgurunagar, Pune	0.80
26	DWR, Karnal	1.60
27	IIHR, Bengaluru (Division of ornamental crop)	1.60
28	IIHR, Bengaluru (Division of Veg Crop)	2.40
29	IIPR, Kanpur (Chikpea)	0.80
30	IIPR, Kanpur (Mullarp)	0.80
31	JAU, Junagarh	0.80
32	MPKV, Rahuri	0.80
33	Directorate of Soyabean Research (DSR), Indore	0.80
34	NRC of Orchids, Sikkim	1.60
35	DRR, Hyderabad	2.60
36	SBI, Comibatore	0.80
37	Dr. YSPUH&F, Nauni, Solan	0.80
38	IISR, Calicut	0.80

S. No.	Name of Beneficiary	Amount (₹ in lakh)
39	Directorate of Oilseeds Research, Hyderabad	0.80
40	University of Agriculture Science, Dharwad	1.60
41	IIVR, Varanasi	1.60
42	Adarsha Rural Development & Training Society	0.80
43	Director of Agriculture, Odisha	0.80
44	UAS, Raichur	0.80
45	Shoolini University, Solan	0.80
46	Centre for Agriculture and Rural Development	2.40
47	Central Agriculture University, Manipur	1.60
48	SHIATS, Allahabad	1.60
49	DSR, Hyderabad	2.40
50	DMR, New Delhi	2.40
51	IISR, Lucknow	1.30
52	Nand Educational Foundation for Rural Development	0.80
53	CPRI, Shimla (Modipuram)	0.80
54	CTCRI, Trivandrum	1.60
55	CAZRI, Jodhpur	1.60
56	NBPGR, New Delhi	0.80
57	NBRI, Luckow	0.80
58	CIAH, Bikaner	0.80
59	SFRI, Arunachal Pradesh	0.80
60	CISH, Lucknow	0.80
61	SKUAST, Rajouri	0.80
62	CHES, Vejalpur, Godhra	0.80
63	CITH, Srinagar	0.80
64	National Seed Corporation Ltd., New Delhi	1.60
65	NRC for Citrus, Nagpur	0.80
66	Organizing Secretary, FFCSWR, Bellary	0.80
67	BSKKV, Dapoli	0.80
68	BCKV, Kalyani, West Bengal	0.80
	Total	**81.03**

Annexure-IX

Certificates of Registration issued by the Authority during 2012-13

S. No.	Registration No./ Date of Issue	Category of Variety	Denomination of the Candidate Variety	Crop	*Species*	Name of Applicant
1	14 of 2012/04-04-2012	Farmer	Dadaji HMT	Rice	*Oryza sativa* L.	Shri Dadaji Ramaji Khobragade
2	15 of 2012/04-04-2012	Farmer	KUDRAT 9	Bread Wheat	*Triticum aestivum* L.	Shri Prakash Singh Raghuvanshi
3	16 of 2012/04-04-2012	Extant	Pant Chari-4 (Forage Sorghum)	Sorghum	*Sorghum bicolor* (L.) Moench	G.B. Pant University of Agriculture & Technology
4	17 of 2012/04-04-2012	Extant	Jawahar Jowar-1041	Sorghum	*Sorghum bicolor* (L.) Moench	Rajmata Viajayaraje Scindia Krishi Vishwavidyalaya
5	18 of 2012/04-04-2012	Extant	Prabhani Moti (PVR-396/SPV-1411)	Sorghum	*Sorghum bicolor* (L.) Moench	Marathiwada Agricultural University
6	19 of 2012/04-04-2012	Extant	BSR-1	Sorghum	*Sorghum bicolor* (L.) Moench	Tamil Nadu Agricultural University
7	20 of 2012/04-04-2012	Extant	CO(S)-28	Sorghum	*Sorghum bicolor* (L.) Moench	Tamil Nadu Agricultural University
8	21 of 2012/04-04-2012	Extant	K-11	Sorghum	*Sorghum bicolor* (L.) Moench	Tamil Nadu Agricultural University
9	22 of 2012/04-04-2012	Extant	Paiyur-2	Sorghum	*Sorghum bicolor* (L.) Moench	Tamil Nadu Agricultural University
10	23 of 2012/04-04-2012	Extant	Pusa-991	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
11	24 of 2012/04-04-2012	Extant	Pusa-992	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
12	25 of 2012/04-04-2012	Extant	Malaviya Vikash (MA-6)	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
13	26 of 2012/04-04-2012	Extant	Malaviya Chamatkar (MAL-13	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
14	27 of 2012/13-04-2012	Extant	Narendra Arhar-2 (NDA 98-1)	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
15	28 of 2012/13-04-2012	Extant	BRG-1	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
16	29 of 2012/13-04-2012	Extant	Pusa-2001	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
17	30 of 2012/13-04-2012	Extant	PKV Kabuli-2	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
18	31 of 2012/13-04-2012	Extant	Pusa 1105	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)

