



सत्यमेव जयते

# ANNUAL REPORT

## 2015-2016



### Protection of Plant Varieties and Farmers' Rights Authority

Department of Agriculture, Cooperation and Farmers Welfare

Ministry of Agriculture and Farmers Welfare

**Government of India**

NASC Complex, DPS Marg, Opp- Todapur Village,

New Delhi-110 012

[www.plantauthority.gov.in](http://www.plantauthority.gov.in)





# Annual Report 2015–16



**PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS AUTHORITY**

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**DR. R.R. HANCHINAL**

*Chairperson*

Protection of Plant Varieties & Farmers' Rights Authority, New Delhi

## FOREWORD

It is a great privilege and immense pleasure for me to present the Annual Report of the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Authority, Ministry of Agriculture and Farmers' Welfare, Government of India, New Delhi for the year 2015-16. The mandate of the Authority is to grant intellectual property rights to plant breeders, farmers and researchers who have developed new and extant plant varieties. The registration of the variety gives an intellectual property rights to the breeders who register their varieties. This is the only IPR legislation that gives dual protection namely protection for variety and also for the denomination assigned to it by the breeder. India is the only country in the world to enact the Plant Variety Protection law on the sui generis system as per our national requirements. The Act fulfils our international obligations to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization and commitments to the spirit of ITPGRFA.

It has nearly been a decade since the establishment of PPV&FR Authority. The Authority has made giant leaps in establishing a legal framework and as well putting into place an effective system for registration of plant varieties. During the past ten years, the Authority has established Plant Varieties Registry, National Gene Bank, Field Gene Banks, DUS network for testing, created databases of Extant Varieties, Varieties of Common Knowledge (VCK) and registered varieties. The Authority publishes various publications like Plant Variety Journal of India, technical bulletins, pamphlets on various areas, FAQs and other publicity materials in creating awareness among farmers, scientists and breeders about the importance of registration of their varieties. During the reporting period, the Authority has expanded its basket for registration from 92 to 102 crop species. Again the Authority has received 2174 applications and a total of 419 certificates of registration were issued.

During the reporting year, four meetings of the Authority took place. It is also an important event that the much awaited amendments in PPV&FR Rules and Regulations took place during the reporting period. In these amendments the annual fee of the farmers were reduced to Rs.10/- per year and the renewal fee to be paid by the farmers was placed at Nil. The amendments empowered the PPV&FR Authority to fix the time limit for registration of extant varieties. Fees were prescribed for all the forms and fees

were also increased reasonably. The notification of the Amendments in the Official Gazette is a great achievement for the Authority and the role of the officials of Ministry of Agriculture and Farmers Welfare is greatly acknowledged.

I feel privileged in placing on record the able guidance and direction provided by the Hon'ble Union Minister of Agriculture and Farmers Welfare Shri Radha Mohan Singh ji for the growth and development of the Authority.

I am also equally indebted to Shri S.K. Pattanayak, Secretary, Department of Agriculture, Cooperation & Farmers Welfare and Dr. Trilochan Mohapatra, Secretary, DARE & Director General, ICAR for their guidance, leadership and their constant support. I express my sincere gratitude to Shri Rajesh Kumar Singh, Joint Secretary (Seeds) for their keen interest and valuable support to the Authority. I gratefully acknowledge the contributions of the Hon'ble 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 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 Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, ICAR, ICFRE, CSIR, Ministry of Law and Justice, Ministry of Environment, Forest and Climate Change for their continuous support & guidance from 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 entrusted 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 for the CAG for their timely support, guidance and direction.

I appreciate and compliment the editorial team for an effective coordination and timely compilation of the Annual Report.



**(R.R. Hanchinal)**



## ACKNOWLEDGEMENTS

Words cannot express my deepest and 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 2015-16 of the Authority.

I owe my special words of appreciations to Shri Dipal Roy Choudhary, Joint Registrar, Shri D.S. Raj Ganesh, Legal Advisor and Ms. Krithika Anbazhagan, Technical Examiner for their sincere efforts in writing, compiling and synthesizing the manuscript. My appreciation goes to Dr. D.S. Pilania, Technical Assistant for his valuable inputs in proof reading and co-ordinating in shaping the Annual Report of the Authority.

I am also thankful to Dr. Ravi Prakash, Registrar 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 Shri Umakant Dubey, Deputy Registrar, Ranchi, Shri Rabi Raman Pradhan, Legal Advisors, Dr. D.S. Pilania, Technical Assistant, Mrs. Shipra Mathur, Shri Shyam Narayan, Shri Sanjay Gupta and Shri Arvind Kumar Rai Computer Assistants. I also specially thanks specially Consultant Shri B.K. Bansal and Ms. Manisha Gautam, Technical Examiner for their valuable support.

My special words of thanks goes to Ms. Ritu Yadav and Sh. Santosh Singh Bisht Office Assistants for giving their excellent support in the secretarial assistance in typing, formatting and giving a beautiful shape to the Annual Report of the Authority 2014-15 in a time bound manner. The Authority is highly thankful for the support and cooperation received from the Department of Agriculture, Co-operation & Farmers Welfare and also from Indian Council of Agricultural Research (ICAR).

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 of 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 the provisions of 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 102 crop species on the recommendations of PPV&FR Authority for plant variety registration. During the reporting period, the Authority has notified 10 genera species. These crop species represent flowers, fruits including dry fruits, vegetables, seed spices, cereals, beverages and forestry.

The Authority received 2174 applications belonging to four categories of farmers' (1629), new (331), extant (211) and EDV (3). The maximum number of applications belonged to farmers' category including three new variety submitted by a farmer (1629), followed by private (440) and public (102). Highest numbers of applications were received for rice (726), followed by chilli (190), Indian jujube (165), maize (149), mango (101), Indian mustard (43), turmeric (40), brinjal (37), pigeonpea (34), chickpea (32), pearl millet (32), tomato (31), cucumber (30), finger millet (29), sorghum

(29), garlic (27), barley (26), black gram (26), wheat (26), ginger (23), bitter gourd (20), coriander (20), lentil (20) and other crops (in total 318).

EVRC recommended 32 applications for the purpose of registration under extant variety category notified under the Seeds Act, 1966. Out of 32 varieties, 30 belonged to public sector and 2 belonged to private sector. Passport data of the recommended varieties were published in the *Plant Variety Journal* of India for information of general public and also for inviting oppositions, if any, within 90 days of publication.

In the annual year of 2015–16, a total of 419 certificates of registration were issued. Of these, 238 belonged to Farmers, 127 belonged to private organizations and 54 belonged to public organizations. Excluding the Farmers' varieties, 70 new varieties, 63 Extant VCK and 48 Extant (notified) were registered. The highest number of certificates were issued in Rice (256), followed by maize (48), pearl millet (21), sorghum (17), tetraploid cotton (17), soybean (9), sunflower (8), okra (7), Indian mustard (5), tomato (5), onion (4), brinjal (3), field pea (2), groundnut (2), pigeonpea (2), potato (2), wheat (2), bottle gourd (1), castor (1), cauliflower (1), chickpea (1), diploid cotton (1), garlic (1), green gram (1), kidney bean (1) and sugarcane (1).

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

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 verifies the denomination and notification details. The Authority is keeping an eye for developing own portal which shall have all the functionalities of content management system to maintain its website in dynamic manner with role based access.

Four meetings of the Authority were held and important decisions were taken regarding several techno- legal and administrative matters including approval of the extant

notified varieties for registration, approval of the annual account of the Authority and conferring of *Plant Genome Saviour Community Awards* 2013–14.

The Legal Cell of the Authority pursued the cases filed in different Courts. Thirty-four cases were pending, out of which six were disposed-off and the remaining cases are still pending against the Authority. One notification was published in the Gazette of India wherein ten genera/species (jasmine, tuberose, papaya, china aster, peach, japanese plum, strawberry, chilli, bell pepper and paprika, finger millet and foxtail millet) were notified for the purpose of registration of varieties.

The Right to Information (RTI) Cell received 28 applications either directly or through transfer from other Departments seeking information under RTI Act, 2005. The information sought was made available within the stipulated timeframe.

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, DUS centers, ZPDs, KVKs and other stakeholders for conducting training-cum-awareness programmes across the country. The Authority participated in farmers' fairs, agriculture fairs held at various places to disseminate the information on Farmers' Rights, registration of varieties including farmers' varieties and important provisions of PPV&FR Act, 2001. Special drive of awareness was undertaken in the North-Eastern Hill

areas to mobilize farmers for registration of their traditional and farmers' varieties including landraces. The support of KVK system of ICAR network was also taken. The eligible applications for Plant Genome Saviour Community Awards 2013–14 were finalized. The Authority was consulted by the Department of Agriculture, Cooperation & Farmers Welfare on various technical matters, including International affairs relating to bilateral cooperation, ITPGRFA, CBD, UPOV, WIPO and other international instruments/Conventions.

During the period of report, Dr. R.R. Hanchinal visited Germany and Central Asia in connection with official meetings. A German delegation visited India and had a meeting in the PPV&FR Authority on Bilateral Co-operation in the areas of Protection of Plant Varieties.

The Authority received Rs. 1585.44 lakh as grants-in-aid from Department of Agriculture, Cooperation & Farmers Welfare, during the year 2015–16 and utilized Rs. 1592.62 lakh after adjusting unspent balance of Rs. 14.56 lakh of previous year leaving a balance of Rs. 7.38 lakh.

The Annual Report of Authority was timely forwarded to the Department of Agriculture, Cooperation & Farmers Welfare for placing before both the houses of Parliament. The Annual Accounts of the Authority for the year 2015–16 were finalized and audited within the prescribed time schedule and placed before both the houses of the Parliament within statutory time limit.



# Chapter 1: General Background

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.

Enforcement of legal protection for innovation in plant breeding by the plant breeders and farmers/farming communities in producing suitable varieties of economic plants shall provide incentive for research, promote trade and regulate use of plant genetic resources. The issue of plant variety protection through 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 PPV&FR Rules were notified on 12 September, 2003 and amended from time to time, thereafter. Subsequently, for the purposes of the Act, the Government of India having exercised the powers conferred under the section 3 (1) of this Act, established the Protection of Plant Varieties and Farmers' Rights Authority on 11 November, 2005, vide Gazette notification S.O. 1588(E).

## OBJECTIVES OF THE PPV&FR ACT, 2001

Following are the objectives of the Act:

- 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, conservator 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 leased space in the premise of the National Agricultural Science Centre Complex, Dev Prakash Shastri Marg, Pusa Campus, New Delhi. The Authority consists of Chairperson and ten members as on 31 March, 2016.

## 1.4 PLANT VARIETY REGISTRATION

The PPV&FR Authority has finalized the distinctiveness, uniformity and stability (DUS) test guidelines for registration

of 102 crop species covering cereals, pulses, millets, oilseeds, spices, vegetables, flowers, medicinal and aromatic plants and fibre crops. The Authority has issued 419 certificates of registration for plant varieties (under new, extant notified and farmers' variety category) during the reporting year 2015-16. To attract more applications and for the benefit of different stakeholders, the Authority regularly organizes/supports awareness and capacity building programmes.

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, 2001, 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, Field Gene Banks across the country. It regularly publishes Plant Variety Journal of India and maintains the National Register of Plant Varieties at Headquarters and also its branch offices.

## 1.5 PLANT BREEDERS' 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 are 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:

- **New variety** of such genera and species as specified under section 29(2) of the Act.
- **Extant variety**
  - Notified under section 5 of 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.
- **Essentially derived variety (EDV)**

A variety predominantly derived from an initial variety, or from a variety that itself is predominantly derived from such initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety

## 1.6 FARMERS' RIGHTS

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 registration
- **Right to have compensation:** In case the registered variety does not fulfil the claims made by the proprietor / breeder, he is eligible for the compensation on account of losses suffered
- **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**

## 1.7 REGISTRATION OF VARIETIES

An Application for registration of a plant variety and its denomination can be made under the following categories:

- **New Variety:** On the dated of filing of application for registration if the variety has been commercialized for period of less than one year then it is a new variety
- **Extant Variety:** Consist of the following categories namely:
  - **Extant variety notified under section 5 of Seeds Act, 1966:** Varieties notified under Section 5 of Seeds Act, 1966 are eligible for registration under this category
  - **Farmers' variety:** Traditionally cultivated and evolved by the farmers in their fields and includes wild relative or land race or a variety about which the farmers possess common knowledge
  - **Variety of Common Knowledge:** which are not notified under Section 5 of Seeds Act, 1966 and are in commercial chain for more than a year
  - **Public domain variety:** are not eligible for registration as they are already in public domain.
- **Essentially Derived Variety:** A variety pre-dominantly derived from an initial variety and should fall either under new or extant variety

## 1.8 PERIOD OF FIELD-TESTING OF VARIETIES

The application is processed and the applicant is required to deposit DUS test fees. After receipt of necessary fees and

seeds the variety is sent to DUS test centre for conducting DUS test. The period of DUS testing is as follows:

- **New Varieties:** Two similar crop season at two locations
- **Farmers' Variety and VCK:** One crop season at two locations
- **Extant variety notified under section 5 of Seeds Act, 1966:** No DUS testing is conducted but variety is processed by an EVRC Committee which recommends for registration
- **EDV:** DUS testing is not mandatory but field test is conducted to ascertain DUS criteria

After the receipt of DUS test result, the application is processed and if the claimed character and characters qualified in DUS test are same the variety proceeds for advertisement. If the claimed character and character qualified in DUS test are different the applicant is required to amend the application.

The application is advertised in Plant Variety Journal of India inviting opposition within a period of three months from the date of publications. If no opposition is filed or if opposition filed is rejected, the variety proceeds for registration. The period of protection is as follows:

## 1.09 PROTECTION PERIOD AND CROPS

A total of 102 crops/species are presently eligible for protection (Annexure VII). The period of protection for field crops is of 15 years, whereas that of trees and vines is for 18 years. The extant varieties notified are given a protection for 15 years from date of notification under Seeds Act, 1966.

## 1.10 RIGHTS CONFERRED TO THE BREEDER

Registration gives exclusive rights to produce, sell, market, export or imports the variety along with its denomination. This right is subject to farmers' rights that farmers can use seeds of registered varieties in an unbranded manner.

# Chapter 2:

## Progress of Plant Varieties Registry

### 2.1 PUBLICATION OF DUS TEST GUIDELINES FOR CROP SPECIES

Central government, in consultation with the Authority, notified and published the following 15 crop species and their DUS test guidelines in the *Plant Varieties Journal of India* (Table 1). These crop species represents vegetables, fruits, ornamental, forestry and medicinal plants. It is expected that the registration of above mentioned crops will provide an opportunity for diversification of agriculture and may boost the trade in these crops besides legal protection of important plant varieties.

**Table 1:** DUS test guidelines of different genera/species published during 2015–16

S. no.	English name	Common name	Botanical name	PVJ Issue
1	Vegetable Amaranth	Sabji Chaulai	<i>Amaranthus tricolor</i> L.	August, 2015
2	Ridge gourd	Torai	<i>Luffa acutangula</i> (L.) Roxb.	
3	Spinach beet	Palak	<i>Beta vulgaris var. bengalensis</i> Roxb.	
4	Carnation	Gulnar	<i>Dianthus caryophyllus</i> L.	
5	Orchid	Orchid	<i>Paphiopedilum</i> Pfitz.	
6	Indian Mulberry	Noni	<i>Morinda citrifolia</i> L.	October, 2015
7	Nutmeg	Jaiphall	<i>Myristica fragrans</i> Houtt.	November, 2015
8	Bael	Bel	<i>Aegle marmelos</i> Correa	
9	Black plum	Jamun	<i>Syzygium cuminii</i> Skeels	
10	Custard Apple	Sitaphal	<i>Annona squamosa</i> L.	January, 2016
11	Arabian Jasmine	Mogra	<i>Jasminum sambac</i> L.	
12	King of Bitters	Kalmegh	<i>Andrographis paniculata</i> L.	
13	Indian gooseberry	Aonla /Amla	<i>Embilica officinalis</i> Gaertn.	February, 2016
14	Neem	Neem	<i>Azadirachta indica</i> A. Juss.	
15	Karanj	Indian Beech tree/ Pongam tree	<i>Pongamia pinnata</i> (L.) Pierre	

### 2.2 APPLICATIONS RECEIVED

In the financial year of 2015–16, the Authority received a total of 2174 applications (Table 2).

**Table 2:** Status of applications received in the year 2015–16

Type of Variety/ Applicant category	Farmer	Private	Public	Grand Total
Essentially Derived Varieties	0	2	1	3
Extant Varieties	0	151	60	211
Farmers' Varieties	1629	0	0	1629
New Varieties	3	287	41	331
<b>Grand Total</b>	<b>1632</b>	<b>440</b>	<b>102</b>	<b>2174</b>

These included 1629 farmers' varieties, 331 new varieties, 211 extant (VCK & notified varieties), and 03 EDV seeking plant variety protection under the Act. The applications received during the year seeking registration of plant varieties



belonged to 31 different plant families and 72 diverse crops that included cereals, coarse cereals, pulses, commercial crops, medicinal and ornamental plants, oilseeds, vegetables, spices and fruits (Table 3).

**Table 3:** List of crop species and families for which applications were received

S no.	Family	Crops
1	Amaryllidaceae	Garlic, Onion
2	Anacardiaceae	Mango
3	Apiaceae	Coriander
4	Arecaceae	Coconut
5	Asteraceae	Sunflower, Safflower, Chrysanthemum
6	Brassicaceae	Indian Mustard, Cauliflower,
7	Cannaceae	Canna
8	Caricaceae	Papaya
9	Casuarinaceae	Casuarina
10	Cucurbitaceae	Bitter Gourd, Bottle Gourd, Cucumber, Pumpkin, Muskmelon, Watermelon
11	Euphorbiaceae	Castor
12	Iridaceae	Gladiolus
13	Juglandaceae	Walnut
14	Lamiaceae	Menthol Mint
15	Leguminosae	Chickpea, Pigeonpea, Green gram, Black gram, Lentil, Field pea, Kidney bean, Groundnut, Soybean, Fenugreek
16	Linaceae	Linseed
17	Lythraceae	Pomegranate
18	Malvaceae	Jute, Cotton, Lady's Finger
19	Musaceae	Banana
20	Myrtaceae	Eucalyptus
21	Nyctaginaceae	Bougainvillea
22	Pedaliaceae	Sesame
23	Piperaceae	Black Pepper
24	Plantaginaceae	Indian pennywort, Blond Psyllium
25	Poaceae	Wheat, Rice, Maize, Sorghum, Pearl Millet, Sugarcane, Finger Millet, Foxtail Millet, Barley
26	Rhamnaceae	Indian jujube (Ber)
27	Rosaceae	Rose, Apple, Apricot
28	Rutaceae	Acid lime, Mandarin
29	Solanaceae	Potato, Tomato, Brinjal, Chilli, Bell Pepper, Paprika

30	Vitaceae	Grapes
31	Zingerberaceae	Turmeric, Ginger, Small Cardamom

Crop-wise analysis (Table 4) reveals that rice (726) topped the list with highest number of applications followed by chilli (190), Indian jujube (165), maize (149), mango (101), Indian mustard (43), turmeric (40), brinjal (37), pigeonpea (34), chickpea (32), pearl millet (32), tomato (31), cucumber (30), finger millet (29), sorghum (29), garlic (27), barley (26), black gram (26), wheat (26), ginger (23), bitter gourd (20), coriander(20) , lentil (20) and other crops (in total 318).

**Table 4:** Crop-wise details of applications received for registration

S. no.	Crop/ Applicant	Farmer	Private	Public	Total
1	Acid Lime	4	0	2	6
2	Apple	0	1	0	1
3	Apricot	1	0	0	1
4	Banana	14	0	0	14
5	Barley	20	6	0	26
6	Bell Pepper	4	0	0	4
7	Bitter Gourd	19	1	0	20
8	Black gram	26	0	0	26
9	Black Pepper	2	0	0	2
10	Bottle Gourd	8	0	0	8
11	Bougainvillea	2	0	1	3
12	Brahmi	1	0	0	1
13	Brinjal	33	4	0	37
14	Canna	0	0	1	1
15	Castor	6	0	0	6
16	Casurina	0	0	1	1
17	Cauliflower	3	3	0	6
18	Chickpea	26	0	6	32
19	Chilli	33	154	3	190
20	Coconut	2	0	0	2
21	Coriander	19	0	1	20
22	Crysanthemum	2	0	0	2
23	Cucumber	6	24	0	30
24	Diploid Cotton	0	4	1	5
25	Eucalyptus	0	0	1	1
26	Fenugreek	9	0	0	9
27	Fieldpea	18	0	1	19
28	Finger Millet	19	0	10	29
29	Foxtail Millet	9	0	0	9

S. no.	Crop/ Applicant	Farmer	Private	Public	Total
30	Garlic	22	0	5	27
31	Ginger	23	0	0	23
32	Gladiolus	0	0	1	1
33	Grapes	1	4	1	6
34	Green gram	8	0	2	10
35	Groundnut	14	0	0	14
36	Indian jujube (Ber)	163	0	2	165
37	Indian Mustard (Sarso)	36	7	0	43
38	Isabgol	1	0	0	1
39	Jute	1	4	1	6
40	Kidney bean	19	0	0	19
41	Lentil	20	0	0	20
42	Linseed	19	0	0	19
43	Maize	54	86	9	149
44	Mandarin	0	0	1	1
45	Mango	100	0	1	101
46	Menthol Mint	2	0	1	3
47	Muskmelon	0	0	2	2
48	Okra/Lady's Finger	2	5	1	8
49	Onion	7	0	3	10
50	Papaya	3	0	0	3
51	Paprika	0	0	1	1
52	Pearl Millet	7	25	0	32
53	Pigeon pea	33	0	1	34
54	Pomegranate	1	0	0	1
55	Potato	13	4	1	18
56	Pumpkin	7	0	1	8
57	Rapeseed (Toria)	4	0	0	4
58	Rice	670	47	9	726
59	Rose	3	0	0	3
60	Safflower	1	0	0	1
61	Sesame	18	0	0	18
62	Small Cardamom	2	0	0	2
63	Sorghum	10	13	6	29
64	Soybean	7	5	7	19
65	Sugarcane	3	0	5	8
66	Sunflower	2	6	0	8
67	Tetraploid Cotton	0	9	1	10
68	Tomato	11	17	3	31
69	Turmeric	40	0	0	40
70	Walnut	1	0	1	2
71	Watermelon	0	11	0	11
72	Wheat	18	0	8	26

S. no.	Crop/ Applicant	Farmer	Private	Public	Total
	<b>Grand Total</b>	<b>1632</b>	<b>440</b>	<b>102</b>	<b>2174</b>

## 2.3 REGISTRATION OF NEW/ ESSENTIALLY DERIVED VARIETIES

### 2.3.1 Registration of New Varieties

Out of 331 new variety applications received during 2015–16, 41 applications were from public sector/SAUs, 287 from private sector and 03 farmers (Table 2). The applications filed under new category were examined by the Plant Varieties Registry and clarifications were sought wherever necessary. It was observed that most of the clarifications pertained to the proof of sale of the varieties, proof of legal acquirement of parent material, details in technical questionnaire (grouping/distinct/other characters), pedigree/genealogy, breeding techniques, comparison with reference varieties, etc. The Authority has been utilizing various methods to address these issues to make the breeders aware of the necessary details to further streamline and expedite the registration process.

Applicants of the varieties fulfilling all requirements were directed to submit the prescribed fees for registration and DUS test, specified quantity of seed material along with seed analysis report as per crop specific DUS test guidelines of the Authority. Thereafter, seed samples were sent to the respective centres to take up DUS test for two similar crop seasons at two locations.

### 2.3.2 Registration of Essentially Derived Varieties and Expert Committee on EDVs

After the expiry of the term of the earlier Committee for the Registration of EDVs, the Authority constituted the following Committee to examine and recommend suitable varieties for registration as EDVs:

#### Chairman

Dr. S.A. Patil, Ex-Director, IARI, New Delhi

#### Members

Dr. A. K. Singh, Vice-Chancellor, Bihar Agricultural University, Sabour, Bhagalpur, Bihar

Dr. C. J. Dangaria, Vice-Chancellor, Navsari Agricultural

University, Navsari, Gujarat

Dr. T. R. Sharma, Project Director, NRCPB, IARI, New Delhi

Dr. Yog Raj, Lead Breeder, Bayer Bioscience Pvt Ltd, Hyderabad, Telangana

Dr. Chandan Roy, Asstt. Prof., Deptt of Plant Breeding & Genetics, Bihar Agricultural University, Sabour, Bhagalpur, Bihar

Dr. P. M. Salimath, Vice-Chancellor, UAS, Raichur, Karnataka

Dr. A. K. Singh, Head Division of Genetics, IARI, New Delhi

Dr. P. K. Chakrabarty, ADG (PP&B), Division of Crop Science, ICAR, New Delhi

Shri Sameer Agarwal, Kalash Seeds Pvt. Ltd, Aurangabad, Maharashtra

#### Member Secretary

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

The EDV Committee conducted two meetings during 2015–16, but did not recommend any application for the purpose of registration under EDV category. During the report period, three applications in EDV category were received. Two of these applications were received from the private sector and one application from the public sector (Table 2). The applications filed under EDV category were examined by the Plant Varieties Registry and clarifications were sought wherever necessary. It was observed that most of the clarifications pertained to the comparative data of DUS characteristics of the candidate variety and its initial variety, proof of sale of the varieties, confirmation of the event and gene protein expression data, comparative data of bio-efficacy, agronomic and pest infestation, proof of legal acquirement of parent material, details in technical questionnaire (grouping/distinct characters), pedigree/genealogy, breeding techniques used, etc.

#### 2.3.3 Registration of Extant Varieties

The extant varieties include varieties notified under section 5 of the Seeds Act, 1966 (54 of 1966), or farmers' varieties, or a variety about which there is common knowledge. During

the reporting period, 211 applications were received for registration under extant varieties. It includes 46 applications under notified category. In accordance with the Regulation 6 of the PPV&FR Regulations, 2006 framed under the Act, the Authority 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.

#### 2.3.3.1 Extant varieties notified under Seeds Act, 1966

##### Extant Variety Recommendation Committee

The Authority has constituted following ten members EVRC to examine and recommend suitable varieties for registration:

##### Chairman

Dr. A. R. Pathak, Vice-Chancellor, Junagadh Agricultural University, Gujarat

##### Members

- Dr. G. N. Hazarika, Director of Research, Assam Agricultural University, Jorhat
- Dr. B. Singh, Director, Indian Institute of Vegetable Research, Varanasi, Uttar Pradesh
- Dr. M. Ramasami, CMD, Rasi Seeds (P) Ltd., TamilNadu
- Dr. Kisan E. Lawande, Former-Vice Chancellor, Dr. B. S. K.V., Dapoli, Maharashtra
- Dr. B. C. Virakthmath, Ex Project Director, Directorate of Rice Research, Hyderabad, Telangana
- Sh. Prakash Gouda S. Patil (Farmer's Representative), Bijapur, Karnataka
- Dr. Vilas Tonapi, Director, Indian Institute of Millets Research, Hyderabad, Telangana
- Dr. H. Shivanna, Member, Vice-Chancellor, University of Agricultural Sciences, Bengaluru
- Representative of Joint Secretary (Seeds) Department

of Agriculture, Co-operation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Govt. of India, New Delhi

#### Member Secretary

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

The EVRC conducted one meeting during 2015–16 and reviewed 34 applications that belonged to 14 crops. The committee recommended 32 applications (30 from public sector and 2 from private sector) for the purpose of registration under extant variety category notified under the Seeds Act, 1966 (Table 5).

**Table 5:** Number of varieties recommended for registration by EVRC

S. no.	Crop	No. of applications received
1	Chickpea	3
2	Chilli	4
3	Diploid Cotton	1
4	Fieldpea	1
5	Finger Millet	5
6	Garlic	4
7	Jute	1
8	Muskmelon	1
9	Okra/Lady's Finger	1
10	Onion	2
11	Pumpkin	1
12	Rice	2
13	Sorghum	1
14	Soybean	7
<b>Total</b>		<b>34</b>

Passport data of the recommended varieties were published in the Plant Variety Journal of India for information 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 /industries 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 and Farmers' Welfare, 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.

#### 2.3.4 Registration of Varieties of Common Knowledge

PPV&FR Authority has also defined the (VCK) as published in the Plant Variety Journal of India on September 03, 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.

However the variety must also satisfy the following criteria:

- The variety is under cultivation or marketing during the time of filing of application for registration.
- The true representative seed of the variety should be available at the time of filing of application.
- A Candidate variety should have been sold or otherwise disposed of in India one year prior to the date of filing of the application and it should not have been sold or otherwise disposed of 15 years prior to the date of filing of application and in case of trees and vines it should not have been sold or otherwise disposed of 18 years prior to the date of filing of application.

The time limit for registration under extant category is six years from the date of publication of approval of Authority

in Plant Variety Journal.

## 2.4 REGISTRATION OF FARMERS' VARIETIES

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. 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.

The authority received 1632 applications from farmers during the reporting period. Of these, 1629 were farmers' varieties and 3 were new varieties (Table 2, Annexure VIII).

## 2.5 PROGRESS OF REGISTRATION OF VARIETIES

During 2015–16, the Authority issued 419 certificates of registration for 26 crop species (Annexure X). The highest number of certificates were issued in Rice (256), followed by maize (48), pearl millet (21), sorghum (17), tetraploid cotton (17), sunflower (8), okra (7), Indian mustard (5), tomato (5), onion (4), brinjal (3), field pea (2), groundnut (2), pigeonpea (2), potato (2), wheat (2), bottle gourd (1), castor (1), cauliflower (1), chickpea (1), diploid cotton (1), garlic (1), green gram (1), kidney bean (1) and sugarcane (1) table-6.

Out of 419 certificates of registration issued during 2015–16, 70 belonged to new category, 48 in extant notified, 63 in extant (VCK) and 238 in farmers' category. A total of 238 certificates of registration were issued to farmers, 127 certificates to private sector and 54 certificates were issued

to public sector.

**Table 6:** Crop-wise details of certificate of registration issued

S. no.	Crops	Number of certificate
1	Bottle Gourd	1
2	Brinjal	3
3	Castor	1
4	Cauliflower	1
5	Chickpea	1
6	Diploid Cotton	1
7	Fieldpea	2
8	Garlic	1
9	Green gram	1
10	Groundnut	2
11	Indian mustard (Sarso)	5
12	Kidney bean	1
13	Maize	48
14.	Okra	7
15.	Onion	4
16.	Pearl millet	21
17.	Pigeonpea	2
18.	Potato	2
19.	Rice	256
20.	Sorghum	17
22.	Sugarcane	1
23.	Sunflower	8
24.	Tetraploid Cotton	17
25.	Tomato	5
26.	Wheat	2
<b>Total</b>		<b>419</b>

# Chapter 3: DUS Test Centers

## 3.1 DUS CENTRES

### 3.1.1 ICAR-Indian Institute of Rice Research, Hyderabad



ICAR-Indian Institute of Rice Research is the nodal centre for performing DUS test for rice varieties. Seventh set of 84 candidate varieties of rice were tested for DUS characters in the first season against 120 reference varieties; 71 new varieties against 82 reference varieties under second year of testing; 9 VCKs against 12 reference varieties and paired row testing of 248 farmers' varieties and DUS Characterization of 640 farmers' varieties were done as per DUS Test Guidelines during Kharif 2015.



DUS test conducted during Kharif 2015 was monitored by Dr. L V Subba Rao, Principal Scientist and Nodal Officer at IIRR, which was participated by representative(s) from Ganga Kaveri; Kaveri Seeds; Nuziveedu seeds, Pioneer,

Bayer, Lima grain India; Zuari Agri Science Ltd; Bisco Biosciences and other staff members from IIRR were also present during 13, 16 and 17 November, 2015. It was observed that seeds for many of the farmer's varieties were not proper and failed to germinate. Upto 31 March 2016, IIRR had filed/forwarded 152 applications seeking plant variety registration, out of which 88 certificates were granted.

### 3.1.2 ICAR-IARI, Regional Station, Karnal

ICAR Regional Station, Karnal, is the co-nodal station, mandated for DUS test of Rice varieties adapted to north Indian conditions, including basmati varieties. The progress of DUS testing is as follows:

**Table 7:** No. of varieties undergone DUS testing

Crops	New varieties		VCK	Farmers varieties	Total	Date of monitoring	Chairman
	Year 1	Year 2					
Rice	03	07	-	27	37	26 October, 2015	Dr. VK Pandita, Head, IARI, RS, Karnal



DUS testing of 10 new varieties along with 18 reference varieties was undertaken during Kharif 2015 (table-7).

A total of 27 farmers' varieties had undergone DUS testing during Kharif 2015. In addition, varietal maintenance of fifteen reference varieties were also undertaken.

### 3.1.3 Tamil Nadu Agricultural University, Coimbatore

Department of Seed Science and Technology, TNAU, is implementing the GOI-DUS scheme on "Implementation of PVP Legislation through DUS testing under ICAR and SAU Systems" and is one of the main co-nodal centres for rice and sunflower in southern India.

**Table 8:** Details of DUS testing of candidate varieties in 2015–16

Crops	New		Farmers' variety	Date of monitoring
	Year 1	Year 2		
Rice	9	3	47	13.12.2015
Sunflower	17	18	-	-

### 3.1.4 Assam Agricultural University, Jorhat



It is one of the important centers for conduct of DUS testing in Rice at North Eastern agro-ecological region in India which has significant biodiversity of Rice due to varied agro-climatic regions. During the year, it undertook maintenance breeding programme of 15 varieties pertain to the NE conditions.

Seeds of total of 137 farmers' varieties were received by this centre. However, 15 of them did not germinate, when sown in the field. In case of 3 varieties, because of poor crop establishment after transplanting, the population size was not adequate for testing. Finally a total of 119 varieties were subjected to testing. Observations on DUS characteristics on all of the 62 characters were recorded as per the prescribed guidelines. Two new varieties, namely, SARS-1 and SARS-6 were evaluated for DUS characteristics along with the reference varieties CR Dhan 70 and Panindra.

**Table 9:** No. of varieties undergone DUS testing

Crops	Candidate Variety	Farmers Varieties
Rice	2	137

### 3.1.5 IGKV, Raipur

During the reporting period, seeds for 369 farmers varieties were received from the Authority, however, seeds of 327 varieties were properly germinated which were tested against 41 reference varieties as per the technical plot details and paired row testing method followed in the centre.

Paired Row testing method:

- Each farmers' variety is planted in 2 paired rows in two replications which means each farmers' variety is represented by a total no. of 160 hills.
- Reference varieties may be added as per the characters (Grouping) i.e, Basal Leaf Sheath Colour, Plant Height, Days to 50% Flowering , grain type etc.
- As per the DUS test guidelines, data on randomly selected 10 plants shall be recorded in each replication.

Reference varieties can be included only when the information on plant height, days to 50% flowering, grain type, growing season, suitable ecology etc., are known. Therefore, for the Farmers' varieties without any information on above mentioned characters, it is advisable to characterise first these Farmers' varieties generate data on the characters of our interest and in the next season actual DUS test can be conducted with suitable RCVs. It is very difficult to include RCVs without the basic information about the Farmers' varieties. This issue was thoroughly discussed during the 2 day training programme held at IIRR, 8-9May 2015 with all the Co-Nodal scientists and officials from PPV&FRA. Following reference varieties were used for comparison (table-10):

**Table 10:** List of reference varieties used in trial for farmers' varieties

Chandahasini, Samleshwari, Karma mahsuri, Shyamla, MTU-1001, Bhadra, Remya, Revati, Juhii, Indira sugandhit-1, Jaldubi, Danteshwri, IGKV R1, IGKV R2, Panchami, 3048, Bakaal, Poornima, Swarna, Bamleshwari, Mahamaya, MTU-1010, Hardigathi, Parijam, Renjhani, Masuri, Safari-17, Indira barani-1, Aaditya, Indira maheshwari, PRATYASHA, ASHA, Aanda, Indira sona, Kartika, Krishan Arjun, Kanakom, Karishma, Aruna, Remanika, UMA
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### 3.1.6 ICAR NEH, Nagaland

The below mentioned twelve farmers' varieties and two VCK along with two reference varieties were grown in two replications with paired row system at the Main Scheme Farm, ICAR Research Complex for NEH Region, Nagaland Centre, Jharnapani during 2015–16.

**Table 11:** List of varieties tested at ICAR Research Complex for NEH Region, Nagaland Centre

Acknowledgement No.	Denomination
Candidate Variety	BUH SAKAI, IDAW-2, KBA LWAI, KBA BAH, BANAKA, MOTSO, SOMPOURO EPHYO, ZHUTSSOK, MANYA, DOLKOSSE, KAH LAHI, BOGI BAO, SARS-1, SARS-6
Reference Variety	RCM-5, CAU R1

Among the varieties received one variety (REG/2014/2885: BANAKA) failed to germinate.



DUS Testing nursery plot



Transplanted DUS Testing plot



Weeding and intercultural operations



General view of the DUS Testing plot

### 3.1.7 ICAR-Indian Institute of Wheat and Barley Research, Karnal

ICAR-IIWBR, Karnal, is the nodal centre for Wheat and Barley DUS testing. The progress of maintenance breeding/characterization, during the reporting year is as under (table-12).

**Table 12:** Maintenance and characterization of varieties at ICAR-IIWBR, Karnal

Crops	New		VCK	farmers' variety
	1 <sup>st</sup> year entries	2 <sup>nd</sup> year entries		
Wheat	DBW 88, Ajeet 349, Eagle 135, HI 1563, BW 321, DBW 90, Eagle 145	WH1105	-----	10 (Quadar Goal Gayhoon, Lamhrwan Gehun, Gehun (Desi), Gehun Lal, Dehati Gehun Lalaka, Gehun Desi-2, Narmada-14, Khilona-BR, Kathiya Desi Gehun, Sekhar-1)
Barley	ABI Voyager, Innovation, KWS Irina	-----	Tradition, Conrad, Xanadu, Traveler	Nangstakmo, Desi Jai-1, Desi Jaie Sundhbala, Lal Barley, Aruna Barley, Rohi Lal JAW-1



Eighteen candidate varieties of wheat including 10 farmers' varieties, 4 private sectors and 4 public sectors (new category) were tested for DUS against 35 reference varieties. The crop was in the early dough stage and most of the candidate varieties of DUS trials expressed the claimed characteristics at the time of monitoring.



Thirteen candidate varieties of barley including 06 farmers' varieties, 07 private sectors were tested for DUS against 36 reference varieties in 4 trials. The monitoring team under the



Chairmanship of Dr. S.Kundu (Formerly Principal scientist), IIWBR Karnal, along with Mr Dipal Choudhary, Joint Registrar PPV&FRA, New Delhi, visited the field trial on 30 March, 2016 in presence of Dr. Arun Gupta, Nodal Officer; Dr.Charan Singh (Co-Nodal Officer); Dr. Vishnu Kumar (Co-Nodal Officer), IIWBR, Karnal. The team was satisfied with the conduct of trial and selection of reference varieties as per the grouping characters, recording of observations on the various DUS characters. However, variation in various DUS characters was observed in following farmers' varieties, viz., Athiya Desi Gehun, Lamhrwan Gehun, Dehati Gehun Lalaka, Gehun Desi-2, Narmada-14.

### 3.1.8 ICAR-IARI, Regional Station, Indore



Observation was recorded during the year 2015-16 in DUS trials conducted at IARI, Regional Station, Indore for the following descriptors : Coleoptile color, Plant growth habit, Flag leaf auricle pigmentation, Flag leaf auricle pubescence, Foliage color, Flag leaf attitude, Time of ear emergence, Waxiness on ear, Waxiness on flag leaf sheath, Waxiness on blade, Waxiness on peduncle, Outer glume pubescence, Lower glume shoulder width, Lower glume shoulder shape, Lower glume beak length, Glume beak shape, Ear color, Ear shape, Ear density, Ear angle, Awn color, Awn attitude, Peduncle Attitude, Grain coloration with phenol, Grain color, Grain shape, Grain crease, Brush hair length, Grain germ width, Awn presence, Seasonal type, Grain hardness, Flaf leaf length, Flaf leaf width, Plant height, Ear length, Awn length, Peduncle length, Seed size, Spike floret sterility.

**Table 14:** Maintenance breeding programme at the centre

Name of the species	No of varieties	Source(own released/ICAR/SAU)
130 varieties	130 (80 <i>Aestivum</i> , 46 Durum and 4 <i>dicoccum</i> )	Supplied by IIWBR, Karnal

**Table 15:** Details of DUS testing of candidate varieties in 2015-16

Crops	New		VCK	farmers' variety	Date of monitoring
	1 <sup>st</sup> year entries	2 <sup>nd</sup> year entries			
1	7	-	07	12	04/04/16
2	11	1	-		
<b>Hisar Total</b>	<b>19</b>		<b>19</b>		

**Table 16:** Varieties under maintenance/characterized:

Crops	Name or No of varieties under maintenance breeding in 2015-16
VCK	DBW 14, HUW 234, VL 829, DBW 16, GW 190, HD 2733, HPW 42, WH 1021, NW 2036, GW 11, HUW 510, NW 1076, WH 291, DPW 621-50, PBW 502, HD 2428, HD 3059, PBW 373, PBW 550, MACS 2496, MP 1203, MP 3173, GW 496, PBW 343, AKW 1071, WH 711, HD 2987, HD 1941, J 1-7, K 9351, HI 1563, DBW 90, DBW 88, AJEET 349, WH 1105, BW 321, EAGLE 135
Farmers' varieties	Dehati Gehun Lalka, Desi, Gehun Desi-2, Gehun Desi, Gehun Lal, Khailona BR, Lamhrwan Gehun, Narmada 14, Quadar Goal Gayhun, Sakher 8, Bhagat-1, Pushkar Plus.

### 3.1.9 University of Agricultural Sciences (UAS), Dharwad

It is a co-nodal centre for Cotton and the progress of DUS testing is as follows:

**Table 17:** List of candidate and reference varieties

BANSI LOCAL, EAGLE-145, KATHIYA DESI GEHUN, HI-8498, HI-8663, MACS-2694, MACS-2846, RAJ-6560, WHD-943, A-28, AKDW2997-16, BAXI288-18, BIJAGA YELLOW, DWR-185, DWR-1006, HI-8381, PBW-34, PDW-215, PDW-274, PWD -291
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Three genotypes viz., Bansi local (for Second year trial), EAGLE -145 and Kathiya desi gehun (for first year trial) were evaluated for DUS characteristics. There was no any deviation between observed and claimed DUS characteristics for all the genotypes.

### 3.1.10 ICAR-Indian Institute of Maize Research, New Delhi

Progress during 2015–16 under strengthening of DUS centres for implementation of PVP legislation is as follows:

- **DUS testing:** During Kharif 2015, 167 entries including 25 references were tested at six locations, namely IIMR, New Delhi, MPKV Kolhapur, VPKAS Almora, AAU Kokrajhar (Gossaigaon), MPUA&T Banswara and SRTC, Hyderabad, respectively.

**Table 18:** Details of 167 candidate entries as per location

Centre	New			VCK		Farmers' varieties)	Reference	Total entries*
	Inbreds	Hybrids	OPVs	Inbreds	Hybrids			
IIMR, Delhi	34	62	3	4	6	-	25	134
SRTC, Hyderabad	34	62	3	4	6	16	25	150
VPKAS, Almora	-	-	-	-	-	5	3	8
MPUA&T Banswara	-	-	-	-	-	15	4	19
MPKV Kolhapur	-	-	-	-	-	21	4	25
AAU Kokrajhar	-	-	-	-	-	7	3	10
Total	34	62	3	4	6	33	25	167

\*each entry tested at two locations as per PPV&FR Act, 2001 guidelines

- **Varietal registration:** Applications filed during the reporting period are given below:

**Table 19:** Applications filed under PPV&FR Act, 2001

S.No.	Hybrids	Name of centre	Date of filing	Ack. no.
1	DHM 121	P J TSAU, Hyderabad	22/07/2015	REG/2015/1445
2	Vivek Maize Hybrid 47	ICAR- VPKAS, Almora		REG/2015/1444
3	Vivek Maize Hybrid 53			REG/2015/1443
4	Vivek Maize Hybrid 51			REG/2015/1442
5	CoH(M)7	TNAU Coimbatore	30/12/2015	REG/2015/2090
6	CoH(M)8			REG/2015/2091
7	CoH(M)9			REG/2015/2089
8	CoH(M)10			REG/2015/2088

- **Hybrids/ varieties registered:** Two hybrids and three OPVs have been registered under the new category of PPV&FR Act, 2001 after completing two years of DUS testing at two locations. The details are given below:

**Table 20:** Applications pertaining to five hybrids have been filed under PPV&FR Act, 2001

S. No.	Name	Breeding Centre	Period of protection (Years)
<b>Hybrids</b>			
1.	DHM 117	ANGRAU Hyderabad	April 8, 2015 to April 7, 2030 (15 years)
2.	PMH 4	PAU, Ludhiana	April 27, 2015 to April 26, 2030 (15 years)
<b>OPVs</b>			
3.	Bajaura Makka 1	CSK HPKV Bajaura	January 22, 2015 to January 21, 2030 (15 years)
4.	Vivek Sankul Makka 31	VPKAS Almora	March 30, 2015 to March 29, 2030 (15 years)
5.	Vivek Sankul Makka 37	VPKAS Almora	April 7, 2015 to April 6, 2030 (15 years)

- **Maintenance of Intellectual Property (IP) Management:** Till date, 83 cultivars of maize have been registered under PPV&FR Act, 2001. Of these, 23 registered cultivars completed 15 years of notification period during 2015–16. The annual registration fees in respect of seven out of 50 cultivars has been paid for their intellectual property maintenance, rest being under process.



**Table 21:** Details of Monitoring (*Kharif 2015*)

Centres	Nature of entries	Monitoring
IIMR, Delhi	Hybrids, OPVs, inbred lines	September 15, 2015
SRTC, Hyderabad	Hybrids, OPVs, inbred lines, Farmers' varieties	October 17, 2015
Centres	Nature of entries	Monitoring
VPKAS Almora	Farmers' varieties	October 3, 2015
MPKV Kolhapur		September 25, 2015
MPUA&T Banswara		September 28, 2015
AAU Gossaigaon		September 7, 2015

### 3.1.11 PJTSAU, Hyderabad

Crop-wise details of monitoring:

#### Maize:

- Most of the entries expressed the traits which were claimed by the concerned breeder. However, OPV's showed high level of variation.
- The trials were sown on different dates due to lack of sufficient rainfall and irrigation facility.
- The monitoring team found that the 2<sup>nd</sup> year entries are in vegetative stage and may flower in 7 to 10 days time.
- Total of 14 Farmers varieties were characterized. Most of them lacked vigour and showed high level of lodging. The Farmers variety Ram makka did not germinate at all.

#### Blackgram and Greengram:

- The trials have been conducted as per DUS guidelines.
- Fourteen blackgram entries and six greengram entries were tested as per DUS guidelines.
- The traits have been duly recorded. In most of the cases, the expression of traits was as per the claim made by the concerned breeders.
- No flowering was observed in the farmers' varieties in blackgram, viz., Tu Daju, Puran urd and Kariya urd.
- Data was recorded as per the guidelines wherever flowering observed.

**Table 22:** Progress of DUS testing at the center:

Crops		New		Reference Varieties	VCK	farmers' varieties	Date of monitoring
		1 <sup>st</sup> year entries	2 <sup>nd</sup> year entries				
Maize	Inbreds	8	16	10	3	14	17 October, 2015
	Hybrids	45	27	14	7		
Greengram		6	-	6		0	
Blackgram		14	-	6		0	

### 3.1.12 ICAR-Indian Institute of Millets Research (formerly DSR), Hyderabad

IIMR, Hyderabad is the Nodal centre for Sorghum DUS testing. The centre is maintaining 115 reference/example varieties as per the list given below. Most of these varieties belong to public sector institutes, agricultural universities from various states in India.