S. No.	Registration No./ Date of Issue	Category of Variety	Denomination of the Candidate Variety	Crop	*Species*	Name of Applicant
19	32 of 2012/06-06-2012	Extant	DCP-92-3	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
20	33 of 2012/06-06-2012	Extant	RCH-2	Tetraploid Cotton	*Gossypium hirsutum* L.	Rasi Seeds Private Limited
21	34 of 2012/06-06-2012	Extant	Vihar Phule (G-95311)	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
22	35 of 2012/06-06-2012	Extant	VL 804	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
23	36 of 2012/06-06-2012	Extant	Gujarat Cotton-23 (GBhv-179)	Diploid Cotton	*Gossypium arboreum* L.	Navsari Agricultural University
24	37 of 2012/06-06-2012	Extant	PRASAD	Black Gram	*Vigna Mungo* (L.) Hepper	Orissa University of Agriculture & Technology
25	38 of 2012/06-06-2012	Extant	Gujarat Til-3 (AT-93)	Sesame	*Sesamum indicum* L.	Junagadh Agricultural University
26	39 of 2012/06-06-2012	Extant	Gujarat Til-10	Sesame	*Sesamum indicum* L.	Junagadh Agricultural University
27	40 of 2012/06-06-2012	New	JKMH-45	Maize	*Zea mays* L.	J.K.. Agri Genetics Limited
28	41 of 2012/06-06-2012	New	INDAM 100-001	Rice	*Oryza sativa* L.	Indo-American Hybrid Seeds (I) Limited
29	42 of 2012/02-07-2012	New	KCH-14 K59 BG II	Tetraploid Cotton	*Gossypium hirsutum* L.	Kaveri Seed Company Limited
30	43 of 2012/02-07-2012	Extant	HHB-146 (MH-960)	Pearl millet	*Pennisetum glaucum* (L.) R.Br.	Indian Council of Agricultural Research (ICAR)
31	44 of 2012/02-07-2012	Extant	Amol (BDN-708)	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
32	45 of 2012/02-07-2012	Extant	CORG-9701	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
33	46 of 2012/02-07-2012	Extant	GTH-1 (SKNPCH-10)	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
34	47 of 2012/02-07-2012	Extant	BSMR 853 (Vaishali)	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
35	48 of 2012/02-07-2012	Extant	Bamleshwari (IET No. 14444 R 738-1-64-2-2)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
36	49 of 2012/02-07-2012	Extant	Early Samba (RNRM-7)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
37	50 of 2012/02-07-2012	Extant	ADT-43 (IET-14878)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
38	51 of 2012/02-07-2012	Extant	ADT-44	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)

S. No.	Registration No./ Date of Issue	Category of Variety	Denomination of the Candidate Variety	Crop	*Species*	Name of Applicant
39	52 of 2012/02-07-2012	Extant	Swathi (NLR-33057)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
40	53 of 2012/02-07-2012	Extant	Bharani (NLR 30491)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
41	54 of 2012/02-07-2012	Extant	HPR-1156 (IET-16007)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
42	55 of 2012/02-07-2012	Extant	Tapaswini (IET 9945)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
43	56 of 2012/02-07-2012	Extant	SARLA CR-260-77 (IET-10279)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
44	57 of 2012/02-07-2012	Extant	PTB-51 (AATHIRA)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
45	58 of 2012/02-07-2012	Extant	Shanthi (IET-12884)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
46	59 of 2012/02-07-2012	Extant	CO-47 (IET-14298)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
47	60 of 2012/02-07-2012	Extant	CSR-27 (IET-13765, CSR-88, IR-66)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
48	61 of 2012/02-07-2012	Extant	PR-115	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
49	62 of 2012/02-07-2012	Extant	PR-114	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
50	63 of 2012/02-07-2012	Extant	Somasila (NLR-33358)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
51	64 of 2012/02-07-2012	Extant	ADT (R)-48	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
52	65 of 2012/02-07-2012	Extant	HPR 1068	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
53	66 of 2012/02-07-2012	Extant	HPR 2143	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
54	67 of 2012/02-07-2012	Extant	Pooja (IET-12241)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
55	68 of 2012/02-07-2012	Extant	KAUA 4-4-2 (Harsha)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
56	69 of 2012/02-07-2012	Extant	Krishna Hamsa	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)