**Table 23:** Maintenance of reference/example varieties at the center

Crop	Year	Season	Date of monitoring	Chairperson of the monitoring
Sorghum	2015 – 16	<i>Kharif</i>	23 <sup>rd</sup> September 2015	Dr. C L Laxmipathi Gowda, Former DDG (Research), ICRISAT
		<i>Rabi</i>	12 <sup>th</sup> February 2016	Dr. Vilas A Tonapi, Director, Indian Institute of Millets Research

**Table 24:** List of varieties (Crop-wise) under maintenance breeding

Name of the varieties
104A, 104B, 2077A, 2077B, 2219A, 2219B, 27A, 27B, 296A, 296B, 38A, 38B, 463A, 463B, 7A, 7B, AKMS 14A, AKMS 14B, PMS 28A, PMS 28B, AKR 150, AKR 354, AKR 73, AKSSV 22, APK 1, BP 53, BSR 1, C 43, Co S 28, CS 3541, CSV 10, CSV 13, CSV 14R, CSV 15, CSV 17, CSV 18, CSV 19SS, CSV 20, CSV 216R, CSV 21F, CSV 22, CSV 23, CSV 24SS, DSV 1, DSV 3, DSV 4, DSV 6, GFS 4, GFS 5, GJ 35, GJ 36, GJ 37, GJ 38, GJ 39, GJ 40, GJ 9, HC 136, HC 171, HC 260, HC 308, HJ 513, I ndore 12, ICSV 745, IMS 9A, IMS 9B, JJ 1022, JJ 1041, JJ 741, JJ 938, K 11, K 8, M 148-138, M 35-1, Man T-1, MR 750, NSV 13, NTJ 3, P. Amrutha, P. Chitra, P. Dagdi, P. Maulee, P. Revathi, P. Uttara, P. Vasudha, Pant Chari 3, Pant Chari 4, Pant Chari 5, Pant Chari 6, Payur 2, PC 23, PKV Kranti (AKSV 13R), PSB 3, PSB 9, PSR 23, PSR 34, PSV 1, PSV 2, PVK 400 (SPV 860), PVK 801 (SPV 1333), PVK 809 (SPV 1474), PVR 453, RS 29, RS 585, RS 627, RS 673, Sel 3, SPV 1430 (Pratap Jowar-1430), SPV 462, SSG 59-3, SSV 74, SSV 84, SU 1080 (Pratap Chari 1080), Surat 1, Swathi, UP Chari 2

**Table 25:** List of varieties under DUS test

Year	Varieties	F armers' Varieties
<i>Kharif</i> 2015	Second Year Testing: Candidate Variety: <i>New Variety</i> - 6 (PMS 28A, PMS 28B, DGJ 027, GK 4009, CSH 27, CSV 28)	-
<i>Kharif</i> 2015	First Year Testing: Candidate Variety: <i>New Variety</i> -13 (279 B, 279 A, CSH 30, CB 33, CSV 27, CB 11, 415B, 415A, DGJ 022, GK 950, GK 952, GK 951, HTJH 3206)	-
<i>R a b i</i> 2015-16	Second Year Testing: Candidate Variety: <i>New Variety</i> - 3 (CSV 26, CSV 29R, DGJ 025)	-
<i>R a b i</i> 2015-16	First Year Testing: Candidate Variety: <i>New Variety</i> : Nil	4 (Bagdal Peeli Jawar, Mogal Goal Jawar, Barsi Jawar, Kodamurka Jola)



**Kharif 2015:** The monitoring team under the chairmanship of Dr CLL Gowda, Fmr DDG(R), ICRISAT visited the *Kharif* DUS Testing field trials at Indian Institute of Millets Research, Rajendranagar, Hyderabad on 23<sup>rd</sup> Sept. 2015. Dr. Elangovan, Principal Scientist (PGR), and PI, IPR project; Sh Dipal Roy Choudury, Joint Registrar, PPV&FRA also attended the monitoring alongwith representatives from seed companies. The team observed the overall performance of the trials and recorded the following observations:

- The layout and maintenance of the trials is very good and as per the PPV&FRA sorghum DUS test guidelines.
- The trials were sown on right time, as per the recommended sowing time for the region, and plant stand was maintained satisfactorily.
- The overall crop growth and expression of morphological characters were very good in almost all of the candidate varieties.
- Proper care has been taken to conduct the trials by following recommended package of practices and fields are maintained weed free.
- The data are recorded as per the DUS test guidelines and data sheets are being maintained properly. All the data till physiological maturity stage have been recorded and up-to-date.
- As farmers' varieties are not of *Kharif* type, they have to be tested in ensuing *Rabi* season.
- Applicants should give information on the Farmers' variety while submitting the application.

- Background of the reference varieties (testing number) may be provided to the PPV&FRA in case of notified variety for updation of database.
- Effect of season (moisture stress) on the flowering may be noted, and differences in flowering in Rahuri compared to Hyderabad may be assessed over the years.
- Type of variety may be informed by the PPV&FRA for selecting the reference varieties.
- Parental Lines should be mentioned as others in the application.
- Where ever differences are observed in the traits (qualitative), average of two centres may be used to score the characteristics

**Rabi 2015-16:**



The monitoring team, under the chairmanship of Dr Vilas A Tonapi, Director, IIMR, Hyderabad, visited the *Rabi* DUS testing plots at ICAR-Indian Institute of Millets Research, Rajendranagar, Hyderabad on 12<sup>th</sup> February, 2016. The following are the team’s observations:

- There are four candidate varieties (Farmers’ varieties) under 1<sup>st</sup> year testing and three candidate varieties under 2<sup>nd</sup> year testing. The layout of the trials is good and as per the PPV&FRA sorghum DUS test guidelines.
- The trials were sown on right time. The overall crop growth and expression of morphological characters are very good in all the candidate varieties and fields are maintained weed free.



- Plant population was slightly affected in some of the candidate varieties like DGJ 025, Mogal Goal Jawar and Barsi Jawar because of poor germination.
- All the data till physiological maturity stage have been recorded and up-to-date. It was observed that the flowering duration was slightly advanced compared to previous *Rabi* season.
- The panicle shape in CSV 29R, CSV 26 and DGJ 025, where some differences are observed may be recorded at the time of harvest as that observed in majority of the plants.

**3.1.13 GBPUAT, Pantnagar**

Govind Ballabh Pant University of Agriculture and Technology (GBPUA&T), Pantnagar, is one of the co-nodal centres for maintenance and DUS testing for frage soghum varieties. The centre maintained and characterized following varieties during 2015-16:

**Table 26:** List of varieties under maintenance breeding

GBPUA&T, Pantnagar	UP Chari 2, Pant Chari 3, Pant Chari 4, Pant Chari 7, Pant Chari 8, Pant Chari 5, Pant Chari 6, Pant Chari 9
DSR, Hyderabad	SPV 462, CSV 15, CSV 17, CS 3541, M 35-1, MANT 1, SPV 1616, 2219 B, C 43, RS 29, RS 673
IARI, New Delhi	Pusa Chari 121, Pusa Chari 615, Pusa Chari 1002, Pusa Chari 1001, Pusa Chari 23
PDKV, Akola	104 B, AKMS 14 B, AKR 150
GAU Surat, Gujarat	GJ 37, CSV 21 F, GFS 4, GFS 5, SURAT 1, GJ 39

HAU, Hisar	HC 136, HC 171, HC 260, HC 308, HJ 513, SSG 59-3
JNKVV Jabalpur (Indore)	JJ 1041, JJ 741
ICRISAT, Hyderabad	MR 750
Madhya Pradesh	MP Chari
MPKV, Rahuri	SSV 84
RVSKVV, Indore	IMS 9B
UAS, Dharwad	DSV 4
VCK	Gwalior Local, Rajasthan Local, Jalna Local, Golden Local
Farmers' variety	Rampur Local

Status of varieties notified/released, no of applications filed and certificate of registration details are given as per the following:

**Table 27:** List of varieties Notified/released and details of PVP Registrations

Crops	No of Var. notified by the center Since 1966	No of Var. notified by the center Since 2001	No of applications filed			Certificates issued	Under process application
			Extant Notified	New	VCK		
Sorghum	4	5	4	1	3	4	-
Soybean	18	5	4	-	-	3	-
Rice	09	09	19	5	7	04	-
Maize	13	03	-	1	-	03	01
Wheat	21	5	7	-	-	7	-
P u l s e s : Chickpea	06	01	-	03	-	-	-
Lentil	08	03	-	01	-	-	-
Field pea	04	04	-	02	-	01	02
Pigeon pea	02	01	-	-	-	-	01
Urd bean	05	02	-	01	-	01	-
Mungbean	06	02	-	02	-	-	-
F o r a g e cowpea	05	07	-	-	-	-	-
Forage oat	02	-	-	-	-	-	-
Berseem	01	-	-	-	-	-	-
Sugarcane	04	03	02	1	-	-	-
T o r i a (Rapeseed)	04	01	01	-	-	01	-
Yellow sarson (Rapeseed)	01	01	01	-	-	01	-
I n d i a n Mustard	03	01	-	-	-	-	-
Karan Rai	01	-	-	-	-	-	-

### 3.1.14 MPKV, Rahuri

It is one of the co-nodal centre for DUS testing in Cotton suitable for central zone varieties. The centre is maintaining 115 reference varieties for which seeds were received from CICR RS, Coimbatore. Progress of DUS testing is as per the following:

**Table 28:** Details of DUS testing of candidate varieties in 2015-16

Crops	New		VCK	EDV	IV	Farmers' variety	RCV	Date of monitoring
	1 <sup>st</sup> year entries	2 <sup>nd</sup> year entries						
Cotton	36	40	32	16	07	-	115	6 <sup>th</sup> -7 <sup>th</sup> November, 2015

#### Key observations of the Monitoring team:

- The cotton DUS trials are conducted as per the guidelines. All allotted varieties are sown and sufficient population is maintained
- The crop growth is good in boll bursting stage. As of now all the characters have been recorded.

**Table 29:** Details of applications filed with PPV&FRA

Crops	No of Var notified by the center Since 1966	No of Var notified by the center Since 2001	No of applications file			Certificates issued	Applications under process
			Extant	Notified New	VCK		
Cotton	6	10	4	5	-	4 (Phule-492) (Phule-388) (Phule-688) (JAL-794)	5 (Phule Dhanwantary) (Phule Anmol) (RHH-0622) (RHC-0717) (RHCb-011)

### 3.1.15 ICAR-CICR, PC Unit, Coimbatore

Central Institute for Cotton Research, Regional Station, Coimbatore, is the main Nodal centre for DUS testing in 4 cultivated species in Cotton (*Gossypium hirsutum*, *Gossypium barbadense*, *Gossypium arboretum*, *Gossypium herbaceum*)

**Table 30:** No. of varieties undergone maintenance breeding / characterisation / progress of development of DUS guidelines

Name of the species	No of varieties	Source(own released/ ICAR/SAU)
<i>G.hirsutum</i>	65	ICAR/SAU
<i>G.barbadense</i>	3	ICAR/SAU
<i>G.arboreum</i>	8	ICAR/SAU

During the 2015-16, 68 new Tetraploid candidate varieties for second year of testing, 48 new Tetraploid candidate varieties for first year testing, one new Diploid candidate variety for first year testing, 12 Tetraploid varieties of common knowledge and one farmers variety along with 60 reference varieties were grown. The essentially derived varieties and their respective varieties were grown in protected and unprotected environment. There were 19 EDVs and IVs for which a separate trial was conducted. List of varieties are as follows:

**New:** Tetraploid cotton: NCS-1134 BG-II, NCS-3456 BG-II, NCS-1024 BG-II, PRCH-752 BG-11, PRCH-754 BG-II, PRCH-753 BG-II, PRCH-1166 BGII, PRCH-737 BG-II, ACH 111-2 BG-II (Ajeet 111 BGII), SWCH 5017BGII, PC-P3812/1 BG-II, PC-P3812/2 BG-II, PSCP 34 BG-1, KCL-2, KCL-7, KCL-3, KCL-6, KCL-4, KCL-5, KCL-113 Non Bt, KCL-285-2 Non Bt, KCL-8, KCS-189 BGII, KCL-9, KCL-16, KCL-15, KCL-22, KCL-10, KCL-13, KCL-12, KCL-21, KCL-17, KCL-23, KCL-11, KCL-18, KCL-20, KCL-25, KCL-14, KCL-19, KCL-24, KCL-41, KCS-374 BG-II, RC470, RC468, RC469, RC467, TMC 500040, TMC 500030

**VCK:**Tetraploid Cotton: PCH-215, PCH-135, NCS-88 GMS, NCS-24, FCH-519, PCH-22 (seed with lint), PC-P311, PC-P961 Bt2, PC-P071 Bt2, PSCP-03, PSCP-02, FC-0707, JKC 611

**Table 31:** No. of varieties undergone DUS testing

Crops	New		VCK	farmers' variety	EDV	IV	Total	Monitoring done on
	1 <sup>st</sup> yr	2 <sup>nd</sup> yr						
Cotton	49	68	12	1	19	19	168	13.1.2016

**Farmers' variety:** RUI (SABROOM)



Monitoring of the project “Implementation of PVP legislation 2001 and DUS testing of cotton under ICAR-SAU system” at CICR, Regional station, Coimbatore, was conducted on 13.1.2016. The monitoring was organized by Dr. K. Rathinavel, Principal Scientist and Nodal Officer (DUS) CICR (RS), Coimbatore. The Research Associate Ms. H. Kavitha, and Project Assistant Ms. R. Ranganayaki supported for verification of claimed characters in each entry of different trials, and proforma filled accordingly. Four representatives from different private seed research and development firms participated in this process and confirmed the characteristics of their respective varieties under categories of new candidate varieties and varieties of common knowledge in terms of expression of morphological characters.

The monitoring was done individually for each variety as per the proforma provided by the PPV&FRA. The distinctive character as claimed by the applicant, the character expression on plant and the character available on field record were reconciled in consideration of the essential and optional characteristics provided in test guidelines. The trials were laid out and observations recorded as per the National test guide lines of Terploid and Diploid cotton, respectively. The filled in proforma was submitted to PPV&FRA along with the chairman's report.

**Table 32:** Applications filed for plant variety registration

Crops	Variety notified under Seeds Act, 1966 (since 1992)	Application filed for registration	Certificate issued
<i>G.hirsutum</i>	Extant	58	27
	New	5	2
<i>G.arboreum</i>	Extant	23	13
	New	3	1
<i>G.herbaceum</i>	Extant	3	3

### 3.1.16 ICAR-CICR, Nagpur

CICR, Nagpur, is the co-nodal centre for cotton DUS testing in Central zone. During 2015-16, following four trials were taken up for DUS testing at CICR, Nagpur during 2015-16. The number and name of varieties under each trial is given below:

**Table 33:** List of varieties undergone DUS trial in 2015-16

<b>New 1<sup>st</sup> Year trial</b>	NCS-6566 BG-II ; PRCH-731 BG-II; PRCH-739 BGII; NCS-2244 BG-II; JKCH 8906 BG II (JKCH 8906 Double Bt); JKCH 8905 BG II (JKCH 8905 Double Bt); ACG-17-II (Ajeet-17 BG-II); ACG-GMS-14-II (Ajeet-GMS-14-BG-II); ACG 40-2 BG II (Ajeet-40 BG II); ACG 15-2 BG II (Ajeet 15 BG II); ACG-27-2 BG II (Ajeet 27 BG II); ACG-12-2 BG II (Ajeet-12-BG II); ACG-16-II (Ajeet 16-II BG-II); ACG 41-2-BG-II (Ajeet 41 BGII); ACG 42-2-BGII (Ajeet 42 BGII); ACG GMS-28-II (Ajeet GMS-28 BG-II); ACH 199-2 BG-II (Ajeet 199 BGII); ACH 104-2 BG-II (Ajeet 104 BGII); ACH 26-11 (Ajeet 26 BGII); RCHB-011; RHC 0717; RHH 0622; NCS 6566 BGII
<b>VCK</b>	PC-P031 Bt; PC-P501; PC-P601; PC-P 621; PC-P 211; PRCH-505 Bt2; MAHASANGRAM BG II; SOLAR 77 BG II; SOLAR 56 BG II; SOLAR 66 BG II; SOLAR 76 BG II; SARJU; JKC 721
<b>EDV +IVs</b>	PRCH-31 Bt & PRCH-31; PC-P661 Bt2 & PC-P661; NC-91 BG-II & NC-91; NCS-954 Bt2 & NCS-558; NC-5040/1 BG-II; NC-5040 & PRCH 504 Bt2; Rudra & PSCP-02 BGII; PSCP-02
<b>New 2<sup>nd</sup> Year trial</b>	NC 1185; Bio 7213-2; NCS 589 BG II; MRC 7387 BG II; PRCH 135 BG II; PC-P 751 PCH 549; PRCH 703 Bt 2; RCH 653 BG II; NCS 853 Bt 2; NCS- 9011 Bt 2; ZCH 503, PC-P 8011/1 BG II; PCH 409 Bt; ZCH 504; NC 5040; H 1098; PCH 404 Bt; Bio 842-2, RCH 776 BG II; PRCH -704 Bt; NC 156/1 BG II; PRCH 708 Bt 2; RCH 386 BG II; VBCH 1539 BG II; NCHB 9901 Bt2; PRCHB 601 Bt2; NC-1108/1 BG II; ZCHB 550 BG II; JKC 2002 BG II; JKC 1040 BG II; PCH 9604 Bt 2; PCH 407 Bt; RCH 773 BG II; KDCHH 516 BG II; RCH 779 BG II; Indra Vajra double BG II; PCH 9614; NCH 419; JKC 728; PRCH 709BtII ; PCH-9619 Bt2; PCH-404Bt2; PCH-9613 Bt2; PCHB-9969 Bt2; NCHB-9903 Bt2; NCHB-9905 Bt2; NCHB-9904Bt2 ; PCH 881Bt2; NCS-1915 Bt; PCH-9602 Bt2; PC-P 281; G Cot-20; Nirmal433 (NACH-433)

The monitoring of DUS trials at CICR, Nagpur was organized on 19.11.2015. Dr. K. Rathinavel, Nodal Officer, DUS Project, CICR Regional Station, Coimbatore, Dr. V. Santhy, Co-Nodal Officer, CICR, Nagpur and representatives from private seed companies' viz. MAHYCO, Nuziveedu and

JK seeds were present. The expressions of traits were found to be good in most of the varieties. Two day training cum awareness programme was organized by the KVK CICR, Nagpur on 3<sup>rd</sup> & 4<sup>th</sup> March 2016 where nearly 100 participants including farmers participated and lectures and training were imparted by Dr. G. Malvi, Retd. Professor, DrPDKV, Akola; Dr. Mrs. V. Santhy, Sr. Scientist, Dev. of Crop Improvement, CICR, Nagpur & Dr. S. S. Patil, SMS, KVK, Nagpur and extension brochures on PPV&FRA were distributed.

### Variety Maintenance and Multiplication



Varieties of *G. arboreum* (30) are being maintained as well as multiplied. The varieties of *G. hirsutum* (43) are being purified for maintenance. The number and names of each variety for two species is given below:

**Table 34:** Diploid varieties under maintenance and multiplication

GAK 423, G Cot15, AKA 7, C29, Veena, HD 26, RG 8, HC 110-115, Jawahar Tapti, RG 18, AKA 5, LD 491, PA 183, Raghavendra, AKA 8401, Aravinda, LD 327, HD 107, LD 210, Y1, G Cot 19, JLA 794, AKA 8, LD 694, HD 321, RG 18, AKA 7, AKA 8, AKA 8401, PA255

**Table 35:** Varieties of *G. hirsutum* under maintenance

MCU 10, MCU12, Khandwa 2, Khandwa 3, Abhadita, MCU5 VT, Pratima, Surabhi, Supriya, Sumangala, Sahana, G COT 12, JLH 168, F 1378, MCU 5, NH 545, F 846, JK 4, Arogya, G COT 16, G COT 18, Deviraj, PKV Rajat, Kanchana, Anjali, KC 3, RS 810, G COT 20, RS 875, AKH 8828, F 1054, BN 1, Suraj, RS 2013, F 1861, H 1226, Ganganagar Ageti, RST 9, CNHO12, LRA 5166, NH 615, G COT 10, HS 6

### 3.1.17 CCS Hisar Agricultural University, Hisar

Fifty four candidate varieties of cotton and seven candidate varieties of chickpea were grown along with 31



reference varieties of cotton and 13 reference varieties of chickpea, respectively, for characterization and data were recorded.

**Table 36:** Progress of DUS testing, during the reporting period,

Crop	New		VCK	EDV & IV (if any)		Total
	1st yr	2nd yr		EDV	IV	
Cotton	02	19	9	12	12	54
Chickpea	07	-	-	-	-	07
<b>Total</b>	09	19	9	12	12	61



- **Cotton:** The overall performance, the crop growth was good and the recording of observations was undertaken as per the National test guidelines of DUS testing of cotton. The progress of DUS testing, during the reporting period, is as under:

**Trial I –New & VCK:** In this trial a total of 11 entries were tested. All the 11 entries were grown with 11 reference entries in randomized block design (RBD) with three replications and the observations were recorded on the DUS characters.



**Trial II –EDV & IV:** In this trial a total of 24 entries were tested. All the 12 EDV's were grown along with their IVs in randomized block design (RBD) with three replications in (protected and unprotected conditions) and the observations were recorded for the DUS characters.

**Trial III –Second Year Testing:** In this trial a total of 19 entries were tested. All the 19 entries were grown with 20 reference entries in randomized block design (RBD) with three replications and the observations were recorded on the DUS characters.

- **Chickpea:** In this trial, seeds of 7 farmers' variety's and 1 new variety were supplied by the IIPR, Kanpur. The seeds of farmer variety were infected with fungus which resulted in poor germination.

### 3.1.18 PAU, RS, Bhatinda

DUS centre for north zone varieties in cotton was shifted from Ludhiana to Regional Station of PAU at Bhatinda.

**Table 37:** Progress of DUS testing at the center

First year testing		Second year testing	
Candidate variety	Reference Variety	Candidate variety	Reference Variety
NCS-904 Bt,	Abadhita, L	NC-5065	NH545,
NCS-9002	604, G. Cot	BG-I,	KANDWA2,
Bt2, RCH 602	12, PKV	54-SS-33	Sahana,
BG-II, SVA-	Rajat, JLH	BGII, NC-	Supriya,
371, SVA-145,	168, MCU	5065 BG-I	NH545,
SVAGMS-47,	10, MCU		KANDWA2
KR-111, SWCH	5, AKA		
4704 BGII, BIO	7, Veena,		
54510, BIO	Jawahar Tapti		
6165-2 BG II			
EDV-IV testing			
EDV		IV	
PCH-878 Bt2, PC-P 8011 Bt2,		PCH-401 Bt, PC-P 8011	
PC-P 251 Bt		Bt, PC-P 251	

### 3.1.19 University of Agricultural Sciences (UAS), Dharwad

The centre is mandated for DUS testing in four crops, viz., Cotton, Soyabean, Ground nut, Sesame and Durum wheat. It is also maintaining reference/example varieties

suitable for south zone. DUS testing is also being conducted in these species. It is a co-nodal centre for Cotton and other species and the progress of maintenance and DUS testing is as follows:

**Table 38:** Number of varieties maintained for using as reference varieties

S. no	Crops	Number of reference varieties maintained
1	Cotton	64
2	Soyabean	98
3	Groundnut	8
4	Sesame	3
5	Durum Wheat	17

**Table 39:** Number of varieties undergone DUS testing

S. no.	Crop	Trial name	Number of Entries	Date of Sowing	Spacing (cm)
1	Cotton	Trial I (2 <sup>nd</sup> year Candidate)	49	02-07-2015	90 x 60
		Trial II (1 <sup>st</sup> year Candidate)	72	03-07-2015	90 x 60
		Trial III (a) (EDV Protected )	51	30-07-2015	90 x 60
		Trial III (b) (EDV Unprotected )	51	31-07-2015	90 x 60
		Trial IV (VCK)	39	04-08-2015	90 x 60
		Trial V (Reference variety)	64	31-07-2015	90 x 60
		Trial VI (Farmer variety )	02	04-08-2015	120 x 60 (Paired Row)
2	Soyaben	Candidate variety	01	18-06-2015	30 x 10
3	Groundnut	Farmer variety	02	24-07-2015	30 x 10
4	Sesame	Farmer variety	07	27-06-2015	45 x 10
5	Wheat	Candidate variety	03	19-11-2015	45 x 10

#### Technical progress:

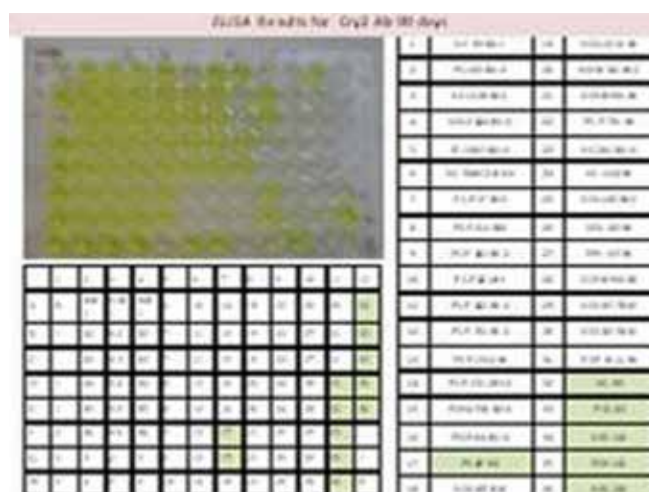
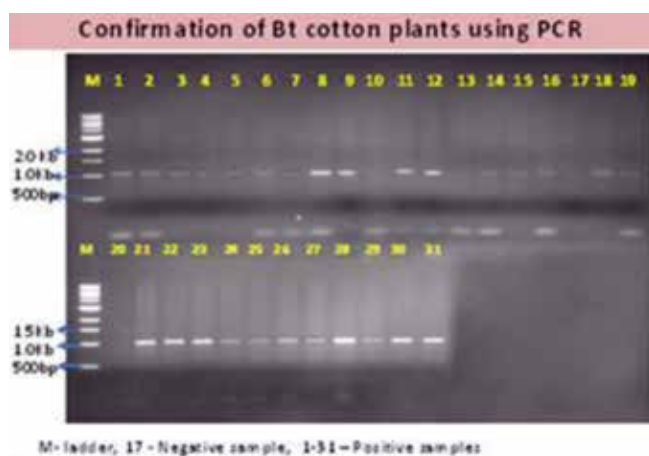
- **Cotton:** In cotton for the year 2015-16, Dharwad centre has taken DUS testing in five trials.
  - **Trial-I:** Evaluation of DUS characteristics of Cotton varieties at UAS, Dharwad during *Kharif* 2015-16: Forty nine new candidate varieties were evaluated for two years.
  - **Trial-II:** Evaluation of DUS Characteristics of Cotton for 1<sup>st</sup> year at UAS, Dharwad during *Kharif* 2015-16: Seventy two new candidate varieties were evaluated for 1<sup>st</sup> year. Thirty three genotypes were showed differences with respect to one or few traits between observed and claimed traits.
  - **Trial-III:** Evaluation of EDVs at UAS, Dharwad during *Kharif*-2015-16: Several EDVs were evaluated. Twenty-nine genotypes were showed differences for few traits. All the EDVs were claimed as Bt- cotton resistant to cotton boll worms. The presence of Cry-1 Ac and Cry 2Ab genes was confirmed with PCR using gene specific primers. Expression of Bt protein was also estimated through quantitative ELISA tests. There was no deviation in presence of two genes from the claim. Similarly based on ELISA tests also, there was no deviation in expression of cry protein from the claims.

**Table 40:** List Essentially Derived/ Initial Varieties under testing

NC -99 BG-II, NC -99, NC-102 BG-II, NC-102 , NC-1130 Bt 2, NC-1130 , NCS-2434 BG-II, FCH-519, NC-9007 BG-II, FC-9007, NC-5040/2 BG-II, NC-5040, PC-P 17 Bt2, PC-P 17, PC-P 211 Bt2 , PC-P 211 , PC-P 311 Bt 2, PC-P 311 , PC-P 621 Bt, PC-P 621 Bt 2, PC-P 621 , PC-P 651 Bt 2, PC-P 651 , PC-P 1512 Bt, PC-P 1512 Bt 2, PC-P 1512 , PCH-4599 BG II, PCH-235, PSCP-04 BG-II, PSCP-04 , NCS-867 Bt2, NCS-1914 Bt, NCHB-991 Bt 2, NCHB-991 Bt , PC-P 701 Bt, PC-P 701, NC-201 BG-II, NC-201, NC-1118 Bt, NC-1118, NCS-145 Bt 2, NCS-145 Bt , NCS-145 , PCH-115 Bt, PCH-115, NCHB-992 Bt, NCS-104, NCS-857 Bt2, NCS-865 Bt2, NCS-1332, PC-P 8011 Bt
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### Different aspects of EDV testing and analysis include:

- **Molecular analysis:** Gene specific primer *CryIAc* is used for Molecular analysis. All the Bt plants shown positive result with respect to *CryIAc* gene.
- **Expression analysis:** Expression analysis is done through ELISA test. At Dharwad center ELISA test was carried out at 2 different crop growth stages viz., 90 and 120 days with *CryIAc* and *Cry2Ab* proteins.
- **Efficacy analysis**
- For the insect bio-assay study *Helicoverpa armigera* (Hubner) was reared in the laboratory on artificial diet and prescribed protocol was followed.



- Trial-IV: Evaluation of Variety of Common Knowledge at UAS, Dharwad during Kharif- 2015-16
- Thirty seven genotypes were tested in the category of

variety of common knowledge for DUS characteristics.

- Trial-V: Evaluation of farmer varieties at UAS, Dharwad during Kharif- 2015-16

Two farmer's varieties were sown for evaluation for DUS characteristics, One variety, viz., SIGMA recorded poor germination resulted in insufficient number of plants for recording observations

- **Soybean:** NSO-383 soybean candidate variety was evaluated for DUS characteristics as Second year trial. There was no deviation between observed and claimed DUS characters for NSO-383 candidate genotype.

### 3.1.20 AICRP on Pearl Millet, Jodhpur

AICRP on Pearl Millet, Jodhpur is the main Nodal centre for DUS testing and the progress is as follows:

**Table 41:** List of varieties (First Year Test)

86M84, 86M35, 86M14, M171G, Nirmal-4915 (NPH-4915), Nirmal-4506 (NPH-4506), LG 12.81, NU 3214, MP 7833, KBH 3590, KBH 2191, KBH 3580, BAGDAL DESHI BAAJRA, BLPMP 1295, JKR 11568, JKR 4259, JKR 06128, PM12P017R, MP 12P021R, PM12P018R, NPA-168, NPA-84, JKMS 401 A, JKMS 405 A, PMGP100001A, MP 12P16A, MP 12P015A

**Table 42:** List of varieties (Second Year Test)

DGB-016, DGB-019, NBH-5782, BPM 908, BPM909, BPM910, GK 1152, GK 1129, BPM 911, MP 7794, Rukmani, DGB-017, NB-98R, PP63, PP71, KBR 837, EM104Z, BIO-LM135Z, BIO 8142, PSP70, PSP68, KBMS 261

DUS Guideline Review Meeting of Pearl Millet were held on 29 July, 2015 at DOR, Hyderabad, 23 September, 2015 at IIMR, Hyderabad and on 1 October, 2015 at AICRP on Pearl Millet, Mandor under the chairmanship of Dr. C.L. Laxmipathi Gowda, EX DDG (Research) and Chairman, Task Force. The modifications in existing guidelines proposed and discussed by the members in these meetings were presented during Annual Workshop of pearl millet at CCS HAU, Hisar. Final Modified draft of revised guidelines is in progress and will be submitted in due course. The DUS monitoring team led by Dr. C.L. Laxmipathi Gowda at AICRP on Pearl Millet, Mandor on 1 October, 2015 and by Dr. H.P. Yadav at

Rahuri on 4 September, 2015 visited the DUS experiments at respective places.

### 3.1.21 Indian Institute of Pulses Research (IIPR), Kanpur

AICRP on Chickpea, IIPR-Kanpur is the main nodal centre for DUS Testing in Chick pea and the progress of DUS Testing is as follows:

**Table 43:** List of varieties are under DUS Test

New		VCK	Farmers' varieties
1 <sup>st</sup> yr	2 <sup>nd</sup> yr		
-	PKV 4	-	Deshi Chhola; Desi; Saheb Chana; Awadhi Chana; Sadabahar; Roon Chana; Chota Chana; Buti Chana; Desi Lal Channa; Krishna Chana; Ram Chana; Bhagatgram-1 & Bagdal Gauran Chana

**Table 44:** List of varieties for which applications were submitted/registration certificate issued

Crops	No of Var notified by since 1966	No of Var notified since 1999	No of applications filed			Certificates issued	Pending applications
			Extant Notified	New	VCK		
Chickpea	175	68	59	2	-	32	27

**Table 45:** Maintenance of chickpea varieties

AKG 9303-12, AKGS 1, Annegiri 1, Avrodhi, BG 1053, BG 1103, Pusa 256, BG 261, BG 372, BGD 128, BGD 72, Pusa 408, Pusa 413, C 235, Chaffa, CSG 8962, CSJD 884, CSJ 140, CSJ 515, CSJK 6, Dahod Yellow, DCP 92-3, Digvijay, GCP 101, GCP 105, Gujarat Junagadh Gram 3, GL 769, GLK 26155, GNG 1292, GNG 146, GNG 1488, GNG 1499, GNG 1581, GNG 1958, GNG 1969, GNG 469, GPF 2, Gulak 1, Haryana Chana -1( H 82-2), HC-3, HC-5, HK 1, HK 2, HK 05-169, ICCV 10, ICCV 2, ICCV 37, IPCK 02-29, IPCK 04-29, JAKI 9218, JG 06, JG 11, JG 130, JG 14, JG 16, JG 218, JG 315, JGG 1, JGK 1, JGK 3, K 850, KAK 2, KPG 59, Phule G 0517 (KRIPA), KWR 108, L 550, Pant G114, PBG 1, PBG 5, PDG 04, PDG 3, Phule G 0027, Phule G 12, PKV 4, Pusa 1088, Pusa 1105, Pusa 1108, Pusa 209, Pusa 212, Pusa 240, Pusa 244, Pusa 267, Pusa 329, Pusa 362, Pusa 391, Pusa 547, Radhey, Rajas, RAU 52, RSG 02, RSG 44, RSG 807, RSG 888, RSG 895, RSG 896, RSG 902, RSG 931, RSG 945, RSG 959, RSG 963, RSG 973, RSG 974, RSG 991, RSGK 6, RVG 202, RVG 203, Raj Vijay Kabuli Gram 101, Sada Bahar, Vihar, Vikas, Virat, Vishal, Vishwas
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### 3.1.22 PDKV, Akola



The centre has two mandated crops, viz., Safflower and Pigeonpea. The progress is as follows:

- **Safflower:** Only one farmer variety (Mughlai Karadi) was tested as per DUS guidelines along with 3 reference varieties A-1, A-2 and A-300. The sowing was done on 31/10/2015. The crop condition of Safflower variety was good during growth stage. The variety was harvested in March 2016. Following reference varieties in Safflower were maintained under DUS programme:

**Table 46:** List of varieties under maintenance breeding

A-1, A-2, A-300, AKS-207, Bhima, JSF-1, JSI-7, JSI-73, JSI-97, JSI-99, NARI-6, Nira, Mangira, Sharda, PBNS-12, JLSF-414, PBNS-40, NARI-NH-1, NARI-H-15, DSH-129, C2829-5-3A-6, MSV-10-1-5, GMU-2369, NARI - 38, SSF - 658
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- **Pigeonpea:** In DUS Testing Project at Akola Center, during 2015-16, 63 varieties viz., UPAS-120, Manak, Paras, AL-201, AL-15, PUSA-992, PUSA-855, PUSA-84, PUSA-33, PUSA-991, PUSA-2001, PUSA-2002-02, ICPL-151, ICPL-87, CORG-9701, GC-11-39, Vamban-1, GT-100, CO-6, GT-101, ICPL-8863, TTB-7, AKT-8811, WRP-1, JKM-7, BSMR-853, ICPL-87119, GT-1, C-11, GAUT-001E, JA-4, T-15-15, TAT-10, GS-1, LRG-38, TS-3, ICPL-85063, BDN-2, LRG-30, BSMR-736, PT-221, BDN-708, CO-5, HY-3C, Vamban-2, ICPL-332, TV-1, AK-022, AK-101, MA-6, MA-3, MAL-13, NDA-1, Pusa-9, DA-11, Azad, Amar, Birsa Arhar-1, Bahar, T-7, CO-7, JKM-189, PKV-TARA. Twenty-seven varieties of Safflower viz., A-1, A-2, A-300, AKS-207, Bhima, Girna, JSF-1, JSI-7, JSI-73, JSI-97, JSI-99, NARI-6, Nira, Mangira, Sharda, PBNS-12, JLSF-414, PBNS-40, NARI-NH-1, NARI-H-15, DSH-129, MMS, C2829-5-3A-6, MSV-10-1-5, GMU-2369, NARI-38, SSF-658 were grown for maintenance study.

Ten candidate varieties viz, KPP-4011, PKV-Tara, KPP-4012, JKPH-24104, JKR-101, JKR-104, NTL-900, JKCMS-9, JRCMS-24, Phula-T-0012 (Rajeshwari) and three new candidate varieties NTH-11, Nirmal-77, NTR-17 and Seventeen Farmer's varieties viz,. Garomah, Arhar Alsí, Deshi Arhar Begari, Arhar Ganpad, Arhar Manpur Pahadi, Local Aral, Singhchoura Arhar, Arhar Suryakant, Bumba Tumur, Chaita Arhar, Mota Arhar Kartika, Chaitari Arhar, Karanja taur, Chota Bali Arhar, Agahani, HJP-7, HJP-9 along with fourteen reference varieties were grown. The varieties were classified in "Grouping character" as per DUS test guideline. The coloured photographs of distinct morphological characters were taken up and the report of the characterization study of both the crops are being evaluated, New Delhi. The tests were monitored by University Scientists on 24.11.2015 for Pigeon Pea and 19.01.2016 for Safflower. On basis of petal colour, pod colour and seed characters, certain offtype(s) were observed and recorded in farmer's varieties.

### 3.1.23 ICAR-PC Unit (Pigeonpea), Indian Institute of Pulses Research, Kanpur

The main objectives of the centre are to characterize the pigeonpea varieties under DUS programme as per DUS guidelines and maintenance of pigeonpea varieties under DUS programme.

**Table 47:** DUS Testing of pigeonpea varieties under DUS programme

Candidate	Reference var
<b>2<sup>nd</sup> yr entries</b>	Pusa 33, AKT 8811, Pusa 992, T-15-15, ICP 8863, UPAS 120, Manak, BDN 2, ICPL 87119, ICPL 151, ICP 8863, UPAS 120, BSMR 736, Paras
<b>1<sup>st</sup> yr entries</b>	
NTH-11; Nirmal-77; NTR-17, Garomah, Arhar Alsí, Deshi Arhar Begari, Arhar Ganpad, Arhar Manpur Pahadi, Local Aral, Singhchoura Arhar, Arhar Suryakant, Bumba Tumur	



The crop condition was good during growth stage. The crop was harvested during January 2016. Over all 21 characters are proposed for observation at various stages of crop growth in Pigeon pea taken as per DUS Test Guideline.

Maintenance of pigeonpea varieties under DUS programme:



AKT-8811, BSMR-853, BSMR-736, BDN-708, ICPL-87119, ICPL-8863, AK-022, AK-101, Vamban-2, BDN-2, ICPL-85063, PT-221, TS-3, WRP-1, GT-101, GT-1, TTD-7, T-15-15, JA-4, PUSA-991, JKM- 189, LRG-38, C-11, GAUT-00IE, PUSA-855, JKM-7, CO-5, GS-1, TV-1, HY-3C, CO-6, CO-7, LRG-30, UPAS-120, Manak, TAT-10, Paras, AL-201, PUSA-992, PUSA-2001, CORG-9701, ICPL-151, AL-15, GT-100, ICPL-332, ICPL-87, GC-11-39, PUSA-84, PUSA-33, MA-6, MA-3, MAL-13, NDA-1, PUSA-2002-02, Vamban-1, Pusa-9, DA-11, Azad, Amar, Birsa Arhar-1, Bahar, T-7

### 3.1.24 JNKVV, Jabalpur

List of the trait specific reference varieties being maintained at JNKVV, Jabalpur.

**Table 48 :** Reference varieties of lentil being maintained at JNKVV, Jabalpur

S. no.	Characteristics/ Traits	Example varieties
1.	Foliage: intensity of green colour	VL1, VL 103, DPL 15, DPL 62, JL1, JL3
2.	Stem: anthocyanin colouration	K75, NDL1, PL4, PL 234
3.	Time of flowering	DPL15, DPL 62, VL4, VL 103
4.	Leaf: pubescence	Subrita, Ranjan
5.	Leaflet: size	VL1, VL103, DPL 15, DPL 62, PL5
6.	Plant: growth habit	DPL 15, Ranjan, DPL62
7.	Flower: colour of standard	PL4, K75
8.	Plant: height	DPL 15, DPL 62
9.	Pod: anthocyanin colouration	DPL 15, DPL 62, Asha
10.	Seed: size (weight of 100 seeds)	PL406, PL234, DPL15, K75, VL1, VL4, DPL62, PL5
11.	Seed: coat colour	DPL15, K75, VL1, VL4
12.	Seed: testa mottling	PL406, K75
13.	Cotyledon: colour	DPL 15, DPL 62



The seeds of 16 reference and 18 farmers' varieties (Masoor Dal, Deshi Masoor 2, Deshi Masoor 1, Desi, Desi Masoor Gol, Desi Lal, Chuti Sunhari, Chotti Mmasoor, Adlika, Chhutaki Masuri K, Masuri, Kashur Musur, Kirseyfokar, Moti Masoor, Babanb E masoor, Local Dehati Masoor, Desi Safed) were sown at Seed Breeding Farm, Department of Plant Breeding and Genetics, JNKVV, Jabalpur during *Rabi* season in 5 rows of 5m length with 30cm (row-row) distance under recommended package of practices to maintain the reference varieties as per DUS Test Guidelines. The germination was good and plant population optimum with proper expression of distinguishing traits. The

environmental conditions were favourable for normal growth and expression of the traits. In all 18 farmers' varieties, records of expressions were taken as per test guideline. The plant population of Deshi Masoor 1, Masuri, Kashur Musur, Babanb E Masoor, Moti Masoor were not adequate. Varieties like Adlika, Moti Masoor, Dehati Masoor showed more than 50% wilting symptoms. In all the eighteen farmers' varieties, the number of offtypes was meagre and the populations were uniform based on grouping traits.

**Table 49:** Reference varieties of field and vegetable pea based on expression of traits

S. no.	Characteristics	Example varieties
1	Stem: anthocyanin colouration	HFP 4, Rachna
2	Foliage: colour	Rachna, HUP2, HUDP15, HFP8909, VL3, B22
3	Foliage: waxy bloom	HFP4, HFP8909, KPMR 400
4	Leaf: leaflets	HUDP15, HFP4, Rachna, IPF 99-25
5	Leaf: Axil colour	HUDP 15, Rachna, B22
6	Stipule: rabbit-eared stipules	DDR 23, B 22, Rachna, HUDP 15
7	Stipule: type	Rachna, DMR 7
8	Flower: Opening (days)	Arkel, NDVP 24, DDR 23, UDP 15, HFP 8909
9	Flower: Standard petal colour	HUDP15, HFP4, Bonneville, 22
10	Pod number/ axil	ArkaAjeet, HDP 15, Rachna
11	Pod: curvature	Rachna, KFP 103
12	Pod: shape of distal part	HFP 4, Rachna
13	Pod: intensity of green colour	VL 3, HFP 8909, DMR 7, Arkel, HUDP 15, IPFD 99-13
14	Plant: height (cm)	HFP4, KPMR 400, HUDP15, AP1, Rachna, KFP 103
15	Seed: shape	HFP4, Rachna
16	Seed: surface	HUDP15, Rachna, Arkel, AP1

17	Seed: cotyledon colour	HUDP15, HFP 4 HFP990
18	Seed: weight of 1000 seeds (g)	B 22, Rachna, Jayanti
19	Seed: testa mottling	HUDP 15, Rachna
20	Seed parchment	HUDP 15, Rachna

**Table 50:** Farmers varieties of fieldpea sown at JNKVV, Jabalpur

Batari, Dehati Matar, Bhagat Pea 1, Matar, Desi Matar Chotka, Desi Safed-2, Desi Matar Chota-2, KASHUR KADI



The seeds of 16 reference and 11 farmers' varieties were sown on 12.11.2015 at, JNKVV, Jabalpur during *Rabi* 2015-16 in 5 rows of 5m length with 50 cms (row to row distance) under recommended package of practices as per DUS test Guidelines. The germination and plant population were optimum with proper expression of distinguishing traits. The environmental conditions were favourable for normal growth and expression of the traits.

### 3.1.25 ICAR-VPKAS, Almora

It is a co nodal centre with three mandated crops like Maize, Soybean and Kidney bean.

### Crop specific progress is given here:

- **Kidney bean/ Rajma:** Seven varieties of rajma (four farmer's varieties viz., Maz rajma, Thul rajma, Gurez rajma & Safed rajma along with three reference varieties IPR-98-3-1, IPR-98-5 & PDR-14) were raised for grow out test and were characterized for 22 DUS traits as per test guidelines for Kidney bean.
- **Soybean:** One farmers' variety of soybean (Marente) was raised for grow out test and was characterized for 22 DUS traits as per test guidelines for the conduct of test for DUS for soybean.
- **Maize:** A total of 2 farmer's variety (Double Khacher & Gurez Local Maize) along with 3 references (Narmada Moti, Vivek QPM 9 & HQPM 1) were raised and evaluated for 27 DUS traits as per test guidelines for the conduct of test for DUS for maize. However, the trial was damaged by wild boar twice during cob maturation stage.

**Table 51:** Major progress at the DUS centre

Crop Name	Number of lines/ varieties evaluated	No. of traits
Maize	5 (2 farmer variety with three reference varieties)	27
Soybean	1 farmer variety	22
	23	Maintenance
Rajma	7 (4 farmer variety with three reference varieties)	22
	9	Maintenance



### 3.1.26 Central Research Institute for Jute and Allied Fibres, Barrackpore & CSRSJAF, Bud Bud, Burdwan

CRIJAF is the nodal centre for DUS testing in all cultivated species in Jute. During 2015-16, one new jute variety KJC 7 (*C. capsularis*) was tested along with two farmer's varieties namely *Unnat* and *Sada Pat*. The white jute variety KJC was tested for first growing cycle during 2015-16 to observe distinctiveness, uniformity and stability at CRIJAF, Barrackpore (Nodal centre) and CSRSJAF, Bud Bud (Co-Nodal centre). The new variety KJC 7 was not found to be distinct from two reference varieties (JRC 212 & KC 1) with respect to any of the claimed characters. The farmer's variety *Unna* has been characterized for all DUS descriptors but another variety *Sada Pat* did not germinate at both the centres due to poor seed quality.



Twenty reference varieties of tossa jute viz. JRO 204, IRA, 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 CO-58 and seventeenth varieties of white jute viz. 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 and KTC 1, D 154, JRC 517 and JRC 532 were maintained and characterized under DUS Project.

### 3.1.27 ICAR-Indian Institute of Oilseeds Research, Hyderabad



The Indian Institute of Oilseeds Research is responsible for coordination and conduct of DUS testing for registration of oilseed crops viz. castor (*Ricinus communis* L.), sunflower (*Helianthus annuus* L.) and safflower (*Carthamus tinctorius* L.). During 2015-16, three candidates of castor, candidate varieties of sunflower and one farmer's variety of safflower were tested. A total of twelve reference varieties were raised each in castor (6) and sunflower (6) for maintenance and seeds were multiplied for further use in DUS testing.



DUS testing for castor was undertaken during *Kharif*, 2015 in two separate replicated trials which were sown on 15<sup>th</sup> July 2015. The hybrid trial comprised of one candidate entry along with 2 reference hybrids whereas the varietal trial consisted of two VCK entries along with 4 reference entries. There was good expression of all candidate entries with the required plant stand. Observations for 30 DUS traits were recorded as per DUS guidelines. Data has been digitized for final report preparation.

During *Rabi* 2015-16, three separate replicated trials of sunflower were conducted for hybrids (16), R-lines (10), A, B and other inbred lines (9) along with suitable reference entries. Observations were recorded for 26 traits as per DUS guidelines for hybrid and R-line trials; post-harvest data is being recorded. Nineteen traits were recorded for A, B and other inbred lines and other observations are in progress. Photographs of claimed traits were also taken.

Another trial was conducted with one farmer's variety of safflower during *Rabi* 2015-16, along with 4 reference entries. The crop was sown on 31<sup>st</sup> October, 2015. Off types for flower colour and spininess were recorded.

### 3.1.28 ICAR-Directorate of Rapeseed and Mustard



## Research, Bharatpur

It is Nodal centres for DUS testing in Rapeseed-Mustard along with CSAUA&T, Kanpur as co-nodal centre. The centre is maintaining 79 varieties of Indian mustard (*Brassica juncea*), 2 varieties of brown sarson (*B campestris* var brown sarson), 8 varieties of gobhi sarson (*B napus*), 4 varieties of Karan rai (*B carinata*) including, 2 varieties of Taramira (*Eruca sativa*), 12 varieties of yellow sarson (*B campestris* var yellow sarson) and 15 varieties of Toria (*B campestris* var toria).

**Table 52:** List of varieties under testing in Rapeseed-Mustard

Category	Number of varieties
Farmers variety	21
New variety	03
Category	Number of varieties
VCK	03
Total	27

**Table 53:** Varieties tested for DUS Test during 2015–16

Denomination	Claimed species as per application	Actual species Identified during field testing	Category
NMR-1, Hybrid Mustard 5121, 45 S 46	<i>B. juncea</i>	<i>B. juncea</i>	New
44S31, 45 S 32, 45 S 44	<i>B. juncea</i>	<i>B. juncea</i>	VCK
Rai (Sabroom), Latani Sarson	<i>B. juncea</i>	<i>B. juncea</i>	Farmer's variety
Dehati Sarson	No Germination		
Lahar, Polina Sarson-1	<i>B. juncea</i>	<i>B. juncea</i>	
Shiv Sarson	No Germination		
Local (Desi), Lotani-Gota, Guddi Mustard, Bimla Mustard	Rapeseed	<i>B. juncea</i>	
Langri	<i>B. juncea</i>	<i>B. rapa</i> var toria	
Desi Sarson Pila-1, Polina Sarson-2	<i>B. juncea</i>	<i>B. rapa</i> var yellow sarson	
Rohi lal Sarson	<i>B. rapa</i> var toria	<i>B. rapa</i> var toria	
Maria Sarson	<i>B. juncea</i>	<i>B. juncea</i>	
Yellow Sarson Sel 204	<i>B. rapa</i> var yellow sarson	<i>B. rapa</i> var yellow sarson	
Tori 201	<i>B. rapa</i> var toria	<i>B. rapa</i> var toria	
Desi	<i>B. rapa</i> var yellow sarson	<i>B. rapa</i> var yellow sarson	
Lal Sarson	<i>B. rapa</i> var toria	<i>B. rapa</i> var toria	
Saras Mustard	<i>B. rapa</i> var yellow sarson	<i>B. rapa</i> var yellow sarson	
Lutmi Rai	Karan rai	<i>B. rapa</i> var toria	

Rohini, Varuna, Pusa Bold	<i>B. juncea</i>	<i>B. juncea</i>	Reference varieties
Pusa Swarnim, Kiran	<i>B. carinata</i>	<i>B. carinata</i>	
PT-303, Bhawani, T-9	<i>B. rapa</i> var toria	<i>B. rapa</i> var toria	

**Table 54:** List of Varieties (crop wise) under maintenance breeding

S. no.	Name of Crop	Total number of Varieties
1	<i>Brassica juncea</i>	79
2	<i>Brassica rapa</i> var. brown sarson	02
3	<i>Brassica rapa</i> var. toria	15
4	<i>Brassica rapa</i> var. yellow sarson	12
5	<i>Brassica napus</i>	08
6	<i>Brassica carinata</i>	04
7	<i>Eruca sativa</i>	02
<b>Total</b>		<b>122</b>

### 3.1.29 C.S. Azad University of Agriculture & Technology (CSAUA&T), Kanpur

The center has mandate crops of Wheat, Mustard and Linseed. The centre maintained 102 varieties of wheat during the reporting period.

**Table 55:** Details of DUS testing of candidate varieties in 2015-16

Crops	New		VCK	Farmers' Variety
	1 <sup>st</sup> year entries	2 <sup>nd</sup> year entries		
Wheat	-	-	-	-
Mustard	1	-	3	21
Linseed	-	-	-	-

### 3.1.30 Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur

Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), Jabalpur is the co-nodal centre for Linseed and brief progress is given below:

**Table 56:** Reference varieties of linseed based on expression of trait

Trait	Reference varieties
Time of flowering	Sharda, Shekhar and Parvati
Flower size of corolla	Sharda, R 552 and Neelam
Flower shape	R552, Surabhi and Meera
Flower colour	J 23, Garima, Padmani and Gaurav

Flower aestivation	Shekahr, Rashmi and R 552
Flower venation colour	Surabhi, Sheela, Jeevan and Neelam
Stamen colour	Gaurav and Kiran
Anther colour	Himalini, Laxmi 27 and Rashmi
Plant growth habit	T 397, ShubrhaandGaurav
Plant height	JLS 9, J 23andMeera
Capsule size	T 397, ShekahrandNeelam
Capsule dehiscence	Laxmi 27 and T 397
Seedcolour	Gaurav, Surabhi, Sweta, Neelam andLaxmi 27
Seed size	Surabhi, Garima andNeelam
Seed weight (1000 seed/g)	Surabhi, Garima andNeelam
Oil content	S 36, Garima andPadmani

**Table 57:** Farmers varieties of linseed sown at JNKVV, Jabalpur

Alsi Begari, Alsi (Desi) Lamra, Tisi 206, Sonali, Chhoti Tise, Rupali, Alsee Mangal, Chamki Alsi, Parkar Tisi
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The seeds of reference variety, 7 other variety and nine farmers' varieties were sown on 12 November, 2015 at Seed Breeding Farm, Department of Plant Breeding and Genetics, JNKVV, Jabalpur during *Rabi* 2015-16 in 5 rows of 5m length with 30cm row to row distance under recommended package of practices to maintain the reference varieties as per crop specific DUS Test Guidelines in two replications. The germination and plant population were optimum with proper expression of distinguishing traits. The environmental conditions were favourable for normal growth.

### 3.1.31 ICAR-PC Unit (Linseed), C.S. Azad University of Agriculture & Technology campus, Kanpur

The seeds of nine farmers' varieties along with 12 reference varieties were sown on 20.11.2015 at Crop Research Farm, Nawabganj of CSAUA&T, Kanpur during *Rabi* season 2015-16, in paired rows of 6 m length with 30 cm row to row distance under recommended package of practices. The germination and plant population were optimum with proper expression of distinguishing traits. The environmental conditions were favourable for normal growth. All the 63 released varieties of linseed including 22 reference varieties were grown at Oilseeds Research Farm to maintain the genetic purity

**Table 58:** Trait specific reference varieties of linseed

Trait	Reference varieties
Time of flowering	Sharda, Shekhar, Parvati
Flower: size of corolla	Sharda, R 552, Neelum
Flower: shape	R 552, Surbhi, Meera
Flower: colour	J-23, Garima, Padmini, Gaurav
Flower: aestivation	Shekhar, Rashmi, R-552
Flower: venation colour	Surbhi, Sheela, Jeevan, Neelum
Stamen: colour	Gaurav, Kiran
Anther: colour	Himalini, Laxmi-27, Rashmi
Plant: growth habit	T-397, Shubhra, Gaurav
Plant: height	JLS-9, J-23, Meera
Capsule: size	T-397, Shekhar, Neelum
Capsule: dehiscence	Laxmi-27, T-397
Seed: colour	Gaurav, Shurbhi, Sweta, Neelum, Laxmi-27
Seed: size	Shurbhi, Garima, Neelum
Seed: weight	Shurbhi, Garima, Neelum
Oil content	S 36, Garima, Padmini

### 3.1.32 ICAR-PC Unit (Sesame and Niger), JNKVV Campus, Jabalpur



The centre is maintaining 85 varieties in Sesame and 17 varieties in Niger for varietal maintenance. The centre was also assigned a responsibility for development of DUS test guideline in Niger. However, the crop being cross pollinated and self-incompatible crop, maintenance and characterization of open pollinated varieties is difficult. Thus, difficulties were faced while developing the descriptors and DUS test guidelines.

**Table 59:** Details of DUS testing of candidate varieties in

Sesame:

Farmers' varieties	
Reg/2014/2217 (Udbhab)	Reg/2014/1345 (Benjung)
Reg/2014/645 (Til Kesha)	Reg/2013/737 (Desi Til)
Reg/2014/1936 (Kalo Til)	Reg/2014/1604 (Samlu Til)
Reg/2015/232 (Safeed Til)	Reg/2014/635 (Jatgi -Ram Til)

### 3.1.33 Indian Institute of Soybean Research



ICAR-Indian Institute of Soybean Research, Nodal Centre of DUS Testing on soybean maintained 104 released and notified soybean varieties from ICAR-Institutes and State Agricultural Universities and tested three varieties – one new variety (NSO 383) and two farmers' varieties (Marante and Bekang) during *Kharif* 2015. Soybean is highly photo and thermo-sensitive crop.



The high temperature and less rain during this season caused difference in varietal characters like plant height, crop duration, seed size etc. The pod pubescence character on pod

is being revisited. The character had been categorized into two – Pod Pubescence present or absent. The example varieties for Pod Pubescence: Absent category bear pubescence in very low intensity. New lines under varietal developmental programme and some exotic lines are showing complete absence of pubescence on pods. Experts in the Institute are having an opinion to classify the character in three categories:

- Pod Pubescence: Present
- Pod Pubescence: Low intensity (Puberulent)
- Pod Pubescence: Absent

### 3.1.34 ICAR-Indian Institute of Vegetable Research, Varanasi

The centre is implementing the DUS centre for 'Central Sector Scheme for Protection of Plant Varieties and Farmers' Rights Authority (DUS Testing of tomato, brinjal, okra, cauliflower, cabbage, vegetable pea, French bean, bottle gourd, bitter gourd, pumpkin and cucumber)'. DUS guideline for pointed gourd is also being developed in association with BCKV, West Bengal. Salient progress is as follows:

**Table 60:** Number of reference varieties maintained and their morphological traits

Crop	No. of reference variety	No. of morphological trait observed	Crop	No. of reference variety	No. of morphological trait observed
Tomato	78	46	French Bean	25	22
Brinjal	86	47	Cucumber	24	36
Okra	42	31	Bitter gourd	25	33
Cauliflower	05	28	Bottle gourd	31	33
Cabbage	01	28	Pumpkin	21	32
Vegetable Pea	41	21	Pointed gourd	21	15

Reference varieties of tomato, okra, brinjal, cauliflower, cabbage, vegetable pea, French bean, bottle gourd, bitter gourd, pumpkin, cucumber and pointed gourd were collected from different ICAR institute and SAUs. All the varieties of these crops were sown in randomized block design (R.B.D.) with 3 replications and are being maintained through sibing/ selfing. The number of varieties of these crops maintained and their descriptors of morphological traits are being observed are given below:

#### ● Tomato

Seventy-eight tomato reference varieties were maintained at ICAR-IIVR, Varanasi. These varieties were collected from various centres *i.e.* I.A.R.I., New Delhi (8), I.A.R.I., Regional Station, Katrain (2), I.I.V.R., Varanasi (9), B.C.K.V., Kalyani (1), C.S.A.U.A.&T. Kanpur (10), D.A.R.L., Pithoragadh(1), G.B.P.U.A.&T., Pantanagar (1), H.A.U., Hisar (3), H.A.R.P., Ranchi (4), I.I.H.R., Bangalore (5), J.A.U., Junagadh (1), K.A.U., Vellanikkara (1), N.D.U.A.&T., Faizabad (10), O.U.A.&T., Bhubaneswar (8), P.A.U., Ludhiana (8), T.N.A.U., Coimbatore (1), Y.S.P.U.H.F., Solan (2), MPKV, Rahuri (2), SKUAS&T, Jammu (1).

The crop was raised using the recommended cultural practices during the *Kharif - Rabi* season of 2015-16 with proper maintenance programme. The off-types plants were rouged out and only true to type plants were selfed and seed extracted for maintenance.

**Table 61:** List of tomato reference varieties

Ageta-32, Anand Tomato-3 (At-3), Anand Tomato-4 (At-4), Angoorlata, Arka Abha, Arka Ahuti, Arka Alok, Arka Meghali, Arka Saurabh, Arka Vikash, Azad T-2, Azad T-5, Azad T-6, Best of All, Bhagyashree, BT-11, BT-136, CO-3, Colombia, CTS-06, DARL-66, DCT-1, DCT-2, Dhanshree, Dhruvya, DMT-1, FEB-02, Floradade, GT-1, GT-2, Hisar Anmol (H-24), Hisar Arun (Sel-7), Hisar Lalit (NT-8), JK-3, Kalyanpur T-1, Kalyanpur Type-3, Kashi Hemant (IIVR Sel-1), Kashi Sharad (IIVR Sel-2), Kashi Vishesh, Kashmiria, KS-16, LE-415, Manileima (Sel-2), Mukthi, NDT-3, NDT-5, NDT-8, NDT-9 (Narendra Tomato-9), NDTV-73, PANT T-5, Patharkuchi, PNR-7, Prestige, PT-11, Punjab Barkha Bahar-1, Punjab Barkha Bahar-2, Punjab Chhuhara, Punjab Keshari, Punjab Ratta, Punjab Upma, Pusa Gaurav, Pusa Ruby, Pusa Upma, Pusa-120, Roma, Sel-12, Sel-18, Swarna Deepti, Swarna Gola, Swarna Lalima, Swarna Naveen, Swarna Sampda, Utakal Upahar (BT-120), Utkal Kumari (BT-10), Utkal Pragyan, Utkal Raja (BT-20-2-1), Utkal Urvashi (BT-12), Uttakal Pallavi

## ● Brinjal



Eighty-six brinjal reference varieties collected from

different centres were maintained. These varieties were collected from various centres *i.e.* I.A.R.I., New Delhi (10), I.I.V.R., Varanasi (7), A.N.G.R.U., Hyderabad (2), C.S.A.U.A.&T. Kanpur (7), J.A.U., Junagadh (3), G.B.P.U.A.&T., Pantanagar (1), H.A.R.P., Ranchi (8), I.I.H.R., Bangalore (9), J.N.K.V., Jabalpur (10), K.A.U., Vellanikkara (3), O.U.A.&T., Bhubaneswar (5), P.A.U., Ludhiana (4), P.D.K.V., Akola (1), R.A.U., Samastipur (1), T.N.A.U., Coimbatore (7), BCKV, Kalyani W.B. (1), CHES Bhubaneswar (1), HAU, Hissar (1), Nepal Agri. Res. Council, Nepal (1), Bangladesh (1), M.P.K.V., Rahuri (2), NEH, Barapani (1).

**Table 62:** List of brinjal reference varieties

Annamalai, Arka Keshav, Arka Kranti, Arka Kushmakar, Arka Nidhi, Arka Nilkanth, Arka Sheel, Arka Shirish, Arka Shree, Aruna, Aushray, Azad Brinjal-1, Azad Brinjal-2, Azad Brinjal-3, Azad Brinjal-4, Azad Kranti, BCB-30, Bhagyamati, BR-14, CH-1045, CHBR-2, CO-1, CO-2, DBR-3, DBR-31, DBR-8, DRKNV-29, GJB-2, Kalyanpur T-3, Kashi Prakash, GOB-1, Green Long Cluster, Gulabi, Hisar Shyamal, IBL-116-135, JB-15, JB-6, JB-65, JB-67, JB-80, JBGR-1, JBL-01, JBL-03-04, JBL-116-113, Kashi Taru, KKM-1, Manjari Gola, MDU-1, Nurki, Pant Rituraj, PLR-1, PR-5, Pragati, Punjab Barsati, Punjab Moti, Punjab Nagina, Punjab Sadabar, Surya, Swarna Abilamb, Swarna Ajay, Pusa Ankur, Pusa Arup, Pusa Bindu, Pusa Kranti, Pusa Purple Cluster, Pusa Purple Long, Pusa Shree, Pusa Shyamal, Rajendra Baigan-2, Ram Nagar Giant (O), Ram Nagar Giant (R), RCMBL-1, Ruchira, SB-1, Swarna Pratibha, Swarna Shree, Swarna Shyamali, Swarna Sobha, Swarnamani, Sweta, TRB-9, Utkal Jyoti, Utkal Keshari, Utkal Madhuri, Utkal Tarini, Uttra



The crop was raised using the recommended cultural practices during the *Kharif -Rabi* season of 2015-16 with proper maintenance and selfing programme. The off-types

plants were rouged out and only true to type plants were selfed and maintained for seed extraction.

### ● Okra

Forty-two okra varieties were maintained at ICAR-IIVR, Varanasi as reference varieties for DUS Testing. These varieties were collected from various centres *i.e.* I.A.R.I., New Delhi (3), I.I.V.R., Varanasi (13), J.A.U. Junagadh (4), H.A.U., Hisar (5), M.P.K.V., Rahuri (2), P.A.U., Ludhiana (2), C.S.A.U.A.&T. Kanpur (5), R.A.U. Sabour (1), IIHR, Bangalore (2), K.A.U., Vellanikkara (1), O.U.A.&T., Bhubaneswar (3), T.N.A.U., Coimbatore (1), N.D.U.A.&T., Faizabad (1).

**Table 63:** List of reference varieties

Arka Abhay (IIHR-SEL-4), Arka Anamika (IIHR-10), Azad Bhindi-1, Azad Bhindi-2, Azad Bhindi-3, Azad Bhindi-4, BO-2, BO-13, CO-2, D-1-87-5, GJO-3, GAO-5, GO-3 (JNDOL-3-1), Hisar Naveen (HRB-107-4), HRB-231, HRB-55, JBS-2, Kashi Lalima, Kashi Leela (IIVR-11), Kashi Satdhari, Kashi Vardaan, KS-442, NDT-10, NO.-136, NO.315, Pant A-4, Parbhani Kranti, Phule Utkarsh (GK-IV-3-3-3), Punjab Padmini, Punjab-8, Pusa Makhmali, Pusa Sawani, SB-2, SB-8, Sushthira (AE-286-1), Utkal Gaurav(BO-2), Varsha Upahar, VRO-3 (Kashi Mohini), VRO-4 (Kashi Mangali), VRO-5 (Kashi Vibhuti), VRO-6 (Kashi Pragati), VROR-159
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The crop was raised using the recommended cultural practices during the *Kharif* season of 2015 and early summer 2016 with proper maintenance and selfing programme. The off-types plants were rouged out and only true to type plants were selfed and seed extracted for maintenance.

### ● Cauliflower



Five cauliflower varieties were collected from AICRP (VC) centres as reference varieties for DUS Testing. These varieties were collected from I.A.R.I., New Delhi (2), and I.A.R.I., Regional Station, Katrain (3).

**Table 64:** List of cauliflower reference varieties

S. no.	Varieties
1.	Kashi Kuwari
2.	Kashi Meghana
3.	Pusa Deepali
4.	Pusa Shakti
5.	Pusa Sharad

The crop has been raised using the recommended cultural practices during the winter season of 2015-16 however only early and mid-group varieties were evaluated and were maintained through sib-mating. The data were recorded as per the DUS guidelines.

### ● Cabbage

A cabbage reference variety 'Pride of India' is collected from I.A.R.I., Regional Station, Katrain. The crop has been raised using the recommended cultural practices during the winter season of 2015-16. Cabbage is not flowering in plain. The data were recorded as per the DUS guidelines.

### ● Vegetable Pea

Forty-one vegetable pea varieties were maintained at ICAR-IIVR, Varanasi as reference varieties for DUS testing. These varieties were collected from various centres *i.e.* I.A.R.I. (RS) Katrain (3), I.I.V.R., Varanasi (6), IIHR, Bangalore (3), D.A.R.L., Pathoragarh (1) N.D.U.A.&T., Faizabad (2), G.B.P.U.A.&T., Pantanagar (2), H.A.U., Hisar (2), H.A.R.P., Ranchi (2), P.A.U., Ludhiana (4), MPKV, Rahuri (1), Dr. YSPHU&F, Solan (1), V.P.K.A.S., Almora (10), C.S.A.U.A.&T. Kanpur (4).

**Table 64:** List of vegetable pea reference varieties

Arka Ajit, Arka Kartik, Arka Sampoorna, Arkel, Azad Pea-1, Azad Pea-3, Azad Pea-5, Bonebilli, DHVP-10, Hisar Harit, Lincon, MA-6, Mithi Phali, NDVP-10, VLM-8, NDVP-250, VRPMR-11, Pant Matar-2, Pant Uphar, PH-1, Phule Priya, KS-601, IP-3, Punjab-88, Punjab-89, Solan Nirog, Swarna Amar, VRPMR-9, Vivek Matar -7, Vivek Matar-11, Vivek Matar-8, Vivek Matar-9, Vivek Matar-10, VL Ageti Matar-7, VL Matar-6, VL-3, VL-8, VRP-22, VRP-5, VRP-6, VRP-7

The crop has been raised using the recommended cultural practices during the *Rabi* season of 2015-16. The off-types plants were being rouged out and only true to type plants were maintained and seeds were extracted. Seeds have been extracted from each variety and stored after drying and seed treatment.

#### ● French bean



Twenty-Five French bean varieties were maintained as reference varieties for DUS testing. These varieties were collected from various centres *i.e.* I.A.R.I., New Delhi (2), I.A.R.I., Regional Station, Katrain (3), I.I.V.R. Varanasi (2), Dr. YSPH&F, Solan (4), MPKV, Rahuri (1), B.H.U., Varanasi (2), C.S.A.U.A.&T., Kanpur (1), C.H.E.S., Ranchi (3), V.P.K.A.S., Almora (3), IIHR, Bangalore (3), IIPR, Kanpur (1).

**Table 65:** List of French bean reference varieties

<b>B u s h Type</b>	Arka Anoop, Arka Bold, Arka Suvidha, Azad Rajmah-1, Contender, HUR-137, HUR-15, IPR-96-4, Kashi Param, PDR-14, Pusa Parvati, Swarna Priya, VL Bean-2, VL Boni Bean-1
<b>P o l e Type</b>	HAFB-2, HAFB-3, Kentuchi Wonder, Laxmi, Phule Suyesh, Pusa Hemlata, Pusa Himalya, RCMFB-1, SVM-1, Swarnalata, UHFB-30

The crop has been raised using the recommended cultural practices during the *Rabi* season of 2015-16 with proper maintenance. The off-types plants were rouged out and only true to type plants were maintained and seeds were extracted for maintenance.

#### ● Pumpkin

Twenty-three pumpkin varieties were collected from AICRP (VC) centres and maintained as reference varieties (Table 8). These varieties were collected from various centres *i.e.* I.A.R.I., New Delhi (2), I.I.H.R., Bangalore (1), I.I.V.R., Varanasi (6), A.A.U., Anand (1), C.S.A.U.A.&T. Kanpur (2), HARP, Ranchi (3), PAU, Ludhiana (1), N.D.U.A.&T. Faizabad (3), K.A.U., Kerala (2) and T.N.A.U., Coimbatore (2).

**Table 66:** List of pumpkin reference varieties

Arka Chandan, CM-350, CO-1, CO-2, HARP-4, HARP-10, Kashi Harit, Narendra Agrim, Narendra Amrit, Narendra UPCAR, Pusa Vikash, Pusa Vishwash, Punjab Samrat, Swarna Amrit, Anand Pumpkin-1, KPS-1, VRPK-07-01, VRPK-09-01, VRPK-222-2-1, VRPK-62, VRPK-05-01, CM-71

The crop was raised using the recommended cultural practices during the *Kharif* season of 2015 and early summer, 2016 with proper maintenance and selfing programme. The off-types plants were rouged out and only true to type plants were maintained.

#### ● Bottle gourd

Thirty-one bottle gourd varieties were collected from AICRP (VC) centres and maintained as reference varieties for DUS testing. These varieties were collected from various centres: I.A.R.I., New Delhi (4), I.I.V.R., Varanasi (6), I.I.H.R., Bangalore (1), A.A.U., Anand (1), B.C.K.V., Kalyani W.B. (1), C.S.A.U.A.&T. Kanpur (2), SKUA&T, Jammu (2), H.A.U., Hisar (1), P.A.U., Ludhiana (2), G.B.P.U.A.&T., Pantnagar (2), N.D.U.A.&T, Faizabad (6), M.P.K.V., Rahuri (1), RAU, Samastipur (1) and T.N.A.U., Coimbatore (1).

**Table 67:** List of bottle gourd reference varieties

ABG-1, Arka Bahar, CO-1, GH-22, Jora Botta, Kalyanpur Long Green, Kashi Ganga, KBGR-12, Narendra Dharidar, Narendra Jyoti, Narendra Rashmi, NDBG-132, NDBG-619, Pant Lauki-1, Pant Lauki-3, Punjab Komal, Punjab Long, Pusa Naveen, Pusa Samridhi, Pusa Sandesh, Pusa Santusthi, Rajendra chamtkar, VR-1, VR-2, VRBG-136, VRBG-6, VRBG-7, Samrat, JBG-50, JBG-51

The crop was raised using the recommended cultural practices during the *Kharif* season of 2015 and summer, 2016 and reference varieties were maintained through selfing. The off-types plants were rouged out and only true to type plants were maintained.

### ● Bitter gourd

Twenty -one bitter gourd varieties were collected from AICRP (VC) centres and maintained as reference variety for DUS Testing. These varieties were collected from various centres i.e.; I.A.R.I., New Delhi (3), I.I.H.R., Bangalore (1), I.I.V.R., Varanasi (1), B.C.K.V., Kalyani W.B. (1), C.S.A.U.A.&T. Kanpur (2), K.A.U., Vellanikkara (1), N.D.U.A.&T, Faizabad (2), M.P.K.V., Rahuri (3), P.A.U., Ludhiana (1), Dr. YSPH&F, Solan (1), T.N.A.U., Coimbatore (1), HARP, Ranchi (2), G.B.P.U.A.&T., Pantnagar (2).

**Table 68:**List of bitter gourd reference varieties

Arka Harit, BBGS-09-01, CO-1, DARL-43, DBGS-37, HABG-21, HABG-22, Hirkani, Kalyanpur Baramashi, Kashi Urvashi, Meghna-2, NDBT-7, NDBT-9, Pant Karela-1, PBIG-02, Phule green gold, Phule Ujawala, Preethi (MC-84), Punjab-14, Pusa- Do-Mausami, Pusa Vishesh, Sel-1, Sel-5, Solan Hara, VR-333
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The crop was raised using the recommended cultural practices during the *Kharif* season of 2015 and early summer, 2016 with proper maintenance and selfing programme. The off-types plants were rouged out and only true to type plants were maintained for further use.

### ● Cucumber

Twenty-six cucumber varieties were collected from AICRP (VC) centres and maintained as reference varieties for DUS Testing. These varieties were collected from various centres i.e.; I.A.R.I., New Delhi (5), H.A.R.P., Ranchi (3), B.C.K.V., Kalyani (2), G.B.P.U.A.&T., Pantnagar (4), M.P.K.V., Rahuri (2), P.A.U., Ludhiana (1), Dr. YSPH&F, Solan (2), SKUA&T, Jammu (1), I.I.V.R., Varanasi (3), C.S.A.U.A.&T. Kanpur (2), AAU, Gujarat (1)

The crop has been raised using the recommended cultural practices during the *Kharif* season of 2015 and summer, 2016 with proper maintenance and selfing programme. The off-types plants were rouged out and only true to type plants were maintained for further use.

**Table 69:** List of cucumber reference varieties

Phule Shubhangi, Punjab Naveen, Swarna Ageti, Swarna Poorna, Swarna Sheetal, Himangi, K-75, K-90, Kalyanpur Green, JLG (Kabira), Pant Khira-1, Cucumber Long Green, PCUC-09, PCUC-10, KTCS-07, No-374, VRC-26, VR-101, DC-54, DC-78, Seven Star, Dev Kamal, Goa Local, Gujrat Cucumber Long, GCU-1, Pusa Uday
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### ● Pointed gourd

Thirty pointed gourd varieties/germplasm were maintained at ICAR-IIVR, Varanasi. Data was recorded of 26 morphological characters. These varieties were collected from various centres i.e.; I.I.V.R., Varanasi (10), BCKV, Kalyani (15), NDU&T, Faizabad, (4), JAU, Gujrat (1).

**Table 70:** List of pointed gourd reference varieties

Narendra Parwal-260, Narendra Parwal-504, Narendra Parwal-520, Narendra Parwal-307, Swarna Alankar, Kashi Alankar, Kashi Shuphal, IIVR-PG-1, IIVR-PG-2, IIVR-PG-3, VRPG-12, VRPG-25, VRPG-26, VRPG-38, BCPG-1, BCPG-3, BCPG-4, BCPG-5, BCPG-6, BCPG-14, BCPG-16, BCPG-17, BCPG-19, BCPG-21, BCPG-24, BCPG-25, BCPG-26, BCPG-27, BCPG-29, BCPG-31
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The crop has been transplanted following the recommended cultural practices. The varieties are maintained in mother block for further data recording and multiplication.

### DUS testing of vegetable crops:

Sixty okra, 101 brinjal, 33 cauliflower, 94 tomato, 11 bottle gourd, 17 bitter gourd, 3 cucumber, 5 pumpkin, 3 cabbage and 2 French bean entries were evaluated under DUS testing along with reference varieties as given here.

**Table 71:** Candidate varieties under DUS testing of vegetable crop

Type of variety	New		VCK	farmers' variety	Total	Date of Monitoring	Chairman
	1 <sup>st</sup> year	2 <sup>nd</sup> year					
Bottle gourd	-	-	8	3	11	30.04.2015	Dr.A.N.Maurya
Bitter gourd	-	-	15	2	17	18.05.2015	
Cucumber	-	-	3	-	3	18.05.2015	
Pumpkin	-	-	-	5	5	18.05.2015	
Okra	24	21	13	2	60	16.10.2015	Dr. S. K. Pandey
Brinjal	19	53	23	6	101	18.01.2016	
Cauliflower	17	9	6	1	33	08.01.2016	Dr. A. N. Maurya
Cabbage	02	-	01	-	3	13.02.2016	Dr. Brahma Singh
French Bean	-	-	-	2	2	14.02.2016	Dr. Umesh Srivastava
Tomato	25	25	40	4	94	12.02.2016	Dr. A. N. Maurya
<b>Total</b>	<b>87</b>	<b>108</b>	<b>109</b>	<b>25</b>	<b>329</b>		

**Table 72:** List of Applications filed for registration

Name of Institute	Crops	Variety Name
Punjab Agriculture University (PAU), Ludhiana, Punjab	Tomato (3)	Punjab Barkha Bahar-1, Punjab Barkha Bahar-2, Punjab Ratta
Junagadh Agricultural University (JAU), Junagadh	Brinjal (1)	Gujarat Junagadh Brinjal-2 (GJB-2)
	Okra (1)	Gujarat Junagadh Okra Hybrid-3 (GJOH-3)
ICAR-Indian Institute of Vegetable Research (IIVR), Varanasi, U.P.	Tomato (6)	Kashi Amrit (DVRT-1), Kashi Anupam (DVRT-2), Kashi Vishesh (H-86), Kashi Hemant (IIVR Sel-1), Kashi Sharad (IIVR Sel-2), Kashi Aman (VRT-0801)
	Brinjal (2)	Kasha Taru, Kashi Sandesh
	Okra (1)	Kashi Vardaan (VRO-25)
	Chilli (4)	Kashi Gaurav, Kashi Anmol, Kashi Sindhuri, Kashi Surkh (Hybrid)
	Vegetable pea (1)	Kashi Ageti (VRPE-25)
	Bottle Gourd (2)	Kashi Ganga, Kashi Bahar
	Muskmelon (1)	Kashi Madhu
	Pumpkin (1)	Kashi Harit

### 3.1.35 ICAR- Indian Institute of Horticultural Research, Bengaluru

ICAR- Indian Institute of Horticultural Research, Bengaluru, has mandated crops like Tomato, Brinjal, Okra, Bottle gourd, Bitter gourd, Pumpkin and Cucumber. Progress of DUS testing in 2015-16 is as follows:

**Table 73:** Details of DUS testing of candidate varieties

Crops	New		VCK	Farmers' variety
	1 <sup>st</sup> year entries	2 <sup>nd</sup> year entries		
Tomato	25	26	40	4
Brinjal	20	59	22	6
Okra	22	40	13	1
Bottle Gourd	-	-	11	-
Bitter Gourd	-	-	17	-





**Tomato:** A total of 105 tomato varieties including 4 farmers' varieties and 10 reference varieties had been raised for conduct of DUS Test for 47 morphological characters as per DUS test guidelines for the year 2015-16. All the entries were characterized for DUS traits and monitoring of the DUS entries was conducted successfully under the chairmanship of Dr. N. Mohan, retd. Principal Scientist, Division of Vegetable crops, IIHR, Bengaluru on 7<sup>th</sup> March 2016. The representatives from 8 seed companies who had registered their entries with PPV & FRA for DUS testing participated in the meeting. A representative from an applicant suggested to have a booklet of DUS descriptor wherein all the observation to be recorded should be provided in picture and detailed description along with colour scale, so that observation recorded by different individuals will have uniformity.

**Brinjal:** DUS testing was conducted for a total of 107 varieties including 6 farmers' varieties & 30 reference varieties for 47 morphological characters as per DUS test guidelines during the year 2015-16. Monitoring of the DUS entries was conducted successfully under the chairmanship of Dr. N. Mohan, retd. Principal Scientist, Division of Vegetable crops, IIHR, Bengaluru on 29 March, 2016.



**Okra:** Seventy-six okra entries were characterized for DUS traits and monitoring of the DUS entries was conducted successfully under the chairmanship of Dr. N. Mohan, retd. Principal Scientist, Division of Vegetable crops, IIHR, Bengaluru on 29 December, 2015. Representatives of five companies had participated in the meeting.

**Pumpkin:** 5 Farmers varieties entries characterized for DUS traits and monitoring of the DUS entries was conducted successfully under the chairmanship Dr. O. P. Dutta, Former

Head, Division of Vegetable crops & renowned Cucurbit Breeder of the country on 12 May, 2015.



**Bottle gourd and Bitter gourd:** Eleven bottle gourd entries and 17 bitter gourd entries were characterized for DUS traits and monitoring of the DUS Entries was conducted successfully under the chairmanship of Dr. O.P. Dutta, Former Head, Division of Vegetable crops & renowned Cucurbit Breeder of the country on 2 May, 2015. The representative from M/s Nuziveedu Seeds Company who contributed the entries also participated in the meeting.

**Table 74:** Varieties under maintenance/characterized

Crops	Name or No of varieties under maintenance breeding in 2015-16
Tomato	28 (Own released -8, ICAR-9 and SAU-11)
Brinjal	34 (Own released -7, ICAR-19 and SAU-15)
Okra	19 (Own released -2, 17- Others (ICAR+SAU)
Cucumber	12 – Others (ICAR+SAU)
Pumpkin	11 (Own released – 1, 10 – Others (ICAR+SAU)
Bottle Gourd	18 (Own released – 1, 17 – Others (ICAR-6+SAU-11)
Bitter Gourd	16 (Own released – 1, 15 – Others (ICAR-4+SAU-11)

### 3.1.36 ICAR-IARI, RS, Katrain

The centre is a co-nodal centre for DUS testing in Cabbage and Cauliflower (mid late group). Brief progress is as follows:

- **Cabbage:**

A DUS trial on 2 cabbage varieties viz., Charlie and Checkmate along with two reference varieties viz. Pusa Mukta and Golden Acre was conducted at IARI, RS Katrain during 2015-16. Besides this 11 notified varieties viz., Golden Acre, Pusa Mukta, Pusa Drum Head, Pusa Ageti, Pride of India, Pride of Asia, KTCBH-81, C-121, 6A, 83-1 and Pusa Cabbage hybrid-1 (KGMR-1) were characterized, purified

and suitably maintained. Cabbage DUS trial monitoring on 21.11.2015 was done with the officials of the Rasi Seeds; Head of Regional Station Katrain and Co-nodal officer, Katrain centre.

#### ● Cauliflower:

In cauliflower, 2 candidate varieties viz., SCF-608 and SCF-5061 along with 4 reference varieties viz., Pusa Snowball-1, Pusa Snowball K-1, Pusa Snowball K-25 and Snowball-16 were tested in DUS trial. Characterization, purification and maintenance of Pusa Snowball-1, Pusa Snowball K-1, Pusa Snowball K-25, Pusa Snowball-16 and Pusa Himjyoti were also taken up. These varieties were suitably maintained for conducting DUS trials in the succeeding years.

#### 3.1.38 ICAR-CPRI, Shimla

The centre is mandated to maintain reference/example varieties, DUS testing of Potato alongwith CPRIC, Meerut and CPRS, Jalandhar as co nodal centre.



Several varieties in new group viz., Kastelli, Panamera, Lucinda, Taurus, CRISPS4ALL, Sagitta, Memphis, Evora and HZD01-58 along with reference varieties viz., Kufri Pukhraj, Kufri Jyoti, Kufri Jawahar, Lady Rosetta, Atlantic, Santana and Kufri Frysona were DUS characterized for second year at all the three testing locations for vegetative and tuber traits at CPRS, Jalandhar and CPRIC, Meerut and flower parameters at CPRS, Kufri. Reference collection of 213 varieties/numbers was maintained in vitro at Shimla comprising of 49 CPRI released varieties, 107 indigenous varieties/numbers, 8 state varieties, 20 exotic varieties in cultivation in India, and 29 UPOV example varieties.

#### 3.1.37 ICAR-Directorate of Onion and Garlic Research, Pune



ICAR-Directorate of Onion and Garlic Research, Rajgurunagar-410 505, Pune (Maharashtra) along with IARI, New Delhi as co nodal centre and CITH, Srinagar for long day varieties and



TNAU, Coimbatore for multiplier onion are mandated for DUS testing and maintenance of reference/example varieties in Onion and Garlic. The centre is maintaining 48 onion and 26 garlic varieties. 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 remaining all 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* seasons whereas garlic varieties were maintained during *Rabi* season.

In case of onion, one new variety and one farmer's variety and in garlic four extant varieties were tested. The trial was monitored at different stages, viz., foliage stage, harvesting stage and post-harvest.

#### 3.1.38 AICRP (Floriculture) unit at MPKV, Agril College Campus, Ganeshkhind, Pune

It is a co nodal centre for ornamental crops like, China Aster, Rose etc. In China aster, the centre is maintaining 8 reference/ example varieties (4 each from IIHR and NARP, Pune), e.g., Phule Ganesh White, Phule Ganesh Purpul,

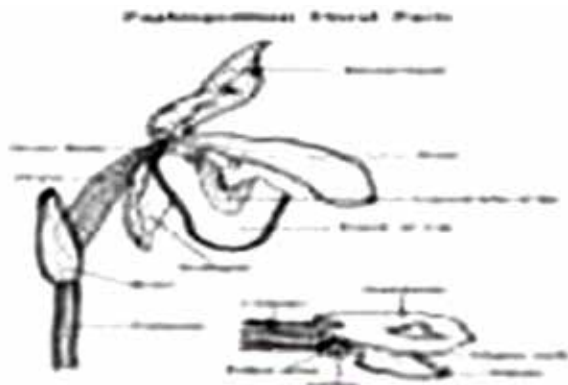
Phule Ganesh Pink, Phule Ganesh Violet, Arka Poornima, Arka Kamini, Arka Archana and Arka Aadya. The centre participated in the 10<sup>th</sup> DUS Review meeting at MPKV, Rahuri Held on 26-27 Feb, 2016.

In rose, exotic varieties of Moerheim Roses and Trading India Private Limited were under testing and maintained the following reference varieties, Phule Ganesh White, Phule Ganesh Purpul, Phule Ganesh Pink, Phule Ganesh Violet, Arka Poornema, Arka Kamini, Arka Archana and Arka Aadya.

### 3.1.39 NBRI, Lucknow

The centre has three mandated crops, viz., Bougainvillea, Gladiolus and Canna. The varietal collection in the form of ground plantations and portrait collection have been maintained by providing similar cultural practices around the year. These were labelled properly and displayed for educational purpose. All the varieties in collection have been performed well and expressed all phenotypic characters as mentioned in the DUS Test guidelines. The existing germplasm collection was further enriched by acquiring new varieties from various sources. New variety(s) developed by CSIR-NBRI named as 'Dr. A.P.J. Abdul Kalam' in Bougainvillea; 'NBRI-Heerak' (Gladiolus); CSIR-NBRI 'Raktima' (Canna) has been filed with the PPV&FRA.

### 3.1.40 ICAR-NRC Orchids, Pakyong, Sikkim



Almost all the notified and cultivated species of Orchids (Cymbidium, Dendrobium, Vanda, Phalaenopsis, Cattleya, Oncidium, Paphiopedilum & Mokara) are mandate species and being maintained for different cultivars of Cymbidium (25), Dendrobium (12), Vanda (15), Phalaenopsis (30), Cattleya (9), Oncidium (30), Paphiopedilum (10) and Mokara

(7) at the centre.

The centre has developed guidelines for *Paphiopedilum* and submitted 4 applications in different species of orchid.

### 3.1.41 ICAR-Indian Institute of Spices Research, Kozhikode

Major programmes implemented by the DUS centre was the maintenance of example varieties of black pepper, small cardamom, ginger and turmeric; multiplication of ginger and turmeric provided by farmers' for DUS testing. The following farmers' varieties received for DUS testing were multiplied to have sufficient quantity for DUS planting and testing.

**Ginger:** Nasri deshi (Reg/2014/2151), Adrakh (Reg/2014/1994), Vajjnath adrak (Reg/2015/51).

**Turmeric:** Santra (Reg/2014/2134), Kandaila haldi (Reg/2014/3139), Dehati haldi (Reg/2014/1987), Futi halood (Reg/2013/742), Budhram Haldi-1 (Reg/2014/741), Pahlu Haldi-II (Reg/2014/750), Rashmi Haldi-1 (Reg2014/747).

Field visits for preliminary observations on black pepper and small cardamom (candidate varieties) of farmers' varieties were undertaken from their plots (On-site) and corresponding reference varieties were identified based on essential characteristics.

### 3.1.42 ICAR-CITH, Srinagar

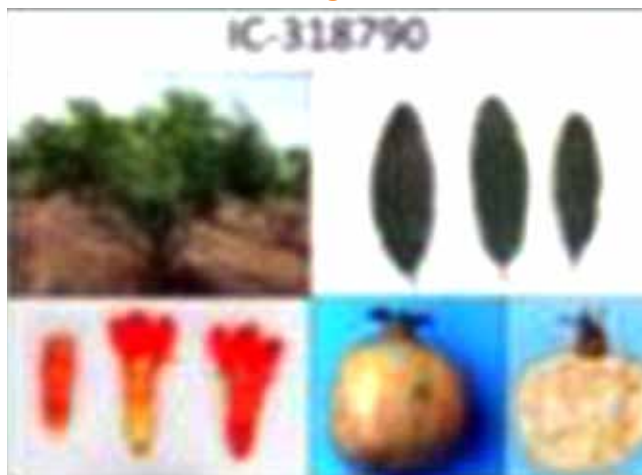
This DUS centre has temperate fruits and nuts as its mandated crop/species. The centre submitted five applications for varieties under new category during the reporting period.

**Table 75:** Varieties under maintenance breeding

Crops	No. of varieties under maintenance breeding
Walnut	17
Almond	10
Apple	80
Pear	21
Peach	30
Plum	25
Apricot	17
Cherry	10
Strawberry	107

**Table 76:** List of reference varieties/genotypes maintained at ICAR-CITH, Srinagar

Species / Crops	List of reference varieties under maintenance
Walnut	Opex caulchery, Cheinovo, Tuttle, Franquette, Nugget, Hamdan, Suleiman, CITH-W-1, CITH-W-2, CITH-W-3, CITH-W-4, CITH-W-5, CITH-W-6, CITH-W-7, CITH-W-8, CITH-W-9, CITH-W-10
Almond	IXL, Merced, Non-Peril, Primorskij, Pranyaj, California Paper Shell, Drake, Waris, Makhdoom, Shalimar
Apple	Coe Red Fuji, EC-539451, Top Red, EC- 539452, Granny Smith, King Hasicus, Tydeman, Early Worcester, Wealthy Apple, Spartan, AAS/GP/BSP/13, Benoni, Indo, Vista Bella, AAS/GP/BSP/09, Pink Lady, Keseri, Fuji, Chanpora Selection, Hardiman, EC- 38735, Starkrimson, EC- 83683, Laxtone Fortune, MC-Spur, Mollies Delicious, EC- 539449, Prima, Florina, Cooper-IV, AAS/GP/BSP/04, Summerred, Anna, American Apirouge, EC-539457, Rich-a-Red, Mai Gold H-15, Silver Spur, Starkrimson Gold, Scarlet Gala, Wilson Red June, Golden Delicious, Jonica, Michal, Vance Delicious, Firdous, Early MC-Intosh, June Eating, Antonovka, Red Fuji, EC-539446, Red Baron, Gold Spur, Mayan, Lal Ambri, EC- 239451, Red Chief, EC-539450, Ambri, Jonathan, Shireen, Tallisare, Winter Commercial, EC-539447, Oregon Spur, Lemon Guard, Skyline Supreme, EC-539448, Royal Delicious, Black Ben Davis, Green Sleeves, EC-539453, Red Gold, Star Summer Gold, Rome Beauty, Red Delicious, Starking Delicious, Well Spur
Pear	Battira Giffard, Max Red Bartlette, Pyasua Behapa, Severenta, Doyenne-du-Comice, Coscia-C, Santya Braskage, Coscia-F, Red Bartlett, Bihe, Hayward, Red Max, Gent Drouard, Max Red, William Bartlett, Beurr'e Hardy, Starkrimson, Conference, Z.H.Copoceace, Jargonelle, Kashmiri Nakh
Peach	Peshawari, Paradeluxe, South Land, Queta, Early Red June, NG-2, Flordasum, Kanto-5, July Elberta, Fertalia, Glohaven, Shan-e-Punjab, Vance Massouri, Cresthaven, Snow Crest, Silver King, Red Globe, Vance Marble, Early Grande, Fantasia, CITH Sel -3, CITH Sel -2, Snowqueen, Mayfire, CITH Sel -1, Elberta, Fire prince, Suncrest, K-27791, NG-1
Plum	Queen Inn, Burbank, Red plum, Kubio plum, Black Amber, Monarch, Mithley, Black Plum, Kubio-26, Krassivica, Grand Duke, Santa Rosa, Prune, Beauty, Black Beaut, Kanto -5, Mariposa, President Plum, AU-Rosa, Tarrol, Italian Plum, Greengage, Red Beaut, AU-Cherry, Frontier
Apricot	Balcota, Chinese Apricot, Fairmedcester, Harcot, Tilton Apricot, Viva Gold, Erani, Tokpopa Nimu, Afghani, New Castle, Australian, Communis Holy, Turkey, Nari, Communis, Heartly, Rival Apricot
Cherry	Bigarrean Napoleon, Stella, Bigarrean Noir Grosso, Makhmali, Bing, Lapinus, Awal Number, Sweet Heart, Lambert, Van
Strawberry	Dil Pasand, EC-439587, IC319137, Red cross, CH-40, EC-362601, IC319117, Larson, Selection -No-5, IC319139, EC571812, Camma Rosa, IC-319133, Sweet Heart, C319147, Elasta, Swiss-2, IC319143, IC319123, Anthea, IC319096, Tiyoga, Cefra, Fiana, IC319098, IC319107, Sweet Chalit, Banglora, IC319101, Mostodam, Caufectura, Dougus, IC319105, IC319153, Majestic, Lucunda, IC318915, Phenomenal, IC319115, Rear Guard, Shastha, IC319113, IC340594, Black More, IC318915, IC340596, Heera, Sheet Master, Te-Ec, Brighten, Julicot Local, EC-102642, Howard, IC319135, EC-571813, Missionary, IC319138, IC319131, Kimberley, EC-431388, EC-319105, Tilmok, EC-362602, CH-111, Bellrubi, IC-319132, IC319141, Red Guard, EC-362589, Red Coat, Dana, CH-32, North West, Lesson, JF- 2, IC319147, Mecherachor, Perennial, IC319149, Rear Guard -52, IC319103, Wild, Swiss, IC319107, Wild Local, Selva, IC319111, IC319174, Royal Round, IC319117, Cataskell, Torry, IC318916, Florida, Red Ground, IC318936, EC439586, Katrain sweet, Addie, Julecoat Local, Mechawanj, EC- 22355, Chandler, IC319136, EC971812, Senga sengana, EC-439590, EC-439591

**3.1.43 ICAR-NRC for Pomegranate, Pune**

Brief progress of the centre is as follows:

- Maintained 304 germplasm of pomegranate at field gene bank of ICAR-NRCP, Solapur. Recently 71 accessions from USDA have been collected from IIHR, Bengaluru and were maintained at nursery conditions.
- Salient features of fifteen pomegranate germplasm (IC-318753, IC-318779, IC-318790, IC-318705, IC-318754, IC-318740, IC-318702, IC-318712, IC-318793, IC-318764, IC-318735, IC-318762, IC-318734, IC-318723, IC-318749) were recorded for Plant, leaf, flower and fruit morphological, physico-chemical properties as per the DUS guidelines along with their digital photographs.
- LED boards of nine pomegranate varieties with their characteristic features were prepared and displayed to create awareness among pomegranate growers.
- Participated in the Indo-German Bi-lateral cooperation DUS workshop held during 23-24 November, 2015 at IARI, New Delhi.
- Organized three-day awareness-cum-training programme on “Protection of plant varieties, Farmer’s Rights and model pomegranate production” for Karnataka farmers with 17 participants during 21-23 September, 2015.