S. No.	Registration No./ Date of Issue	Category of Variety	Denomination of the Candidate Variety	Crop	*Species*	Name of Applicant
57	70 of 2012/02-07-2012	Extant	Sravani (NLR-33359)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
58	71 of 2012/02-07-2012	Extant	HI 1418	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
59	72 of 2012/02-07-2012	Extant	VL GEHUN-738 (VL-738)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
60	73 of 2012/02-07-2012	Extant	Pratap Jawar-1430 (SPV-1430)	Sorghum	*Sorghum bicolor* (L.) Moench	Maharana Pratap University of Agriculture & Technology
61	74 of 2012/02-07-2012	Extant	UTTARA (RSSGV-3)	Sorghum	*Sorghum bicolor* (L.) Moench	Maharana Pratap University of Agriculture & Technology
62	75 of 2012/02-07-2012	Extant	Vasudha (RSV-423)	Sorghum	*Sorghum bicolor* (L.) Moench	Maharana Pratap University of Agriculture & Technology
63	76 of 2012/02-07-2012	Extant	Parbhani Sweta (PVK-801) (SPV-1333)	Sorghum	*Sorghum bicolor* (L.) Moench	Marathiwada Agricultural University
64	77 of 2012/02-07-2012	Extant	RSLG-262 (Maulee)	Sorghum	*Sorghum bicolor* (L.) Moench	Mahatama Phule Krishi Vidyapeeth
65	78 of 2012/02-07-2012	Extant	PKV HY-5 (CAHH-99)	Tetraploid Cotton	*Gossypium hirsutum* L.	Dr. Punjabrao Deshmukh Krishi Vidyapeeth
66	79 of 2012/02-07-2012	Extant	KN 3	Rice	*Oryza sativa* L.	Dr. Ram Chet Chaudhary Chairman, PRDF
67	80 of 2012/02-07-2012	Extant	Improvd Samba Mansuri	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
68	81 of 2012/02-07-2012	Extant	ORT (M) 2-4 (Parbati)	Rapeseed	*Brassica rapa* L.	Orissa University of Agriculture & Technology
69	82 of 2012/02-07-2012	Extant	ORT (m) 6-2 (Anuradha)	Rapeseed	*Brassica rapa* L.	Orissa University of Agriculture & Technology
70	83 of 2012/02-07-2012	Extant	Nirmala (OS-Sel-164)	Sesame	*Sesamum indicum* L.	Orissa University of Agriculture & Technology
71	84 of 2012/02-07-2012	Extant	Deepak (DCH-177) (Hybrid)	Castor	*Ricinus communis* L.	Indian Council of Agricultural Research (ICAR)
72	85 of 2012/02-07-2012	Extant	DCH-519	Castor	*Ricinus communis* L.	Indian Council of Agricultural Research (ICAR)
73	86 of 2012/02-07-2012	Extant	JWALA (48-1)	Castor	*Ricinus communis* L.	Indian Council of Agricultural Research (ICAR)

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74	87 of 2012/02-07-2012	Extant	Geetanjali (CRM-2007-1) (IET-17276)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
75	88 of 2012/02-07-2012	New	J 1127	Sorghum	*Sorghum bicolor* (L.) Moench	Maharashtra Hybrid Seeds Company Limited
76	89 of 2012/02-07-2012	New	MIM 612	Maize	*Zea mays* L.	Monsanto India Limited
77	90 of 2012/02-07-2012	New	JKMH-142 (WHITE)	Maize	*Zea mays* L.	J.K.. Agri Genetics Limited
78	91 of 2012/02-08-2012	Extant	JKMH-502	Maize	*Zea mays* L.	J.K.. Agri Genetics Limited
79	92 of 2012/02-08-2012	Extant	TMB-37 (TM 99-37)	Green Gram	*Vigna radiata* (L.) Wilczek	Indian Council of Agricultural Research (ICAR)
80	93 of 2012/02-08-2012	Extant	DBW-14	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
81	94 of 2012/02-08-2012	Extant	SWAPNIL (JWS-17)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
82	95 of 2012/02-08-2012	Extant	Shalimar Wheat-1 (SKW-196)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
83	96 of 2012/02-08-2012	Extant	GW- 366	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
84	97 of 2012/02-08-2012	Extant	Narendra Wheat-2036	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
85	98 of 2012/02-08-2012	Extant	Pratap Makka-5 (EC-3116)	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
86	99 of 2012/02-08-2012	Extant	Danteshwari (IET No. 15450, R 302-111)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
87	100 of 2012/02-08-2012	Extant	PR-116	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
88	101 of 2012/02-08-2012	Extant	Gujarat Gram-4 (GCP-105)	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
89	102 of 2012/02-08-2012	Extant	J.G. 11	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
90	103 of 2012/02-08-2012	Extant	Malviya Wheat 468 (HUW-468)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
91	104 of 2012/02-08-2012	Extant	JRC-698 (Sharbanti white PBC-6)	Jute	*Corchorus capsularis* L.	Indian Council of Agricultural Research (ICAR)
92	105 of 2012/02-08-2012	Extant	Bidhan Pat-3 (D-110)	Jute	*Corchorus capsularis* L.	Indian Council of Agricultural Research (ICAR)