**3.1.44 ICAR-NRC for Grapes, Pune**

Total 60 reference varieties were grafted on Dogridge

rootstock in September, 2015. These are now well established in the DUS block. Regular cultural practices are followed for their maintenance.

The reference varieties are: Ambe Seedless, Angoor Kalan, Arka Kanchan, Arka Shweta, Arkavati, B 69, Beauty Seedless, Black Champa, Black Round, Cabernet Sauvignon, Catawba, Centennial, Champanel, Chardonnay, Chasselas Blanc, Cheema Sahebi, Christmas Rose, Cinsaut, Concord, Convent Large Blanc, Crimson Seedless, Delight, Diamond Jubilee, Fantasy Seedless, Flame Seedless, Golden Queen, Grenache Noir, Gulabi, Isabella, Italia, Jaos Belyi, Katta Kurgan, Kishmish Chernyi, Kishmish Rozovis, Manjri Naveen, Marro Seedless, Merbein Seedless, Mourvedre, NRCG –A8-3, Pearl of Csaba, Perlette, Pinot Noir, Pusa Urvashi, Red Globe, Red Muscat, Red Prince, Riesling, RR Seedless, Rubi Red, Sauvignon Blanc, Sharad Seedless, Shiraz, Sirius, Sonaka, Spin Sahebi, Superior Seedless, Thompson Seedless, Ugni Blanc, VitisFlexousas and Walthom Cross.

The planted rootstocks were raised by regular cultural practices such as fertilization, irrigation, weeding, training etc. The rootstocks were trimmed by retaining two healthy shoots for in-situ grafting with the reference cultivars listed in DUS testing guidelines.

Presently, there are 10 applications in Grape seeking plant variety protection as per the following:

- Farmers' variety: 4 (Maruti Seedless, New Sonaka Seedless, Nanasaheb Purple Seedless, Sarita Purple Seedless)
- Public Institute: 1 (Medika)
- Private companies/institutes/non-farmer: 5 (Cara Seedless, Blanc Seedless, Mara Seedless, Jungli Grape Beal, Arra fifteen.)

### 3.1.45 ICAR-CIAH, Bikaner

The centre is mandated for DUS testing and maintenance in crops like Indian jujube or Ber (*Ziziphus mauritiana* Lamk.), Watermelon (*Citrulluslanatus* (Thunb.)) Mansf. & Muskmelon (*Cucumis melo* L.) and Date palm. Brief progress is as follows:

**Table 77:** Varieties under maintenance/characterised

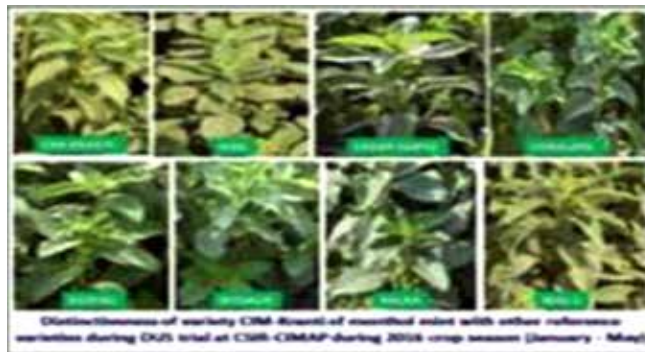
Crops	Name or No of varieties under maintenance breeding in 2015-16
Indian jujube (Ber) ( <i>Ziziphus mauritiana</i> Lamk.)	26 reference varieties (as indicated in DUS guidelines for Indian jujube (Ber)) are being maintained at CIAH, Bikaner.
Watermelon ( <i>Citrullus lanatus</i> (Thunb.) Mansf.)	Charleston Grey, Asahi Yamato, Arka Manik, Sugar Baby, Durgapura Lal, Durgapura Kesar, AHW-19, AHW-65 and Thar Manak.
Muskmelon ( <i>Cucumis melo</i> L.)	Arka Jeet, Arka Rajhans, MHY-3, MHY-5, RM-43, RM-50, Durgapura Madhu, Kashi Madhu, Pusa Madhuras, GMM-3, Punjab Sunehri and Hara Madhu.

### 3.1.46 CIMAP, Lucknow

The progress of the DUS centre for medicinal and aromatic plants at CSIR-CIMAP Lucknow is given below:

**Table 78:** Name and number of varieties under DUS testing, characterisation, maintenance

Plants	Varieties under DUS testing	Number of varieties under characterization and maintenance	Names of the varieties under maintenance
Manthol mint	1 (CIM-Kranti)	10	CIM-Kranti, Kosi, MAS-1, Kalka, Shivalik, Gomti, Himalaya, Sakashm, Kushal, CIMAP Saryu
Periwinkle	-	3	Dhawal, Nirmal, Prabal
Damask rose	-	4	Ranisahiba, Noorjahan, Aligarh, Kanouj
Brahmi	-	2	CIM-Jagriti, Subodhak



DUS trials were carried out for variety CIM-Kranti of menthol mint during 2016 crop season (January – May 2016) at two locations (CSIR-CIMAP, Lucknow and CIMAP Resource Centre, Pantnagar). Monitoring was carried out by the Nodal Scientist along with two senior scientists at both the locations as advised by PPV&FRA.

### 3.1.47 ICAR-CPCRI, Kasargod

Brief progress report of CPCRI, Kasargod, having mandated crop Coconut (*Cocos nucifera* L.) is as follows: About 40 seed nuts of selected reference/released/extant varieties (Chowghat Orange Dwarf, West Coast Tall, Chowghat Green Dwarf, San Ramon Tall, Malayan Yellow Dwarf, Malayan Orange Dwarf, Gangabondam Green Dwarf, Spicata Tall, Laccadive Micro Tall, Kalparaksha, Kalpa Dhenu, Kalpa Pratibha, Kalpa Mitra, Chandra Kalpa) and 20 seednuts of extant hybrid varieties viz., Chandra Sankara, Kera Sankara, Chandra Laksha, were sown in polybags for generation of seedlings for DUS testing.



Time taken for germination and seedling growth characters were recorded. Juvenile growth characters, such as seedling height, petiole length, girth, number of leaves in crown, leaflet count, leaflet length, leaflet breadth were recorded in 11 extant/reference varieties planted in 2013 for generation of DUS test data. The growth characters such as palm height, length of petiole, length of leaf bearing portion and total leaf length were observed to be higher in Kalpa Mitra. Chandra Kalpa was found to have more numbers of leaflets and longer leaflets. DUS test characteristics to be recorded after 24 months of planting as per the coconut DUS guidelines were recorded. Length of leaflet among the 11 varieties ranged from 98.8 cm (COD) to 115.6 cm (Chandra

Kalpa), but grouped in to a single state (short - <120 cm), indicating the need for reclassification of classes for this trait. Breadth of the leaflet recorded ranged from 4.9 cm (COD) to 5.9 cm (Kalpa Dhenu), but grouped under the category broad state (>4 cm), indicating the need for reclassification of classes for this trait. Number of leaves produced in one year, in the 11 extant/reference varieties, ranged from 10-13 leaves, with higher leaf production in COD and lesser in WCT. One application for recording on-site DUS test traits was received from PPV&FR Authority.

**Table 79:** Applications filed for registration and certificates of registration issued

Crops	Variety notified under Seeds Act, 1966 (since 1992)	Application filed for registration	Certificate issued	Remarks
Kalpa Sankara, Kalpa Mitra, Kalpa Dhenu, Kalpasree, Kalparaksha, Kalpa Pratibha	Yes	Yes	Certificate issued	-
Eathamozhy Tall Coconut, Nanirang Maimi, Narikol, Deejay Yellow Dwarf, Shinduri, Maghi	No	Yes	No	Under process
Kalpa Haritha, Kalpa Surya, Kalpa Jyothi, Kerachandra, Kalpa Samrudhi	No	Yes	No	Recommended for On-site Testing
Edava Long Fiber Coconut, T x D (Mahuva), Banawali, Pratap, Konkan Bhatye Coconut Hybrid-1	No	Yes	No	Under process
Deshi	No	Yes	No	Under process

### 3.1.48 IFGTB-ICFRE, Coimbatore

Preliminary works for registration of clones of Eucalyptus has been initiated with the following activities. The Germplasm banks established are being maintained. Observation on the morphological characters is being recorded in the example clones for developing database of clones and DUS character matrix. Visits were conducted to Arimalam for recording the DUS characters in the Clonal trials.

Activities completed at the centre includes:

- Maintenance of already established germplasm bank
- Observation in germplasm bank

- Identification of land for establishment of germplasm bank in the DUS centre.
- Collection of example varieties, propagation and establishment of germplasm bank at DUS centre
- Preparation of plan for DUS testing
- Development of Clone x DUS characters matrix



The example varieties of Eucalyptus planted in Vegetative Multiplication Garden (VMG) at BU campus, Coimbatore were studied for the juvenile characters after fresh coppicing.



Casuarina DUS Centre has assembled around 100 clones of *Casuarina equisetifolia*, *C. junghuhniana* and their hybrids in Forest Campus, Coimbatore which constitute the example clones used for developing DUS testing guidelines for Casuarina. This reference germplasm collection is periodically maintained for expression of all characters mentioned as descriptors in the guidelines. Characters are assessed annually in at least four trees of a clone for developing Clone Vs DUS character matrix. A separate block of 25 trees for the clone IFGTB-CJ-9 has been established and being periodically assessed for which application for registration has been filed.

### 3.1.49 Tea Research Institute, Tocklai

Tocklai Tea Research Institute, Tea Research Association, Jorhat, Assam, is implementing the programme under “Central Sector Scheme for Protection of Plant Variety and Farmers’ Right Authority” with the following objectives:

- DUS characterization of the tea clones/seed varieties applied for registration under PPV&FRA, New Delhi.
- Application for registration of tea clones/seed varieties under PPV&FRA, New Delhi
- Preparation of DUS characterization database for all the tea clones and seed varieties under maintenance breeding.

Centre submitted several applications for two new tea clones viz. TTRI & TTRI-2 and a Seed variety TSS-1; a popular clone (TV 31) as extant variety.

Communication were made to North Bengal Regional Research & Development Centre (NBRRDC), TRA for on-site DUS characterization of clones/ seeds developed by the centre and by neighbouring gardens. Cuttings /seeds of these new planting materials will be brought to Tea DUS centre for their DUS characterization.

**Table 80:** DUS characterization of following popular clones/ Seed varieties under progress

Planting materials	Clones/Seed Stock
TV-1, TV-15, TV-16, TV-17, TV-20, TV-23, TV-25, TV-26	Clones
TS-589, TS-520	Seed stock

**Table 81:** DUS characterization of following clones/germplasm is under progress

S. No.	Clone	Remark
1	A-11	A triploid clone under Long Term Trial to develop a triploid clone with better yield & quality
2	B-22	
3	DL- 'A'	A clone under Long Term Trial to develop a clone exclusively suitable for green tea manufacturing
4	DL- 'B'	
5	DL- 'C'	
6	DH-1&2	A germplasm found suitable for manufacturing Green tea as well as white tea
7	DH-3&4	
8	DH-5&6	

### 3.1.50 Sugarcane Breeding Institute (SBI), Coimbatore

ICAR-Sugarcane Breeding Institute, Coimbatore, is the Nodal centre for tropical varieties of Sugarcane. A total of 186 reference varieties were planted in the field for maintenance (2015-2016). The new varieties and the farmer's varieties were transplanted in field in RBD design with two replications. The plot size was 4 rows x 6 m length x 0.9 m row to row spacing for each variety. Descriptors based on 27 morphological characterization was completed at the age of 240 days and 300, 360 days for the new varieties namely Co 06030, Co 06027 and Co 0403 along with seven reference varieties namely CoA 7602, CoA 90081, CoA 671, CoM 6806, Co 94008, Co 85004 and Co 86032. The DUS characterization was done for Farmer varieties Siddhgiri-1234 and Dhyaneswar-16 at the age of 240, 300 and 360 days after planting. The characteristics of farmer's varieties Dhyaneswar-16 and Shiddgiri-1234 was compared with the reference varieties (Co 86032 and Co 92005) grown in the same location. It appears that the phenotypic appearance of Dhyaneswar-16 was similar to the popular variety Co 86032. The characteristics and phenotypic expression of Shiddgiri-1234 appears to be similar to the released variety Co 92005. The monitoring committee visited the DUS centre Coimbatore 15<sup>th</sup> March 2016 and the committee verified the distinct morphological characters of Farmers varieties and new varieties. The new varieties were

distinct from each other and also from existing reference varieties and the population of these varieties were uniform. The farmers' varieties were not distinct from already released varieties/reference varieties.

### 3.1.51 ICAR-Sugarcane Breeding Institute Research Centre, Agali

It is a co nodal centre for DUS testing, characterization, maintenance for tropical sugarcane varieties. During 2015-16, two farmers' varieties namely, Siddhgiri-1234 and Dhyaneswar-16 and three new varieties namely, Co 0403, Co 06027 and Co 06030 were received for DUS testing. The farmers' varieties were transplanted in field on 20<sup>th</sup> Feb 2015 whereas the new varieties were transplanted on 25<sup>th</sup> April 2015 along with seven most similar reference varieties namely, Co 86032, Co 85004, Co 94008, CoA 7602, CoA 90081, CoC 671, CoM 6806 in RBD design with two replications. The plot size per entry was 4 rows x 6 m length x 0.9 m row to row spacing. A total of 40 plants per entry per replications were maintained. Data on 27 morphological traits were recorded as per the DUS test guidelines issued by the PPV & FRA. The observations recorded in the first year revealed that the new varieties Co 0403, Co 06027 and Co 06030 were distinct from the existing reference varieties whereas the farmers' varieties (Siddhgiri-1234 and Dhyaneswar-16) were not distinct from the already released varieties. The farmers' variety Shiddhgiri-1234 resembled to the already released variety, Co 92005 and the farmers' variety Dhyaneswar-16 resembled to another released variety Co 86032. In addition, the Centre has maintained 189 tropical sugarcane reference varieties in field.

The DUS trials were monitored by a Committee on 16<sup>th</sup> March 2016. The Committee inspected the distinctive traits candidate varieties. The Committee has observed that the new varieties viz., Co 0403, Co 06027 and Co 06030 were distinct from the reference varieties whereas the farmers' varieties Siddhgiri-1234 and Dhyaneswar-16 were not.

### 3.1.52 ICAR- Sugarcane Breeding Institute Regional Centre, Karnal

ICAR- Sugarcane Breeding Institute Regional Centre, Karnal, is the co-nodal centre for DUS testing in sub-tropical varieties in Sugarcane.



**Table 82:** Varieties under maintenance/ characterized:

BO 141, BO153, BO 91, BO136, BO 130, BO129, BO 147, BO 139, BO 128, BO 120, BO 99 BO 145, BO 146, BO 109, BO 138, BO 137, BO 110- CoP 9301, CoP 2061, CoP 9302, CoP 9206, CoP 9702, CoH 119, CoH 56, CoH 99, CoH 128, CoH160, CoH 110, CoH 92, CoH 35, CoPant 90223, CoPant 97222, CoPant 99214, CoPant 84211, CoPant 03220, CoPant 84212, CoPant 08221, CoPant 96219, CoB 94164, CoS 90269, CoS 91269, CoS 90265, CoS 8432, CoS 96258, CoS 96268-, CoS 96275, CoS 97261, CoS 99259, CoS 96269, CoS 97264, CoS 7918, CoS 770, CoS 95255, CoS 95222, CoS 94270, CoS 8118, CoS 797, CoS 8207, CoS 8315, CoS 94257, Cos 541, CoS 8436, CoS 88230, CoS 767, CoS 109, CoS 443, CoS 98259, CoS 91230, CoS 687, CoS 07250(Muz), CoS 03251(Muz), CoS 514, CoS 245, CoS 510, CoS 93259, CoSe 01434(Muz), CoSe 95422, CoSe 92423, CoSe 01424, CoSe 96436, CoSe 95436, CoSe 00235, CoSe 01235, CoSe 98231, UP 0097, UP 5-SBI-1R, UP 05125(Muz), UP 9530, CoLk 8102, CoLk 94184, CoLk 8001, Co 6617, Co 87263, Co 87268, Co 6811, Co 1158, Co 453, Co 6425, Co 1148, Co 89029, Co 98014, Co 1336, Co 89003, Co 419, Co 7717, Co 0239, Co 0238, Co 05011, Co 05009, Co 0118, Co 0237, Co 0124, CoJ 88, CoJ 85, CoJ 89, CoJ 83, CoJ 64, CoPb 09181, CoBln 9101, CoBln 9103*, CoBln 9105, CoBln 94063, CoBln 2173, CoBln 90006, CoBln*9104 and CoBln 9102
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<b>Foxtail Millet</b>	MEERA, ARJUNA, K-2, NARASIMHARAYA, GAVARI, K-3, SiA 3085, PRK 1, K-221-1, SRI LAKSHMI, SiA 326 (PRASAD), CO 1, CO 7, LEPAKSHI, CO 2, SiA 3156, SiA 3088, CO 4, TNAU 186, CHITRA, CO 5, KRISHNA DEVARAYA, H 1, PS 4, RAU 2, H 2, RS 118, PRATAP KANGINI, HMT 100-1
<b>Finger millet</b>	VL 146, GPU 28, CO 12, KALYANI, VL 149, ML 365, CO 13, BM-1, VL 204, GPU 45, CO 14, BM-2, VL 315, GPU 48, TRY 1, A 404, VL 324, GPU 66, K 7, RAU 3, VL 347, GPU 67, GN 1, RAU 8, VL 352, HR 374, GN 2, PRM-1, L 5, HR 911, GN 3, PRM-2, MR 1, HAMSA, GN 4, PAIYUR 1, MR 2, OEB 10, GN 5, PAIYUR-2, MR 6, OEB 526, VR 708, INDIRA RAGI 1, INDAF 3, OEB 532, VR 762, KOPN 235, INDAF 5, OUAT 2, VR 847, DAPOLI 1, INDAF 7, BM-9-1, VR 936, PES 110, INDAF 8, DIBYASINHA, PR 202, NILACHAL, INDAF 9, CO 5, PR 230, ES 11, INDAF 15, CO 7, PR 1044, POORNA, KMR 204, CO 8, PR 2350 (Padmavathi), KMR 301, CO 9, PR2614, GPU 26, CO 10, PPR 2700

### 3.1.53 AICRP on Small millets, GKVK, Bengaluru

As the Nodal centres for DUS testing Small millets and developing DUS test guidelines for the following crop species.

**Table 83:**Progress in maintenance of crops at DUS centre

<b>Kodo millet</b>	RK 390-25, DPS 9-1, RK 65-18, JK 13, JK 41, JK 48, JK 62, JK 65, JK 76, JK 98, JK 106 , JK 136, JK 155 (RBK155), JK 439, JNK 364, JNK 101, CO 2, CO 3, TNAU 86, Indira kodo 1, Niwas 1, GK 2, APK 1, PSC 1, K 1, GPUK 3
<b>Little millet</b>	OLM 20, JK 36, Paiyur 2, OLM 36, CO 2, Birsagundli 1, OLM 203, Co 3, K 1, OLM 208, CO 4, Dindori 1, OLM 217, TNAU 63, Gujaratvari 1, JK 8, Paiyur 1
<b>Barnyard millet</b>	CO 1, VL 172, RAU 3, CO 2, VL 181, RAU 11, K 1, VL 207, Anurag, VL 21, K 2, VL 29, PRJ 1
<b>Proso millet</b>	TNAU 145, CO 3, K 1, TNAU 151, CO 4, BR 7, TNAU 164, CO 5, GPUP 8, TNAU 202, PRC 1, GPUP 21

### 3.1.54 ICAR-Central Institute for Subtropical Horticulture, Lucknow



Centre has several mandated crops whereas Mango has already been notified for registration and in other crops, like Guava, it is developing DUS guideline Brief progress is as follows:

- 772 accessions were maintained in field gene bank. During the year, 42 varieties were characterized and 40 farmers' varieties were collected.
- On-site DUS testing was continued for 37 farmers' varieties at Malihabad following *on-site* registration guidelines. Eleven varieties were not in flowering; thus, data could be collected on 26 varieties.
- DUS awareness programme were organized at two places – one in Hot spot of mango diversity at Murshidabad (West Bengal) and another at Malda. As a result, 15 applications for registration of farmers' mango varieties were prepared which are in process of submission to the PPV & FRA.
- Diversity Show for the display of farmers and other varieties was organized at four places during the month of June-July.

### 3.2 NATIONAL REVIEW MEETING OF DUS CENTRES AND PROJECTS

National Review meeting of DUS centres and projects were organized at MPKV, Rahuri during Feb 26-27, 2016 which was attended by more than 100 participants with the gracious presence of Dr K P Viswanatha, Hon'ble Vice Chancellor; Dr K D Kokate, Director (R) and other senior officers from MPKV, Rahuri; Directors/Project Coordinators of ICAR Institutes, Nodal Officers from DUS centres and representatives from private seed industry apart from Chairperson, Registrar General and other officers from the Authority. The technical programme consists of 8 sessions as per the following:

- 1<sup>st</sup> Session: DUS testing, Maintenance Breeding: Horticulture Group: Chairman: Dr N K Krishna Kumar, the then DDG (Hort.), ICAR
- 2<sup>nd</sup> Session: Horticultural Crops, Field Gene Bank and on-site DUS Testing: Chairman: Dr M R Dinesh, Director, IIHR

- 3<sup>rd</sup> Session: Status of DUS Testing and filling in Commercial Crops: Chairman: Dr V A Parthasarthy, Former Director, IISR
- 4<sup>th</sup> Session: Development of Guidelines and Testing in Commercial & other crops: Chairman: Dr M Anandaraj, Director, IISR
- 5<sup>th</sup> Session V: DUS Testing in Cotton: Chairman: Dr N K Biradar Patil, UAS Dharwad
- 6<sup>th</sup> Session: Status and Analysis of issues for DUS testing in major crops: Chairman: Dr J S Chauhan, ADG (Seeds), ICAR
- 7<sup>th</sup> Session: Round Table of Stakeholders: Chairman: Dr Sanjeev Saxena, ADG, IPR, ICAR
- 8<sup>th</sup> Session Farmers' variety registration, Documentation and PBR Landscaping: Chairman: Dr Sanjeev Gupta, PC(MULLaRP), IIPR

The final recommendations of the Review meeting are as following:

- Crop Directorates in ICAR shall make effort to register every public bred varieties which are notified under Seeds Act, 1966 and other types of varieties under New/VCK category
- IIHR and PPV&FRA shall make joint efforts to collect, document and mentor communities to file PVP applications where GI has been granted like, Naga chilli so that communities who are maintaining these economically important varieties own their IP
- Male sterility can be included in the descriptor list in Chilli
- For On-site DUS testing, Authority shall constitute Expert Committee in consultation with the Nodal Centre for the Crop species concerned and the manner and conduct of On-site testing need a wider consultation involving suitable crop and legal experts
- Centres shall not comment in public and share any data/information about whether a variety can be registered based on DUS testing as only PPV&FRA is competent so

- Field gene bank(s) shall submit/mentor communities to document/file applications in traditional varieties and varieties developed in respective institutes
- NRC Orchid shall have made attempts to file applications seeking PVP in suitable species and guidelines may contain only example varieties
- Disease free banana suckers should be submitted by the Applicants and the institute will raise disease free tissue culture raised plants. NRC Banana must make concerted efforts to register/protect the varietal wealth in India
- DUS guidelines for pummelo and lemon for North Eastern region should be considered. Varieties of citrus recommended for AICRP for AICRP must be released through Central Varietal Release Committee (CVRC). After getting clearance, the applications should be send to PPV & FRA
- List of crops in horticultural crops including medicinal plants and spices need to be prioritized for DUS testing
- DUS test fees collected could be made available to DUS testing centres for conduct of trials for registration
- Common reference varieties be maintained and used in DUS Testing at IIVR/IIHR and Authority shall strengthen centres for protected cultivation. Special traits e.g. abiotic /biotic resistance can be included in DUS guideline. Centres should be given adequate grants for maintenance and DUS Testing in a timely fashion. Maintenance of protection by paying annual fee is required only if economic value of the variety is recognized. DUS testing in Breeders' plot need to be evaluated and discussed threadbare
- Authority shall generate DUS database for 67 species and update existing database for 35 species in IINDUS
- Industry interface meeting need to be conducted soon

### 3.3 NATIONAL GENE BANK OF PPV&FRA

The National Gene Bank of PPV&FR Authority was established at the old Campus of National Bureau of Plant Genetic Resources (NBPGR), Pusa, New Delhi. PPV&FR

Authority is managing the rented facility for safe custody under Medium term storage. The working of medium term facility is being monitored by the technical experts of NBPGR. The temperature of medium term storage is maintained at 4°C and the relative humidity has been adjusted to 35%. The relative humidity and temperature of the medium-term storage (MTS) module and the DUS test repository are recorded everyday by the electrician and major problems, if any, are brought to the notice of technical personnel at NBPGR. Technical help was offered time to time to the Authority official for packaging, sealing and processing the variety samples for DUS test. 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.

#### 3.3.1 Medium Term Storage of seeds of registered varieties

Seed samples of 900 extant varieties notified under section 5 of the Seeds Act, 1966; 213 VCK & EDV varieties, 297 of new varieties, and 781 farmers' varieties are being kept in seed cabinets designed specifically for seed storage. These are being kept under controlled climatic conditions at 4°C temperature with 30±5 % RH (relative humidity) to ensure that seed samples are physiologically viable for a long duration. The seed samples of registered varieties are stored up to the period of protection and viability will be checked at prescribed intervals as per crop specific standards and

requirement. Following seeds of registered varieties kept in MTS at National Gene Bank of PPV&FRA were tested after 5 years of their storage.

**Table 84:** Progress of seed samples of registered varieties conserved in the National Gene Bank under medium term storage condition

Total Gene Bank Holding upto 31-March-2016												
S. no.	Crops	DUS Test Repository (STS) (Candidate varieties for DUS test kept at 22°C)					Medium Term Storage (4°C)					GRAND TOTAL (A+B)
		SEED RECEIVED A					CERTIFICATE ISSUED B					
		New	VCK +EDV	Farmer	Extant Notified	Total (A)	New	VCK +EDV	Farmer	Extant Notified	Total (B)	
1	Bread Wheat	16	5	43	2	66	11	5	3	106	125	191
2	Brinjal	117	116	11	1	245				10	10	255
3	Cabbage	15	1			16				1	1	17
4	Castor	5	2	2		9	2	1		4	7	16
5	Cauliflower	39	11	3		53				3	3	56
6	Chickpea	2		25		27			1	40	41	68
7	Cotton	388	270 158	2	7	825	45	31+1		79	156	981
8	French Bean			2		2						2
9	Pea	2	2	15		19				26	26	45
11	Green Gram	4	3	18	1	26		1		29	30	56
12	Groundnut			8		8				33	33	41
13	Jute	12	1	4		17	4			10	14	31
14	Lentil			33		33				11	11	44
15	Linseed			15	2	17				5	5	22
16	Maize	217	29	74		320	62	41	5	74	182	502
17	Mustard	10	8	39	1	58	2	11	1	49	63	121
18	Okra	66	39	4		109				8	8	117
19	Onion	1	11	4	5	21				4	4	25
20	Pearl Millet	116	10	4	1	131	29	29		49	107	238
21	Pigeon Pea	19	5	50		74	4	1	3	20	28	102
22	Rapeseed			2		2				12	12	14
23	Rice	239	33	2551	7	2830	63	37	764	156	1020	3850
24	Safflower		1	1	1	3				6	6	9
25	Sesame			13	2	15				5	5	20
26	* S m a l l Cardamom									1	1	1
27	Sorghum	74	30	4	1	109	46	36	4	36	122	231
28	Soybean	3		5	7	15	1	1		21	23	38
29	Sunflower	76	10			86	28	15		9	52	138
30	Tomato	102	97	6		205				7	7	212
31	Urdbean	1	1	39		41				16	16	57
32	Ginger			4		4						4
33	*Sugarcane			2		2				38	38	40
34	*Potato	11		3		14		2		13	15	29
35	*Rose											
36	Kidney Bean			12		12		1		8	9	21

Total Gene Bank Holding upto 31-March-2016												
S. no.	Crops	DUS Test Repository (STS) (Candidate varieties for DUS test kept at 22°C)					Medium Term Storage (4°C)					GRAND TOTAL (A+B)
		SEED RECEIVED A					CERTIFICATE ISSUED B					
		New	VCK +EDV	Farmer	Extant Notified	Total (A)	New	VCK +EDV	Farmer	Extant Notified	Total (B)	
37	Corriander	1		6		7						7
38	Garlic			9		9			2	2		11
39	Turmeric								2	2		2
40	Bitter Gourd		19	8	1	28						28
41	Pumpkin			11		11						11
42	Bottle Gourd		8	7	1	16			1	1		17
43	Cucumber	7	15	1		23						23
44	Coconut								6	6		6
45	Barley	3	4	8		15						15
46	Fenugreek			2		2						2
47	Watermelon		6			6						6
48	Muskmelon	1				1						1
49	Finger Millet	2				2						2
50	Foxtail Millet			2		2						2
51	Chilli											
	<b>TOTAL</b>	<b>1549</b>	<b>895</b>	<b>3052</b>	<b>40</b>	<b>5536</b>	<b>297</b>	<b>213</b>	<b>781</b>	<b>900</b>	<b>2191</b>	<b>7727</b>

### 3.3.2 Short Term storage of seeds of varieties under DUS testing

Conducting of DUS test(s) as per the statutory provisions are 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 also required to submit only the prescribed quantities of seeds as farmers are not required to pay any fee for DUS testing/ grow out test.

Seed samples of new varieties (1549), VCK (895) & EDVs (both including parental materials), extant notified

(40) farmers' varieties (3052) are being maintained under short term storage as on 31 March, 2015. 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.

### 3.3.3 Seed Standards

Applicants are required to submit seeds sealed in triple layer aluminum 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
- 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 85.

**Table 85:** Seed /Planting material requirements/standards for medium term storage and DUS testing

S. no	Crop	Date of Notification	Seed Requirement Candidate /Parental line Hybrid (each) in gm unless otherwise mentioned		Germination %	Moisture %	Physical Purity %	Tentative Season–Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
1	Rice ( <i>Oryza sativa</i> L.)	01/11/2006	3000	1500	80	11-12%	98	Kharif–March-Apr	230x300
2	Bread Wheat ( <i>Triticum aestivum</i> L.)		3000	1500	95	8-9%	98	Rabi-Aug	230x300
3	Maize ( <i>Zea mays</i> L.)		3000	1500	80(inbred/SCH) 90 (var/DCH)	8-10%	98	Kharif-Mar-AprRabi-Aug	230x300
4	Sorghum ( <i>Sorghum bicolor</i> (L.) Moench)		3000	1500	80(inbred/SCH) 90 (var/DCH)	10-12%	98	Kharif- March Rabi-Aug	230x300
5	Pearl Millet ( <i>Pennisetum glaucum</i> (L.) R.Br.)		1000	500	80(inbred/SCH) 90 (var/DCH)	10-12%	98	Kharif-March	165x220
6	Chickpea ( <i>Cicer arietinum</i> L.)		2000(desi) 3000(kabuli)	n.a.	80	8-9%	98	Rabi-Aug	230x300
7	Green Gram ( <i>Vigna radiata</i> (L.) Wilczek)		1000	n.a.	80	8-9%	98	Kharif-March	230x300
8	Black Gram ( <i>Vigna mungo</i> (L.) Hepper)	01/11/2006	1000	n.a.	80	8-9%	98	Kharif-March	165x220
9	Field Pea ( <i>Pisum sativum</i> L.)		2000	n.a.	80	8-9%	98	Rabi-Aug	230x300
10	Kidney Bean ( <i>Phaseolus vulgaris</i> L.)		3000	n.a.	80	8-9%	98	June-July	230x300
11	Lentil ( <i>Lens culinaris</i> Medik)		1000	n.a.	80	8-9%	98	Rabi-Aug	230x300
12	Pigeonpea ( <i>Cajanus cajan</i> (L.) Millsp.)		2000	1500	80	8-9%	98	Kharif-Mar	230x300
13	Cotton ( <i>Gossypium hirsutum</i> L.)	31/12/2007	2000	1000	75	10	98	Kharif- North- Feb Peninsular- South-May	230x300
14	Cotton ( <i>G. barbadense</i> L.)		2000	1000	75	10	98	Kharif- North- Feb Peninsular- South-May	
15	Cotton ( <i>G. arboreum</i> L.)		1500	750	75	10	98		
16	Cotton ( <i>G. herbaceum</i> L.)		1500	750	75	10	98		
17	Jute ( <i>Corchorus capsularis</i> L.)		1000	500	85	9	97	Pre-Kharif-early Jan	165x220
18	Jute ( <i>Corchorus olitorius</i> L.)		1000	500	85	9	97	Pre-Kharif-early Jan	
19	Sugarcane ( <i>Saccharum</i> L.)	27/07/2009	400 single bud	-				As per the zone	
20	Ginger ( <i>Zingiber officinale</i> Rosc.) #		5000 (5.0 kg (clean and wholesome rhizome of 25-30 g each of 150 pieces))	-				Kharif/Pre Kharif	
21	Turmeric ( <i>Curcuma longa</i> L.) #		6 kg (clean and whole sum fresh rhizome with 35-40% moisture content)	-		35-40		Kharif/Pre Kharif	

S. no	Crop	Date of Notification	Seed Requirement Candidate /Parental line Hybrid (each) in gm unless otherwise mentioned		Germination %	Moisture %	Physical Purity %	Tentative Season– Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
22	Indian Mustard ( <i>Brassica juncea</i> L. Czern & Coss)	30/04/2010	500	250				Oct	
23	Karan rai ( <i>Brassica carinata</i> A Braun)		500	250				Oct	
24	Rapeseed-Mustard ( <i>Brassica rapa</i> L.)		500	250	85	8	98	Aug-Sept	165x100
25	Gobhi sarson ( <i>Brassica napus</i> L.)		500	250				Oct	
26	Groundnut ( <i>Arachis hypogaea</i> L.)	30/04/2010	3000(Spanish & Valencia)	1500	80	9	98	<i>Kharif:</i> May-June <i>Rabi:</i> Aug-Sep	300x450
			8000 (kernel) for Virginia bunch and runner type	4000					
27	Soybean ( <i>Glycine max</i> (L.) Merrill)		3000	---	70	9	98	Apr-May	230x300
28	Sunflower ( <i>Helianthus annuus</i> L.)		3000	2000	70	9	98	July-Aug	230x300
29	Safflower ( <i>Carthamus tinctorius</i> L.)		3000	1500	80	9	98	June-July	230x300
30	Castor ( <i>Ricinus communis</i> L.)		6000	2500	70	10	98	April-May	300x450
31	Sesame ( <i>Sesamum indicum</i> L.)		500	250	80	9	97	April -May	165x100
32	Linseed ( <i>Linum usitatissimum</i> L.)		500	250	85	9	98	Jul-Aug	165x100
33	Black pepper ( <i>Piper nigrum</i> L.) #		40 Root Cutting	-				Kharif/Pre Kharif	
34	Small cardamom ( <i>Elettaria cardamomom</i> Maton) #		50 Suckers	-				Kharif/Pre Kharif	
35	Tomato ( <i>Lycopersicon lycopersicum</i> (L.) Karsten ex. Farw.)	02/12/2010	15(open field) 8 (Greenhouse)	same	85	8	98	April- May	165x100
36	Brinjal ( <i>Solanum melongena</i> L.)		15(open)	15(open)	85	8	98	April- May	165x100
37	Okra ( <i>Abelmoschus esculentus</i> (L.) Moench.)	02/12/2010	200	-				April-May	
38	Cauliflower ( <i>Brassica oleracea</i> L.var. botrytis)		15	15	*	*	*	April- May	165x100
39	Cabbage ( <i>Brassica oleracea</i> L. var capitata)		15	15	*	*	*	April- May	165x100
40	Potato ( <i>Solanum tuberosum</i> L.) #		300 Fully matured tubers (Tuber size should be 3.5-5.0 cm)	-				Oct	
41	Onion ( <i>Allium cepa</i> L.) #		100 1200 bulblet (multiplier) 50 bulbs (MS lines)	50	70	*	*	As per respective sowing seasons	
42	Garlic ( <i>Allium sativum</i> L.) #		2000 viable clove	--	*	*	*	Aug-Sep	-
43	Rose ( <i>Rosa spp.</i> (other than <i>R.damascena</i> )) #		9 grafted/budded plants	-				Post Kharif/Oct	
44	Chrysanthemum ( <i>Chrysanthemum spp.</i> ) #		100 two node terminal rooted cutting taken from mother plant	-				As per season in the applicable zone	
45	Mango ( <i>Mangifera indica</i> L.) #		14 grafted plant	-				Kharif	

S. no	Crop	Date of Notification	Seed Requirement Candidate /Parental line Hybrid (each) in gm unless otherwise mentioned		Germination %	Moisture %	Physical Purity %	Tentative Season– Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
46	Duram wheat ( <i>Triticum durum</i> Desf.)	18/08/2011	3000	1500	95	8-9%	98	Rabi: Oct	
47	Dicoccum wheat ( <i>Triticum dicoccum</i> L.)		3000	1500	95	8-9%	98	Rabi: Oct	
48	Other <i>Triticum</i> sp		3000	1500	95	8-9%	98	Same as wheat	230x300
49	Isabgol ( <i>Plantago ovata</i> Forsk)	18/08/2011	250	-	95	8-9%	98		
50	Menthol mint ( <i>Mentha arvensis</i> L.) #		5 Kg clean and wholesome sukera (underground stolons) 10-15 cm long	-					
51	Damask Rose ( <i>Rosa damascena</i> Mill) #		100 Cutting	-					
52	Periwinkle ( <i>Catharanthus roseus</i> L.) #		10 gm	-					
53	Brahmi ( <i>Bacopa monnieri</i> L. Pennell) #	18/08/2011	500 Cutting (clean and wholesome vegetative parts 10-15 cm long)	-	85%	8	98		
54	Coconut ( <i>Cocos nucifera</i> L.)#		30 number of one year old seedlings raised in polybag containing standard potting mixture	-					
55	Orchids ( <i>Cymbidium Sw.</i> ) #	27/03/2012	20 plants (10 for each Centre) with at least two pseudobulbs and one back-bulb. Age 3-4 years	-					
56	Orchids ( <i>Dendrobium Sw.</i> ) #		20 plants (10 for each Centre) with at least two shoots. Age 2-3 years	-					
57	Orchids ( <i>Vanda jones ex R. Br.</i> ) #		20 plants, Age 2-3 year	-					
58	Pomegranate ( <i>Punica granatum</i> L.) #	15/04/2014	one year old 10 propagules raised through air layered/ plants rooted stem cutting (multiplied from the same tree) or tissue culture raised plants, etc. for each location.	-					
59	Orchid ( <i>Cattleya Lindl.</i> ) #		20 plants two or three year old with at least two shoots	-					
60	Orchid ( <i>Phalaenopsis Blume</i> )#		20 flowering size plants	-					
61	Casurina ( <i>Casurina equisetifolia</i> L.) #		50 rooted cutting (at least three-month-old measuring minimum 20 cm from collar to apical tip with a well-developed root system)	-					
62	Casuarina ( <i>Casuarina junghuhniana</i> Miq.) #			-					
63	Bitter gourd ( <i>Momordica charantia</i> L.)		300 gm or 1500 no	-	80	8	98	April	230x300
64	Bottle gourd ( <i>Lagenaria siceraria</i> (Mol.) Standl.)		250 gm or 1500 no	-	80	8	98	April	230x300
65	Cucumber ( <i>Cucumis sativus</i> L.)		50 gm or 1500 no	-	80	8	98	April	230x300
66	Pumpkin ( <i>Cucurbita moschata</i> Duch. ex Poir.)		200 gm or 1500 no	-	80	8	98	April	230x300
67	Barley ( <i>Hordeum vulgare</i> L.)	1500	1000	95	8	98	Aug-Sep	230x300	
68	Coriander ( <i>Coriandrum sativum</i> L.)	250	-	80	8-9%	98	Aug-Sep	165x100	
69	Fenugreek ( <i>Trigonella foenum graecum</i> L.)	250	-	80	8-9%	98	Aug-Sep	165x100	



S. no	Crop	Date of Notification	Seed Requirement Candidate /Parental line Hybrid (each) in gm unless otherwise mentioned	Germination %	Moisture %	Physical Purity %	Tentative Season–Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
70	Almond ( <i>Prunus dulcis</i> (Mill.) D.A. Webb) #	15/04/2014	10 grafted or budded plants	-				
71	Apple ( <i>Malus domestica</i> Borkh) #		6 grafted or budded plants	-				
72	Pear ( <i>Pyrus communis</i> L.) #		6 grafted or budded plants	-				
73	Apricot ( <i>Prunus armeniaca</i> L.) #		10 grafted or budded plants	-				
74	Cherry ( <i>Prunus avium</i> L.) #		10 grafted or budded plants	-				
75	Walnut ( <i>Juglans regia</i> L.) #		10 grafted or budded plants	-				
76	Grapes ( <i>Vitis spp.</i> ) #		12 grafted plants (one yr old) for each location	-				
77	Indian jujube (Ber) ( <i>Ziziphus mauritiana</i> Lamk.) #		7 plants for each DUS centre (minimum age 3 months)	-				
78	Eucalyptus ( <i>Eucalyptus camaldulensis</i> Dehnh.) #		60 rooted plant (plant should be in 250 cc root trainer) having minimum age of 6 months	-				
79	Eucalyptus ( <i>Eucalyptus tereticornis</i> Sm.) #			-				
80	Tea ( <i>Camellia sinensis</i> ) #	16/10/2014	75 Plants (15-18 inches height), young plant having pencil thick stem with their own root	-				
81	Tea ( <i>C. assamica</i> ) #			-				
82	Tea ( <i>C. assamica</i> ssp lasiocalyx.) #			-				
83	Acid Lime ( <i>Citrus aurantifolia</i> Swingle) #		10 plants for each DUS centre. Age above six months	-				
84	Mandarin ( <i>Citrus reticulata</i> Blanco) #		10 plants for each DUS centre. Age above six months	-				
85	Sweet Orange ( <i>Citrus sinensis</i> (L.) Osbeck) #	10 plants for each DUS centre. Age above six months	-					
86	Bougainvillea ( <i>Bougainvillea Comm.</i> Ex Juss.) #	16/10/2014	10 Well rooted and established plant	-				
87	Banana ( <i>Musa spp.</i> ) #		40 Uniform tissue cultured plant in one submission per location	-				
88	Orchid ( <i>Oncidium sw.</i> ) #		20 Plants 2-3-year-old with at least two pseudobulbs/ shoots	-				
89	Canna ( <i>Canna</i> L.) #	21/01/2015	20 young plants or 20 matured rhizomes	-				
90	Gladiolus ( <i>Gladiolus</i> L.) #		30 Corms (4 - 4.5 cm in diameter)	-				
91	Muskmelon ( <i>Cucumis melo</i> L.)		100 gm seed for open field cultivation	-	80	8	98	
92	Watermelon ( <i>Citrullus Lanatus</i> (Thunb.) Mansf.) #	150 gm seed for open field cultivation	-	80	8	98		
93	Jasmine ( <i>Jasminum auriculatum</i> L.) #	02/07/2015	20 rooted plant	-				
94	Tuberose ( <i>Polianthes tuberosa</i> L.) #		75 Bulbs of more than 2 cm (diameter at broadest point) weighing 25-30 gm	-				

S. no	Crop	Date of Notification	Seed Requirement Candidate /Parental line Hybrid (each) in gm unless otherwise mentioned		Germination %	Moisture %	Physical Purity %	Tentative Season– Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
95	Papaya ( <i>Carica papaya</i> L.) #	02/07/2015	20 gm for gynodioecious varieties & 40 gm for dioecious varieties in both season	-	60	7% for ambient storage	98% for varieties & 90% for Hybrids		
96	China Aster ( <i>Callistephus chinensis</i> (L.) Nees.)		2 gm each in two packets	-	60	6-9%	98		
97	Peach ( <i>Prunus persica</i> L. Batsch.) #		10 grafted or budded plants	-					
98	Japanese Plum ( <i>Prunus salicina</i> L.) #		11 grafted or budded plants	-					
99	Strawberry ( <i>Fragaria x ananasa</i> Duch.) #	02/07/2015	120 runners or plant propagules or seedling plants (tissue cultured plant hardened at 4-5 leaf Stage)	-					
100	Chilli, Bell Pepper and Paprika ( <i>Capsicum annum</i> L.)		15 gm for Open pollinated crop & 10 gm for Hybrid and Parental line	-	85	8	98	Pre Kharif/Kharif	
101	Finger Millet ( <i>Eleusine coracana</i> (L.) Gaertn. )		250 gm & 10 Panicles	-				Kharif: July	
102	Foxtail Millet ( <i>Setaria italica</i> (L.) Beauv)	02/07/2015	250 gm & 10 Panicles	-				Kharif: July	

\*as per breeder seed standards

### 3.3.4 Field Gene Banks

#### 3.3.4.1 Dr. B.S. Konkan Krishi Vidyapeeth (BSKKV), Dapoli

The centre is implementing Field Gene Bank project, viz., "Collection, maintenance, evaluation and development of descriptors of fruit, plantation crops and tree spices through Live Repository" and the mandated species are as follows: Mango, Citrus, Turmeric, Banana, Black pepper, Cardamom, Jackfruit and Nutmeg etc. The centre aims to collect and conserve inter and intra species diversity of these species especially available in western agro-climatic zone including western coastal zone. Brief progress is as follows:

**Table 86:** Varieties under maintenance/Characterised

S. no.	Crop	No. of varieties/ Ecotypes under maintenance	Characterised
1	Mango	36	In Progress
2	Turmeric	13 Ecotypes	13
		31 Varieties	31
3	Cardamom	5	-
4	Citrus	4 Species	-
5	Black pepper	6	-
6	Banana	30	30
7	Nutmeg	1 Variety (3 Plants)	-
8	Jackfruit	2 Variety (14 Plants)	-

Centre conducted 3 training cum awareness programme and the details are given hereof



**Table 87:** Training cum Awareness Programme conducted

S. no.	Place	Category of participants	No. of participants
1.	Dr. BSKKV., Dapoli	Scientists/Academic Staff/farmers	114
		Students	161
2.	College of Horticulture, Mulde Dist-Sindhudurg	Scientists/Academic Staff/farmers/ Students	105

#### 3.3.4.2 Dr. Y.S. Parmar University of Horticulture and Forestry, Regional Horticultural Research and Training Station, Mashobra, Shimla.

The objectives of the project include: Collection, establishment and maintenance of live repository of temperate fruits-apple, sweet cherry, pear and walnut; creation of the facility for development of DUS testing; morphological characterization of varieties from the DUS point of view; and collection of prominent farmers' varieties

#### Characterisation of varieties

During the fruiting season (2015) of mandated crops, characterization of apple (61 varieties) was carried out from the samples collected from the germplasm block of the station.

#vegetatively propagated plants

**Table 88:** Status of varieties in the maintenance breeding blocks at RHR&TS, Mashobra

S. no	Crop	Number of varieties	
		Maintenance block	Reference lock
1	Apple	271	112
2	Pear	78	32
3	Sweet Cherry	49	21

Observations on apple fruit characters – fruit weight, fruit size ( length and diameter), length/ diameter ratio, shape, ribbing, length of sepal, crowning at calyx end, bloom of skin, greasiness, ground colour, relative area of over colour, intensity of over colour, hue of over colour, pattern of over colour, area of russet around stalk attachment, area of russet on cheek, area of russet around eye basin, number of lenticels, length of stalk, thickness of stalk, depth of stalk, width of stalk cavity, size of eye, depth of eye cavity, colour of flesh and aperture of locules were recorded.

# Chapter 4:

## Development of DUS test Guidelines

### TASK FORCE ON DEVELOPMENT OF DUS TEST GUIDELINES

The Authority has established a number of Task Force committees to finalize the DUS testing guidelines to enlarge the registration basket of the Authority. The crops covered are aonla, amaranth, carnation, Orchids, Nutmeg, karanj, Amaranths, spinach, ridge gourd, noni, neem, Bael, Custard apple, Jamun, Jasmine, Kalmegh.

#### 4.1 MEETINGS OF THE TASK FORCE

##### 4.1.1 Meeting of Task Force for “Validation of DUS test guidelines for Amaranath, Palak & Ridge Gourd”:

The Meeting was held on 16 June, 2015 at University of Horticultural Sciences, Bagalkot, Karnataka under the Chairmanship of Dr. D.L. Maheswar, Vice-Chancellor, University of Horticultural Sciences, Bagalkot. Dr. R.R. Hanchinal, Dr. R.C. Agrawal & Dr. Ravi Prakash participated in the meeting., Dr. B. Varalakshmi Principal Scientist & PI, presented the draft DUS guidelines for their respective crop. DUS test guidelines of Amaranath, Palak & Ridge Gourd was finalized on the basis of observations and comments received from the members.

##### 4.1.2 Second meeting of Task Force for “Validation of DUS test guidelines for Carnation”:

The Meeting was held on 26 June, 2015 at Dr. Y. S. Parmar University of Horticulture & Forestry, Solan (HP) under the Chairmanship of Dr. Y. C. Gupta, Head of Division, Department of Floriculture and Landscape, Dr. Y.S. Parmar University of Horticulture and Forestry, Solan. Dr. R.R. Hanchinal & Dr. Ravi Prakash participated in the meeting. Dr. S. R. Dhiman Principal Scientist & PI, presented the draft DUS guidelines for their respective crop. DUS test guidelines of Carnation was finalized on the basis of observations and comments received from the members.

##### 4.1.3. Meeting of Task Force for “DUS Test Guidelines of Paphiopedilum & DUS Test Guidelines of Ascocentrum and its alliances”:

The Meeting was held on 29 June, 2015 at Gangtok, Sikkim under the Chairmanship Dr. A. N. Rao, Director (R & D), Centre for Orchid Gene Conservation of Eastern Himalayan Region, Hengbung, Senapati Distt., Manipur. Dr. R.R.

Hanchinal, Dr. R.C. Agrawal & Dr. Ravi Prakash participated in the meeting. Other members, e.g., Dr. K. P. Singh, Dr. C. K. Geeta, Dr. S. R. Dhiman, Dr. Lakshman Chandra Dewere also present including Dr. D. R. Singh & Dr. Dinesh Agrawal as a special invitee.

##### 4.1.4 Meeting of Task Force for “Validation of DUS test guidelines for Bael (*Aegle marmelos Correa*)”:

The Meeting was held 13 July, 2015 at Sardarkrushinagar, Dantiwada Agriculture University, Gujarat under the Chairmanship of Dr. Ashok Patel, Vice-Chancellor, SDAU, Dantiwada, Gujarat. Dr. R.R. Hanchinal & Dr. Ravi Prakash participated in the meeting. Dr. A. K. Singh, Senior Scientist (Hort.) & PI Bael project presented the draft DUS guidelines for their respective crop. Other members Dr. P. K. Singh, Dr. Devendra Pandey, Dr. S. Acharya, Dr. L. R. Verma were attended the meeting. DUS test guidelines of Bael was finalized on the basis of observations and comments received from the members.

##### 4.1.5 Meeting of Task Force for “Validation of DUS test guidelines for Nutmeg (*Myristica fragrans*)”:

The Meeting was held on 26 August, 2015 at College of Horticulture, Taluka- Kudal, Mulde, Dist- Sindhudurga under the Chairmanship of Dr. K. E. Lawande, former VC, BSKKV, Dapoli. Dr. R.R. Hanchinal & Dr. Ravi Prakash participated in the meeting. Dr. P. M. Haldankar, PI & Head, Department of Horticulture, Dr. BSKV presented the draft DUS guidelines for their respective crop. Other members including Dr. J. Rema, Dr. Madhukar Bachulkar, Dr. N. P. Singh, Dr. A. R. Desai were present. DUS test guidelines of Nutmeg was finalized on the basis of observations and comments received from the members.

##### 4.1.6 Meeting of Task Force for “Validation of DUS test guidelines for Elephant Foot Yam & Taro”:

The Meeting was held on 7 September, 2015 at NASC Complex, New Delhi under the Chairmanship of Dr. S. Edison, Former Director of CTCRI, Thiruvananthapuram. Dr. R.R. Hanchinal, Dr. R.C. Agrawal & Dr. Ravi Prakash of the Authority also participated in the meeting along with the officers of the Authority. Dr. Archana Mukherjee, PI made a detailed presentation on the DUS guidelines for their respective

crops. Other members including Dr. R. K. Tyagi, Dr. M. Unnikrishnan, Dr. B. Vimala and Dr. Jayanta Tarafdar were present. The Task Force discussed detailed descriptors under the guidelines and extensive suggestions were made by members. Chairman of the Task Force requested the PI to include the various suggestions given in the meeting and circulate the draft guidelines amongst the members for finalisation.

#### **4.1.7 Meeting of Task Force for “Validation of DUS test guideline for Aonla (*Emblica officinalis* Gaertn)”:**

The meeting was held at Central Horticulture Experiment Station (CHES), Vejalpur, Panchamahals, Gujarat under the Chairmanship of Dr. H. Ravishankar, Pr. Scientist, IIHR, Bangaluru. Dr. R.R. Hanchinal & Dr. Ravi Prakash participated in the meeting for finalizing the DUS test guidelines for Aonla. Dr. A. K. Singh presented the draft DUS guidelines for their respective crop. Other members Dr. P. K. Singh, Dr. Davendra Pandey were attended the meeting. DUS test guidelines of Aonla was finalized on the basis of observations and comments received from the members.

#### **4.1.8. Meeting of Task Force for “Development of morphological descriptors and DUS Test Guidelines for Jamun (*Syzygium cumini* Skeel)”:**

The Meeting was held at Central Horticulture Experiment Station (CHES), Vejalpur, Gujarat under the Chairmanship of Dr. Kirti Singh, Chairperson, World Noni Research Foundation, Jaunpur. Dr. R.R. Hanchinal & Dr. Ravi Prakash participated in the meeting. Dr. A. K. Singh Principal Scientist & PI, presented the draft DUS guidelines for their respective crop. Other members including Dr. V. A. Parthasarathy, Dr. S. B. Dandin, Dr. Sanjay Singh were present. DUS test guidelines of Jamun was finalized on the basis of observations and comments received from the members.

#### **4.1.9. Meeting of Task Force for “Validation of DUS test guideline for Betelvine (*Piper betle* L.)”:**

The meeting was held at UAS, Dharwad on 19 Oct, 2015 wherein the progress of characterization of morphological characters and recording of data was reviewed with PI and concerned scientists. Dr. D. P. Biradar, Vice-Chancellor, UAS, Dharwad was co-chaired the meeting. Dr. R.R. Hanchinal, Dr. R.C. Agrawal & Dr. Ravi Prakash participated in the meeting for finalizing the DUS test guidelines for Betelvine. Dr. (Mrs) K. Hima Bindu, Principal Scientist & PI, presented the draft

DUS guidelines for their respective crop. Other members Dr. Kandipudi Nirmal Babu, Dr. Z. Abraham, Dr. B.K. Das were attended the meeting. DUS test guidelines of Betelvine was finalized on the basis of observations and comments received from the members.

#### **4.1.10. Meeting of Task Force for “Validation of DUS test guideline for Jasmine (*Jasmine sambac* and *J. multiflorum*)”:**

The meeting was held at Tamil Nadu Agriculture University, Coimbatore on 5 November, 2015 under the Chairmanship of Dr. M. Kanan, Professor, Department of Floriculture and Landscaping, TNAU, Coimbatore. Dr. R.R. Hanchinal, Dr. R.C. Agrawal & Dr. Ravi Prakash participated in the meeting for finalizing the DUS test guidelines for Jasmine. Dr. Sujatha Nair presented the draft DUS guideline for the species. Other members including Dr. M. Ganga, Dr. M. Jawaharlal were attended the meeting. DUS test guidelines of Jasmine (*Jasmine sambac* and *J. multiflorum*) was finalized on the basis of observations and comments received from the members.

#### **4.1.11. Meeting of Task Force for “Validation of DUS test guideline for Marigold”:**

The second Meeting was held at Authority Committee Room, NASC, Complex, New Delhi on 21 March, 2016. Dr. R.R. Hanchinal, Dr. R.C. Agrawal & Dr. Ravi Prakash participated in the meeting. Dr. K.P. Singh, Principal Scientist & PI, presented the draft DUS guidelines for their respective crop. Dr. P. N. Mathur, Coordinator South Asia Office, Bioversity International chaired the meeting. Other members Dr. N. K. Dadlani, Dr. T. Janaki Ram, Dr. Tejaswani, Dr. Malavika Dadlani, Dr. K. V. Prasad, Dr. S. P. S. Raghava were attended the meeting. The draft of DUS descriptors of marigold was discussed in the Meeting of the Task Force at PPV&FR Authority for finalization of the DUS guidelines. The guidelines of marigold will be published later.

## **4.2 CENTRE-WISE DETAILS FOR THE DEVELOPMENT OF DUS TEST GUIDELINES**

### **4.2.1 Division of Vegetable Sciences, Indian Agricultural Research Institute (IARI), New Delhi**

**Amaranth:** Trial conducted during last season for 21 Amaranth varieties were analysed. Based on the descriptors, quantitative characters were evaluated for the following

characters:

- Renusree showed maximum leaf length (14.04 cm) and IC 551606 showed minimum (6.75 cm) among 21 varieties of Amaranth.
- Leaf width of Co-1 showed maximum (11.63 cm) and IC 551607 showed minimum (4.48 cm) value
- Plant height of Co-1 gave maximum height (155.40 cm) and Co-5 gave minimum height (43.02 cm) among varieties



**Palak:** Six varieties were showed in the field for evaluation under DUS project. Based on the descriptor quantitative characters were evaluated for the following characters:

- Leaf length: HS-23 showed maximum length (33.00 cm) and Arka Anupama showed minimum (26.13 cm) among 6 varieties of Palak which has been mentioned in the table.
- Leaf blade length: Pusa Harit showed maximum length (19.23 cm) and Arka Anupama showed minimum (16.00 cm)



- Leaf blade width: Pusa Harit gave maximum leaf width (10.75 cm) and Pusa Bharti gave minimum leaf width (8.87 cm) among varieties.

**Ridge gourd:** During the last season trial, the data of 8 varieties of Ridge gourd were analysed. Based on the descriptor quantitative characters were evaluated for the following characters:

- Leaf length: Pusa Nutan showed maximum length (14.43 cm) and Co - 1 showed minimum (11.77 cm) among 8 varieties of Ridge gourd
- Leaf width: Pusa Nutan showed maximum length (19.36 cm) and Pusa Nasdar showed minimum (15.91 cm)
- Pusa Nutan gave maximum Ovary length (5.79 cm) and Arka Sujat gave minimum ovary length (4.54 cm) among the varieties
- Pusa Nutan shows minimum fruit length (23.13 cm) and Arka Sujat shows maximum fruit length (27.37 cm).



#### 4.2.2 Division of Ornamental Crops, Indian Institute of Horticulture Research (IIHR), Bangalore

##### Jasmine

The centre is implementing a project entitled “Establishment of DUS nodal centre at IIHR for Jasmine (*Jasminum auriculatum*, *J.sambac*, *J.multiflorum* and *J.grandiflorum*)” and the brief progress is as follows:

**Table 89:** Varieties under maintenance/characterised

Crop/ species	Number of varieties under maintenance
<i>Jasminum auriculatum</i>	6
<i>J.sambac</i>	23
<i>J.multiflorum</i>	3
<i>J.grandiflorum</i>	3

**Table 90:** Other species of Jasmine collected at the centre

<i>J. primulinum</i>	<i>J. rigidum</i>
<i>J. arborescens</i>	<i>J. angustifolium</i>
<i>J. nitidum</i>	<i>J. humile (Syn. J. bignoneaceum)</i>
<i>J. calophyllum</i>	<i>J. flexile</i>

Four new species have been collected from the Western Ghats in Nilgiris district of Tamil Nadu and included in the germplasm. The species status of the new collections is being verified in consultation with the Botanical survey of India, Coimbatore Division.

#### 4.2.3 Indian Institute of Horticulture Research (IIHR), Bangalore

##### Marigold



The following varieties of marigold were characterised/ maintained at the centre: Pusa Narangi, Pusa Arpitta, Pusa Basanthi, Pusa Deep, Queen Sophia, Bolero Red, Orange Winner, Valencia yellow, Dainty Marietta, Red Brocade,

Gulzafri orange, Gulzafri yellow, Dainty Marietta, Red Brocade.,

*Tagetes minuta* IARI/AF/W-2, IARI/AF/W-4, IARI/AF/W-7, IARI/AF/W-8, IARI/AF/W-12, Solan, IIHRMO-2, IIHRMO-4, IIHRMFM-1, IIHRMO-3, IIHRMY-4, IIHRMY-5, IIHRMYS-3, Arka Bangara, Arka Agni, Arka Alankara.

#### 4.2.4 National Research Centre for Orchids (NRCO), Pakyong, Sikkim

##### Orchids

The mandated crops are different Orchid species like Cymbidium, Dendrobium, Vanda, Phalaenopsis, Cattleya, Oncidium, Paphiopedilum and Mokara.

**Table 91:** Varieties under maintenance/characterised

Species	No. of varieties under maintenance	Species	No. of varieties under maintenance
Cymbidium	25	Cattleya	9
Dendrobium	12	Oncidium	30
Vanda	15	Paphiopedilum	10
Phalaenopsis	30	Mokara	7

#### 4.2.5 ICAR-National Research Centre on Seed Spices (NRCSS), Tabiji, Ajmer



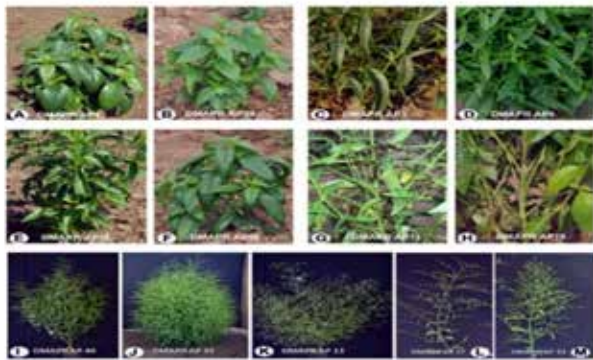
The centre is implementing a DUS Project for development of Fennel and Cumin DUS test guideline and maintenance of Coriander and Fenugreek seed at NRCSS,

Ajmer. Brief progress is as follows:

- **Fennel:** Seventeen varieties were characterised in DUS trials at two locations, viz., NRCSS, Ajmer and DMAPR, Anand during the Rabi season in 2015-16
- **Cumin:** Nine varieties were characterised in DUS trials at two locations, viz., NRCSS, Ajmer and DMAPR, Anand during the Rabi season in 2015-16
- **Coriander:** Two candidate varieties (Sufi Dhaniya and Katnahia Dhaniya) were tested in DUS trials at two locations, viz., NRCSS, Ajmer and DMAPR, Anand during the Rabi season in 2015-16. Twenty-five reference varieties were under maintenance in cage plot system.
- **Fenugreek:** Two candidate varieties (Dehati Methi and Methi-6) were tested in DUS trials at two locations, viz., NRCSS, Ajmer and DMAPR, Anand during the Rabi season in 2015-16. Eighteen reference varieties were under maintenance in cage plot system.

#### 4.2.6 ICAR-Directorate of medicinal and Aromatic Plants Research (DMAPR), Boriavi, Anand

##### Kalmegh



Distinct lines of *Andrographis paniculata*: (A) to (F) leaf types; (G) & (H) branching types; (I) to (K) plant types; (L) & (M) inflorescence types

Kalmegh (*Andrographis paniculata*) is an important medicinal herb used in bulk in the preparations of medicines of all Indian System of Medicines viz. Ayurveda, Unani, Siddha and Homeopathy. It is cultivated as crop in many states such as Madhya Pradesh, Orissa, West Bengal, Andhra Pradesh, Kerala, and Assam. Considering its importance as a crop, DUS descriptors were finalized with 15 DUS characters with their example varieties. The descriptor was developed

by the ICAR-Directorate of Medicinal and Aromatic Plants Research (ICAR-DMAPR), Boriavi, Anand, Gujarat in association with AICRP(MAP), BCKV, Kalyani. The DUS guidelines for the crop were submitted to the authority by the ICAR-DMAPR and a Task force Committee meeting under the Chairmanship of Dr. Satyabrata Maiti, Ex Director, ICAR-DMAPR was held for its finalization on 2 November, 2015 at ICAR-DMAPR.



The Committee critically reviewed the draft guidelines prepared by the centre and recommended suitable modifications viz., reducing the number of plant canopy shape groups, leaf lamina shapes, etc. in the guidelines for clarity. Finally, the DUS guidelines for Kalmegh were notified by the PPV&FR authority and published in *Plant Variety Journal* (Vol. 10, No. 01) in January 15, 2016.

#### 4.2.7 ICAR-CISH, Lucknow

##### Guava

The centre is implementing a DUS Project for development of Guava DUS test guideline. So far, 142 varieties of guava are being maintained in the field gene bank. Draft guidelines for guava and litchi were developed and submitted to the Authority and modifications were made as per the suggestions of the task force. Following this, two applications of farmers' varieties were filled and submitted for registration to the Authority.

#### 4.2.8 ICAR-Indian Institute of Horticultural Research, Bangalore and BCKV, Kalyani

##### Betelevine

Following varieties (4 released, 36 FV/VCK/germplasm) maintained at the centre\

**Table 92:** Varieties maintained at the centre



S. no.	IIHR Acc. No.	Local/Common Name
1	IIHR BV 10	Sangli Kapoori
2	IIHR BV 23	Banavalli
3	IIHR BV 24	Halisahar Sanchi
4	IIHR BV 25	Karapaku
5	IIHR BV 26	Bangla (M.P)
6	IIHR BV 27	Ghanagette
7	IIHR BV 28	Gachi Pan
8	IIHR BV 30	Ramtek Bangla
9	IIHR BV 32	Bangla Nagaram
10	IIHR BV 33	Godi Bangla
11	IIHR BV 34	Nov Bangla
12	IIHR BV 35	Bangla (U.P)
13	IIHR BV 36	Black Leaf
14	IIHR BV 37	Sirugamani 1
15	IIHR BV 40	Malvi (MP)
16	IIHR BV 41	Bangla Mandsoore
17	IIHR BV 42	Simurali Babna
18	IIHR BV 43	Simurali Babna Local
19	IIHR BV 44	Kali Bangla
20	IIHR BV 45	Khasi Pan
21	IIHR BV 46	Calcutta Bangla
22	IIHR BV 47	Swarna Kapoori
23	IIHR BV 48	Maghai
24	IIHR BV 49	Bangla Ganmala
25	IIHR BV 52	Hirehalli Local
26	IIHR BV 53	Mysore Local
27	IIHR BV 54	Harishpur Bangla
28	IIHR BV 55	Birkoli
29	IIHR BV 56	Balipan
30	IIHR BV 58	CARI-6
31	IIHR BV 59	CARI-2
32	IIHR BV 63	Desi Pan
33	IIHR BV 65	Dhoba Bangla
34	IIHR BV 67	Andaman 1
35	IIHR BV 68	Andaman 2
36	IIHR BV 71	Vellaikodi
37	IIHR BV 76	—
38	IIHR BV 95	Gujarat Local
39	IIHR BV 96	—
40	IIHR BV 96-1	—

#### 4.2.9 ICAR-CIARI, A&N Islands

##### Noni

The centre was entrusted with a DUS project for development of DUS guidelines in Noni. Brief progress is as follows: The quality seeds for four varieties under maintenance (CARI Sampada, CARI Rakshak, CARI Samridhi and CARI

Sanjivini) were collected and sown under the mother-bed for seedling production, distribution and area expansion. The air layering technology developed for Noni planting material production. These entire developed descriptors for the crop as per the suggestions given in the second meeting of the task force (4/2014). The study was designed to develop list of functional descriptors for assessing genetic diversity in *Morinda citrifolia* L. A total of 36 DUS characters were developed and documented.

#### 4.2.10 ICAR-CAZRI, Jodhpur

##### Cluster Bean, Moth Bean & Horsegram

Replicated field trials on cluster bean (35 genotypes), moth bean (14 genotypes) and horse gram (18 genotypes) were sown and the same are being maintained in the field following recommended cultural practices. Data were recorded on seedling characters in all the three mandate crops and on vegetative characters at flowering stage in cluster bean and moth bean. In case of horse gram recording of observations on vegetative characters is in progress.

#### 4.2.11 Dr. Y.S. Parmar University of Horticulture & Forestry, Solan

##### Willow

The center is implementing a project entitled, “Establishment of clonal bank (Nursery) and DUS specific characterization of Willow germplasm” and the work was entrusted to the Department of Tree Improvement and Genetic Resources, Solan, Himachal Pradesh with budgetary outlay of Rs. 25 lakh with the following objectives:

- Establishment of clonal bank of willow clones in experimental area of the university
- Development of DUS specific descriptors in willow
- Molecular profiling in selected individuals

**Table 93:** Brief technical progress

Name of the species	Varieties	Source (own released/ICAR/SAU)
<i>Salix</i> species	PN731, SE-63-016, PN227, SI-64-017, SI-63-007, J799, Kashmiri ( <i>Salix alba</i> ) NZ1140, 131/25, J194, J795, AUSTREE V-99, FLS, <i>S. acmophylla</i> , Devmata	SAU

**Table 94:** List and origin of germplasm collection at the DUS centre

S. no.	Species/ Clone	Species	Procured from/Origin
1	PN-731	<i>Salix nigra</i>	Newzealand
2	SI-64-016	<i>Salix jessoensis</i>	Italy/Japan
3	PN-227	<i>Salix matsudana</i>	Newzealand
4	FLS	<i>Salix tetrasperma</i>	Local
5	SI-64-017	<i>Salix alba</i>	S. Italy
6	SI-63-007	<i>Salix alba</i>	S. Italy
7	Kashmiri willow	<i>Salix alba cv coerulea</i>	U K
8	<i>Salix acmophylla</i>	<i>Salix acmophylla</i>	Local
9	J-799	<i>Salix alba x Salix matsudana</i>	UK/China
10	NZ-1140	<i>Salix matsudana x Salix alba</i>	Newzealand
11	131/25	<i>Salix babylonica x Salix alba</i>	Argentina
12	J-194	<i>S. matsudana x S.arbutifolia</i> <i>X S. matsudana</i>	UK/China
13	J-795	<i>Salix matsudana x Salix alba</i>	China
14	AUSTREE	<i>S.alba x S. matsudana</i>	UK/Newzealand
15	Kashmiri	<i>Salix alba</i>	Kashmir
16	V-99	<i>Salix rubens</i>	Croatia
17	DEVMATA	<i>Salix tetrasperma</i>	Collected from Rajasthan, India

**Table 95:** Observations were recorded from each plant in the bed and for leaf parameters 3 plants from each replication was selected

Stem characters	Plant height, Main shoot attitude, Main shoot: color in middle third (sunny side), Main shoot: hairiness, Main shoot: protrusion of lenticels, Main shoot: hairiness of leaf bud
Branch characters	Branch: angle between first 5 cm of branch and main shoot in middle third of main shoot, Branch: attitude, Branch: color (sunny side)
Leaf Characters	Leaf blade: length of Midrib, Leaf blade: width, Leaf blade: position of maximum width, Leaf blade: shape of base, Leaf blade: color of upper side, Leaf blade: hairiness of upper side, Leaf blade: hairiness of lower side, Petiole: length, Petiole: color of upper side
Stipule characters	Stipule length, Stipule type

**Table 96:** Observations in branch characters

S. no.	Clone	Branch: angle	Branch angle type	No. of branches (>5cm)	No. of branches type	Branch attitude	Branch color (upper side)	Branch color (lower side)
1	PN-731	53.20	medium	39.60	very many	curved up	Yellow Green	Yellow Green
2	SI-64-016	46.71	medium	18.67	medium	curved up	Yellow Green	Yellow Green
3	PN-227	47.33	medium	25.27	many	curved up	Yellow Green	Yellow Green
4	FLS	45.53	medium	13.93	Few	curved up	Yellow Green	Yellow Green
5	SI-64-017	57.53	Large	24.40	medium	curved up	Yellow Green	Yellow Green
6	SI-63-007	57.67	Large	16.93	medium	drooping	Grey Orange	Yellow Green
7	Kashmiri willow	55.67	Large	36.93	very many	curved up	Yellow Green	Yellow Green
8	<i>Salix acmophylla</i>	47.60	medium	12.13	Few	curved up	Yellow Green	Yellow Green
9	J-799	48.20	medium	26.53	many	curved up	Grey Brown	Yellow Green
10	NZ-1140	48.00	medium	23.73	medium	curved up	Yellow Green	Yellow Green

S. no.	Clone	Branch: angle	Branch angle type	No. of branches (>5cm)	No. of branches type	Branch attitude	Branch color (upper side)	Branch color (lower side)
11	131/25	47.40	medium	29.67	many	curved up	Yellow Green	Yellow Green
12	J-194	48.67	medium	36.87	very many	curved up	Yellow Green	Yellow Green
13	J-795	51.13	medium	28.47	many	curved up	Grey Purple	Yellow Green
14	AUSTREE	52.60	medium	17.73	medium	curved up	Yellow Green	Yellow Green
15	Kashmiri	47.20	medium	8.67	Few	curved up	Grey Orange	Yellow Green
16	V-99	61.13	Large	25.13	many	drooping	Yellow Green	Yellow Green
17	DEVMATA	47.73	medium	9.67	Few	curved up	Yellow Green	Yellow Green

#### 4.2.12 Central Sericultural Research and Training Institute, Central Silk Board, Mysuru

##### Mulberry

The centre is developing DUS guidelines for commercially important species like mulberry under the project entitled, “Development of distinctness, Uniformity, and Stability (DUS) descriptors for Mulberry (*Morus* sp.) and its validation” with the following objectives:

- To Develop and validate descriptors for mulberry
- Identify distinctiveness and specific morphological and biochemical/ molecular markers and its stability
- To characterize the extent of variability
- Develop database for the descriptors of mulberry to add on to INDUS (India Database for DUS)
- Characterization of characters for assessment of DUS test
- To develop DUS test guidelines for mulberry

#### 4.2.13 Institute of Forest Genetics & Tree Breeding (IFGTB-ICFRE), Coimbatore

##### Teak & Melia



The project entitled “Development of descriptors and DUS testing guidelines for indigenous forest tree species (*Tectona grandis* and *Melia dubia*) and establishment of Field Gene Bank” is being implemented at IFGTB, Coimbatore, Tamil Nadu, India with the following objective

- To study the tree morphological characters of different populations/ clones for identification of Distinct and unique characters in Teak and Melia.
- To identify the stable characters across different locations/ years in teak and Melia.
- To establish germplasm bank for Teak and Melia with different population/ clones as reference collection.



In case of *Melia dubia*, studies were conducted in Panampally, Karur, Nellore, Tirupathi, Thithimathi, Hoskote, Annur and Chennai for developing DUS descriptors and DUS test guidelines. Variation in morphological characters in leaf, stem, bark and reproductive structures were studied. Studies were also conducted in clonal trials for quantifying the uniformity and stability of the selected morphological traits.

#### 4.2.14 Rain Forest Research Institute-ICFRE, Jorhat

##### Bamboo

The project entitled “Development of DUS descriptors and variability studies on *Bambusa balcooa* and *Dendrocalamus hamiltonii*” is being implemented at the Rain Forest Research Institute, Jorhat, for the development of DUS test guidelines for the above two species.

The project is being implemented at Rain Forest Research Institute, Jorhat with the following objectives-

- Documentation of morphologically distinct characters of *Bambusa balcooa* and *Dendrocalamus hamiltonii* for development of DUS descriptors.
- Establishment of germplasm bank of *Bambusa balcooa* and *Dendrocalamus hamiltonii*.
- Development of computer database of documented characters of the selected accessions.

The project collected reliable information on geographical and intra specific variation, which can be used to sort out economic characteristics as well as for intensification, conservation and sustainable utilization of

targeted species. Appropriate computer database of basic details will be generated to set descriptors for these species. Analysis and interpretation of such data would provide useful and practical information on these species which could be used as roadmap for other bamboo species.

#### 4.2.15 Forest College and Research Institute, TNAU, Mettupalayam, Coimbatore

##### Neem, Karanj & Jatropha

The project entitled “Developing DUS descriptors and test guidelines for tree species of Neem, Karanj and Jatropha” FCRI, Tamil Nadu Agricultural University, Metupalayam, Coimbatore with the following objectives:

- Development DUS descriptors for Jatropha
- Characterization of already developed descriptors for neem, and karanj and development of additional descriptors
- Development of reference collection for the targeted tree species
- Development draft guidelines for DUS testing of Neem, Karanj and Jatropha

# Chapter 5: Activities Related to Farmers

The PPV&FR Act, 2001 is a new legislation on IPR in plant varieties requires massive awareness amongst the farmers, breeders, scientists and other relevant stakeholders. The Authority believes in close association with the farmers, researchers, plant breeders, scientists, students, NGOs, and public and private organizations to disseminate its awareness. During the past nine 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 to sensitize the stakeholders. 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 pro-actively. The Cell is also responsible for training-cum-awareness programmes and other project activities after scrutiny and examinations of proposals received from various stakeholders.

A total of 334 training-cum-awareness programmes were organized through SAUs/ICAR institutes, Government Departments and NGOs with financial support from the Authority. The Authority participated in number of Farmers' Fairs, Exhibitions, National & International Workshops organized by various Organizations.



A National Seminar on “Take it to Farmers, the Farmers’ Rights through Awareness” at NASC Complex, New Delhi. The PPV&FR Authority convened a National Seminar on “Take it to Farmers the Farmers’ Rights through Awareness” on 07 July, 2015 at New Delhi. Dr. S. Ayyappan, Director General, ICAR & Secretary, DARE was the Chief Guest at the inaugural function. Dr. Prem N. Mathur, Regional Director, Asia-Pacific, Bioversity International Dr. R. K. Singh, IAS, Joint Secretary (Seed) DAC, Govt. of India, Dr. N. K. Krishna, DDG (Hort.), ICAR, GoI, Dr. A. K. Singh, DDG (Ext.), ICAR, GoI were the Guests of Honours. The objective

of the National Seminar was to disseminate the awareness of the farmers’ rights in the PPV&FR Act to the grass root level and make the PPV&FR Act farmer centric. Custodian farmers, seed savers and tribals are the main stakeholders and educating them about their rights is the essential for their welfare. To achieve the above objectives, the Authority requires the support and co-operation of all the extension machinery of the ICAR & the Department of Agriculture, Cooperation & Farmers Welfare and in particular the KVKs which are present in all the districts. On this occasion the Zonal Project Directors of all the eight zones of the country attended meeting along with the Director of Extension of the several SAUs, Director of Research, Directors of the ICAR Institutes & representatives from BAIF, DRI, Chitrakoot and Kadamba Marketing Souharda Sahakari LTD, Uttar Kannada. The Authority emphasized on early registration of extant varieties in general and farmers’ varieties in particular to protect the rights of farmers and mainstreaming unique farmers’ varieties for the informal seed chain and also informed that Govt. has notified only Rs. 10 for annual fee for the farmers and farmers can apply application for registration of any crops for registration of their varieties. During the National Seminar following three publications were released:

1. The Compendium of Farmers’ registered varieties, PPV&FRA upto 2014 was released by Dr. S. Ayyappan, Director General of ICAR and Secretary, DARE.
2. Take it to Farmer-The Farmers’ Rights through Awareness, PPV&FRA, New Delhi was released by Shri R. K. Singh, IAS, Joint Secretary (Seeds).
3. PPV& FR Act, 2001 “*Krishak ke liye vardan*” of KVK, BHU, Mirzapur was released by Dr. R. R. Hanchinal, Chairperson, PPV &FRA.



During the daylong session, the strategies were framed under the guidance of Dr. A.K. Singh, DDG (Extension), ICAR to involve the KVKs particularly in the agro-biodiversity hotspots for enhancing the awareness about the PGSC awards, rewards & recognitions, registration of the farmers' varieties, benefit sharing and compensation. DG, ICAR and DDG (Extension), ICAR assured their full co-operation to the Authority. At the end of the session, it was decided that Rs.6.40 lakh will be allocated to the Zonal Project Directors (ZPDs) for conducting two training programmes for each of the eight zones to train the trainers. The ZPDs will prepare a list of KVKs based on the Agro bio-diversity hotspots and submit to the Authority for allocating of funds on the basis of above criteria and an amount of Rs. 2,57,60,000/- will be given for conducting 312 trainings across eight zones throughout India to sensitize the farmers, group of farmers & farming communities including tribals about the PPV&FR Act.

## 5.1 NATIONAL GENE FUND

The National Gene Fund was constituted by the Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India under the PPV&FR Act, 2001 by giving an initial contribution of Rs. 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 97:** Status of National Gene Fund during 2015–16

Items	Amount (Rs.)
Opening balance as on 01 April, 2015	3,93,93,189
Contribution to Gene Fund	1,85,00,000
Annual fee received	89,69,296
Bank interest	23,11,840
Other Income	-
<b>Total</b>	<b>6,91,74,325</b>
Less: Administrative expenses	630
<b>Closing balance as on 31 March, 2016</b>	<b>6,91,73,695</b>

## 5.2 PLANT GENOME SAVIOUR COMMUNITY AWARDS, REWARDS AND RECOGNITIONS

The Authority has constituted five Plant Genome Saviour Community Awards of Rs. 10 lakh each w.e.f. 2009-10 to be awarded every year to the eligible farming communities engaged in the conservation and preservation of plant genetic resources. The Authority has also instituted 10 Plant Genome Saviour Farmers' Rewards and 20 Recognitions every year as per Rules 5 (2) of PPV & FRA (*Reward and Recognition from Gene Fund*) Rules, 2012. From 2013 Farmers' Rewards consisting a cash award of Rs. 1.5 Lakh and Recognitions consisting of cash award of Rs. 1.00 each farmer with citation and memento. The advertisement for these awards was published in the National dailies on 03 February, 2016 and the last date for receiving the application on 03.05.2016 for awards, rewards and recognitions for the year 2014-15.

### 5.2.1 Plant Genome Saviour Community Award 2013-14

The meeting of the Committee for selection of applications received for the Plant Genome Saviour Community (PGSC) Award- 2013-14' was held on 05.02.2016 under the chairmanship Dr. R. S. Paroda, former DG, ICAR & Chairman, TAAS. The Selection committee has recommended five communities for the consideration of the Awards of Rs. 10.00 Lakh for the year 2013-14 in this meeting. The recommendation of the committee has been submitted to the Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare for Government approval and Government approval also has been sent by DAC& FW on 01.11.2016.

### 5.2.2 Plant Genome Saviour Farmers Reward & Recognition 2014

A meeting of the 13-member Selection Committee to select applicants for the Plant Genome Saviour Farmers' Reward and Recognition 2013 & 2014' was held on 28 January, 2016 under the chairmanship of Shri Raghendra Singh (IAS), Additional Secretary (Extension), Ministry of Agriculture, DAC, New Delhi. The Selection Committee has recommended 6 applicants for the year 2013 and three applicants for the year 2014 for Reward and Recognition 2014 in this meeting. The summary of these awards conferred so far by the Authority to the farmers and the farming communities are summarized in the following table:

**Table 98:** Details of applications received for the "Plant Genome Saviour Awards"

S. No.	Name of the Award	2007-08		2008-09		2009-10		2010-11		2011-12		2012-13		2013-14		2014-15								
		Total Application Received	State Participated	Total Award Given	Total Application Received	State Participated	Total Award Given	Total Application Received	State Participated	Total Award Given	Total Application Received	State Participated	Total Award Given	Total Application Received	State Participated	Total Award Given (Approved by DAC)	Total Application Received	State Participated	Total Award Given					
	Plant Genome Saviour Community Recognition Certificate	-	5	5	15	-	4	-	-	-	19	11	7	-	-	-	-	-	-	-	-	-		
	Plant Genome Saviour Community Award	-	-	-	-	-	-	20	11	2	19	11	4	27	11	4	28	15	5	26	14	5	14	10
	Plant Genome Saviour Farmers' Reward	-	-	-	-	-	-	-	-	-	-	-	30	13	10	80	20	10	78	16	3	46	10	Under process
	Plant Genome Saviour Farmers' Recognition	-	-	-	-	-	-	-	-	-	-	-	30	13	15	-	-	4	-	-	11	46	10	

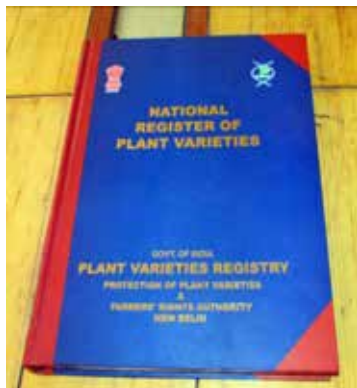
# Chapter 6:

## 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 Varieties Journal of India” as a monthly bilingual (Hindi & English) publication and made available to public on the first working day of each month on its official website as well as in the hard copy. This Journal has the equivalent status of a Gazette under the Regulations, 2006. The contents of Journal includes official and public notices, Gazette notifications, passport data of plant varieties along with photographs, DUS test guidelines of different crop species, details of certificate of registration and other related matters.

### 6.1 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 Headquarters 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, 419 varieties including 70 new varieties, 48 extant notified varieties, 63 Extant VCK and 238 belonging to Farmers’ Varieties which 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.

### 6.2 PUBLICATIONS OF THE AUTHORITY

In addition to Plant Variety Journal of India, which is published regularly in bilingual mode, i.e. in Hindi as well as in English the brochures on PPV &FR Act, 2001 and Farmers’ Rights were published and distributed in several meetings, training-cum- awareness programmes, workshops etc. The other brochures and posters, annual report and other publications were prepared and published by the Authority in Hindi language also. The Authority maintains its website in bilingual mode. DUS test guidelines were published regularly by the Authority in both the languages. During the current year 15 crop specific guidelines have been published and sent to Department of Agriculture, Co-operation and Farmers Welfare for notification. These crop species represent ornamental plants, spices, coarse cereals and fruits. 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 the requirement of the audience/occasion.



# Chapter 7: Development of Databases, IINDUS, NORV, Website and Information and Communication Technology (ICT)

## 7.1 DATABASES

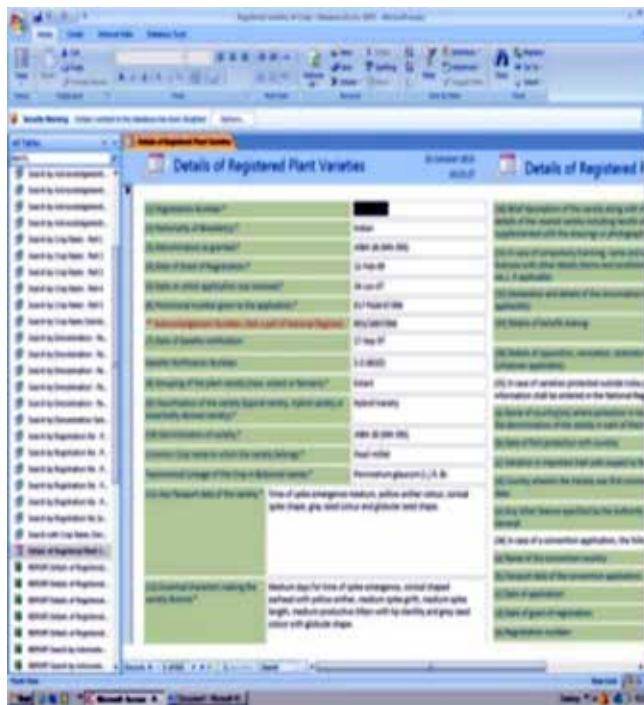
The Authority has maintained and updated its databases namely Indian Information System as per DUS Guidelines (IINDUS) and Notified and Released Varieties of India (NORV) for the selection of most similar reference varieties for DUS/GoT trials and also used for verifying the denomination and notification status. NORV database contains the details of the released plant varieties by the Central Variety Release Committee (CVRC), Agricultural Research Institutes and State Agriculture/Horticulture Department etc. and are used for the verification of the release details of the varieties claimed under the extant notified category.



## 7.2 WEBSITE

The website – www.plantauthority.gov.in– of the Authority is maintained in bilingual and contains information regarding Plant Variety Registry related information, list of crop species eligible for registration, DUS guidelines, draft DUS guidelines, list of DUS-Centre, fees, forms, seed / planting material requirement, status of applications, Gazette notifications, Plant Variety Journal information etc. Apart from this the homepage of the website also contains information regarding members of the Authority; overview of the PPV&FR Act, 2001; publications; important judgments, news items of the Authority, video films, photopedia, tenders, vacancies, announcements, and other relevant information are regularly updated. Various applications forms required by the users have also been made available in the website.

## 7.3 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 of PPV&FR Act, 2001. The same database is also maintained in digital form in e-National register. The software one can search data by registration number/crop name/ denomination and can generate report. There are many important entries like registration number, 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 backup of this software can be taken in any external storage devices.

#### **7.4 INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)**

The database of all the registered varieties in the PPV&FR Authority is maintained in a Register known as National

Register of Plant Varieties in hard copies as well as in digital form in e-National register. It is updated on regular basis. Authority also gives a copy of tenders on India Government Tender Information System (<http://tenders.gov.in>), update General Pool Residential Accommodation (<http://gpra.nic.in>), quarterly reports of RTIs (<http://cic.gov.in>), New Pension System Contributions Accounting System (<https://npsca-cra.com/CRA/>), Representation of Reserved Categories in Posts and Services in Govt. of India Monitoring System (<http://www.rrcps.nic.in>). Authority also maintains an e-National Register of the Registered Varieties. The Authority is also trying to fulfill the concept of national e-governance and has taken initiatives in this regard.

# Chapter 8: Administrative Matters

## 8.1 LEGAL CELL

The Legal Cell of the Authority has successfully defended all 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 Authority or Registrar were set-aside. The Hon'ble Delhi High Court on 04.11.2015 has reserved its order on constitutional validity of provisional protection enshrined in section 24 (5) of PPV&FR Act, 2001.

During the reporting period, 34 cases were pending against the Authority out of which six were disposed off and 28 cases are pending against the Authority as on 1 April, 2015. The details of forum and number of cases pending for adjudication are tabulated hereunder:

**Table 99:** Details of forum and number of cases pending for adjunction

Central Administrative Tribunal	High Courts	Supreme Court
8	18	2

The following Gazette Notifications were published:-

- Gazette Notification No. 1598 dated June 15, 2015 regarding Amendment in Annual fee for farmers' varieties shall be Rs. 10.
- Gazette Notification No. GSR 494 (E) dated June 15, 2015 regarding Amendment in PPV&FR Rules, 2003.

**Table 100:** Details of RTI applications received at PPV&FRA

S. no.	Name of Applicant	Date of application	Information Sought	Position of application	Remarks
1	Shri Neeraj Patel	07.04.2015	Sought 02 question	Reply sent on 27.04.2015	Transferred by DAC
2	Shri Mithila Roy	07.04.2015	Sought 01 question	Reply sent on 27.04.2015	Transferred by DAC
3	Ms. M. Uma Maheswari	09.04.2015	Sought 02 question	Reply sent on 05.05.2015	Direct Received
4	Shri Parthjalan	17.04.2015	Sought 02 question	Reply sent on 11.05.2015	Direct Received

- Gazette Notification No. GSR 495 (E) dated June 15, 2015 regarding Amendment in PPV&FR (Recognition and Reward from the Gene Fund) Rules, 2012.
- Gazette Notification No. GSR 496 (E) dated June 15, 2015 regarding Amendment in PPV&FRA Regulation 2006.
- Gazette Notification No. GSR 497 (E) dated June 15, 2015 regarding PPV&FRA Scheme, 2015.
- Gazette Notification S.O. 1796 (E) dated July 2, 2015 regarding notification of 10 crop species (not being extant varieties and farmers' varieties) (jasmine, tuberose, papaya, China aster, peach, Japanese plum, strawberry, chilli, bell pepper and paprika, finger millet and foxtail millet) for the purpose of registration of varieties.

## 8.2 RIGHTS OF 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 28 (list enclosed) applications either directly or through transfer from other departments seeking information under RTI Act, 2005. The information sought was made available within the stipulated time. There is no single application pending before first Appellate Authority or Chief Information Commissioner (CIC).