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93	106 of 2012/02-08-2012	Extant	PKV HMT	Rice	*Oryza sativa* L.	Dr. Punjabrao Deshmukh Krishi Vidyapeeth
94	107 of 2012/02-08-2012	Extant	AKA-7 (AKA-8307)	Diploid Cotton	*Gossypium arboreum* L.	Dr. Punjabrao Deshmukh Krishi Vidyapeeth
95	108 of 2012/02-08-2012	Extant	NAH-2049	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
96	109 of 2012/02-08-2012	Extant	AKH-8828	Tetraploid Cotton	*Gossypium hirsutum* L.	Dr. Punjabrao Deshmukh Krishi Vidyapeeth
97	110 of 2012/16-08-2012	Extant	Monalisa (RRPS-27-C-3	Jute	*Corchorus capsularis* L.	Indian Council of Agricultural Research (ICAR)
98	111 of 2012/16-08-2012	Extant	Kailash	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
99	112 of 2012/16-08-2012	Extant	Purna (HI-1544)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
100	113 of 2012/16-08-2012	New	RCH 515 BG II	Tetraploid Cotton	*Gossypium hirsutum* L.	Rasi Seeds Private Limited
101	114 of 2012/16-08-2012	Extant	WH 711	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
102	115 of 2012/16-08-2012	New	CISA 310	Diploid Cotton	*Gossypium arboreum* L.	Indian Council of Agricultural Research (ICAR)
103	116 of 2012/16-08-2012	Extant	KMH-Super 2020	Maize	*Zea mays* L.	Kaveri Seed Company Limited
104	117 of 2012/16-08-2012	Extant	Py-6 (IET-11898)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
105	118 of 2012/16-08-2012	Extant (VCK)	KMH-25K55	Maize	*Zea mays*L.	Kaveri Seed Company Limited
106	119 of 2012/03-09-2012	Extant	PKV DH-1 (AKDH-7)	Diploid Cotton	*Gossypium arboreum* L.	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
107	120 of 2012/03-09-2012	New	VBCH-1018 BG (Cash BG)	Tetraploid Cotton	*Gossypium hirsutum* L.	Vibha Agrotech Limited
108	121 of 2012/03-09-2012	New	VBCH-1016 BG (Bond BG)	Tetraploid Cotton	*Gossypium hirsutum* L.	Vibha Agrotech Limited
109	122 of 2012/04-09-2012	New	PFC-1	Tetraploid Cotton	*Gossypium hirsutum* L.	Ankur Seeds(P) Limited
110	123 of 2012/04-09-2012	New	C-96	Tetraploid Cotton	*Gossypium hirsutum* L.	Ankur Seeds(P) Limited
111	124 of 2012/04-09-2012	New	RCH-530 BG II	Tetraploid Cotton	*Gossypium hirsutum* L.	Rasi Seeds Private Limited
112	125 of 2012/04-09-2012	Extant (VCK)	SYN-CO-6661	Maize	*Zea mays* L.	Syngenta India Limited
113	126 of 2012/04-09-2012	Extant	Narinya-6 (NACH-6)	Diploid Cotton	*Gossypium arboreum* L.	Nirmal Seeds Private Ltd.

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114	127 of 2012/04-09-2012	Extant	Himgiri (HS-375)	Bread Wheat	*Triticum aestivum* L.	Indian Councial of Agricultural Research (ICAR)
115	128 of 2012/04-09-2012	Extant	Urja (HD-2864)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
116	129 of 2012/04-09-2012	Extant	PAC 740	Maize	*Zea mays* L.	Advanta India Limited
117	130 of 2012/19-09-2012	Extant	Vipula	Pigeon pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
118	131 of 2012/19-09-2012	Extant	VBN (Rg)3	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
119	132 of 2012/19-09-2012	Extant	GT-101	Pigeon Pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
120	133 of 2012/19-09-2012	Extant	PR-113	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
121	134 of 2012/19-09-2012	Extant	Appangala	Small cardamom	*Elettaria cardamomum* Maton	Indian Council of Agricultural Research (ICAR)
122	135 of 2012/19-09-2012	Extant (VCK)	SYN-CO-5258	Maize	*Zea mays* L.	Syngenta India Limited
123	136 of 2012/19-09-2012	Extant	CSH-21 (MCSH-151) (SPH-1342)	Sorghum	*Sorghum bicolor* (L.) Moench	Devgen N.V.
124	137 of 2012/19-09-2012	New	VBCH-1501 BG-II	Tetraploid Cotton	*Gossypium hirsutum* L.	Nusun Genetic Research Ltd.
125	138 of 2012/24-09-2012	Extant (VCK)	KMH-25K60	Maize	*Zea mays* L.	Kaveri Seed Company Limited
126	139 of 2012/24-09-2012	Extant (VCK)	KMH-Super 244	Maize	*Zea mays*L.	Kaveri Seed Company Limited
127	140 of 2012/24-09-2012	Extant (VCK)	KMH-280	Maize	*Zea mays* L.	Kaveri Seed Company Limited
128	141 of 2012/24-09-2012	Extant	Narandra Wheat-1067	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
129	142 of 2012/24-09-2012	Extant	Pusa RH-10	Rice	*Oryza sativa* L.	Indian Coouncial of Agricultural Research (ICAR)
130	143 of 2012/03-10-2012	Extant (VCK)	KMH-218	Maize	*Zea mays* L.	Kaveri Seed Company Limited
131	144 of 2012/03-10-2012	Extant (VCK)	KMH-2288 (Ekka)	Maize	*Zea mays* L.	Kaveri Seed Company Limited
132	145 of 2012/03-10-2012	Extant (VCK)	SYN-CO-6240	Maize	*Zea mays* L.	Syngenta India Limited
133	146 of 2012/03-10-2012	Extant (VCK)	SYN-Co-5440	Maize	*Zea mays* L.	Syngenta India Limited
134	147 of 2012/03-10-2012	Extant (VCK)	ELITE	Maize	*Zea mays* L.	Vibha Agrotech Limited