S. no.	Name of Applicant	Date of application	Information Sought	Position of application	Remarks
5	Shri Manoj Kumar Anand	20.04.2015	Sought 01 question	Reply sent on 18.05.2015	Transferred by DAC
6	Ms. Seema Singh	27.04.2015	Sought 10 question	Reply sent on 20.05.2015	Transferred by DAC
7	Shri Ashley Noel Concessio	05.05.2015	Sought 03 question	Reply sent on 21.05.2015	Received directly
8	Ms. N. Priyanka Evangilin	18.06.2015	Sought 1 question	Reply sent on 24.07.2015	Transferred by NRCMAP
9	Shri A. V. Srinivas	18.08.2015	Sought 03 question	Reply sent on 25.08.2015	Transferred by DAC
10	Ms. Neeti Wilson	11.08.2015	Sought 01 question	Reply sent on 25.08.2015	Direct Received
11	Dr. Ashwin Trivedi	Hearing in CIC on 18.08.2015	Sought 01 questions	Reply sent on 21.09.2015	Received through CIC
12	Mr. Vipindas	16.10.2015	Sought 02 question	Reply sent on 09.11.2015	Transferred by DAC
13	Dr. Alka	13.10.2015	Sought 21 question	Reply sent on 12.11.2015	Direct Received
14	Shri Anju Kumar	26.10.2015	Sought 02 question	Reply sent on 18.11.2015	Transferred by DAC
15	Shri T. P. Baiju	12.11.2015	Sought 01 questions	Reply sent on 10.12.2015	Transferred by DAC
16	Shri Chinmoy Roy	26.11.2015	Sought 06 questions	Reply sent on 23.12.2015	Direct Received
17	Shri Binod Malhotra	17.12.2015	Sought 01 question	Reply sent on 19.01.2016	Transferred by DAC
18	Dr. Ajay Kumar Kataria	29.12.2015	Sought 01 question	Reply sent on 20.01.2016	Transferred by DAC
19	Shri Onkar Prasad	18.01.2016	Sought 01 question	Reply sent on 17.02.2016	Transferred by DAC
20	Shri Rana Chetan Singh	19.01.2016	Sought 04 questions	Reply sent on 17.02.2016	Transferred by DAC
21	Shri Ehteshan Qutubuddin Siddiqui	01.02.2016	Sought 01 question	Reply sent on 18.02.2016	Transferred by DAC
22	Shri Chefukuri V N Srihari	02.02.2016	Sought 01 question	Reply sent on 18.02.2016	Transferred by DAC
23	Ms. Ekta Agarwal	05.02.2016	Sought 04 questions	Reply sent on 03.03.2016	Transferred by DAC
24	Shri Surajit Chanda	29.02.2016	Sought 01 questions	Reply sent on 03.03.2016	Direct Received
25	Shri Surajit Chanda	29.02.2016	Sought 01 questions	Reply sent on 29.03.2016	Direct Received
26	Shri Rakesh Dubbudu	10.03.2016	Sought 01 questions	Reply sent on 29.03.2016	Transferred by DAC
27	Shri Satyavir Kumar Pathania	01.03.2016	Sought 06 questions	Reply sent on 30.03.2016	Transferred by DAC
28	Shri Banarsi Ram	01.03.2016	Sought 01 questions	Reply sent on 30.03.2016	Transferred by DAC

# Chapter 9:

## Training–cum–awareness programmes

Sensitizing farmers, breeders, scientists and other relevant stakeholders about the PPV&FR Act, 2001 is legislation on IPR in Agriculture requiring awareness amongst the farmers, breeders, scientists and other relevant stakeholders. The Authority believes in close relation with the farmers, researchers, plant breeders, scientists, students, NGO, and public and private organisations. During the past ten years, Authority has released funds for training-cum-awareness programmes, Kisan Melas, Kisan Utsavs, agriculture 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, a 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 extending financial assistance for training–cum–awareness programmes organised by various organisations/stake-holders.

During 2015-16 the Authority organised total of 334 awareness programmes, workshops, seminars and Exhibitions throughout the country about the various provision of PPV&FR Act, 2001 to sensitize the farmers and other stakeholders in protecting their rights with respect to the contribution made by them in conserving, improving and making Plant Genetics Resources (PGR), available for the development of new plant varieties with the help of KVKs/ ICAR Institutes/SAUs/Government Departments and NGOs.

### ZONE-1

#### Training cum awareness programme organized by CSK HPKV, KVK, Mandi, H.P



CSK HPKV, Krishi Vigyan Kendra, Mandi, H.P. organized one day Training-Cum-Awareness Programme and exhibition with the financial assistance of PPV & FR Authority, New Delhi on different provisions of Protection of Plant Varieties & Farmers Rights Act (PPV&FRA), 2001 on March 23, 2016. It was also attended by more than 270 farmers from Mandi and neighboring districts. It was participated by Dr. K.K. Katoch, Hon'ble Vice Chancellor, CSKHPKV, Palampur as a Chief guest, Dr. PK Mehta, Director Extension Education, CSKHPKV, Palampur, Dr. Satish Paul, Principal Scientist (Plant Breeding), CSKHPKV, Bajaura District, Kullu, Himachal Pradesh, BDC Chaiman, Member Zila Parishad and Panchayat Pradhans of adjoining Gram Panchayats of Dharampur block, district Mandi, Himachal Pradesh also participated in programme.

An exhibition was also organized at this occasion to exhibit local traditional varieties. Farmers were made aware about the protection of plant varieties and their rights. Some of the farmers have brought their own traditional varieties of crops like Paddy, Buckwheat, Amaranthus, Finger millet etc. which were exhibited during the programme. Any unique character found in these varieties would be brought under the process of registration.

#### Training Programme organized by KVK, Hoshiarpur, Punjab.

The training-cum-awareness programme on PPV&FR Act, 2001 was organized on 26 February 2016 at Krishi Vigyan Kendra, Hoshiarpur, Punjab. About more than 170 farmers attended this programme from different village, of Hoshiarpur district. Besides that it was also participated by Dr. Paramjit Singh Dhatt, Chief Agriculture Officer, Hoshiarpur; Dr. Inderjit Singh Hundal, Programme Co ordinator, KVK, Hoshiarpur; Dr. Maninder Singh Bons, SMS Plant Protection, KVK, Hoshiarpur; Dr Ajay Singh SMS Animal Science, KVK, Hoshiarpur and Dr. S.P. Brar, Senior Extension Specialist, Department of Plant Breeding & Genetics, PAU, Ludhiana was the Chief Guest of the programme. There were lectures delivered to create awareness regarding protection of the Farmers' varieties & their rights among the farmers and also to have interaction and guide the farmers to register their traditional varieties with PPV & FR Authority which

are being maintained by farmers since time immemorial and activities of PAU, Ludhiana for germplasm conservation.

### Training Programme organized by KVK, B.B. Ashram, Rampura-Rewari, Haryana.



The training-cum-awareness programme on PPV&FR Act, 2001 was organized on 11<sup>th</sup> March 2016 at Krishi Vigyan Kendra, B.B. Ashram, Rampura-Rewari, Haryana. About more than 100 farmers attended this programme from different villages of Rewari district. Besides, it was also participated by Dr. Satvir Yadav, Regional Director, RRS CCS HAU, Bawal as a Chief Guest of the Awareness programme and resource persons Dr. Yashpal Yadav, Plant Breeder, Dr R.A.S. Lamba, Plant Breeder delivered valuable awareness lecture on Protection of Plant Varieties & Farmers Rights Act 2001 is to provide for the establishment of an effective system for protection plant varieties, the rights of farmers to encourage the development of new plant varieties.

## ZONE-2

### Training-Cum-Awareness Programme organized by KVK, Nawada (Bihar)



Krishi Vigyan Kendra (KVK) (Gram Nirman Mandal) Sarvodaya Ashram, Sokhodeora Nawada (Bihar) organized one day Training-Cum-Awareness Programme with the financial assistance of PPV & FR Authority, New Delhi on different provisions of Protection of Plant Varieties & Farmers Rights Act (PPV&FRA), 2001 on January 22, 2016. It was attended by 115 farmers of Nawada districts. Deputy Registrar, in his lecture, explained the official procedure of registration of farmer's varieties. He also elaborated in detail about broad activities & different provisions of PPV&FR Act 2001 with special focus on Plant Variety registration including farmer variety. The KVKs staff and farmers of different districts were very interested in the registration of varieties, and Plant Genome Savior Community Award and Plant Genome Savior Farmer Reward and Recognition. In the end of session there was an interaction session. The KVKs staff and farmers were keen to ask the question about farmer variety registration and different awards and Undersigned have replied the questions at their utmost satisfaction.

### Training-Cum-Awareness Programme organized by KVK, Aurangabad (Bihar)

Krishi Vigyan Kendra (KVK), Aurangabad (Bihar) organized one day Training-Cum-Awareness Programme with the financial assistance of PPV & FR Authority, New Delhi on different provisions of Protection of Plant Varieties & Farmers Rights Act (PPV&FRA), 2001 on January 21, 2016. It was attended by more than 200 farmers of Aurangabad & neighbor districts. Besides it was participated by Dr. Sudhir Kochhar, former National Director NAIP, ICAR New Delhi, Sh. Uma Kant Dubey, Deputy Registrar, PPV & FRA, Branch Office Ranchi (Jharkhand), Dr. Nityanand, Programme Co ordinator (PC) KVK Aurangabad (Bihar), Dr. Surendra Chaurasia, Programme Coordinator (PC) KVK Gaya (Bihar).

Deputy Registrar explained the official procedure of registration of farmer's varieties. He has also elaborated in detail about DUS/GOT test, protection period, National gene bank, field gene bank, Gene fund, benefit sharing and compensation, number of applications received and certificates issued. Deputy Registrar illustrated how to fill form correctly including farmer's variety registration form and different award, reward and recognition forms. Dr. Chandan Roy promised to provide all necessary help to the farmers from the university side vis-à-vis PPV&FRA for

registration. Dr. Sudhir Kochhar reiterated the history of agriculture to modern civilization to plant variety protection, farmers' rights and IPR in agriculture & Vote of thanks was given Dr. Nityanand, Programme Co ordinator, KVK Aurangabad.

#### **Training-cum-Awareness Programme organized by KVK, Hazaribag (Jharkhand)**



Holy Cross Krishi Vigyan Kendra (KVK) Hazaribag (Jharkhand) has organized one day Training-Cum-Awareness Programme with the financial assistance of PPV & FR Authority, New Delhi on different provisions of Protection of Plant Varieties & Farmers Rights Act (PPV&FRA), 2001 on March 05, 2016. It was attended by more than 150 farmers of Hazaribag districts. Besides it was participated by Dr. R. K. Singh, Programme Coordinator, Holy Cross Krishi Vigyan Kendra Hazaribag (Jharkhand), Sister Joshlein, Directress, HKVK, Hazaribag (Jharkhand), Dr. Anuranjan, Project Director, Agriculture Technology Management Agency (ATMA) Hazaribag (Jharkhand), Dr. Prashant Verma, Subject Matter Specialist (SMS) Horticulture, Sister Vinita, Subject Matter Specialist (SMS) Animal Science, Holy Cross Krishi Vigyan Kendra (KVK) Hazaribag (Jharkhand).

Deputy Registrar in his lecture explained the official procedure of registration of farmer's varieties. He has also elaborated in detail about broad activities & different provisions of PPV&FR Act 2001 with special focus on Plant Variety registration including farmer variety and also mentioned the registration period for field crops. The KVKs

staff and farmers were keen to ask the question about farmer variety registration and different awards and Undersigned have replied the questions at their utmost satisfaction. The video film on agro-biodiversity hot spot and Nukkad natak on Farmers Rights" was also played in the programme.

#### **Training Programme organized by KVK Jalpaiguri (W.B)**

Training-cum-Awareness programme on PPV&FRA was conducted at KVK, Jalpaiguri on 11 February, 2016 for the benefit of farmers. The programme was attended by more than 102 farmers and others. Dr. Bidhan Roy, Associate Professor, Dept. Of Genetics & Plant Breeding, UBKV delivered a lecture On Plant Varieties and Farmers Right Act & Survey, Selection & Conservation of local varieties. An exhibition was also organised where in local varieties of Rice and Vegetable of Jalpaiguri district were exhibited.

### **ZONE-3**

#### **Training Programme by Krishi Vigyan Kendra, Morigaon (Assam)**

In order to create awareness and participation of farmers from Morigaon district, Krishi Vigyan Kendra Morigaon under Assam Agricultural University organized a day-long Training-cum-Awareness programme at Kolamandir, Jagiroad. There were eighty progressive farmers from different parts of the District actively participated in the programme inaugurated by Dr A.C Sharma, Deputy Registrar PPVFR, Guwahati. Dr. K. K. Sarma, Chief Scientist, RARS, Lakhimpur, Dr. Dhiren Nath Choudhury, Senior Scientist, RARS, Lakhimpur, Dr A.C Sharma, Deputy Registrar PPVFR, Guwahati and Mr Nabajyoti Bhuyan, Jr Breeder were invited for the programme as resource person. The programme coordinator of Krishi Vigyan Kendra, Morigaon assured the participant for necessary help to register their crop varieties under the PPV&FRA. The programme was anchored by the Mr. Jiaul Hoque, Farm Manager. Another training programme was planned for farmers from Bamunbori and nearby villages of Morigaon district bordered to Nagaon district. The training was attended by 33 farmers and registration of paddy varieties was initiated and six varieties were registered.

#### **Training-cum-Awareness Programme organized by**

### KVK, Sivasagar, Assam



A Training-cum-Awareness Programme on Protection of Plant Varieties and Farmers Right Act, 2001 was organized by Krishi Vigyan Kendra, Sivasagar at M.C.Club, Nazira on 31 March, 2015. The programme was attended by 100 farmers of different villages of Sivasagar district. The distinguished guest and resource person present in the programme as Dr. Monoranjan Neog, Associate Director of Extension Education, AAU, Jorhat, Dr. R. Baruah, Senior Extension Specialist, AAU, Jorhat, Dr. Nagen Sarma Baruah, Professor, Dept of Plant Breeding & Genetics, Dr. A. Sharma, Professor, Dept of Plant Breeding & Genetics.

The welcome address and objective of the programme was delivered by Dr. Phuleswar Nath, Programme Coordinator, KVK, Sivasagar. In the inaugural speech Dr. Monoranjan Neog, ADEE, AAU, Jorhat emphasized the importance of Protection of Plant Varieties and Farmers Right Act, 2001 and role of Assam Agricultural University to create awareness among the farmers of different districts of Assam. Dr. A.Borthakur, DAO Sivasagar in his speech emphasizes registration of indigenous varieties of Sivasagar district having special qualities.

### Training programme organized by ICAR KVK Hailakandi (Assam)

Krishi Vigyan Kendra Hailakandi under ICAR Research Complex for NEH Region has organized a training programme on 12<sup>th</sup> January, 2016 at the KVK office premise. A total 97 number of farmers participated in the training programme. The programme initiated with the welcome address by Dr. Sk. Md. Azizur Rahman, Senior Scientist

and Head, KVK Hailakandi followed by lectures by officials from different departments namely Shri. Gunin Saikia, District Forest Officer, Hailakandi; Shri Lalsanhim Hmar, District Agriculture Officer, Hailakandi, Shri A.R Ahmed, Agriculture Development Officer, Hailakandi, Dr. T.U Khan, Assistant Professor, Department of Botany, S.S College, Hailakandi and Shri Abhishek Kumar SMS (Plant Breeding), KVK Hailakandi.

In the programme a brief Objective of the PPV&FR Act, 2001 general functions and Farmers' right were discussed thoroughly by all the speakers and also focused on how to conserve our diversity and the benefits of conserving the plant genetic resource was discussed. The farmers were also actively participated the programme and asked question regarding their queries on Protection of Plant Varieties and Farmers' Rights Act, 2001.

### Training-cum-awareness programme organized by KVK Dimapur, Nagaland



KVK Dimapur, ICAR Research Complex for NEH Region, Nagaland Centre, Jharnapani has taken some initiatives for the long term benefit of the farmers by organizing three days "Training cum Awareness Programme on Protection of Plant Varieties and Farmers' Right (PPV&FR) Act, 2001 and farmers variety registration", with active participation of 64 farmers at Singrijan Village on 21 March, 2016 another at Molvom Village on 29 March, 2016 with 68 no. of participants and lastly at Domokhia village on 30 March, 2016 with a total participation of 60 farmers, wherein the farmers were highlighted on their rights, benefit sharing, farmers awards for individual or community of farmers, particularly tribal and rural community engaged in conservation, improvement



and their contributions in preservation and conservation of plant genetic resources of land races and wild relatives of economic plants.

Training folders translated in Nagamese dialect on PPV&FR Act, 2001 were also distributed to the farmers along with Farmers' variety registration forms and other related materials and KVK Dimapur offered to act as facilitators in registering their varieties with the Authority.

#### **Training-cum-Awareness Programme organized by KVK, Wokha, ICAR, Nagaland Centre**

Krishi Vigyan Kendra (KVK) Wokha under ICAR Research Complex for NEH Region, Nagaland conducted training cum awareness programme on "Protection of Plant Varieties and Farmers' Rights Act" at Sanis on 23 February, 2016 and at Yanpha on 26 February, 2016 in collaboration with Protection of Plant Varieties and Farmers' Rights Authority, Ministry of Agriculture, New Delhi.

Dr. Santosh Kr. Baishya, Programme Coordinator, KVK Wokha highlighted the importance of the programme for the farmers of the Wokha district. He cited that the objective of the programme was to create awareness among the farmers about the need for the protection of plant varieties and the rights of the farmers. He also mentioned that many farmers of this area are entailing in cultivation and conservation of many plant varieties. Now it is the high time to identify and protect the rights of the farmers in respect to their contributions made at any time in conserving, improving and making available plant genetic resources for the development of new plant varieties. He further mentioned that through the Protection of Plant Varieties and Farmers' Right Act, 2001 farmers could register and protect their plant varieties and in this regard KVK Wokha shall facilitate the farmers for their registration.

Dr Bendangla Imsong, Subject Matter Specialist (Plant Breeding) spoke at length about the nine rights of the farmers under the PPV&FR Act, the procedures and the seed requirement of different crops/plants variety for registration. During the programme application forms for registration were also issued to the farmers. At Sanis, 82 farmers from 10 villages-Meshangben, Pyangsa, Tsopo, Chudi, Yonchuchu, Sunglep, Longtsung, Morokju, Pyotchu, Sanis, and 7 officials from SDAO office, Baghty and KVK

Wokha attended the programme whereas at Yanpha village, 37 farmers from Yanpha and Old Ralan, officials from KVK Wokha attended the programme

#### **Training-cum-Awareness Programme organized by KVK, West Tripura**

The awareness programme was organized by KVK, West Tripura on 30 January, 2016 as a part of Rabi Krishi Vigyan Mela, 2016 with 146 farmer, farm women and rural youth. The session was modulated by Dr. Nurul Islam. Methods and outcome of protecting plant varieties along with the already taken efforts by the KVK in this aspect was discussed by Mr. D.Nath. He also discussed about the different crops which can be registered and which are already sent for registration.



Mr. D. Dey elaborated the difference between Registered Seed Grower Programme run by State Agriculture department and registration of plant varieties under the central govt. authority. Several farmers interacted with the scientists present their and got their queries clarified on the issue. Dr. Islam discussed the uniqueness of nature and biodiversity and how it is threatened by human action hampering peaceful living in the universe. He emphasized on conserving and propagating indigenous germplasm for better health benefits and better implementation of the initiative taken by central authority.

#### **Training-cum-awareness programme organized at KVK, Kokrajhar**

Programme on "Protection of Plant Varieties & Farmers Right Act, 2001" was organised by KVK, Kokrajhar on 8 January, 2016 Basic Training Center premises, Kokrajhar. Mr. M.P.Sarma spoke on Assam and North east as a mega bio diversity hot spot of plant variety and importance of

conservation of plant variety. Dr. M.K. Bhuyan, Programme Coordinator, KVK, Kokrajhar delivered a valuable awareness lecture on “Bio-diversity of Assam & scope for farmers of the district in relation to PPV&FR Act, 2001”. The speaker highlighted the overall plant bio diversity of this mega bio diversity hot spot and recognition of farmer’s right by PPV & FR authority. The farmers participated in the programme asked for clarification of several points discussed during deliberations. The farmers were of the opinion that more discussion on Protection of Plant Varieties & Farmers Right (PPV&FR) Act, 2001 may help to understand the finer points and farmer’s would be aware of their right in upcoming day

#### **Training-cum-awareness programme organized by Krishi Vigyan Kendra, Jorhat**

A programme on Protection of Plant Variety & Farmers’ Right was organized at Uttar Kamalabari Satra, Majuli on 11<sup>th</sup> March, 2016 to create awareness among the farmers and also to have interaction and guide the farmers to register their traditional varieties with PPV & FR Authority which are being maintained by farmers. More than one hundred farmers, VLEW, Krishak Bandhu, State Govt. Officials, members from PPCs & NGOs from different parts of the Majuli Sub-division participated in the programme. Dr. Purna Kanta Barua, Prof. & Head, Department of Plant Breeding & Genetics, AAU, Jorhat expressed his happiness for large presence of the farmers in the programme in spite of their busy schedule. He explained in detail about Intellectual Property Right (IPR), role of World Trade Organization, Trade Related Aspects of Intellectual Property Rights (TRIPS) and different property right laws presently in operation in India and how these laws are helpful in protection the farmers varieties. Dr. Kishore Kr. Sharma, Chief Scientist, Regional Agricultural Research Station, North Lakhimpur has delivered an elaborate presentation on Protection of Plant Varieties and Farmers Right Act, 2001. He also informed the farmers about their seven different rights that every farmer should know. He also explained about the eligibility for Plant Genome Saviour Award for the farmers. Dr. Nagendra Sarma Barua, Prof., Department of Plant Breeding & Genetics, AAU, Jorhat informed the farmers about plant breeder’s right for the varieties developed by the breeders. He explained the farmers about the procedure in developing a new variety.

#### **Training-cum-awareness programme organized by**

#### **KVK, Golaghat, Assam**

A training-cum-awareness programme on PPV&FRA under KVK, Golaghat was organised at Municipal Board Conference Hall, Golaghat on 31 March, 2016 with a mass gathering of 100 numbers of farmers from different areas of Golaghat district.

#### **ZONE-4**

#### **Training-cum-Awareness Programme organized by KVK, Pauri Garhwal, VCSGUUH&F, Bharsar**

Krishi Vigyan Kendra, Pauri Garhwal VCSGUUH&F, Bharsar, Uttarakhand conducted a one-day training-cum-awareness programme on PPV&FR Act, 2001 was conducted on 5 March, 2016. A total of 100 farmers and stakeholders from different blocks of Pauri Garhwal district attended the program.

#### **Training Programme organized at Deendayal Research Institute Krishi Vigyan Kendra, Ganivan, Chitrakoot**

A programme regarding protection of plant varieties and farmers right act was conducted on 8 March, 2016 at KVK centre in the presence of Sri Abhai Mahajan, Organizing Secretary, DRI. On this occasion Prof. R.R. Hanchinal, Chairperson-PPV&FRA, addressed the huge gathering through mobile system. He called the farmers to come ahead and capture the opportunity and assured the farmers all possible support in this regard.



During technical session different scientist and key speakers delivered their lecture and presentation on different aspects of protection of plant varieties and Farmers Right Act. Representative from district horticulture department Sri Rakesh Kumar give a brief departmental activities running in the district. He also focused some production technologies

under rainfed condition of the district. Some progressive farmers and farm women also put their voice and thought during the programme. Total 241 farmers and farm women present in the programme from 32 villages of the district.

#### **Training Programme organized by KVK, Raebareli**

KVK, Raebareli has organized one day training-cum-awareness programme to the farmers about Protection of Plant Variety and Farmers' Rights on 15 March, 2016. The detailed information about Plant Variety Protection and Farmer's Right Act, 2001 and functioning of PPV&FR Authority, New Delhi for registering farmer's variety was provided to the farmers in the programme. About hundreds of farmers from different blocks were participated in the programme.

#### **Training Programme organized at KVK, Bejwan, Bhadohi, U.P**

The training-cum-awareness programme on PPV&FRA has been conducted on 10 March, 2016 at KVK, Bejwan, Bhadohi, UP. A total of 102 farmers were participated from all the six blocks of the district Bhadohi. Dr. Rajendra Prasad, Senior Scientist & Head, KVK, Bhadohi welcomed the dignitaries and uttered about the objectives to conduct this training cum awareness programme. The experts of KVK also asked about the merits of PPV&FRA during the programme.

Besides, a training manual entitled "Paudha Kism Aur Krishak Adhikar Sanrakshan" was also compiled and circulated it to the participants during training cum awareness programme. This manual contains six chapters namely PPV&FRA at a glance, farmers' rights, PPV&FRA – important facts, question and answers related to PPV&FRA, proforma of registration and production technology issues related to important crops.

### **ZONE-5**

#### **Training Programme organized by ICAR-CRIDA, KVK, Hyderabad**

The programme on PPV&FRA has been conducted on 27 February, 2016. The off-campus training was organized in Harshaguda village, Maheshwaram Division covering three mandal Maheshwaram, Kandukur & Saroornagar.

About 143 farmers and extension officials from department of Agriculture, Government of Telengana participated in the programme. Dr. B.SarnathBabu, Officer Incharge, ICAR-NBPGR, Regional Station, Hyderabad narrated about the PPV&FR Act, 2001 by giving a detailed presentation.

#### **Training Programme organised by KVK, Babhaleshwar**

One-day programme on "Protection of Plant Variety and Farmers' Right Act, 2001" was held at Krishi Vigyan Kendra, Babhaleshwar, District Ahmadnagar, Maharashtra on 28 January, 2016. A total of 183 farmers participated in this training programme. Beside that, Dr. Vijay Shekar, Scientist Seed Technology, MPKV, Rahuri briefed about the efforts taken by the KVK for making awareness on the traditional cultivars being cultivated by the farmers to register the varieties. Dr. Shekar also explained the procedure for different type of varieties and its registration and also told that MPKV, Rahuri, DUS centre is working for Bajra, Jowar and Bengalgram.

#### **Training Programme organized by YFA-KVK, Madanapuram, Telegana**

The training-cum-awareness programme on PPV&FRA has been conducted at YFA-KVK, Madanapuram on 25 November, 2015 and Adarsha Rural Resource Centre at Wanaparthy on 31 November, 2015. The farmers'–scientist interaction was made and clarified the questions asked by the farmers on farmers' rights protection of registered plant varieties. During the two training programmes 25 stake holders from Department of Agriculture were present. Total 144 farmers attended the training. Out of which 21 female and 123 male farmers with 71 SC&ST tribal farmers attended the training programme.

#### **Training Programme organised by KVK, Jammikunta, Telengana**

One-day training-cum-awareness programme on "Protection of Plant Variety and Farmers' Rights Act, 2001" was held at Krishi Vigyan Kendra, KVK, Jammikunta, Karimnagar, Telengana on 25 March, 2016. In total 127 farmers participated in this training programme. Dr N.Venkateshwar Rao urged the farmers to register the farmers' varieties through KVK for benefit of the farming community. Dr P.Goniya Naik, Plant Breeder delivered

a lecture on PPV&FR Act, 2001. He also appealed to the farmers to conserve the germplasm wherever it is available in the farmers field. Dr Chandra Mohan delivered a lecture on PPV&FRA and covered the important topics on procedures and registration of a variety of farmers.

## ZONE-6

### Training Programme organized by KVK, Junagarh

One-day training-cum-awareness programme on “Protection of Plant Variety and Farmers’ Right Act, 2001” was held at Krishi Vigyan Kendra, Junagadh Agricultural University, Pipalia (Rajkot-II), Gujarat during 26 February, 2016. In which total 124 farmers from 23 villages, covering 5 Talukas out of 7 Talukas of KVK Operational area had participated in this training programme.

### Training Programme organized by BAIF, KVK-Bharuch, Gujarat



The Krishi Vigyan Kendra- Chaswad, Dist.Bharuch, Gujarat has organized training programmes to create awareness on PPV&FR Act. The two training programmes were organized on 3–4 March, 2016. A total of 134 farmers from the Netrang, Valia and Jambusar Talukas of the Bharuch district participated in the programme. Representatives from various NGOs working in the Bharuch district also took part in the training programme. Many participants brought local seeds of different crops during the programme. All participants have visited the seed exhibition and shared information of the traditional varieties.

## ZONE-7

### Training-cum-awareness programme organized by KVK, Balrampur, Chhattisgarh



Krishi Vigyan Kendra (KVK), Balrampur (Chhattisgarh) organized one day Training-cum-Awareness Programme on 12 December, 2015. The programme was attended by more than 100 farmers of Balrampur and neighbouring districts. Addressing the gathering, Dr.R.C.Agrawal, Registrar General, said that Balrampur is a new district having very rich biodiversity and very high number of indigenous crop varieties being conserved by the farmers, he appealed the farmers to come forward for registration of their varieties in PPV& FRA to take full advantage of the precious material they are growing since long. Dr.V.K.Singh said that Surguja division is having vast bio diversity which needs to be harnessed by registration in PPV&FRA. Dr. Arun Tripathi, Programme Coordinator, welcomed the guests and presented the detailed rules and regulations of Protection of Plant Varieties & Farmers Rights Act, 2001 and mentioned that more than 200 varieties have been submitted from the district for registration in the authority. This region is full of biodiversity and farmers particularly from tribal communities are still conserving the age old indigenous varieties of rice, maize, beans, bottle gourds, bitter gourds and roses.

### Training Programme organized by KVK, Kanker, Chhattisgarh

The training-cum-workshop on Protection of Plant Varieties & Farmer’s Rights Act was organized by Krishi Vigyan Kendra, Kanker on 29 January, 2016 in which 120 farmers were participated from Pidhapal, Albeda, Khamdhodgi, Tilawat, Salhebhat, Babudabena, Puswada,

Bhaisakatta, Tultuli, Kanagaon, and Andi villages in Kanker. The training-cum-workshop started with showing of documentary film on Protection of Plant Varieties & Farmers' Rights. Dr. Deepak Sharma, Pr. Scientist and Nodal office PPV&FRA, IGKV Raipur explained about the objective, farmer's rights and main characteristics of protection of PPV&FR Act 2001. Shri Guharam Ajgale, Board Member, IGKV explained the benefits of registration of plant varieties and also suggested for establishment of seed bank at KVK premises. Farmers expressed their views and asked questions to scientists. The exhibition stall arranged at KVK Kanker in which present collection of indigenous crop varieties grown by farmers in the various part of district Kanker.

#### **Awareness training programme by Krishi Vigyan Kendra, Kalahandi, Odisha**

An awareness training programme on Protection of Plant Varieties & Farmers' Rights Act, 2001 was organised by Krishi Vigyan Kendra, Kalahandi at the Training Hall of KVK on 22 February, 2016. A total of 100 participants including farmers from almost all the block of Kalahandi, District Agriculture Officer from the blocks of Dharmagarh, Narla, Lanjigarh, NGO personnels, Scientists from Research station and KVK, Kalahandi, Professors from College of Agriculture, Bhawanipatna and officials from the Department of Agriculture, Horticulture and Watershed participated in the event. Dr. Satya Ranjan Das, Retired Rice Breeder, Honorary Professor OUAT, Bhubaneswar appreciated the initiative taken at Government level in association with KVK to create such a great awareness in the farming community for preservation of the extinct, endangered and local variety of different crops. He emphasized on promotion of registration of more non-paddy varieties under PPV&FR Act, 2001.

#### **Training-cum-awareness programme organized by KVK, Jajpur, Odisha**

The training-cum-awareness programme on Protection of Plant Varieties and Farmer's Right Act-2001 was held in adopted village- Dihakuransa, Block- Rasulpur, Dist- Jajpur on 2 March, 2016. The meeting was attended by 181 farmers. Dr. S.C Mohapatra, Joint Director Extension Education, OUAT, Bhubaneswar emphasized on procedure of registration of the Farmer's variety and stressed on Farmers'

Right for protecting the local variety for use in Research which will help in future. He advised farmers for registration of non-paddy crops, i.e pulses, spices and vegetables. During the interactive session, several questions of the farmers were answered by the experts regarding collection, filling of format and initiation of steps for registration of farmers' variety.

#### **Training-cum-awareness programme organized by DEE, OUAT, Bhubaneswar**

The training-cum-awareness programme on PPV&FR Act, 2001 held on 29 March 2016 at Directorate of Extension Education, OUAT head quarter, Bhubaneswar was attended by 110 farmers from Khurda, Puri, Dhenkanal and Nayagarh districts along with Officers and Resource persons.

Prof. Md.Khalid Khan, Dean Extension Education at the outset emphasized the importance of Protection of different varieties of paddy, pulses, oilseeds, vegetables, fruits and forest species for the benefit of the farmers. Prof. Surendranath Pasupalak, Vice-Chancellor, OUAT, Bhubaneswar described about the scope for the registration of different crops varieties under the Act in our state for the cause of the farmers. He said that the coastal district of Odisha have the ample opportunity to collect many more original land races of paddy, pulses and oil seeds crops.

#### **Training-cum-awareness programme organized by KVK, Shahdol**

A programme on creating awareness for PPV& FR Act was organised in KVK, Shahdol premises in the presence of various dignitaries on 30 January 2016. About 227 people were present including farmers, Kisan Mitra, Kisan Didi and extension workers of allied department on this occasion. Hon'ble Member of Parliament, Shahdol emphasized on the importance of workshop for the farmers and farm women and to be aware of the right to get a variety registered on his/her name. Hon'ble Member of Legislative Assembly, Jaisinghnagar discussed on the local and medicinal uses of different local varieties of rice and urged the farmers and farm women to conserve the local varieties from being extinct. The dignitaries also visit the crop cafeteria and SWT Lab of the KVK.

## **ZONE-8**

### **Training Programme at Krishi Vigyan Kendra, Saidapur Farm, UAS, Dharwad**

Krishi Vigyan Kendra, Saidapur Farm, UAS, Dharwad in collaboration with Protection of Plant Varieties and Farmers' Rights Authority, New Delhi organized awareness training programme on Protection of Plant Varieties and Farmers' Rights Act on 21 March, 2016 at KVK, Dharwad. More than 170 farmers of Dharwad district participated in the training programme.

Chief Guest of the programme Dr. N. K. Biradarpatil, Dean(Agri), College of Agriculture, Vijayapur appreciated the PPV&FR Authority and also requested the farmers to register the available plant varieties through Universities and State Departments which could serve as a gift to future generation.

Dr. S.M. Mantur, Senior Scientist and Head, Krishi Vigyan Kendra, Dharwad welcomed the gathering. In his introductory remarks, he expressed that presently Dr. R. R. Hanchinal, Former Vice-Chancellor, UAS, Dharwad is the Chairperson of the PPV&FRA, New Delhi and which is a boon to the farmers of north Karnataka to avail all the available facilities from the Authority. Dr. (Smt.) Suma Mogali, Scientist (Genetics and Plant Breeding), UAS, Dharwad served as a resource person and briefed the procedures for registration of farmers varieties in PPV&FRA. Dr. Uma N. Kulkarni, Scientist (Home Science), Shri. Kumar C.J., Farm Manager, Dr. Shobha U. Immadi, Scientist (GPB) and Shri Ningappa, Scientist (Agronomy) coordinated the training programme

### **Training Programme organized by KVK, VCRI Campus, Namakkal, Tamil Nadu**

The training cum awareness programme on PPV&FR Act, 2001 was conducted on 31 March, 2016 at KVK, VCRI Campus, Namakkal, Tamil Nadu. A gathering of 352 participants including farmers, students, Agricultural Department official and Exhibitors participated. The farmers were from different villages of Namakkal and Salem district. Dr. L. Gunasaleem, Dean, Veterinary College and Research Institute, Namakkal was the Chief Guest of the programme and Dr K.Prabhakar, PGP College of Namakkal district; Mr. N.Karthikeyan, Joint Director of Agriculture, Namakkal; Mr. P. Ganesamoorthy, Deputy Director of Horticulture

were the special invitees for the programme. Ms. K.Sudha, Assistant Professor, KVK, Salem; Mr. Oliver King, Programme Coordinator, MSSRF, Kolli Hills, Namakkal; Mr. Maruthaiyappan, Vanagam, Karur also attended and delivered lecture on protection of traditional crop varieties of Kolli hills and exhibited traditional varieties of paddy, millets, Groundnut and other medicinal crops.

### **Training Programme organized by ICAR-KVK, Gonikoppal, Kodagu, Karnataka**

The training-cum-awareness programme on PPV&FR Act, 2001 was organized on 11 March, 2016 at Cherambane village, Madikeri Taluk in association with Division of Extension & Training, IIHR, Bengaluru. About 115 farmers attended the programme. Dr. Saju George, Programme Coordinator, KVK, Gonikoppal welcomed the guests and participants. He spoke about the importance of Biodiversity in the district which has to be properly documented through PPV&FRA. Dr. Pitchaimuthu, Principal Scientist, IIHR, Bangalore explained about the role and importance of PPV&FR Act, 2001. Several queries were raised by the growers during the discussion which were answered by the specialists. On this occasion, an exhibition was also organized where were exhibited the wide varieties of vegetables, honey and fruits. The programme concluded with vote of thanks by Shri K.A. Devaiah, SMS(Hort.) KVK, Gonikoppal.

### **National Conference**

National conference on Intellectual Property Rights: Needs and future Prospects was held on 22-23 December, 2015 to discuss regarding different issues of Intellectual Property Rights applicable in the field of Agriculture. The aim of the conference was to bring the national experts who are working in the field of Agriculture at government & private organization along with the students and farmers in common platform to discuss the relevant aspects of IPR in agricultural research and development. The programme was inaugurated by the Chief Guest, Dr R.R. Hanchinal, Chairperson of PPV&FRA, along with the President of the conference Dr Arun Kumar, Vice Chancellor, BAU, Sabour. During the two days event, participants were participated from national organizations like PPV&FRA; DRMR, Ludhiana; SAUs and Private Organizations like Monsanto Co; Bayer Crop Science; High Tech Agriculture and Nuzeevedu Seeds etc.

### **Training Programme organized by KVK, ICAR-IISR, Lucknow**

KVK, ICAR-IISR, Lucknow organized one day training-cum-awareness programme with the financial assistance of PPV & FR Authority, New Delhi on different provisions of Protection of Plant Varieties & Farmers' Rights Act (PPV&FRA), 2001 on December 05, 2015. It was attended by more than 250 progressive farmers of nearby districts of Easter part of Uttar Pradesh. Besides it was participated by Dr. K.N. Tiwari, Ex-Professor & Head, C.S.A & UT Kanpur; Dr A.D. Pathak, Director, IISR; Dr T.D. Srivastav, Pr. Scientist, IISR; Dr P.K. Singh, Pr. Scientist, IISR; Dr K.P. Singh and others officials.

Dr. P.K. Singh delivered lecture on PPV&FR Act, 2001 and quality seed production of Sugarcane followed by Dr. J. Singh discussed over problems of Sugarcane varieties replacement thereafter Dr. Sanjeev Kumar delivered his talk on how to produce quality seed of cane at farmers participatory mode.

### **National Conference organized by CSIR-National Botanical Resrach Institute, Lucknow**

The National Conference on Indian Botanic Garden organized at CSIR-National Botanical Research Institute, Lucknow from 18-20, November 2015. It was attended by more than 150 delegates from different Botanic Gardens and Institutes across the country. Shri Hem Pande, Special Secretary, MoEF & CC, Govt of India and Dr. Paramjit Singh, Director, BSI were Chief Guest, Guest of Honour of three-day event. Dr. CS Nautiyal, Director, CSIR-NBRI welcomed the delegates for a fruitful conference of exchanging information and ideas on the various aspect of botanic gardens in India. Several eminent scientist delivered lead lectures and presented oral presentations. Delegates from Botanic Gardens, Institutes, Universities and colleges presented 45 oral presentations in theme-wise sessions. A training-cum-awareness programme on PPV&FR Act, 2001 was also organised during the conference to create awareness and popularize PPV&FR Act, 2001 especially among the farmers.

### **Training Programme organized by ANGRAU, Agricultural College, Mahanandi**

The training-cum-awareness programme on PPV&FR

Act, 2001 was conducted on 24 February 2016 at Agriculture College, Mahanandi. A gathering of 86 participants including progressive farmers, NGOs, Agricultural Department official and Post graduate students of Agriculture college, Mahanadi participated. The farmers from different villages of Kurnool district which covers the part of scarce rainfall Agro-Climatic Zone of Andhra Pradesh attended the programme.

The programme started with welcoming the gathering by Dr Satish Rahul, Astd. Professor, Department of Extension Education, Agriculture College, Mahanandi. Dr. Satyanarayna, Professor & Head, Agril. College, Bapatala and Dr K. Hari Prasad Reddy, Professor & Head, Agril. College, Tirupati graced the session and released the training manual on this occasion. Dr. B.Gopal Reddy, Associate Director Research, RARS, Nandyal, Andhra Pradesh emphasized the need for PPV&FR Act, 2001 and mostly stress on the protection of farmers varieties. He stated that conservation of traditional varieties and land races very essential for protection of biodiversity.

### **Training Programme organized by Youth for Sustainable Development, Shimla**

Youth for Sustainable Development, Shimla, Himachal Pradesh organized one day awareness programme about PPV&FR Act, 2001 among farming community and facilitate the registration of farmers varieties in the state of Himachal Pradesh. The programme was organised on 30 May, 2016 at Samudayeeek Bhawan Karsong in District Mandi. The training-cum-awareness programme was aimed at bringing awareness among the farming community on the benefits of the Act and facilitating registration of Farmers Varieties. A total of 398 progressive farmers from 30 Panchayats attended this programme.

### **Biodiversity Fair Cum Exhibition and Awareness programme at KVK, Dhar**

Rajmata Vijayaraja Scindia Krishi Vishwa Vidyalaya, Gwalior organized a "Biodiversity Fair Cum Exhibition and Awareness programme" on October 3, 2015 at KVK, Dhar. The event was supported with the financial assistance and technological guidance of Asia Pacific Biodiversity International, New Delhi; Protection of Plant Varieties & Farmers' Right Authority, New Delhi.; M.P State Marketing (Mandi) Board, Bhopal and M.P State Bio-diversity Board,

Bhopal. In this programme, an exhibition of the land races and local varieties of local crops, vegetable and fruits etc. available with the tribal farmers was also organized. In addition to approx. 3500 farmers, other stakeholders as well as Scientist and KVK of M.P and C.G actively participated in this event.

Prof. A.K. Singh, VC, RVSKVV, Gwalior was the Chairman of the programme. Dr. R.R. Hanchinal, Chairperson, PPV&FRA, New Delhi was the Chief Guest of the Programme, while Dr. P.N. Mathur, Regional Head, Bio-diversity International, New Delhi; Dr J.S. Sandhu, Dy Director General, ICAR, New Delhi; Dr. V.P. Singh, Senior Advisor for Policy & Development, Dr Anupam Mishra, ZPD, ICAR-Zonal Project Directorate, Zone-VII, Jabalpur were present.

In this session Dr .R.R. Hanchinal, Chairperson, PPV&FRA, New Delhi explained the importance and role of plant varieties registration under PPV&FR Act.

#### **One-day Awareness Program on ‘Take it to the Breeders & Researchers – The Plant Breeders and Researchers Rights through Awareness’**

Dr. Ravi Prakash, Registrar, PPV&FRA in his address introduced with regard to the Programme and emphasized the importance to be realized by farming community and the galaxy of scientist so as to harvest the unexplored opportunities for sustenance of the future upcoming generation. Prof. R R Hanchinal, Chairperson, PPV&FRA, addressed 146 participants and emphasized that though the Green Revolution brought evolution of high yielding varieties, but still most of us depend on the local / traditional varieties

/ land races when it comes for day-to-day consumption of food grains.



Dr P K Singh, Former Registrar, PPV and FR Act and presently Principal Scientist, Indian Institute of Sugarcane Research, Lucknow, spoke on Importance of PPV and FR Act, 2006 for technology up-scaling of plant varieties. Prof (Dr) Wilson Kispotta, Director Extension, spoke on Farmer’s Right – New initiatives of Government of India. In his address, he spoke on several issues about which farmers are unaware about their rights as grower of seeds. He also showed a short video clipping about farmers’ right on seeds produced by him and steps initiated by the Government to protect his produce. Prof. Rajendra B Lal, Hon’ble Vice-Chancellor emphasised that till today people is ignorant about their right and duties as a citizen. Prof. Wilson Kispotta, Director Extension, proposed a vote of thanks.

Further after the question and answer session, participation certificates and memento to the speakers were distributed by Dr. Ravi Prakash, Registrar, PPV &FRA, Min. of Agri., Govt. of India, New Delhi. The Program ended with thanks giving and a Prayer by Rev (Dr) V K Singh.



# Chapter 10: General Activities of the Authority

## 10.1 PROGRESS OF HINDI USE IN OFFICIAL WORK



Hindi Pakhwada Diwas was celebrated and the Authority organized essay writing competition, *Nibandh Pratiyogita*, on 11 September, 2015 on the topic was “*Aadarsh gram yojana se krishi ka vikas* (आदर्श ग्राम योजना से कृषि का विकास)”. Five officials of the Authority enthusiastically participated in this competition and the award were conferred persons to the following:

**Table 101:** List of participants for essay competition

Name	Designation	Prize
Ms. Sudesh	Office Assistant	First
Ms. Ritu Yadav	Office Assistant	Second
Dr. Amit Dixit	Technical Examiner	Third
Mr. Sunil Kumar Singh	Office Assistant	Consolation
Mr. Manoj Kumar	Class IV Employee	Consolation

## 10.2 VIGILANCE AWARENESS WEEK OF THE AUTHORITY



The PPV&FR Authority observed Vigilance Awareness Week from 26–31 October, 2015 to create awareness among staff about Vigilance. The week began with the pledge administered by Chairperson, PPV&FRA to the staff of the Authority. Activities such as essay writing, lecture presentation and debate were organized in the Authority as tools to encourage discussion and build awareness on subjects related to vigilance. Essay writing competition on the topic “Preventive vigilance as tool of good governance” was conducted on 26 October, 2015 at 2:00 PM. The following day, lecture on ‘Preventive Vigilance’ was delivered by Sh. Shukla, Deputy Secretary (Vigilance), DAC&FW and a debate competition on the topic “Role of government versus role of public in combating corruption” was organized for the staff of the Authority. Good participation and discussion through the week made the observance of Vigilance Awareness Week a success.

**Table 102:** List of participants for debate competition

Name	Designation	Prize
Ms. Vijaya Choudhary	Technical Examiner	First
Ms. Ritu Yadav	Office Assistant	Second
Dr. D.S. Pilania	Technical Assistant	Third
Dr. Ravinder Kumar	Technical Examiner	Consolation
Mr. Santosh Kumar	Office Assistant	Consolation

**Table 103:** List of participants for essay competition

Name	Designation	Prize
Ms. Ritu Yadav	Office Assistant	First
Mr. Ravinder Kumar	Technical Examiner	Second
Ms. Sudesh	Office Assistant	Third

### 10.3 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, Khanapara, Guwahati from 20 May, 2011. Branch office is headed by Dr. A.C. Sarma, Deputy Registrar and supported by Dr. A.K. Singh, Senior Technical Officer.

#### Activities of the Branch Office during 2015–16:

##### ● Applications received

The Branch office at Guwahati received a total of 33 applications for different crops under various categories. Following the initial examination, these applications were sent to the Plant Varieties Registry, New Delhi for further processing.

**Table 104:** Details of applications received at Guwahati Branch Office

S. no.	Crop species	No. of applications
1	Rice	16
2	Jute	01
3	French bean	01
4	Foxtail millet	01
5	Potato	01
6	Tea	4
7	Banana	9

##### ● Seed samples received

A total of 183 seed samples of different crops were received for DUS test and Grow-out Test (GOT). These were sent to the Headquarters for further necessary action.

##### ● Co-ordination with organizations for Training-cum-Awareness programmes

Deputy Registrar, Guwahati co-ordinated with the Authority, multiple organizations and KVKs to facilitate various Training-cum-Awareness programmes.

#### Participation in Training-cum-awareness programmes:

During the reporting period, Deputy Registrar branch office Guwahati participated in training-cum-awareness programmes organised by different institutions/ KVKs/ Agricultural Universities, NGOs with the financial assistance from PPV&FR Authority. The details are as under:



- One-day Awareness Programme at KVK North Tripura, Panisar, Tripura on 26 June, 2015. Deputy Registrar delivered a lecture on PPV&FR Act, 2001.
- Three-day Awareness Programme at DAO, Kohima and Wokha Districts on PPV & FR Act 2001 on 02–04 September, 2015. The programme was organized by State Agriculture Research Station, Yisemyong, Mokokchung, Nagaland in collaboration with District Agriculture Office, Kohima and funded by the Authority. The Deputy Registrar delivered a lecture on PPV&FR Act, 2001.
- One-day awareness programme organized by KVK Barpeta, Assam on 30 December, 2015. Deputy Registrar delivered a lecture on PPV&FR Act, 2001.
- One-day awareness programme organized by KVK Tirap, Assam on 7 January, 2016. Deputy Registrar delivered a lecture on PPV&FR Act, 2001.
- One-day Awareness Programme at KVK Nalbari, Assam on 18 March, 2016. Deputy Registrar participated and delivered a lecture on implementation of PPV&FR Act, 2001.
- One-day Awareness Programme at KVK Ribhoi, Assam

on 19 March, 2016. Deputy Registrar participated and delivered a lecture on implementation of PPV & FR Act, 2001.

#### Participation of the Deputy Registrar in various programmes during 2015–16:

- One-day National Seminar on “Take it to the farmers-The Farmers Rights through Awareness” on 06 July, 2016 at NASC Complex, New Delhi. Deputy Registrar participated in arranging an exhibition on the biodiversity and traditional varieties of the country on the occasion. He also exhibited important farmers’ varieties and seed/planting material that were filed for registration.



- National Conference on “IPR in Biosciences for Scientists from North-East Indian States” at University of Science and Technology, Meghalaya on 22 July, 2015.
- Deputy Registrar along with Mr. Gorelal Dewaker, Assistant Commissioner (Seeds) participated in a meeting with scientists of KVK Kamrup and RARS Kahikuchi, Assam regarding registration of plant varieties and conduct of DUS tests on 06 October, 2016.
- Deputy Registrar participated in a Grow-out-Test (GoT) of farmers’ rice varieties at AAU, Jorhat on 14–16 October, 2016. He participated in a discussion with Director (Research), Director (Extension) and scientists of AAU for increasing the filing of applications and forwarding applications of farmers and conservers of

the state for consideration of PGSC award and reward of the Authority. A meeting was also conducted with the scientists of Tea Research Institute, Tocklai, Jorhat, Assam regarding conducting of DUS test and registration of tea varieties/clones.

- DUS Workshop organized by the PPV&FR Authority at LBS NRCPB Auditorium, IARI, New Delhi on 22–27 November, 2015.
- On 3–4 February, 2016, Deputy Registrar participated and delivered a lecture on implementation of PPV&FR Act, 2001 in an awareness programme organized by KVK Selesih, Aizwal, Mizoram and participated in CAU Regional Agri-Fair organized by Central Agricultural University, Imphal, Manipur. He conducted a discussion with farmers, scientists and officers for facilitation of registration of farmers’ varieties.
- DUS Review Workshop organized by the PPV&FR Authority, New Delhi at MPKV, Rahuri on 26–27 February, 2016.
- National Seminar on “Integrating Agri-Horticultural and Allied Research for Food and Nutritional Security in the Era of Global Climate Disruption” organized by ICAR Research Complex for NEH Region, Meghalaya at Imphal, Manipur during 4–6 March, 2016.
- Deputy Registrar participated and delivered a lecture on Intellectual Property Rights in a seminar organized by Tripura State Council of Science and Technology, Agartala, Tripura on 15–16 March, 2016.

#### 10.4 BRANCH OFFICE, RANCHI

The PPV&FRA Branch office-Ranchi is situated within the premise of Birsa Agriculture University, Kanke, Ranchi, Jharkhand with its territorial jurisdiction of Jharkhand, Chhattisgarh, Bihar, West Bengal, Odisha and Andaman & Nicobar Islands.

The mandate of the branch office is to participate in various programs for dissemination of knowledge concerning to PPV&FR Act, 2001 and farmers’ rights, Plant Genome Saviour Community awards, rewards and recognitions, popularization and motivation of registration

of farmers' varieties from the local and tribal communities of Eastern India region. Since May 2011, the branch office has participated in various activities such as training-cum-awareness programme, meetings, seminars and workshops convened by various research institutions, agricultural universities, KVKs, departments, organizations and agencies in the jurisdiction.

#### Activities of the Branch Office during 2015-16:

##### ● Applications received

The Branch office at Ranchi received a total of 786 applications of farmer varieties for registration. Following the initial examination, these applications were sent to the Plant Varieties Registry, New Delhi for further processing.

##### ● Seed samples received

A total of 185 seed samples of different crops were received for DUS test and Grow-out Test (GOT). These were sent to the National Gene Bank and/or different DUS Centres for further necessary action.

##### ● Co-ordination with organizations for providing Utilization Certificates (UCs)

Deputy Registrar, Ranchi co-ordinated with the Authority, multiple organizations and KVKs to facilitate the distribution of Utilization Certificates (UCs) for funds released by Authority for various Training-cum-Awareness programmes supporting an early audit of the account of the Authority.

#### Participation in Deputy Registrar in Training-cum-awareness programmes during 2015-16:



During the reporting period Mr. U.K. Dubey, Deputy Registrar Branch Office- Ranchi has participated in different one-day training-cum-awareness programme organised by different institutions/ KVKs/ Agricultural Universities, NGOs with the financial assistance from PPV&FR Authority in territory of Branch Office Ranchi. The details are as under:

- Holy Cross Krishi Vigyan Kendra (KVK) Hazaribag (Jharkhand) on 04 December, 2015
- KVK, Balrampur (C.G) on 12 December, 2015
- KVK, Chatra (Jharkhand) on 12 January, 2016
- KVK, Arwal (Bihar) on 20 January, 2016
- KVK, Aurangabad (Bihar) on 21 January, 2016
- KVK, Gram Nirman Mandal, Sarvodaya Ashram, Sokhodeora Nawada (Bihar) on 22 January, 2016
- KVK, Munger (Bihar) on 01 February, 2016
- KVK, Khagaria (Bihar) on 02 February, 2016
- KVK, Lohardaga (Jharkhand) on 11 February, 2016
- KVK, East Singhbhum (Jharkhand) on 20 February, 2016



- KVK, Simdega (Jharkhand) on 02 March, 2016
- KVK, West Singhbhum (Jharkhand) on 03 March, 2016
- Holy Cross Krishi Vigyan Kendra (KVK), Hazaribag (Jharkhand) on 05 March, 2016
- KVK, Ramgarh (Jharkhand) on 07 March, 2016
- KVK, Jamtara (Jharkhand) on 08 March, 2016

- Garmin Vikas Trust- Krishi Vigyan Kendra (GVT-KVK), Godda (Jharkhand) on 09 March, 2016
- KVK, Garhwa (Jharkhand) on 12 March, 2016
- KVK, Samastipur (Bihar) on 16 March, 2016

#### Participation of the Deputy Registrar in various programmes during 2015–16:

- Mr. U.K. Dubey, Deputy Registrar PPVFRA Ranchi participated in a one-day seminar on “Take it to farmers–The farmers rights through awareness” organized by PPV& FR Authority, NASC complex, New Delhi on 07 July, 2015. The deliberations and discussions by different participants from ICAR institutes,SAUs,NGOs, farmers and other stakeholders were very useful and important for farmer awareness generation and helpful in creation of future roadmap.
- Mr. U.K. Dubey,Deputy Registrar PPVFRA Ranchi has delivered a lecture on PPV&FR Act 2001 and explained the procedure of registration of farmer’s varieties and all the provisions of the Act at Kisan Gosthi organized at district level Central Kisan Mela by Ram Krishna Mission Ashram, Divyayan KVK, Morabadi Ranchi (Jharkhand) Organized at KVK demonstration farm, Block-Angara, Ranchi (Jharkhand) on 28 January, 2016.
- Mr. U.K. Dubey,Deputy Registrar participated in 10<sup>th</sup> DUS review meeting organised on 26–27 February, 2016 at MPKV Rahuri (Maharashtra). The deliberations and discussions by different participants were very useful and knowledgeable.
- A one day sensitization workshop on PPV&FR Act, 2001 was organized by ICAR-ATARI, Kolkata in collaboration with PPV&FRA, New Delhi at Farmers’ Training Centre,BCKV, Kalyani, Nadia, West Bengal on 10 December, 2015 to sensitize 40 selected KVKs and other KVKs of this zone about the importance of protection of plant varieties and farmers’ rights Act 2001. Deputy Registrar delivered a lecture on PPV&FR Act 2001.
- Deputy Registrar participated in the National Conference on “Intellectual Property Right (IPR) In

Agriculture: Needs and Future Prospect” organized at Bihar Agricultural University, Sabour Bhagalpur (Bihar) on 22–23 December, 2015. He delivered a lecture on Promotion of PPV&FR Act, 2001 in Eastern India with special focus on Plant Variety registration including farmer variety and different awards and rewards given to farmers for their work in conservation and preservation of plant genetic resources.

- Deputy Registrar participated in the Indo–German Bilateral Cooperation DUS Workshop held on 23–24 November, 2015 at LBS NRCPB auditorium,IARI Campus, New Delhi.

### 10.5 MEETINGS OF PPV&FR AUTHORITY

**Table 105:** List of meetings conducted in the year 2015–16

Meeting	Date	Venue
22 <sup>nd</sup> meeting of the Authority	17 April, 2015	Board Room, IGH, NASC Complex, New Delhi
23 <sup>rd</sup> meeting of the Authority	14 August, 2015	
24 <sup>th</sup> meeting of the Authority	26 November, 2015	
25 <sup>th</sup> meeting of the Authority	10 February, 2016	

#### Major decisions taken during the meetings:

- Regarding DUS test guidelines:
  - Ten crop guidelines for Jasmine, Tuberose, Papaya, China Aster, Peach, Finger millet, Foxtail millet, Plum, Strawberry and Chilli/Sweet pepper/Paprika were approved by the Members on 17 April, 2015.
  - Five crop guidelines for Vegetable Amaranth, Spinach beet, Ridge gourd, Orchid (*Paphiopedilum* Pfitz.) and Carnation were approved by the Members on 14 August, 2015.
  - Seven crop guidelines for Noni, Bael, Jamun, Nutmeg, Jasmine. Custard Apple and Kalmegh were approved by the Members on 10 February, 2016.
- Regarding Fixation/Revision of DUS /On-site Test Fee:

- The Members indicated that Amendment for Annual fee for farmers' varieties reducing the Annual Fee from Rs. 2000/- to Rs. 10/- shall further bring a momentum in the registration of more Farmers varieties. The Members noted all the gazette notifications related to Scheme and Amendments.
- The PPV&FR (Amendment) Rules, 2015 increases the maximum limit of DUS test fees which amounts to Rs. 2,00,000/- and for onsite DUS testing it is Rs. 8,00,000/-.
- The DUS Test Fees for EDV will be charged as per the DUS test Fees for New Varieties.
- The revised Annual Fee Return Form based on gross profit was approved.
- The composition of Extant Variety Recommendation Committee was increased from seven to ten.
- Time limit for registration of extant varieties of all 92 crop species notified before 16 June 2015 was approved as (a) 6 years from the date of expiry of original time limit for Notified and VCK varieties; (b) 10 years from the date of expiry of original time limit for Farmers' varieties.

## 10.6 PARTICIPATION BY DR. R.R. HANCHINAL, CHAIRPERSON, PPV&FRA

The Chairperson participated in several meetings and forums:

- Special Invitee in the inaugural session of the XXX Annual Group Meeting of AICRP-NSP held at Directorate of Seed Research, Mau and also chaired Technical Session III to review the progress of Breeder seed production and seed technology research on 03 April, 2015.
- Participated as member in the Maharashtra Gene Bank Project Monitoring Committee meeting which was held at IISER, Pune on 07 April, 2015.
- Attended the special meeting on Seed Bill, 2004 and the official amendments called by Hon'ble MoS (A) at Krishi Bhawan on 09 April, 2015.
- Delivered the keynote address in the Seminar on Farmers Rights in India on 11 April, 2015 at Siker, Rajasthan.
- The Chairperson and the Registrar General on 13 April, 2015 attended the Farmers' Rights workshop at Horticultural Research Station, Kahikuchi organized by the Assam Agricultural University, Guwahati.
- Participated in the awareness program on PPV&FR Act, 2001 organized at KVK Chitrakoot by DRI, Chitrakoot from 13–15 April, 2015. He also visited the site where the proposed community seed bank would be set up and held discussions with Tharu Tribal community on their PGR conservation activities. This was followed by training / awareness program at KVK Gonda.
- Participated in the 22<sup>nd</sup> Meeting of the Authority was held at NASC on 17 April, 2015.
- The Chairperson, being the Chair of the Quinquennial Review Team (QRT), participated in the QRT Meeting at CTRI Research Stations at Dinhata, West Bengal from 9–11 May, 2015
- Participated the first meeting at VC Secretariat, Central University of Gujarat, Ahmedabad on 12 May, 2015.
- Participated as Chair of the Quinquennial Review Team in the QRT Meeting at CTRI Research Stations on 16–17 May, 2015 at Veda sandur, Tamil Nadu.
- Participated in the Community Seed Bank Opening Ceremony at Imelia Koda, Balrampur District, Uttar Pradesh on 20 May 2015. He explained the importance of Community Seeds banks in general and the benefit of the Community Seed bank to tribal Tharu Community of Imelia Koda in particular.
- Participated as guest of honour in the inaugural function of XXXIII Group Meeting of AICRP on Vegetable crops, held at IIVR Varanasi on 21 May, 2015 and made a presentation on DUS-Testing for vegetables.
- Delivered a lecture in a one-day workshop on Protection of Plant Varieties and Farmers Rights at Agricultural

College, Bheemarayana Gudi, Yadgir District organized by University of Agricultural Sciences, Raichur, Karnataka on 25 May 2015.

- Delivered the presidential address and chaired the 22<sup>nd</sup> Dr. B.P. Pal Memorial Lecture 2015 on the topic “Biodiversity Parks-An Innovative Model for Conservation of Urban Living Resources and Enhancement of Quality of Urban Environment” at IARI Auditorium, New Delhi on 26 May, 2015.
- Participated as guest of honour in the inaugural function of Workshop-cum-Brainstorming Session on Strategies to Strengthen Seed Spices Plant Genetic Resources and Burning Issues of Cumin and Coriander and also visited National Research Centre on Seed Spices, Ajmer and reviewed the DUS test work in seed Spices on 26 May 2015.
- Participated in the inaugural session of the awareness program and delivered a keynote address on Provision of Protection of Plant Varieties in India to generate awareness among Students, Faculty and Farmers in Rajasthan on Protection of Plant Varieties in India, held at Amity University Rajasthan, Jaipur on 28 May, 2015
- Participated in the second meeting of the Search-cum-Selection committee of the Vice Chancellor for Central University of Kashmir at India Habitat Centre, New Delhi on 29 May, 2015.
- As the Chair of the Quinquennial Review Team (QRT), the chairperson participated in the QRT Meeting at CTRI Research Stations at Nipani on 02 June, 2015.
- Participated in the First Meeting of Task Force for validation of DUS test guidelines for Amaranthus, Palak, and Ridge gourd held at University of Horticultural Sciences, Bagalkot on 16 June, 2015.
- The Chairperson participated as an Advisor to interview the candidates at ASRB, New Delhi on 16 June, 2015.
- Participated as Chief Guest in the Exhibition & Biodiversity Seminar on Jack Fruit at Kumta on 20 June, 2015.
- Participated as Chief Guest in the Mango Exhibition &

Seminar at Lucknow on 21 June, 2015.



- Participated in the meeting as a member in the Search-cum-Selection committee of the Vice Chancellor for Central University of Kashmir at India International Centre, New Delhi on 22–23 June 2015.
- Participated in the Second Meeting of Task Force for validation of DUS test guidelines for Carnation at Dr. Y.S. Parmar University of Horticulture & Forestry, Solan and Awareness-cum-biodiversity fair at KVK, Kandaghat, Himachal Pradesh on 26–27 June, 2015.
- Participated in the Mango show-cum-Festival on 04 July, 2015 organised by the Society for Development of Subtropical Horticulture, ICAR-Central Institute for Subtropical Horticulture, Lucknow and Society for Conservation for Mango Diversity (SCMD), Lucknow.
- PPV&FR Authority organized “Take it to Farmer-The Farmers’ Rights through Awareness” in association with Extension Division, ICAR and Bioversity International at Lecture Hall, NAAS, New Delhi on 07 July, 2015.
- Participated as Chief Guest in the group meeting on “Seeds for Needs: Broadening the genetic base of crops to empower farmers for climate change adaptation through crowd sourcing in India” organized by Bioversity International in collaboration with ICAR and PPV&FR Authority on 08 July, 2015.
- Participated in the Task force meeting on validation of DUS test guidelines on Bael at Sardarkrushinagar, Dantiwada Agricultural University, Gujarat on 13 July, 2015.

- The Chairperson visited the DUS program at Rahuri and Pune on 18–19 July, 2015.
- Participated in the workshop as Eminent Speaker for the session on “Importance of IPR in Plant Varieties for Export”. The workshop was organized by National Seed Association of India for all the stakeholders on Enhancing Seed Exports from India on 20 July, 2015
- Participated in the meeting of KVK Majagaon and Deen Dayal Shodh Sansthan Chitrakoot to finalize establishment of Community Seed banks of Farmers varieties and registration process and also visited the tribal farmers’ fields on 23 July, 2015.
- Participated and delivered key note cum Inaugural Address in the Training program on “Impact of PPV&FR Act on Seed Industry” organized by Seed Industries Association of Maharashtra (SIAM) on 24–25 July, 2015.
- Participated as Subject Expert in the Selection Committee for appointment of Dean, College of Post Graduate Studies, Barapani, Meghalaya on 28 July, 2015.
- Participated in the first task force meeting for revision of DUS Guidelines for Pearl Millet at Hyderabad on 29 July, 2015.
- Attended the 23<sup>rd</sup> Authority meeting of PPV&FRA was held in the Board Room of NASC Complex, New Delhi on 14 August, 2015.
- Participated as Guest of Honour in the Tenth Annual Review Meeting of ICAR Seed Project “Seed Production in Agricultural Crops” for the year 2014–15 held at ICAR Research Complex, Goa and Chaired a Technical Session and also as a lead speaker delivered a talk on “Impact of PPV&FR Act on Seed Industry” on 25 August, 2015.
- Participated in the Task Force Meeting on validation of DUS test guidelines for Nutmeg at College of Horticulture, Mulde, Sindhudurga on 26 August, 2015.
- Participated as Chief Guest in the Training-cum-Awareness program on Protection of Plant Varieties and Farmers’ Rights Act, 2001 at KVK Vivekanandapuram, Karamadai, Coimbatore, and delivered the Inaugural address to the participants and also chaired the Technical Session on PPV & FR Act, 2001 on 31 August 2015.
- Participated as Chief Guest in the Training-cum-Awareness program on Protection of Plant Varieties and Farmers’ Rights Act, 2001 at KVK-UPASI, Kotagiri, Coonor, Tamil Nadu and delivered inaugural address to the participants and also chaired the Technical Session on PPV&FR Act, 2001 on 1 September, 2015.



- Participated in the seed industry interaction meeting and delivered a lecture on the “Impact of PPV&FR Act, 2001 on Seed Industry” organized by Bayer India Ltd. at Hyderabad on 4 September, 2015.
- Visited the Directorate of Soybean Research, Indore to review the on-going program of PPV&FRA with the institute and also delivered a talk on “Impact of implementation of PPV&FR Act, 2001 on Seed Industry” and to discuss with the scientific community regarding implementation of the Act and also visited KVK Indore and to discuss with the scientific/technical community for the implementation of the Act on 5–6 September, 2015.
- Participated as an External Expert in the committee for the assessment of research scholars for up-gradation
- The Indian Delegation consisting of Dr. R. R. Hanchinal, Chairperson, and Sh. Dipal Roy Choudhury, Joint Registrar of PPV & FR Authority participated in the study program under Bilateral Cooperation between India and Germany on seed development from, 3–7 August, 2015.



- from JRF to SRF at Jamia Hamdard University, New Delhi on 8 September, 2015.
- Participated as the Chief Guest in the Inaugural session of XXII Zonal workshop of KVKs at KVK Ujjain and delivered a lecture on “PPV&FR Act, 2001, its implementation and role of KVKs in the implementation of Act and conservation of PGR”. He also acted as an Expert Member in the Technical Session III on Regional Consultation on Organic Farming on 9–10 September, 2015.
  - Visited KVK-Satna to inspect the conservation of Farmers Varieties of Bundalkhand region. Discussions were held with tribal farmers on the establishment of Community Seed Banks in the cluster of villages on 12–13 September, 2015.
  - Participated and delivered a key note address on the topic “National Framework on protection of International Rights of Farmers on Crop varieties in India” on an invitation from Bioversity International, CWANA Sub-office for Central Asia from 15–27 September, 2015.
  - Inaugurated “Biodiversity Fair and Exhibition” and awareness programme on provisions of Farmers’ Rights in PPV&FR Act, 2001 at KVK, Dhar on 3 October, 2015.
  - Chaired the inaugural session of one-day event of India-Africa collaboration in Agriculture, opportunities and challenges for seed sector organised by Research and Information System for developing countries at Hyderabad on 6 October, 2015.
  - Participated in Inter Ministerial-cum-Experts meeting on Implementation of Cartagena Protocol on Biosafety on 8 October, 2015.
  - Participated in Screening and evaluation of ICAR Extramural Research Project Proposals Meeting on 10–11 October, 2015 at New Delhi.
  - As special invitee attended Interface Meeting between NBA and PPV&FRA organized at New Delhi on 13 October, 2015.
  - Participated in Task Force Meeting of Jamun and Aonla at ICAR Centre Godra on 15 October, 2015.
  - Attended as resource person in the India-Africa Partnership conference organised by Research and Information system for developing countries at India Habitat Centre, New Delhi on 20 October, 2015.
  - Attended Rose society meeting at Pune to encourage rose breeders/ farmers to register their varieties for protection on 23 October, 2015.
  - Attended workshop on Farmers’ Rights at Gulbarga on 26 October, 2015.
  - Participated in screening and evaluation of ICAR Extramural Research Project Proposal Meeting held on 27–28 October, 2015 at New Delhi.
  - Attended National Seed Congress at Hyderabad and chaired the session on Intellectual Property Rights and also as a lead speaker on 29 October, 2015.
  - Attended National Research Advisory Committee Meeting of National Innovation Foundation on 31 October, 2015.
  - Participated State level agro-biodiversity Fair- cum-Exhibition and Awareness programmes for the farmers, Researchers and officials of the agriculture and horticulture departments of the state of Odisha organized by PPV&FRA in collaboration with ICAR and OUAT, Bhuvaneshwar at Sunabeda, Koraput on 7–8 November, 2015.
  - Attended a Meeting to finalize DUS guideline in Proso millet, Kodo millet, Barnyard millet and Little millet at Bangalore on 13 November, 2015.
  - Participated in Asian Seed Congress and delivered an invited talk on “Intellectual Property Rights and Biodiversity Legislations in India and their implications for seed Industry” at Goa on 16–17 November, 2015.
  - Participated as resource person in WAAPP Training programme: “Requisites of Seed Production, Processing, Testing and Quality Assurance” at New Delhi and delivered a talk on- Indian Seed Industry:

Opportunities and Challenges for Indo–African collaboration and IPR issues on 20 November, 2015.

- Attended a 23<sup>rd</sup> International Grassland Congress and Chaired session on “Plant Genetic resources, collection, conversation and evaluation and IPR issues” at New Delhi on 21 November, 2015.
- Participated the Joint Workshop on DUS testing at Auditorium LBS Building IARI, New Delhi under the Indo-German Bilateral Cooperation was successfully organized for two days. The workshop was attended by about 100 participants from DUS centres of ICAR, SAUs, ICFRE and CSIR on 23–24 November, 2015.



- Participated 24<sup>th</sup> Authority Meeting was conducted at Delhi for the adoption of Annual Account and Annual Report for the year 2014–15 which have to be placed before both houses of parliament in the winter session on 26 November, 2015.
- Participated as Speaker in the STEM Annual Summit

2015 on “Plant Variety Access and Application” at Hyderabad on 27 November, 2015.

- As a Chairman of QRT-Tobacco, Chairperson attended a QRT-Tobacco meeting at CTCRI, Rajahmundry from 28–30 November, 2015.
- Attended third meeting of the committee for Screening of ICAR Extramural Research Project Proposals of horticultural crops at KAB-II, New Delhi on 2 December, 2015.
- Attended a Winter School session at Bijapur to deliver a Lead lecture on “Protection of Plant Varieties and Farmers’ Rights” also Participated as Chief Guest in the inaugural function in National Integration Camp. And Participated as Chief Guest in the valedictory programme of winter School on 7 December, 2015.
- Inspected DUS plots of guar; horse gram & moth bean and discussion with scientists on 7 December, 2015.
- Participated in the opening session of Eighth International Cotton Advisory Committee, 74<sup>th</sup> plenary meeting (International Exchange of cotton germplasm) and delivered the lead lecture on “Conservation of cotton germplasm & international exchange: an Indian scenario” at Mumbai on 10 December, 2015.
- Attended the National Steering Committee meeting of the 1<sup>st</sup> International Agro-biodiversity Congress (IAC 2016) at NBPGR, New Delhi on 14 December, 2015.
- Participated in “Jasmine” Task Force meeting at TNAU, Coimbatore Delivered a key note address on “Plant Varieties Protection of Spices & Aromatic Crops” in the symposium on Spices & Aromatic crops (SYMSAC-VIII) at TNAU Coimbatore on 16 December, 2015.
- Participated in finalization of DUS testing in Neem, Jatropha and Karanj at Coimbatore on 17 December, 2015.
- Participated in Kisan mela at Bagalkot and delivered a lecture on importance of Protection of Farmers Varieties on 19 December, 2015.
- Participated as Chief Guest in the National Seminar

on IPR in Agriculture organized by Bihar Agriculture University, Sabour, Bhagalpur. Also delivered a lecture on PPV&FR Act, 2001 in the first session on 22 December, 2015.

- Attended PPV&FR awareness programme at BR Hills, Karnataka on 26 December, 2015.
- Attended the meeting for Selection for the post of Principal under Direct Recruitment on 29 December, 2015 at Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, Gujarat.
- As a Chairman of RAC-Cashew, Chairperson attended RAC meeting at The Directorate of Cashew Research Puttur, Karnataka, for reviewing the research progress of Cashew and reviewed the progress of DUS guidelines in cashew nut at Puttur & Arecanut at Vittal and also attended the awareness programme on Farmers' Rights in the adopted village of DCR, Puttur from 6–7 January, 2016.
- Attended Awareness Program of PPV&FR Act at Rajnandagaon, Chhattisgarh and visited tribal villages to promote Community Seed Banks with the support from IGKV, Raipur from 9–10 January, 2016.
- Participated in the Kisan Mela & PPV&FR Awareness Program at Ambajogai, Maharashtra and had discussion with Commercial Seed Industry regarding the registration of their varieties from 16–17 January 2016.
- Attended Search-cum-selection committee meeting at Shastri Bhawan to select Chairman of National Council of Rural Institutes (NCRI), Hyderabad on 18 January, 2016.
- Attended Meeting with the Consultative Group on International Agricultural Research Centres, BISA to discuss their on-going activities in India and their plans on 19 January, 2016.
- Delivered a lecture on “Plant Variety Protection intricacies and its impact on trait Development and delivery” to the participants of Seed industry programme at Bangalore organised by Centre for Executive Education, Cornell University-College of Agriculture and Life Sciences, University of Agricultural Sciences and Sathguru Consultants on 21 January, 2016.
- Attended the meeting of Vice Chancellors at NASC, New Delhi and made Presentation on Role of NARS in registration of Farmers' and Public Sector varieties for IPR on 22 January, 2016.
- Attended the meeting of Global Crop Diversity Trust under the Chairmanship of Minister of State, Ministry of Agriculture, Cooperation and Farmers' Welfare on 27 January, 2016.
- Attended selection committee meeting at ASRB, New Delhi to select ADG- IPR for ICAR on 28 January, 2016.
- Participated in the Awareness programme-cum-Workshop on “Registration of Farmers Varieties” at UAS, Kolar on 29 January, 2016.
- Attended Search-cum-Selection Meeting at Ministry of Human Resource development to select the Chairman to National Council for Rural Training Institute (NCRTI) on 9 February, 2016.
- Chairperson attended National Symposium on Vegetable Legumes for Soil and Human Health as guest of honour of also chaired the first session and deliver lecture on “IPR issues with respect to horticultural crops and the role of NARS” at IIVR, Varanasi on 12 February, 2016.
- Addressed about 1000 students and farmers at Agrivision-2016 programme at JNKVV, Jabalpur on importance of farmers' varieties in Agriculture and their registration for IP protection. Attended awareness programme for the farmers, researchers and officials of the Agricultural/Horticultural department at KVK, JNKVV, Jabalpur on 13 February, 2016.
- Attended Valedictory Function as chief guest at the Winter School on International & National legislations to Protect Breeders and Farmers' Rights at IGFRI, Jhansi on 17 February, 2016.
- Chaired the Grand Jury for the 6<sup>th</sup> edition of Mahindra Samridhi India Agri Awards to select the Individual

Farmers and Institutions for the Award at New Delhi on 19 February, 2016.

- Chaired the session in the Vice-Chancellor Conference and delivered a talk on “Role of State Agricultural Universities for Registration of Extant Notified Varieties” at and also attended Task Force Committee Meeting on Betelvine at UAS Dharwad from 21–22 February, 2016.
- Participation in Awareness programme on Farmers’ Rights at KVK, Bijapur on 24 February, 2016.
- Attended Mahindra Samridhi Agricultural Advisory Committee Meeting at New Delhi and as jury of the Awards, attended Mahindra Samridhi Award Ceremony.
- As Expert Advisor, Chairperson attended Direct Selection/ Screening Committee Meeting for the post of Head, Division of Seed Technology, ICAR-Indian Grassland & Fodder Research Institute, Jhansi at ASRB, New Delhi on 8 March, 2016.
- Attended GIZ-GEF Seed Study Introduction Workshop for Potato at New Delhi on 11 March, 2016.
- Visited Field Gene Bank of Arid Crops, at Central Arid Zone Research Institute, Jodhpur and also participated as Chief Guest in the Inaugural function of training for trainers of KVKs Programme Coordinators at ATARI, Jodhpur on 15 March, 2016
- Invited by BARC Mumbai to talk on “Nuclear Technology for Sustainable Food, Nutrition and Health Security” at Bhabha Atomic Research Centre, Mumbai on 17 March, 2016.
- Chairperson and Registrar General attended Krishi Unnati Mela 2016 at IARI, New Delhi Mumbai on 19 March, 2016.
- Visited Field Gene Banks on Spices at Chattalli and Appangala (Coorg) and addressed the scientists on importance of conservation of PGR and Protection on 25 March, 2016.
- Visited ICAR-Indian Institute of Spices Research,

Calicut and Regional Station, Appangala, Kerala and participated in the Awareness Programme on Protection of Plant Varieties and Farmers’ Rights Act on 26 March, 2016.

- As chief guest, Chairperson attended 18<sup>th</sup> Graduation Day of K.S. Rangasamy College of Technology at Tiruchangod and delivered graduation day address on 27 March, 2016.

## 10.7 PARTICIPATION BY REGISTRAR GENERAL

The Registrar General participated in several meetings and programmes:

- Attended the Scientists–Farmers Meet organized at the Horticulture Research Station (AAU), Kahikuchi, Guwahati, at ICAR, Umam, RARS Shillongoni and also had interactions with officials at Assam Agricultural University at Jorhat and Tocklai Tea Research Institute, Jorhat during 9–12 April, 2015.
- Attended the Farmers’ Rights workshop at Horticultural Research Station, Kahikuchi organized by Assam Agricultural University, Guwahati. The farmers and other participants were briefed about the importance of registration under PPVFR Act and about the Farmers’ Rights on 18 April, 2015.
- Delivered a lecture on Farmers’ Rights to Farmers of Purnea region at CATAT, IARI, New Delhi during a training programme on “Seed Production and improved agricultural technologies on 29 April, 2015.
- Attended Noni Task Force workshop at Chennai for finalization of Noni DUS guidelines on 8 May, 2015.
- Attended DUS field level training-cum-awareness programme at Indian Institute of Rice Research and ICRISAT Hyderabad on 9 May, 2015.
- Attended meeting at National Botanical Research Institute, Lucknow during 29–30 May, 2015.
- Attended a meeting at Navsari Agricultural University (NAU) during 3–4 June, 2015 and discussed about the progress of registration of the farmers’ varieties,

varieties developed by the NAU which are yet to be registered with PPV&FRA and other related issues. The Registrar General also attended the Mango Festival of the Gujarat State organized by NAU.

- Participated and delivered a lecture on the various provisions of the PPV&FRA and the Farmers' Rights during a Technical Session in the Third Uttar Pradesh Agricultural Science Congress held at Sam Higginbottom Institute of Agriculture, Technology and Sciences, (SHIATS) Allahabad during 14–15 June, 2015.
- Delivered a lecture at NAARM, Hyderabad on implementation of PPV&FR Act, 2001 and the registration process of the plant varieties to about 100 probationers of Agricultural Research Services during 7–8 July, 2015.
- Participated in the meeting to discuss various issues related to “Development of protocols for evaluation of performance of varieties and IT platform for registration of varieties under the Seed Bill 2014” at Krishi Bhawan, New Delhi on 6 August, 2015.
- Participated in the PG Diploma in Technology Management in Agriculture program organized by NAARM, Hyderabad and delivered a lead lecture on “Protection of Plant Varieties & Farmers' Rights Act, 2001” through video conferencing from IASRI, New Delhi on 8 August, 2015.
- Attended the meeting of the Committee on OECD Scheme at Krishi Bhawan, New Delhi on 10 August, 2015.
- Attended the 23<sup>rd</sup> Authority meeting of PPV&FRA at NASC Complex, New Delhi on 14 August, 2015.
- Delivered a lecture on “PPV&FR Act, 2001 and its practical implication on Indian Seed Sector” and also on “IP and Cyber Crime” at ZTM, IARI, New Delhi held during 21–22 August, 2015.
- Participated in the Inauguration of 10<sup>th</sup> Annual Review Meeting of ICAR Seed Project “Seed Production in Agricultural Crops” for the year 2014–15 held at ICAR Research Complex, Goa during 24–25 August, 2015
- and also Chaired a Technical Session.
- Visited the University of Agricultural and Horticultural Sciences (UAHS), Shimoga, Karnataka and had a detailed discussion with the Vice-Chancellor, Director of Research, Dean and other senior officers of the University regarding the feasibility of opening a Regional Office of PPV&FR Authority at Shimoga during 24–25 August, 2015.
- Participated in the fourth meeting of the Expert Committee on Essentially Derived Varieties held on 4 September, 2015, at NASC Complex, New Delhi.
- Delivered a Lecture on “Implementation of PPV&FR Act, 2001” during Summer School organized at IIPR, Kanpur during 16–19 September, 2015.
- Delivered a lecture during an International Training Programme on Protection of Plant Varieties and Farmers' Rights Act at MSSRF, Chennai on 21 September, 2015.
- Participated in the Farm Innovator's Meet, 2015 and delivered a lecture on “Opportunities for innovators: The governmental initiatives” at Extension Division, IARI on 24 September, 2015.
- Participated in the meeting held on 28 September at Krishi Bhawan under the Chairmanship of Joint Secretary (Seeds) for Preparation of Information for attending the Sixth Session of the Governing Body of ITPGRFA to be held in Rome during October, 2015.
- Screening and evaluation of ICAR Extramural Research Project Proposals Meeting during 10–11 October, 2015.
- Interface Meeting between NBA and PPV&FRA was organized at Delhi on 13 October, 2015.
- Attended National Seed Congress at Hyderabad on 29 October, 2015.
- Chaired a session on TRIPS and Agriculture during International Conference on “Evolving Regime in Intellectual Property Protection” on 3 November, 2015 held at Jawaharlal Nehru University Convention Centre.

- Delivered a talk on “PPV&FR Act,2001: Experiences in establishing rights over farmers’ varieties and private seed companies” varieties at MSSRF, Chennai during an International course on “Plant Genetic Resources and Seeds” on 9 November, 2015.
- Chaired a session on “Ex-situ conservation” at NBRI on 18 November, 2015 during a “National Conference on Indian Botanic Gardens” and delivered the lead Lecture about the PPV&FR Act, 2001.
- Participated in the training-cum-awareness programme on PPV&FR Act, 2001 at KVK, Balrampur during 11–13 December, 2015.
- Delivered Lecture at the plenary Session relating to “Biodiversity Database Integration for the benefit of Human Kind” at 103<sup>rd</sup> Indian Science Congress at Mysore University, Mysore during 5–7 January, 2016.
- Meeting with Member Secretary, National Legal Service Authority for extending the legal services at district level to Farmers for cases related to PPV&FR Act, 2001 on 14 January, 2016.
- Attended 103<sup>rd</sup> Foundation Course for Agricultural Research Service (FOCARS – 103) at ICAR–National Academy of Agricultural Research Management, Rajendranagar, Hyderabad, Telangana on 16 January, 2016.
- Interaction with the Review Team of CBD on National Biodiversity and Strategy Action Plan at Krishi Bhawan, New Delhi on 20 January, 2016.
- Selection Committee Meeting of Plant Genome Saviour Award and Reward at Krishi Bhawan, New Delhi held on 28 January, 2016.
- Attended a meeting to explore possibilities of implementation of Farmers’ Cell in joint collaboration with Deendayal Research Institute, Mathura, and in the adjoining area of Mathura on 29 January, 2016.
- Interaction with Dr. Anabel Ivana Marin, Argentina Scientific and Technical Research Council, Argentina regarding Argentinian’s seed industry experience with innovation and plant variety protection at PPV&FR Authority on 1 February, 2016.
- Attended the National Seminar on “New dimensional approaches for enhancement of seed spices productivity & profitability under era of climate change” and to see the progress and development of guidelines at ICAR–National Research Centre on Seed Spices, Jaipur, Rajasthan during 1–2 February, 2016.
- Attended training-cum-awareness programme at KVKs of Jammu & Kashmir, SKUAST – Jammu on 6 February, 2016.
- Addressed the participant on the theme ‘Towards better governance: innovation, and key issues in the training programme entitled ‘ Science , Technology and Emerging Trends in Governance’ sponsored by DST at Faculty, Indian Institute of Public Administration, New Delhi on 16 February, 2016.
- Delivered a key-note address during the 18<sup>th</sup> Annual Conference at University of Jammu at Jammu and organized by The Society of Statistics, Computer and Applications (SSCA) held during 17–18 February, 2016.
- Conducted 10<sup>th</sup> DUS Review meeting at MPKV, Rahuri for more than 60 projects related to DUS testing, development of guidelines and Field Gene bank during 26–27 February, 2016.
- Attended meeting as the panellist of the technical session “Interaction with Innovative Farmers” at ICAR-IARI, New Delhi on 21 March, 2016.
- Conducted 27<sup>th</sup> meeting of the Extant Varieties Recommendation Committee (EVRC) at Indian Institute of Vegetable Research, Varanasi as Member Secretary on 22 March, 2016.
- Attended meeting regarding Training-cum-Awareness Programme for Turmeric plant Farmer’s Society and delivered a talk about the salient features of Protection of Plant Varieties and Farmers Authority of India to the delegates & Biotechnology students at K.S.R. College of Technology, Tiruchengode, Tamilnadu on 28 March, 2016.

## 10.8 PARTICIPATION BY DR. R.R. HANCHINAL(CHAIRPERSON, PPV&FRA) AND DR. R.C. AGRAWAL (REGISTRAR GENERAL, PPV&FRA)

- The Chairperson along with Registrar General participated in the meeting on “Redesign Farming Systems for Sustainable Rain-fed Agriculture in India: Linking agricultural biodiversity for production and consumption” at Krishi Bhawan, New Delhi on 19 May, 2015.
- The Chairperson along with Dr. R.C. Agrawal, Registrar General and Dr. Ravi Prakash, Registrar, participated in the Task force meeting for DUS Test Guidelines of Paphiopedilum, Ascocentrum and its alliances at NRC, Orchids, Pakyong, Gangtok, Sikkim on 29 June, 2015.



- The Chairperson along with Dr. R.C. Agrawal, Registrar General and Dr. Ravi Prakash, Registrar, participated in the training programme for creation of awareness among the farmers and other stakeholders about the provisions of the Protection of Plant varieties and farmer’s Right Act, 2001 at IARI-Regional Station, Kalimpong on 30 June, 2015.
- Chairperson along with the Registrar General participated in the third meeting of the Expert Group on EDV. The meeting was chaired by Dr. B.S. Dhillon, Vice Chancellor of PAU Ludhiana on 17 July, 2015.
- Chairperson along with the Registrar General participated in the 9<sup>th</sup> National Conference of KVVKs at Sri Krishna Memorial Hall, Patna and Chaired the Technical Session III “Technological Skills and Interventions” on 26 July, 2015.
- Chairperson along with Registrar General and other Staff Members of PPV&FR Authority participated in the meeting with German Delegation at NASC Complex, New Delhi on 18 August, 2015 to evaluate the activities of bilateral cooperation project on seeds.
- Chairperson along with Registrar General and Joint Registrar participated in the Wrap-up Meeting with German Delegation under the Chairmanship of Joint Secretary (Seeds) at Krishi Bhawan, New Delhi to discuss the issues on Seed Development and to evaluate the project for further extension. The meeting was attended by the officers of Seed Division, NBPGR, PPVFRA and NSAI on 20 August, 2015.
- Chairperson along with Registrar General made a visit to the University of Agricultural and Horticultural Sciences (UAHS), Shimoga, Karnataka and had a detailed discussion with the Vice-Chancellor, Director of Research, Dean and other senior officers of the University regarding the feasibility of opening a Regional Office of PPV&FR Authority at Shimoga on 28–29 August, 2015.
- Chairperson and Registrar General participated in the Task Force Meeting to evaluate and finalize DUS Test Guidelines of Elephant Foot Yam and Taro on 7 September, 2015.
- Chairperson and Registrar General attended Meeting with Member Secretary National Legal Services Authority at New Delhi on 14 January, 2016.
- Chairperson and Registrar General met with Chairman, Central Board of Direct Taxes (CBDT) regarding exemption of Income Tax for Gene Fund at New Delhi on 19 January, 2016.
- Chairperson, Registrar General and staff of the Authority interacted with Dr Anabel Ivana Marin from the Argentinian National Scientific and Technical Research Council (CONICET) at Buenos Aires, Argentina along with Ms. Shalini Bhutani and other members to share her experiences on the Argentinian seed industry with innovation and plant variety protection at committee room of the Authority on 1 February, 2016.

- Chairperson and Registrar General attended the National Seminar on “New Dimensional Approaches for Enhancement of Seed Spices Productivity & Profitability Under Era of Climate Change” and to see the progress & the development of guidelines at ICAR-National Research Centre on Seed Spices, Jaipur, Rajasthan. Chairperson also attended Seminar as guest of honour and delivered a talk on Plant Breeders’ Rights at NRCSS, Ajmer, Rajasthan on 2–3 February, 2016.
- Chairperson and Registrar General attended Selection Committee for Plant Genome Saviour Community Award 2013–14 at NASC Complex, New Delhi on 5 February, 2016.
- Chairperson and Registrar General attended training-cum-awareness programme at KVKs of Jammu & Kashmir, SKUAST-Jammu on 5 February, 2016.
- Chairperson and Registrar General attended 25<sup>th</sup> Authority Meeting at Board Room, NASC Complex, New Delhi on 9 February, 2016.
- Chairperson and Registrar General attended the Retrospection-2015 (MAGOVA) of MPKV Rahuri. Chairperson inaugurated the exhibition and was the Chief Guest of the function on 25 February, 2016.
- Chairperson, Registrar General along with other staff attended 10<sup>th</sup> Annual DUS Review Meeting at MPKV, Rahuri. About 110 associates of DUS projects participated the meeting. The projects related to horticulture, vegetables, cereals etc. were registered along with projects of development of DUS guidelines of crops/trees sps. A special session was also organized for discussion with Private Seed Industries from 25 to 27 February, 2016.
- Chairperson and Registrar General attended the meeting with JS Seedson Skill Development on Seed Sector at New Delhi on 3 March, 2016.
- Chairperson and Registrar General attended Second World Noni Congress 2016 – Noni and medical plants for inclusive growth and wellness at SRM University Kattankulathur, Chennai and Chairperson presented an invited paper on IP-protection on Crop varieties on 20 March, 2016.
- Chairperson and Registrar General attended 27<sup>th</sup> meeting of the Extant Variety Recommendation Committee (EVRC), at Indian Institute of Vegetable Research, Varanasi on 22 March, 2016.
- Chairperson, Registrar General and Legal Advisor-1 attended training-cum-awareness Programme for Turmeric plant Farmer’s Society and delivered a talk about the salient features of Protection of Plant Varieties and Farmers Authority of India to the Farmers & Biotechnology students at K.S.R. College of Technology, Tiruchengode, Tamil Nadu on 27 March, 2016.
- Participated in meeting at the office of PPV&FRA with Mr. Fabrizio Felloni, Lead Evaluation Officer IFAD-Independent Office of Evaluation, Rome, Italy and Mr. Govindan Nair, Consultant on 7 October, 2015.
- Chairperson and Registrar General met with Chairman, CBDT at North Block, New Delhi for seeking exemption related to donations in National Gene Fund on 20 January, 2016.



# Chapter 11: International co-operation

## 11.1 FOREIGN VISITS

The chairperson, PPV&FRA visited Germany and Central Asia Countries viz. Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan during the financial year.

### 11.1.1 Germany

A Joint declaration was signed at Berlin on April 11, 2013 between the Department of Agriculture and Cooperation, Ministry of Agriculture of the Republic of India and Federal Ministry of Food, Agriculture and Consumer protection of the Federal Republic of Germany on the cooperation in the field of Agriculture including Seed systems development. Both sides agreed to initiate bilateral co-operation.

This agreement opened a new era of bilateral co-operation on plant variety protection (PVP), DUS testing and Plant breeders' Rights between the German Association of Plant Variety (BDP), Federal office of the plant variety (Bundessortenamt) PPV&FR Authority and National Seed Association of India (NSAI) and will help both the countries in understanding and exchanging of experience and information related to PVP.

### Visit of Indian delegation

During the December, 2014 visit, German delegation invited Indian delegation to visit Germany during July 2015 to study the DUS test procedures and other activities as a follow-up the Indian delegation consisting of two officials, viz., Dr R R Hanchinal, Chairperson and Mr. Dipal Roy Choudhury, Joint Registrar from PPV & FR Authority visited Germany from 3–7 August, 2015 .



The objective of the team was aimed to study the PVP system, DUS testing and visit DUS and VCU centres to get onsite experience, special tests being used and also details of plant breeders' rights in Germany. They visited the HQ of the BSA-Federal Plant Variety Office at Hannover and interacted with senior functionaries like, Mr. Udo von Krocher, President; Dr Hermann Freudenstein, Head National and International Variety and Seed Affairs, Co-ordination, Dr Beate Rucker, Head: National Listing, Variety Protection and Genetic Resources, Dr Ula Schnock and other officials; also visited several labs and sections involved in plant variety registration.