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135	148 of 2012/03-10-2012	New	VBCH 1505	Tetraploid Cotton	*Gossypium hirsutum* L.	Vibha Agrotech Limited
136	149 of 2012/03-10-2012	New	VBCH 1503	Tetraploid Cotton	*Gossypium hirsutum* L.	Nusun Genetic Research Ltd.
137	150 of 2012/03-10-2012	New	MRC- 7160	Tetraploid Cotton	*Gossypium hirsutum* L.	Maharashtra Hybrid Seeds Company Limited
138	151 of 2012/03-10-2012	New	RCH 533 BG II	Tetraploid Cotton	*Gossypium hirsutum* L.	Rasi Seeds Private Limited
139	152 of 2012/03-10-2012	Extant (VCK)	BCN 401	Maize	*Zea mays* L.	Bayer Biosciences Pvt. Ltd.
140	153 of 2012/03-10-2012	Farmer	Wheat Ravi No. 1	Bread Wheat	*Triticum aestivum* L.	Shri Kuldeep Singh Sandhu, S/O of Shri Faujdar Singh, Sandhu Village and P.O. Banur Distt. Patiala, Punjab
141	154 of 2012/16-10-2012	Extant	DRSF-113	Sunflower	*Helianthus annuus* L.	Indian Council of Agricultural Research (ICAR)
142	155 of 2012/16-10-2012	Extant	Indira Sona	Rice	*Oryza sativa* L.	Indira Gandhi Krishi Vishwavidyalaya Raipur (C.G.) Krishak Nagar, Labhandi, Raipur
143	156 of 2012/16-10-2012	Extant	Ahilya-4 (NRC-37)	Soybean	*Glycine max* (L.) Merrill	Indian Council of Agricultural Research (ICAR)
144	157 of 2012/16-10-2012	Extant	DRSH-1 (PCSH-243)	Sunflower	*Helianthus annuus* L.	Indian Council of Agricultural Research (ICAR)
145	158 of 2012/16-10-2012	Extant	Pusa Sharad (Sel-309-1-2)	Cauliflower	*Brassica oleracea* L.*var*. botrytis L	Indian Council of Agricultural Research (ICAR)
146	159 of 2012/16-10-2012	Extant	Jaldbi (IET-17153)	Rice	*Oryza sativa* L.	Indira Gandhi Krishi Vishwavidyalaya Raipur (C.G.) Krishak Nagar, Labhandi, Raipur
147	160 of 2012/16-10-2012	Extant	Samleshwari (IET-17455)	Rice	*Oryza sativa* L.	Indira Gandhi Krishi Vishwavidyalaya Raipur (C.G.) Krishak Nagar, Labhandi, Raipur
148	161 of 2012/16-10-2012	Extant	Chandrahasini (IET-16800)	Rice	*Oryza sativa* L.	Indira Gandhi Krishi Vishwavidyalaya Raipur (C.G.) Krishak Nagar, Labhandi, Raipur
149	162 of 2012/16-10-2012	Extant	Dhanush (Co 91010)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
150	163 of 2012/16-10-2012	Extant	Kalyani (Co 87025)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)

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151	164 of 2012/16-10-2012	Extant	Nayana (Co 86032)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
152	165 of 2012/16-10-2012	Extant	Bhima (Co 8371)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
153	166 of 2012/16-10-2012	Extant	Moti (Co 87268)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
154	167 of 2012/16-10-2012	Extant	Bhavani (Co 86249)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
155	168 of 2012/16-10-2012	Extant	Uttara (Co 87044)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
156	169 of 2012/16-10-2012	Extant	Sarayu (Co 87263)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
157	170 of 2012/16-10-2012	Extant	Prabha (Co 58004)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
158	171 of 2012/16-10-2012	Extant	Gandak (Co 89029)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
159	172 of 2012/16-10-2012	Extant	Shyama (Co 94008)	Sugarcane	*Saccharum* L.	Indian Council of Agricultural Research (ICAR)
160	173 of 2012/16-10-2012	Extant	WRP-1	Pigeon pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
161	174 of 2012/16-10-2012	Extant	Malvia Vikalp (MA-3)	Pigeon pea	*Cajanus cajan* (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR)
162	175 of 2012/16-10-2012	Extant	AKS-207	Safflower	*Carthamus tinctorius* L.	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
163	176 of 2012/16-10-2012	Extant	TAS-82	Sunflower	*Helianthus annuus* L.	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
164	177 of 2012/16-10-2012	Extant	Proagro-9443 (MH-846)	Pearl millet	*Pennisetum glaucum* (L.) R.Br.	Bayer Biosciences Pvt. Ltd.
165	178 of 2012/16-10-2012	Extant	Karma Mahsuri (IET-19991)	Rice	*Oryza sativa* L.	Indira Gandhi Krishi Vishwavidyalaya Raipur (C.G.) Krishak Nagar, Labhandi, Raipur
166	179 of 2012/05-11-2012	New	30B11	Maize	*Zea mays* L.	Pioneer Overseas corporation-India Branch Office
167	180 of 2012/05-11-2012	Extant (VCK)	BCN 404	Maize	*Zea mays* L.	Bayer Biosciences Pvt. Ltd.
168	181 of 2012/05-11-2012	Extant (VCK)	BCN 403	Maize	*Zea mays* L.	Bayer Biosciences Pvt. Ltd.

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169	182 of 2012/09-11-2012	Extant	Surbhi (HPW 89)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
170	183 of 2012/09-11-2012	Extant	PBW-396	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
171	184 of 2012/09-11-2012	Extant	Swarna (HI-1479)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
172	185 of 2012/09-11-2012	Extant	HI-1454	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
173	186 of 2012/09-11-2012	Extant	Singchen (SWL-8)	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
174	187 of 2012/09-11-2012	Extant	MP (JW) 1202 (MP-1202	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
175	188 of 2012/09-11-2012	Extant	CBW-38	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
176	189 of 2012/09-11-2012	Extant	VL Gehun 907	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
177	190 of 2012/09-11-2012	Extant	VL Gehun 892	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
178	191 of 2012/09-11-2012	Extant	HPW-251	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
179	192 of 2012/09-11-2012	Extant	MACS 6222	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
180	193 of 2012/09-11-2012	Extant	Pusa Kabuli Gram-128 (Pusa Shubra BGD-128)	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
181	194 of 2012/09-11-2012	Extant	Dharwad Pragatee (BGD-72)	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
182	195 of 2012/09-11-2012	Extant	Pusa 605 (MH 564)	Pearl millet	*Pennisetum glaucum* (L.) R.Br.	Indian Council of Agricultural Research (ICAR)
183	196 of 2012/09-11-2012	Extant	Pusa Composite-334 (MP-334)	Pearl millet	*Pennisetum glaucum* (L.) R.Br.	Indian Council of Agricultural Research (ICAR)
184	197 of 2012/09-11-2012	Extant	Pusa-415	Pearl millet	*Pennisetum glaucum* (L.) R.Br.	Indian Council of Agricultural Research (ICAR)
185	198 of 2012/09-11-2012	Extant	DWR-17	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
186	199 of 2012/09-11-2012	Extant	Pusa-1103	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)

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187	200 of 2012/09-11-2012	Extant	Pusa-1108	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
188	201 of 2012/09-11-2012	Extant	Karnal Chana-1 (CSG-8962)	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
189	202 of 2012/09-11-2012	Extant	Pusa-1088	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
190	203 of 2012/09-11-2012	Extant	Gujarat Gram-1 (G.G. 1)	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
191	204 of 2012/21-11-2012	Extant (VCK)	SYN-CO-SWC 75	Maize	*Zea mays* L.	Syngenta India Limited
192	205 of 2012/21-11-2012	New	SYN-CO-GS 5592	Maize	*Zea mays* L.	Syngenta India Limited
193	206 of 2012/21-11-2012	Extant (VCK)	NM-74B	Maize	*Zea mays* L.	Nuziveedu Seeds Limited
194	207 of 2012/21-11-2012	Extant	NM-74A	Maize	*Zea mays* L.	Nuziveedu Seeds Limited
195	208 of 2012/21-11-2012	Extant (VCK)	MIM 001	Maize	*Zea mays* L.	Monsanto India Limited
196	209 of 2012/21-11-2012	Extant (VCK)	JK Surabhi	Maize	*Zea mays* L.	J.K.. Agri Genetics Limited
197	210 of 2012/21-11-2012	Extant (VCK)	MAHARAJA-999	Maize	*Zea mays* L.	Krishidhan Seeds Ltd
198	211 of 2012/21-11-2012	New	LEGEND	Maize	*Zea mays* L.	Nusun Genetic Research Ltd.
199	212 of 2012/21-11-2012	EDV	VICH-5 BG-II	Tetraploid Cotton	*Gossypium hirsutum* L.	Vikram Seeds Limited
200	01 of 2013/18-01-2013	Extant (VCK)	Bisco 855 (Bisco Bhim)	Maize	*Zea mays* L.	Bisco Biosciences Pvt. Ltd
201	02 of 2013/18-01-2013	Extant (VCK)	Bisco 111 (Bisco 840)	Maize	*Zea mays* L.	Bisco Biosciences Pvt. Ltd
202	03 of 2013/31-01-2013	Extant (VCK)	Vivek Sankul Makka-11	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
203	04 of 2013/17-01-2013	New	MRC 7918	Tetraploid Cotton	*Gossypium hirsutum* L.	Maharashtra Hybrid Seeds Company Limited
204	05 of 2013/17-01-2013	New	JC 761	Tetraploid Cotton	*Gossypium hirsutum* L.	Kaveri Seed Company Limited
205	06 of 2013/17-01-2013	New	MRC 7041	Tetraploid Cotton	*Gossypium hirsutum* L.	Maharashtra Hybrid Seeds Company Limited
206	07 of 2013/18-01-2013	New	JRO 204	Jute	*Corchorus capsularis* L.	Indian Council of Agricultural Research (ICAR)
207	08 of 2013/30-01-2013	Extant	AADHAR (RSG-963)	Chickpea	*Cicer arietinum* L.	Indian Council of Agricultural Research (ICAR)
208	09 of 2013/17-01-2013	Extant	SYN-CO-7303	Maize	*Zea mays* L.	Syngenta India Limited

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209	10 of 2013/17-01-2013	New	VIVEK QPM 9	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
210	11 of 2013/31-01-2013	Extant	PHULE-388 (RHB-388)	Tetraploid Cotton	*Gossypium hirsutum* L.	Mahatma Phule Krishi Vidyapeeth, Rahuri
211	12 of 2013/31-01-2013	Extant	PA-402	Diploid Cotton	*Gossypium arboreum* L.	Cotton Research Station, Marathwada Agricultural University, Maharashtra
212	13 of 2013/31-01-2013	Extant	PA-255	Diploid Cotton	*Gossypium arboreum* L.	Cotton Research Station, Marathwada Agricultural University, Maharashtra
213	14 of 2013/31-01-2013	Extant	HHM-1 (HKH-1082)	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
214	15 of 2013/31-01-2013	Extant	Shekhar-1 (KU-301)	Black gram	*Vigna Mungo* (L.) Hepper	Indian Council of Agricultural Research (ICAR)
215	16 of 2013/31-01-2013	Extant	Pant Mung-5	Green gram	*Vigna radiata* (L.) Wilczek	Indian Council of Agricultural Research (ICAR)
216	17 of 2013/31-01-2013	Extant	MP (JW)-3173	Bread Wheat	*Triticum aestivum* L.	Indian Council of Agricultural Research (ICAR)
217	18 of 2013/30-01-2013	New	GK 3060	Maize	*Zea mays* L.	Ganga Kaveri Seed Pvt. Ltd., Hyderabad
218	19 of 2013/31-01-2013	New	JAI Bt	Tetraploid Cotton	*Gossypium hirsutum* L.	Ankur Seeds(P) Limited
219	20 of 2013/01-02-2013	Extant	IC-8209 (72A)	Maize	*Zea mays* L.	Monsanto India Limited
220	21 of 2013/01-02-2013	Extant	HHB 197 (MH-1302)	Pearl Millet	*Pennisetum glaucum* (L.) R.Br.	Indian Council of Agricultural Research (ICAR)
221	22 of 2013/05-02-2013	New	HQPM-7	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
222	23 of 2013/06-02-2013	New	Vivek Maize Hybrid 33	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
223	24 of 2013/06-02-2013	New	EDEN	Maize	*Zea mays* L.	Vibha Agrotech Limited
224	25 of 2013/06-02-2013	New	JC=348	Tetraploid Cotton	*Gossypium hirsutum* L.	Kaveri Seed Company Limited
225	26 of 2013/12-02-2013	New	PAU 352 (JH 3982)	Maize	*Zea mays* L.	Indian Council of Agricultural Research (ICAR)
226	27 of 2013/06-03-2013	Extant	VASANT (Navkar-5)	Tetraploid Cotton	*Gossypium hirsutum* L.	Navkar Hybrid Seed Pvt. Ltd.
227	28 of 2013/06-03-2013	New	VBCH 1006 BG (ACE BG)	Tetraploid Cottonn	*Gossypium hirsutum* L.	Vibha Agrotech Limited

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228	29 of 2013/06-03-2013	Extant	VASUMATI (IET-15391)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
229	30 of 2013/06-03-2013	Extant	Proagro 555 (MSH 16) (PB 727)	Pearl millet	*Pennisetum glaucum* (L.) R.Br.	Bayer Biosciences Pvt. Ltd.
230	31 of 2013/06-03-2013	Extant	KAUM-57-9-1-1 (K-16) (MO18-Karishma) IET 15095	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
231	32 of 2013/06-03-2013	Extant	Indira Dhan-1 (IET-15376) (R636-405)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
232	33 of 2013/06-03-2013	Extant	Vivek Dhan-154	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
233	34 of 2013/06-03-2013	Extant	VL Dhan 61 (IET-13485) (VL89-1179)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
234	35 of 2013/06-03-2013	Extant	KAUM-42-6-3 (D1) (MO 16-UMA) IET-14758	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
235	36 of 2013/06-03-2013	Extant	Neeraja (IET-11865)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
236	37 of 2013/06-03-2013	Extant	VL Dhan-85 (IET-16455)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
237	38 of 2013/06-03-2013	Extant	Luit (TTB 127-216-2/ IET-13622)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
238	39 of 2013/06-03-2013	Extant	Sugandhamati (IET-16775)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
239	40 of 2013/06-03-2013	Extant	Triguhna (IET-12875)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
240	41 of 2013/06-03-2013	Extant	CSR-13 (IET-10348)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
241	42 of 2013/06-03-2013	Extant	KAUM 20-19-4 (MO 15-Remanika) IET 13981	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
242	43 of 2013/06-03-2013	Extant	Dhanrasi (IET-15358)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
243	44 of 2013/06-03-2013	Extant	KAUM 45-20-1 (D6) (MO 17-Revathy) IET-15322)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
244	45 of 2013/06-03-2013	Extant	Gouri (MO-20)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
245	46 of 2013/06-03-2013	Extant	BR-2655	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)

S. No.	Registration No./ Date of Issue	Category of Variety	Denomination of the Candidate Variety	Crop	*Species*	Name of Applicant
246	47 of 2013/06-03-2013	Extant	Jarava (IET 15420)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
247	48 of 2013/06-03-2013	Extant	KAUM 57-18-1-1 (K-18) (MO 19-Krishnanjana) IET 15096	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
248	49 of 2013/06-03-2013	Extant	KAUM 59-29-2-1-2 (GM-1) (MO 13-Pavithra) IET 13983	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
249	50 of 2013/06-03-2013	Extant	GR-9	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
250	51 of 2013/06-03-2013	Extant	GR-12	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
251	52 of 2013/06-03-2013	Extant	Dandi (IET-14905)	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
252	53 of 2013/06-03-2013	Extant	GR-104	Rice	*Oryza sativa* L.	Indian Council of Agricultural Research (ICAR)
253	54 of 2013/06-03-2013	Extant	Phule LJA-794	Diploid Cotton	*Gossypium arboreum* L.	Mahatama Phule Krishi Vidyapeeth
254	55 of 2013/06-03-2013	Extant	Jawahar Kapas-4 (JK-4)	Tetraploid Cotton	*Gossypium hirsutum* L.	Jawahar Lal Nehru Krishi Vishwavidyalaya

Annexure- X

Acronyms

AICRP	All India Co-ordinated Research Project
BAU	Birsa Agricultural University
BMC	Biodiversity Management Committee
BCIL	Biotech Consortium India Limited
CAG	Comptroller and Auditor General of India
CARI	Central Agricultural Research Institute
CBD	Convention on Biological Diversity
CSIR	Council of Scientific and Industrial Research
CTCRI	Central Tuber Crops Research Institute
CVRC	Central Variety Release Committee
DAC	Department of Agriculture and Co-operation
DUS	Distinctiveness, Uniformity and Stability
EDV	Essentially Derived Variety
EVRC	Extant Variety Recommendation Committee
GATT	General Agreement on Tariffs and Trade
IARI	Indian Agriculture Research Institute
ICAR	Indian Council of Agricultural Research
ICFRE	Indian Council of Forest Research & Education
IINDUS	Indian Information System as per DUS guidelines
IPGRI	International Plant Genetic Resources Institute (Bioversity International)
IISR	Indian Institute of Spices Research
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IV	Initial Variety
KAU	Kerala Agriculture University
KVK	Krishi Vigyan Kendra
NASC	National Agricultural Science Centre
NBPGR	National Bureau of Plant Genetic Resources
NGO	Non-Governmetal Organization
NORV	Notified and Released Varieties of India
NSAI	National Seed Association of India
NSRTC	National Seed Research and Training Centre
OECD	Organisation for Economic Co-operation and Development
PGR	Plant Genetic Resources
PPV&FRA	Protection of Plant Varieties and Farmers' Rights Authority
PVE	Plant Variety Examiner
PVIS	Plant Variety Information System
PVJ	Plant Variety Journal of India
R&D	Research & Development
RTI	Right To Information
SAO	Senior Accounts Officer
SAU	State Agricultural Universities
STO	Senior Technical Officer
TRIPS	Trade Related Aspects of Intellectual Property Rights
UPOV	International Union of Protection of New Varieties of Plants
USDA	United State Department of Agriculture
VCK	Variety of Common Knowledge
WTO	World Trade Organisation

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