A visit was made to the DUS-VCU station at Magdeburg, Eastern part of Germany which is conducting trials on Maize, Wheat, Barley, Sugar beet, Potato and Oil seed rape. Field visits were conducted to appraise about trial conditions, layout, recording of DUS data etc. On 6 August, 2015, the delegation visited the KWS SAAT SE, world's fifth largest seed company having considerable expertise in R&D, Plant Biotechnology and Seed Production in Sugarbeet, Wheat, Oil seed Rape, Sunflower and other crops. They had interacted with Ms. Claudia Hallebach, Head of R&D Legal Affairs and Intellectual Property; Dr. Markus Westhoff, Senior IP Operations Manager; Mr. Padrig O Scanlain, Project Manager Corn and Oilseeds (India and SE Asia); Ms. Aneke Schwager, Head of Govt. Affairs, Corporate Development and Communications and Dr. Paul Olson, Senior IP Expert PVP and Germplasm.

On 7 August 2015, the delegation visited Saka Pflanzenzucht GMBH & Co. which belong to Solana Group

(established in 1905) that breeders modern potato varieties and distributes high quality seed potatoes of nearly 60 varieties to Europe, Latin America and Sri Lanka. Meeting was organized in presence of Dr. Lars Wilhelm Bangemann, Manager Breeding Station, Windeby and Ms. Maria Brockmann, Product Manager. Discussions were made on aspects EU position on GMO, latest developments in plant breeding at KWS for crops like Sugar beet.



A technical presentation was made by Dr. Bangemann about the history, breeding of potato varieties, plant biotechnology and production of quality seed potatoes etc. It was informed that most of the breeding of Potato varieties in Europe is restricted to 5 companies and only one public institution is responsible for pre-breeding program focused to late blight resistance. A brief was given on the status of Potato cultivation, breeding objectives for Ware potatoes/French Fries/Crisps/Starch production/Extra early maturity and Storage suitability etc. Further a visit to the Plant Tissue Culture Lab (production of disease free plant lets), Biotechnology Platform (fingerprinting and DNA diagnostics), greenhouses (production of mini tubers), grading and sorting area and seed potato storage were made. Mr. Dipal Roy Choudhury informed about Potato scenario in India, significant contribution of public sector institute like CPRI for breeding varieties for table potatoes, changing scenario and value addition through involvement of Private processing companies and contract production of chip grade potato varieties in India and general seed production

technology was discussed. It was also informed that India has strong seed production chain in Potato, however, breeding focus on processing quality is an emerging area for focus for companies like Saka GMBH.

### Recommendation of the Indian delegation

1. Indian and Germany can co-operate in harmonisation of plant variety protection system and DUS testing
2. German Experts in DUS-VCU of cereals/Vegetables/Ornamental species can visit Indian DUS centers during crop seasons and can give practical training
3. A developmental project may be devised for Maintenance of Traditional Crop Genetic Diversity through Community Seed Bank mechanism. This project can be worked out in association with GIZ
4. A mechanism may be developed to facilitate OECD seed sector development in collaboration with Germany
5. Germany may facilitate India's participation as per UPOV 1978
6. To promote effective seed business we may explore the convention country status
7. BSA (Federal Plant Variety Office) can train Indian Experts in Automation/Instrumentation in DUS/VCU trials (e.g., data loggers/data base management/image analysis etc.)
8. Indo-German bilateral conference may be organized at New Delhi by inviting crop experts from Germany, India and also Private Seed Industry to promote seed business, issues of EDV and OECD, conservation of plant genetic resources for sustainable use, understanding PVP of each country and Farmers' Rights
9. Bi-lateral co-operation may be extended for another 2 years

#### 11.1.2 Central Asia

Dr R R Hanchinal, Chairperson, PPV&FRA, participated and delivered a key note address on the topic "National Framework on protection of International Rights of Farmers on Crop varieties in India" on an invitation from Bioversity

International, CWANA Sub-office for Central Asia during his visit from 15–27 September, 2015.

## 11.2 MEETINGS AND SEMINAR/ WORKSHOPS ORGANIZED

### 11.2.1 Meeting on Bilateral Cooperation between PPV&FRA and German Delegation at NASC Complex, New Delhi on 18 August, 2015

Following salient points were emerged during Bi-lateral meeting on Bilateral Cooperation between PPV&FRA and German Delegation:

- India and Germany can co-operate in harmonization of plant variety protection system and DUS testing
- To promote effective plant variety protection (PVP) between both the countries by way of bi-lateral agreement for grant of Convention country status.
- German Expertise in DUS-VCU of selected crops like Cereals / Malting Barley / Potatoes /Ornamental species and Oilseeds and can visit Indian DUS centers during crop seasons and may give practical training
- BSA (Federal Plant Variety Office) can train Indian Experts in Automation / Instrumentation in DUS/VCU trials (e.g., data loggers/data base management/image analysis etc.) preferably in Germany.
- A mechanism may be developed to facilitate OECD seed sector development in collaboration with Germany
- Indo-German bilateral symposia may be organized in India by inviting officials from Bundessortenamt (BSA), representatives from German Plant Breeders Association (BDP), crop experts and also Private Seed Industry to promote Plant Breeder Rights and dealing with specific issues in DUS Testing, special test and Essentially Derived Varieties (EDV) etc., for better collaboration among seed sector, OECD seed schemes etc.
- Germany may support India's membership in UPOV as per 1978 Convention.
- Bi-lateral co-operation may be extended for further 3 years.

### 11.2.3 Joint Workshop on DUS Testing



Under India-Germany Bilateral Cooperation in Seed Sector development, a joint workshop in DUS Testing was organized during 23–24 November, 2015 at LBS Auditorium, IARI, New Delhi. On 23 November, 2015, the programme was inaugurated by Chief Guest, Mr. Avinash Kr Srivastava, IAS, Special Secretary to Govt. of India, Dept. of Agriculture and Cooperation with the presence of Dr. R R Hanchinal, Chairperson, PPV&FRA; Dr. Hermann Freudenstein, BSA; Dr. S K Patil, VC, IGKV, Raipur; Dr. T Mohapatra, the then Director, IARI and other distinguished guests. It was participated by representatives from ICAR Institutes, SAUs, MoEF, DAC, public and private seed industry. In his welcome address, Chairperson gave the genesis of the bi-lateral cooperation with Germany, discussed briefly about the International obligation under TRIPs and enactment of PPV&FR Legislation etc. He urged that India can be benefitted for the following from the activities planned under the Bi-lateral workshop as hereunder:

- Mutual Recognition under Convention Country Agreement can open possibilities of reciprocity in PVP
- Immense opportunity in trade for speciality vegetables, flowers & ornamentals, potato, cereals and cash crops
- Experiences in vegetables, ornamental crop species: improvement in DUS Testing procedures, infrastructure and automation
- Database exchange and sharing, human resource development
- Newer technologies and improved varieties/parental lines will benefit public and private Plant Breeding industry

# Chapter 12:

## Financial Statements of the Authority for 2015–16

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 and income except where otherwise stated. A copy of Balance sheet as on 31 March, 2016 (Table ), Income and Expenditure Account (Table ), and Receipt and payment account for the year ended 31 March, 2016 (Table ) are given below.

The audited accounts along with the audit report and

management reply were approved in the 21<sup>st</sup> PPV&FR Authority meeting held in October, 2015 at New Delhi.

In compliance with section 62(2) of PPV & FR Act, 2001, the accounts of the Authority were submitted to the Comptroller and Auditor General of India (CAG). The Audit by CAG is completed. The audited accounts along with audit report and management reply shall be sent to the Ministry separately for placing before both the houses of Parliament. The Authority received Rs. 1585.44 lakh as grants-in-aid from Department of Agriculture, Cooperation & Farmers Welfare, during the year 2015–16 and utilized Rs.1592.62 lakh after adjusting unspent balance of Rs. 14.56 lakh of previous year leaving a balance of Rs. 7.38 lakh.

**Table 106:**Balance Sheet as on 31<sup>st</sup> March, 2016

Corpus/capital fund and liabilities	Current year (Amount in rupees)	Previous year (Amount in rupees)
Corpus/capital fund	28,53,60,795	19,20,05,727
Reserves and surplus		-
Earmarked/endowment funds		-
Secured loans and borrowings		-
Unsecured loans and borrowings		-
Deferred credit liabilities		-
Current liabilities and provisions	15,28,45,257	11,19,07,885
<b>Assets</b>		
Fixed assets	2,99,77,679	2,95,48,719
Less: accumulated depreciation	2,41,39,774	2,29,26,480
Net fixed assets	58,37,905	66,22,239
Capital work in progress	1,78,38,219	1,78,38,219
Investments-from earmarked/endowment funds		-
Investments-others		-
Current assets, loans advances etc.	41,45,29,928	27,94,53,154
<b>Miscellaneous expenditure</b> (to the extent not written off or adjusted)		-
<b>Total</b>	<b>43,82,06,052</b>	<b>30,39,13,612</b>

**Table 107:** Income and Expenditure Account for the Year Ended 31<sup>st</sup> March, 2016 (Amount in Rupees)

Income	Authority fund		Gene fund	
	Current year	Previous year	Current year	Previous year
Income from Sales/Services		-	-	-
Grants/Subsidies	15,81,15,040	15,92,47,151	1,85,00,000	85,00,000
Fees/Subscriptions	2,98,49,800	2,34,34,050	76,65,296	53,16,755
Income from investments		-		-
Income from royalty, publication, etc.		-		-
Interest earned	1,42,88,012	90,89,595		19,02,950
Other income	6,01,581	5,92,111	23,11,840	24,750
Increase/(decrease) in stock of finished goods and works in progress		-		-
Deferred income (Depreciation on fixed asset)	12,13,294	19,64,351		-
Prior period adjustment A/c (Annexure A)	55,43,859	-	13,04,000	(62,776)
<b>TOTAL (A)</b>	<b>20,96,11,585</b>	<b>19,43,27,258</b>	<b>2,97,81,136</b>	<b>1,56,81,679</b>
<b>Expenditure</b>				
Establishment expenses	4,91,52,403	4,43,66,494		-
Other administrative expenses etc.	4,54,15,679	4,29,38,870		-
Expenditure on grants, subsidies, etc.	4,94,60,328	7,69,77,128		-
Interest	10,985	8,223	630	762
Depreciation including impairment loss (Net total at the year-end-corresponding to Schedule 8)	12,13,294	19,64,351		-
Prior period adjustment a/c (Annexure A)		10,21,682		
<b>TOTAL (B)</b>	<b>14,52,52,689</b>	<b>16,72,76,748</b>	<b>630</b>	<b>762</b>
<b>Balance being excess of Income Over Expenditure (A-B)</b>	<b>6,43,58,897</b>	<b>2,70,50,510</b>	<b>2,97,80,506</b>	<b>1,56,80,917</b>
Transfer to special Reserve		-		-
Transfer to/from General Reserve		-		-
<b>Balance being surplus (deficit) carried to corpus/ capital fund</b>	<b>6,43,58,897</b>	<b>2,70,50,510</b>	<b>2,97,80,506</b>	<b>1,56,80,917</b>

**Table 108:** Receipts and payments for the financial year (Amount in Rupees)

Receipts	Current Year	Previous Year	Payments	Current Year	Previous Year
1. Opening Balances	-	-	1. Expenses		
Imprest (Cash in hand)	44,593	15,000	Establishment Expenses	2,01,67,178	2,28,87,246
Bank Balances	-	-	Administrative Expenses	2,15,06,248	1,88,64,275
State Bank of India (Including Mod)	6,49,78,652	31,854,153	2. Payments made against funds		
Syndicate Bank	74,53,097	2,629,758	Existing DUS Centres (Annexure B, C)	3,91,79,207	3,35,98,052
Remittance in Transit	19,630	34,372	New DUS Centres (Annexure D, E)	2,15,16,314	2,65,58,725
SBI (Gene Fund)	2,41,57,718	16,010,435	Referral Labs (Annexure F)	-	-
Guwahati Bank	19,910	14,409	Field Gene Bank (Annexure G, H)	31,13,386	29,14,030
Ranchi Bank	3,024	2,498	3. Expenditure on fixed Assets and Capital Work in Progress	-	-
2. Grants received from Government of India	15,85,44,000	160,000,000	Purchase of Fixed Assets(Authority)	4,28,960	7,52,849
3. Interest received on bank deposits	-	-	Expenditure on Capital Work-in-Progress	-	-
Gene Fund	18,58,911	1,250,057	4. Advance to Training Centres(Annexure I)	2,79,98,875	2,55,26,098
Authority Fund	68,53,854	6,438,698	5. Contribution to Organisation/ institution	-	31,39,654
4. Advance for construction of Plant Protection Bhawan	-	50,000,000	6. Advance to outsiders (Annexure J)	9,78,591	20,86,244
5. Assistance from FAO for organizing International Workshop	-	371,940	7. Refilling of franking machine	-	-
6. Capital Account (Authority Fund)	2,10,000	-	8. Contribution to Organization/ institutions	-	-
7. Refund of Advance from Training Centres	4,44,293	490,995	9. Advance to Staff	-	-
8. Refund of Advance for Development of DUS Guidelines (New DUS Centre)	3,04,783	159,869	10. Finance Charges	-	-
9. Refund of Advance from Staff	2,19,197	6,92,199	11. Payments against advance received	-	-
10. Fees/Subscriptions/Other income	-	-	12. Fixed Deposit	-	-
Application/Registration Fee Received	1,53,04,600	4,274,000	13. Reversal of stale demand draft	-	-
PVJ Fees	1,41,600	106,100	Gene fund	-	-
Fees for notice of opposition	-	4,500	Authority fund	-	-
Annual Fees (Including Share from sale of Seeds)-Gene Fund	87,92,574	5,040,755	14. Statutory liabilities paid	-	-
Annual Fees - Authority	8,000	-	15. Other remittances	2,18,520	-
Sale of old newspapers and scrap	2,908	7,044	16. Closing Balances	-	-
DUS test fee received	1,24,30,000	18,957,000	Imprest (Cash in hand)	-	-

Receipts	Current Year	Previous Year
Other Income	1,55,961	25,296
Reversal of TDS deducted	52,242	1,890
Annual renewal fees	18,21,000	
Sale of publications	-	-
Inspection fees	5,000	1,970,000
Excess credit given by bank	2,24,608	-
Contribution from Authority fund	1,85,00,000	-
Advance for various fees	-	19,70,000
Prior period account	20,996	-
11. Encashment of FD	10,64,21,975	9,61,13,152
12. CPF Recurring Deposit	1,44,000	-
13. Reversal of Stale Cheques	38,557	302,262
<b>TOTAL</b>	<b>42,91,75,683</b>	<b>39,67,66,382</b>

Payments	Current Year	Previous Year
Authority	25,000	25,000
Ranchi branch	52	19,593
Guwahati branch	767	-
Bank balances (Including MOD)	-	-
State Bank of India	5,22,71,445	6,49,78,652
Syndicate Bank	3,29,76,805	74,53,097
Bank in transit	-	19,630
SBI (Gene Fund)	5,21,61,780	2,41,57,718
Guwahati Bank	32,433	19,910
Ranchi Bank	26,086	3,024
<b>TOTAL</b>	<b>42,91,75,683</b>	<b>39,67,66,382</b>

# Chapter 13: 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 and meeting the expenditure of the schemes related 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 available.
- 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, 2001.
- Developing 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

The designated officers for redressal of public grievances are:

- **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, rg-ppvfra@nic.in  
www.plantauthority.gov.in

## RTI CELL

- **Dr. Ravi Prakash Chief Public Information Officer**

Protection of Plant Varieties and Farmers' Rights Authority Govt. of India, Ministry of Agriculture and Farmers Welfare, Department of Agriculture, Co-operation and Farmers Welfare, 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 and Farmers Welfare, Department of Agriculture, Co-operation and Farmers Welfare, 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 (2015–16)

**Prof. R. R. Hanchinal**, Chairperson, PPV&FR Authority, New Delhi

### MEMBERS OF AUTHORITY:

- Dr. S.K. Malhotra**, Agriculture Commissioner, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India, Krishi Bhavan, New Delhi
- Dr. J.S. Sandhu**, Deputy Director General (Crop Science), Division of Crop Science, Indian Council of Agriculture (ICAR), Krishi Bhavan, New Delhi
- Shri R. K. Singh (IAS)**, Joint Secretary (Seeds), Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India, Krishi Bhavan, New Delhi
- Horticultural Commissioner**, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India, Room no 238, Krishi Bhawan, New Delhi
- Dr. K.C. Bansal**, Director, National Bureau of Plant Genetic Resources, Pusa, DPS Marg, New Delhi
- Dr. Mohd. Aslam**, Adviser/Scientist 'G', Department of Biotechnology, Ministry of Science & Technology, Govt. of India, Room No. 709, 7th Floor, Block- 2, CGO Complex, Lodhi Road, New Delhi
- Dr. Sujata Arora**, Adviser, Ministry of Environment & Forests & Climate Change, Room No.V-235, Indira Paryavaran Bhawan, New Delhi
- Shri. Inder Kumar**, Joint Secretary & Legal Advisor, Department of Legal Affairs, Ministry of Railways, Room No.145-A, Rail Bhawan, New Delhi
- Shri Mayaram Netam**, Programme Officer (Retired), Vrindavan Colony, House No. 1/21, Jagadapur, Bastar, Chattisgarh
- Shri P Chengal Reddy**, Federation of Farmers Association of India Hyderabad
- Dr. Usha Barwale**, Maharashtra Hybrid Seed Company Ltd., Maharashtra
- Dr. B.S. Dhillon**, Vice Chancellor, Punjab Agricultural University, Ludhiana, Punjab
- Dr. Sudhir Kumar Goel**, IAS Add. Chief Secretary, Govt. of Maharashtra.
- Shri Amit Mohan Prasad**, IAS, Principle Secretary, Agriculture Govt. of Uttar Pradesh.
- Mrs. Neelam Tryagi**, Secretary Laxmi Jan Kalyan Sewa Sansthan.

**Member Secretary (ex officio): Dr. R.C. Agrawal**, Registrar General, PPV&FR Authority, New Delhi

# Annexure II: Details of Human Resources PPV&FR Authority

Name of the post	Pay scale (Amount in Rs.)	Posts sanctioned	Posts vacant
<b>Chairperson</b> Dr. R. R. Hanchinal	80,000 fixed	1	-
<b>Registrar General</b> Dr. R.C. Agrawal	67,000-79,000	1	-
<b>Registrar</b> Dr. Ravi Prakash	37,400-67,000 + GP 8700/-	3	2
<b>Finance Advisor</b> Mr. J.P. Singh	37,400-67,000+ GP 8700/-	1	-
<b>Joint Registrar</b> Mr. Dipal Roy Choudhury	15,600-39,100+GP 7600/-	2	1
<b>Legal Advisor-I</b> Mr. D.S. Raj Ganesh	15,600-39,100+ GP 6600/-	2	-
<b>Legal Advisor-II</b> Mr. R. R. Pradhan	15,600-39,100+ GP 6600/-		
<b>Deputy Registrar</b> Mr. Uma Kant Dubey	15,600-39,100+ GP 6600/-	3	2
<b>Senior Technical Officer</b> Dr. A.K. Singh	9300-34,800+ GP 4600/-	3	2
<b>Technical Assistant</b> Dr. D.S Pilia	9300-34,800+ GP 4200/-	1	-
<b>Computer Assistant</b> Mrs. Shipra Mathur Mr. Arvind Kumar Rai Mr. Sanjay Kumar Gupta Mr. Shyam Narayan Prasad Mr. Nitesh Kumar	9300-34,800+ GP 4200/-	6	1

# Annexure III: Statement showing funds released to existing DUS Centres/Projects during 2015–16

Statement showing funds released to existing DUS centres during 2015–16

S. no.	Name of DUS centre	Crop	Amount released during 2015–16 (Rs.)
1	Assam Agricultural University, Jorhat	Rice	390,996
2	Acharya NG Ranga Agricultural University, Hyderabad	Maize, Black gram	413,000
3	Choudhary Charan Singh, Hisar Agricultural University, Hisa	Cotton, Chickpea	722,276
4	CPCRI, Kerala	Coconut	384,140
5	Central Potato Research Institute(CPRI), Shimla	Potato	-
6	Central Rice Research Institute, Cuttack	Rice	324,187
7	Central Institute for Cotton Research, Nagpur	Cotton	1,234,875
8	Central Institute for Subtropical Horticulture, Lucknow	Mango	329,443
9	Central Institute for Tropical Horticulture, Srinagar	Peach, Plum	-
10	Central Res Institute for Jute and Allied Fibres Research, Barrackpore & CSRS, Budbud	Jute	610,495
11	Chandra Sekhar Azad University of Agricultural and Technology, Kanpur	Mustard, Wheat	450,220
12	Directorate of Medicinal & Aromatic Plant Research, Anand	Medicinal and Aromatic plants	578,372
13	Indian Institute for Horticultural Research, Bangalore	Rose, Chrysanthemum	1,426,066
14	National Research Centre for Banana, Trichy	Banana	-
15	Directorate of Soybean, Indore	Soybean	1,045,245
16	Directorate of Oilseed Research, Hyderabad	Sunflower, Castor	902,970
17	Directorate of Rice Research, Hyderabad	Rice	556,500
18	Directorate of Sorghum Research, Hyderabad	Sorghum	808,326
19	Division of Floriculture, IARI, New Delhi	Rose, Chrysanthemum	-
20	Indian Institute of Wheat & Barley Research, Karnal (DWR, Karnal)	Wheat	831,000
21	Indian Institute of Wheat & Barley Research, Karnal (DWR, Karnal)	Barley	656,978
22	Govind Ballav Pant University of Agriculture and Technology, Pantnagar	Sorghum	-
23	Indian Institute of Agricultural Research, Division of Vegetable Science, New Delhi	Cabbage, Cauliflower	709,199
24	Indian Institute of Agricultural Research, Division of Vegetable Science, New Delhi	Onion, Garlic	213,217
25	ICAR- CIAH, Bikaner	Ber	-
26	Indian Institute of Horticultural Research, Bangalore	Vegetables	591,750
27	Indian Institute of Pulses Research, Kanpur	Chickpea, Pigeonpea	888,274

S. no.	Name of DUS centre	Crop	Amount released during 2015-16 (Rs.)
28	Indian Institute of Pulses Research, Kanpur	Mungbean, Urdbean, Lentil, Mullarp	448,747
29	Indian Institute of Spices Research, Calicut	Spices	509,910
30	Indian Institute of Vegetable Research, Varanasi	Okra, Brinjal, Tomato, Cabbage, Cauliflower	3,659,750
31	Indian Institute of Vegetable Research, Varanasi	Cucurbits	-
32	Indian Institute of Sugarcane Research, Lucknow	Sugarcane	500,000
33	Junagadh Agricultural University, Jamnagar	Castor	403,218
34	Jawaharlal Nehru Krishi Viswavidyalaya, Jabalpur	Field Pea, Linseed	21,000
35	Kerala Agricultural University, Thrissur	Orchid	-
36	Project Coordinator(Pearl Millet), Mandor(RAU, Bikaner)	Pearl millet	1,056,877
37	Mathma Phule Krishi Viswavidyalaya, Rahuri	Sorghum, Pearl millet	1,243,200
38	Mathma Phule Krishi Viswavidyalaya, Rahuri(Pune Station)	China aster	-
39	NDUA&T, Faizabad	Barley	-
40	National Research Centre for Grapes	Grapes	193,455
41	National Research Centre for Orchids, Sikkim	Orchids	439,337
42	Directorate of Groundnut Research, Junagarh	Groundnut	389,222
43	Directorate of Onion and Garlic Research, Rajgurunagar	Onion and Garlic	564,000
44	Directorate of Rapeseed and Mustard Research, Bharatpur	Rapeseed, Mustard	86,284
45	National Research Centre for Seed Spices, Ajmer	Seed Spices	260,627
46	Punjab Agricultural University, Ludhiana	Wheat, Cotton	516,531
47	Project Coordinator(Cotton), CICR Regional Station, Coimbatore	Cotton	2,212,625
48	CSAU&T Project Coordinator (Linseed), Kanpur	Linseed	200,000
49	Project Coordinator, JNKVV Sesame and Niger, Jabalpur	Sesame, Niger	142,865
50	Punjab Rao Deshmukh Krishi Viswavidyalaya, Akola	Chickpea	475,000
51	Regional Station, IARI, Indore	Wheat	473,134
52	Regional Station, IARI, Karnal	Rice	318,005
53	Regional Station, IARI, Katrain	Cabbage, Cauliflower	298,133
54	State Forestry Research Institute, Itanagar, Arunachal Pradesh	Orchid	-
55	Sugarcane Breeding Institute, Agali	Sugarcane	303,737
56	Sugarcane Breeding Institute, Karnal	Sugarcane	-
57	Sugarcane Breeding Institute, Coimbatore	Sugarcane	209,264
58	University of Agricultural Sciences, Dharwad	Cotton, Wheat	1,299,176
59	Vivekananda Parvatiya Krishi Anusandhan Shala, Almora	Rajma, Soybean, Maize	252,840
60	Tamil Nadu Agricultural University, Coimbatore	Rice, Sunflower	678,395
61	Central Arid Zone Research Institute	Pomegranate	-
62	Central Institute for Arid Horticulture, Bikaner	Ber	214,283
63	Central Institute for Subtropical Horticulture	Mango	-
64	Directorate of Floricultural Research, IARI Campus, New Delhi	Gladiolus	-

S. no.	Name of DUS centre	Crop	Amount released during 2015-16 (Rs.)
65	Division of Floriculture, Indian Agricultural Research Institute, New Delhi	Bougainvillea	200,000
66	Division of Vegetable Science, Indian Agricultural Research Institute, New Delhi	Bottle Gourd	269,971
67	Division of Vegetable Science, Indian Agricultural Research Institute, New Delhi	Amaranth	567,778
68	Division of Floriculture, Indian Agricultural Research Institute, New Delhi	Marigold	479,377
69	Institute of Forest Genetics and Tree Breeding, Coimbatore	Eucalyptus, Casuarina	523,317
70	National Botanical Research Institute, Lucknow	Canna	50,000
71	NRCP, Sholapur	Pomegranate	270,634
72	Tamil Nadu Agricultural University, Coimbatore	Jasmine	95,429
73	NBRI, Lucknow	Gladiolus	50,000
74	CITH, Srinagar	Peach Plum	191,101
75	MPKV, Rahuri	Cotton	1,225,260
76	National Agricultural Research Project, Pune	China Aster	-
77	Comptroller, MPKV, Rahuri	Rose	-
78	Indian Institute of Horticultural Research (IIHR), Bangalore	Mango	140,500
79	Comptroller, SKNAU, Jobner-Jaipur	Barley	-
80	Director, TRA, Tocklai, Assam	Tea	450,000
81	Director, UPASI, Coimbatore	Tea	100,000
82	Project Director, DTR & DCTB, Kurseong	Tea	-
83	Pay & Accounts Officer, Agricultural College, Kolhapur	Maize	300,000
84	Comptroller, MPUA&T, Udaipur	Maize	300,000
85	Comptroller, Prof. Jayashankar Telangana State Agricultural University, Hyderabad		308,599
86	Central Institute for Medicinal and Aromatic Plants, Lucknow	Medicinal Plants	533,534
87	National Research Centre for Citrus, Nagpur	Citrus	-
88	Director, IIMR-ICAR, New Delhi	Maize	1,405,063
89	Indian Institute of Agricultural Research, Division of Floriculture and Landscaping, New Delhi	Rose, Chrysanthemum	-
90	Central Institute for Tropical Horticulture, Srinagar	Strawberry	-
91	Director, Central Institute for Arid Horticulture, Bikaner	Watermelon, Muskmelon	231,500
92	Division of Vegetable Science, Indian Agricultural Research Institute, New Delhi	Chilli	-
93	NBRI, Lucknow	Bougainvillea	50,000
94	Tocklai Experimental Research Station, Jorhat, Assam	Tea	-
<b>Total</b>			<b>3,91,79,207</b>

# Annexure IV:

## Statement showing funds released to New DUS Centres/Projects during 2015–16

### STATEMENT OF SHOWING FUNDS RELEASED TO NEW DUS CENTRES/PROJECT DURING 2015–16:

S. no.	Name of DUS centre	Crop	Release During 2015-16 (Amount Rs.)
1	Acharya NG Ranga Agricultural University, Hyderabad (Small millets)	Small millet	250,000
2	Agriculture & Food Production, Bhubneshwar	Rice	-
3	Bidhan Chandra Krishi Vishwavidyalaya, Kalyani	Pointed gourd	200,000
4	Bidhan Chandra Krishi Vishwavidyalaya, Kalyani	Betel vine	274,848
5	Bidhan Chandra Krishi Vishwavidyalaya, Kalyani	Yam, Taro	181,895
6	Central Agricultural Research Institute, Port Blair	Mungbean, Urdbean, Cowpea, Pigeonpea	426,877
7	Central Agricultural Research Institute, Port Blair	Noni	300,000
8	Central Institute for Arid Horticulture, Bikaner	Anola	173,824
9	Central Institute for Arid Horticulture, Bikaner	Bael	140,618
10	Central Institute for Arid Horticulture, Bikaner	Chironji, Tamarind	331,730
11	Central Institute for Arid Horticulture, Bikaner	Jamun	177,748
12	Central Institute for Arid Horticulture, Bikaner	Datepalm	-
13	Central Institute for Subtropical Horticulture	Anola	229,012

S. no.	Name of DUS centre	Crop	Release During 2015-16 (Amount Rs.)
14	Central Institute for Subtropical Research, Lucknow	Jamun	135,848
15	Central Sericultural Research and Training Institute, Mysore	Mulberry	-
16	Central Tuber Crops Research Institute, Trivandrum	Sweet Potato, Cassava	-
17	Central Tuber Crops Research Institute, Trivandrum	Yam, Taro	284,612
18	Central Tuber Crops Research Institute, Regional Station, Bhubaneswar	Sweet Potato, Cassava	-
19	CISH, Lucknow	Bael	203,639
20	Comptroller, SDAU, SK Nagpur, Gujarat (Mundra)	Datepalm	-
21	Comptroller Dr. BSKKV, Dapoli	Rice	450,000
22	Comptroller, IGKV, Raipur	Rice (Grow out Test)	-
23	Comptroller, IGKV, Raipur	Rice	635,980
24	Comptroller, UAS, Bangalore	Rice	593,620
25	Comptroller, UAS, Dharwad	Horsegram, Mothbean, Clusterbean, Lathyrus	599,000
26	Comptroller, RARI, Durgapur, Jaipur	Barley	270,000
27	Comptroller, UHS, Bagalkot	<i>Moringa Oleifera</i> L.	356,000
28	CRRI, Cuttack (Genetic Diversity)	Rice	850,000
29	Director, NEH Region, Barapani	Rice	553,747
30	Director, CPCRI	Cocoa	450,000
31	Director, IARI, New Delhi	Lemon, Pummel	450,000
32	Director, IARI, New Delhi	Radish, Carrot	758,348
33	Division of Genetics, IARI, New Delhi		-
34	Director, ICAR, Goa	Kokum	450,000
35	Director, IIHR, Bangalore	-	5,617,718
36	Director, IIHR, Bangalore	Watermelon, Muskmelon	331,500
37	Director, NRCSS, Ajmer	Ajwain, Dill, Nigella, Celery, Anise	450,000
38	Director, CAZRI, Jodhpur	Horsegram, Mothbean, Clusterbean, Lathyrus	220,145
39	Dr B S Konkan Krishi Vishwadidyalya, Dapoli	Nutmeg	-
40	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	Carnation	177,623
41	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	Willow (Salix Sps.)	519,295
42	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	Orchids	400,000



S. no.	Name of DUS centre	Crop	Release During 2015-16 (Amount Rs.)
43	Dr.Y.S.Parmar University of Horticulture & Forestry, Solan	Seabuckthorn	500,000
44	Dr.Y.S.Parmar University of Horticulture & Forestry, Solan	Lillum Sp., Oriental, Asiatic, LA & OT Hybrids	450,000
45	Gene Campaign, New Delhi		(300,000)
46	Govind Ballabh Pant University of Agriculture and Technology, Pantnagar	Small millets, Oats, Cowpea	-
47	Himalayan Forest Research Institute, Shimla	Conifers	-
48	ICAR Research Complex for NEH Region(Barapani)	Colocasia	250,000
49	IFGTB, Coimbatore	Ailanthus	450,000
50	IFGTB, Coimbatore	Teak	1,150,382
51	IISR, Kozhikode	seed spices	-
52	Indian Agricultural Research Institute, Division of Floriculture	Tuberose	-
53	Indian Grassland and Fodder Research Institute, Jhansi	Oat, Guinea Grass	-
54	Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur	Small Millets	-
55	National Bureau of Plant Genetics Research, New Delhi	Grain Amaranth	240,000
56	NBPGR (RS), Shimla	Amaranth	-
57	NRCP, Sholapur	Cashew	-
58	Punjab Agricultural University, Ludhaina	Cotton Wheat	-
59	Rain Forest Research Institute, Jorhat	Bamboo	-
60	S.D.Agriculture University	Pulse	-
61	SFRI, Itanagar	Orchid	-
62	Tamil Nadu Agricultural University, Coimbatore	Neem Karanj Jatrapha	-
63	Tamil Nadu Agricultural University, Coimbatore	Papaya, Custard Apple	19,241
64	Tamil Nadu Agricultural University, Coimbatore	Small Millet	200,000
65	University of Agricultural Science, GKVK Campus, Bangalore	Small Millet	835,348
66	Dr.Y.S.Parmar University of Horticulture & Forestry, Solan		277,716
67	KAU, Thrissur		-
68	NDUA&T, Faizabad		-
69	Regional Station, Akola, National Bureau of Plant Genetics Research		-
70	Tamil Nadu Agricultural University, Coimbatore		-
<b>Total</b>			<b>2,15,16,314</b>

# Annexure V:

## Statement showing funds released to Field Gene banks/Gene banks during 2015–16

Statement showing funds released to Field Gene Banks during 2015–16:

S. no.	Name of DUS centre	Release During 2015–16 (Amount Rs.)
1	BAU	69,058
2	Dr. BSKKV,Dapoli	1,358,379
3	Dr.Y.S.Parmar University of Horticulture & Forestry	639,356
4	NBPGR	805,326
5	CAZRI	241,267
<b>Total</b>		<b>31,13,386</b>

# Annexure VI: Financial support to different organizations during the year 2015–16

## FINANCIAL SUPPORT TO DIFFERENT ORGANIZATIONS DURING THE YEAR 2015–16:

S. no.	Name of Beneficiary	Amount released during 2015–16 (Rs.)
1	Acharya N. G. Ranga Agricultural University (ANGRAU), Reddipalli, Khammam, Garikapadu, Nellore, Srikakulam, Vizianagram, Warangal	640,000
2	Anand Agricultural University, Anand, Gujarat	160,000
3	Assam Agricultural University, Jorhat (AAU)	1,120,000
4	Bidhan Chandra Krishi Viswa Vidyalaya, Kalyani (BCKV)	240,000
5	Birsa Agricultural University, Bhagalpur (BAU)	720,000
6	Birsa Agricultural University, Ranchi (BAU)	560,000
7	Central Agriculture University Imphal	240,000
8	Central Institute for Cotton Research, Nagpur	80,000
9	CEO, Gramin Vikas Trust NOIDA	80,000
10	Comptroller, BSKKV Dapoli	80,000
11	Comptroller, Ch. SKK Vishwavidyalaya, Palampur (Kullu, Kangra, Sirmour, Bilaspur)	446,798
12	Comptroller, SKUAST, Rajouri, Jammu	560,000
13	Comptroller, IGKVV, Raipur	918,772
14	Comptroller, JNKVV, Jabalpur	760,971
15	Comptroller, KVA & FSU, Bidar	80,000
16	Comptroller, MPUA&T, Udaipur	240,000
17	Comptroller, SBBPUA&T, Meerut	389,389
18	Comptroller, SDAU, Gujarat	80,000
19	Comptroller, Sher-E-Kashmir University of AST, Srinagar	800,000
20	Comptroller, TNUV & AS, Chennai	80,000
21	Comptroller, UAS, Raichur	480,000
22	Comptroller, SKRAU, Bikaner (Alwar)	160,000
23	CRRI, Kuttak	80,000
24	CSAU&T, Kanpur	800,000
25	Deendayal Research Institute, Chitrakoot	240,000
26	Director, Holycross VTI, Hazaribag	80,000
27	Director, ICAR Research Complex for GOA	80,000
28	Director, Directorate of Cashew Research Dakshina, Kannada	100,000
29	Director, CAZRI, Jodhpur	80,000
30	Director, CISH, Lucknow	160,000

S. no.	Name of Beneficiary	Amount released during 2015-16 (Rs.)
31	Director, CITH, Srinagar	80,000
32	Director, CRIDA Complex, Hyderabad	73,941
33	Director, Directorate of Arunachal Pradesh	80,000
34	Director, ICAR Research Complex NEH, Umroi Barapani	720,000
35	Director, IIVR, Varanasi	80,000
36	Director, ICAR, RC , NEH Region, Umiam, Meghalaya	160,000
37	Director, IIHR, Bangalore	80,000
38	Director, NRC on Mithun, Medziphema	80,000
39	Director Research, SHIATS, Allahabad	320,000
40	Director, IARI, New Delhi	80,000
41	Gobind Ballabh Pant University of Agriculture & Technology (GBPUA&T), Pantnagar, Dehradun	480,000
42	ICAR-RCER, Patna	80,000
43	IGFRI, Jhansi	80,000
44	IISR, Lucknow	80,000
45	JAU, Junagarh	320,000
46	Kerala Agricultural University, Thrissur (KAU), (Vellanikkara, Palghat)	160,000
47	MPKV, Rahuri	80,000
48	Narendra Dev University of Agriculture and Technology (NDUA&T), Faizabad	480,000
49	NRC of Orchids, Sikkim	160,000
50	Orissa University of Agriculture & Technology (OUAT), Bhubaneswar	1,355,000
51	PAU, Ludhiana	222,017
52	PDKV, Akola	80,000
53	Principal Director, Food Security & Agriculture Development Department, Tadong	80,000
54	Project Director, DRR, Hyderabad	127,000
55	Raja Dinesh Singh, KVK, Pratapgarh	80,000
56	RVSKVV, Gwalior	710,000
57	Ramkrishna Ashram South 24 Parganas, West Bengal	80,000
58	RAU, Pusa	320,000
59	Secretary, Ramkrishna Mission Ashram, Ranchi	80,000
60	Tamil Nadu Agricultural University (TNAU), Coimbatore, Pechiparai, Kanyakumari, Dharmaouri	240,000
61	UAS, Bagalkot	400,000
62	UAS, Dharwad, College of Forestry, Sirsi	160,000
63	UAS, GVKV (Haddonahalli, Kandali)	400,000
64	UBKV, Cooch Behar, West Bengal	320,000
65	UAS, Dharwad (Saidpur Farm, Bijapur)	389,257
66	UUH&F, Pauri Gharhwal, Uttarakhand	160,000

S. no.	Name of Beneficiary	Amount released during 2015-16 (Rs.)
67	WBUA&FS, Kolkata	80,000
68	YSPUH&F, Solan (Chamba)	399,871
69	Zonal Projects Directorate, ICAR Zone -I, Ludhiana, Punjab	80,000
70	Zonal Projects Directorate, ICAR Zone -II, Kolkata, W.B	80,000
71	Zonal Projects Directorate, ICAR Zone -III, Barapani, Meghalaya	31,930
72	Zonal Projects Directorate, ICAR Zone -IV, Kanpur, U.P	-
73	Zonal Projects Directorate, ICAR Zone -V, Hyderabad	76,694
74	Zonal Projects Directorate, ICAR Zone -VI, Jodhpur	400,000
75	Zonal Projects Directorate, ICAR Zone -VII, Jabalpur	74,467
76	Director (Agriculture), Government of Arunachal Pradesh, Kameng, Lower Subansiri, Geku (Korak), Upper Subansiri	400,000
77	FEEDS, Hengbung, Senapati, Manipur	80,000
78	Director of Agriculture Research and Education, Government of Mizoram	400,000
79	Director of Agriculture Research and Education, Government of Nagaland, Kohima, Tuensang	400,000
80	Director of Agriculture Research and Education, Government of Meghalaya, Shillong	80,000
81	Director of Agriculture Research and Education, Government of Tripura	80,000
82	Sarpanch Samaj, New Delhi	80,000
83	Kalyan, Purulia, West Bengal	80,000
84	Director, IVRI, Izatnagar, Bareilly	72,052
85	Grama Nava Nirman Samithi, Jayaprakashnagar, Karimnagar	80,000
86	Director, CTRI, Andhra Pradesh	80,000
87	Pravara Institute of Research and education in natural and social science, Ahmednagar PIRENSS	80,000
88	Deendayal Research Institute, New Delhi	80,000
89	Satpuda Education Society Society, Jalgaon Jamod Buldana	80,000
90	Krishi Vigyan Kendra Latur (KVKL)	80,000
91	Dr. Hedgewar Seva Samiti, Nandurbar	80,000
92	Shabari Krishi Pratishthan, Solapur	70,716
93	Comptroller, NAU, Gujarat (KVK) Navsari, Narmada	240,000
94	Centre for Rural Development & Environment, Bhopal (Sehore)	80,000
95	Marathawada Sheti Sahaya Mandal, Aurangabad (Jalna)	80,000
96	Shran Sadhana Amravati (Badnere) (Durgapur)	80,000
97	Registrar, Amity University, Noida	80,000
98	UAS Bangalore	350,000
99	Chairman, Navbharata Education and Social Research Institution	80,000
100	Swasraya Bharath	50,000

S. no.	Name of Beneficiary	Amount released during 2015-16 (Rs.)
101	Director, Youth for Sustainable Development	240,000
102	Director, NBRI, Lucknow	80,000
103	Secretary, Bhagwat Bhakti Ashram	80,000
104	Af&AO, CITH, Srinagar (Baramulla)	80,000
105	President, SK Choudhary Educational Trust, New Madhubani	80,000
106	General Secretary, Gram Nirman Mandal, KVK, Nawada, Bihar	80,000
107	ICAR-IINR & G, Ranchi	80,000
108	Deputy Commissioner cum Chairman, Sujani	80,000
109	Comptroller, RMVU, HOWRAH	80,000
110	President, Seva Bharti, Midnapore, West Bengal	80,000
111	Comptroller, Nagaland University, Kohima	80,000
112	Comptroller, Allahabad Agricultural Deemed University, Allahabad	80,000
113	KVK	80,000
114	Chairman, KRBS. Education Society, Lucknow	80,000
115	Director, Dr. B.R Ambedkar Welfare Society, Allahabad	80,000
116	Sh. Hanumantharaya Education & Charitable Society, KVK, Kurnool	80,000
117	Comptroller, Dr. YUSHU, Venkatarmnagude	80,000
118	Comptroller, T.S Agricultural University, Hyderabad	240,000
119	Youth for Action, Secunderabad	80,000
120	Comptroller, PV Narsimha Rao TS Veterinary University, Hyderabad	80,000
121	Gokhale Education Society, Prin T.A Kulkarni Vidyanagr, Nashik	80,000
122	Chairman Suvide Foundation, Washim	80,000
123	Vasantro Naik Marathawada Krishi Vidhyapeeth, Prabhani	80,000
124	Sindhudurg Zilla Krishi Pratishthan, Sindhudurg	80,000
125	Comptroller, SKNAU, Jobner	400,000
126	Comptroller, Agricultural University, Jodhpur	240,000
127	Comptroller, Agricultural University, Kota	240,000
128	Programme Co-ordinator, KVK, Samoda	80,000
129	Registrar, IIS University	80,000
130	International Agrobiodiversity Congress 2016	500,000
131	Secretary, ISVS, Varanasi	80,000
132	Krishi Vigyan Kendra, Nagaland University Lumami	80,000
133	Senior Scientist & Head, ICAR-KVK, Pathanamthitta	80,000
	<b>Total</b>	<b>2,79,98,875</b>

# Annexure VII: List of farmers' varieties received during the year 2015–16

## STATE-WISE CLASSIFICATION OF APPLICATIONS RECEIVED DURING THE FINANCIAL YEAR 2015–16:

S. no.	Crops/States	Arunachal Pradesh	Assam	Bihar	Chhattisgarh	Himachal Pradesh	Jammu & Kashmir	Jharkhand	Karnataka	Kerala	Madhya Pradesh	Maharashtra	Manipur	Nagaland	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal	Total
1	Acid Lime	-	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	4
2	Apricot	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
3	Banana	-	9	-	1	-	-	4	-	-	-	-	-	-	-	-	-	-	14
4	Barley	-	-	3	3	7	-	7	-	-	-	-	-	-	-	-	-	-	20
5	Bell Pepper	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	4
6	Bitter Gourd	-	-	4	2	1	-	5	-	-	-	-	-	-	-	-	-	7	19
7	Black gram	-	-	-	6	2	-	16	-	-	1	-	-	-	-	-	-	1	26
8	Black Pepper	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2
9	Bottle Gourd	-	-	3	2	-	-	2	-	-	-	-	-	-	-	-	-	1	8
10	Bougainvillea	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2
11	Brahmi	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
12	Brinjal	-	-	7	2	-	-	14	-	-	1	-	-	-	-	-	-	9	33
13	Castor	-	-	2	1	-	-	3	-	-	-	-	-	-	-	-	-	-	6
14	Cauliflower	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	3
15	Chickpea	-	-	11	1	-	-	10	-	-	3	-	-	-	-	-	-	1	26
16	Chilli	-	-	-	5	6	3	4	-	-	-	-	-	-	-	-	-	15	33
17	Coconut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2
18	Coriander	-	-	8	1	4	-	3	-	-	-	-	-	-	-	-	-	3	19
19	Crysanthemum	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
20	Cucumber	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	3	6
21	Fenugreek	-	-	-	-	5	-	4	-	-	-	-	-	-	-	-	-	-	9
22	Fieldpea	-	-	12	-	-	-	5	-	-	-	-	-	-	-	-	-	1	18
23	Finger Millet	-	-	-	-	3	-	15	-	-	-	-	-	-	-	-	-	1	19
24	Foxtail Millet	1	-	-	-	4	2	-	-	-	-	-	-	-	-	-	-	2	9
25	Garlic	-	-	11	-	3	-	7	-	-	-	-	-	-	-	-	-	1	22
26	Ginger	-	-	6	2	4	-	11	-	-	-	-	-	-	-	-	-	-	23
27	Grapes	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
28	Green gram	-	-	1	4	-	-	3	-	-	-	-	-	-	-	-	-	-	8
29	Groundnut	-	-	1	2	-	-	11	-	-	-	-	-	-	-	-	-	-	14
30	Indian jujube (Ber)	-	-	1	155	-	-	7	-	-	-	-	-	-	-	-	-	-	163
31	Indian Mustard (Sarso)	-	-	2	3	2	-	23	-	-	-	-	-	-	-	-	-	6	36
32	Isabgol	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1

33	Jute	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
34	Kidney bean	-	-	-	-	16	1	-	-	-	-	-	-	1	-	-	-	-	1
35	Lentil	-	-	9	-	-	-	2	-	-	-	-	-	-	-	-	-	9	
36	Linseed	-	-	6	-	2	-	11	-	-	-	-	-	-	-	-	-	-	
37	Maize	-	-	3	2	10	-	27	-	-	7	4	-	-	-	-	-	1	
38	Mango	-	-	3	88	1	-	5	-	-	-	-	-	1	-	-	-	2	
39	Menthol Mint	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
40	Okra/Lady's Finger	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
41	Onion	-	-	3	-	1	-	1	-	-	-	-	-	1	-	-	-	1	
42	Papaya	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	
43	Pearl Millet	-	-	1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	
44	Pigeon pea	-	-	2	2	1	-	20	-	-	-	-	-	-	-	-	2	6	
45	Pomegranate	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
46	Potato	-	1	1	-	2	-	5	-	-	-	-	-	-	-	-	-	4	
47	Pumpkin	-	-	1	1	1	-	2	-	-	-	-	-	-	-	-	-	-	
48	Rapeseed (Torja)	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	
49	Rice	2	13	24	252	3	2	235	1	1	-	2	-	-	-	-	-	135	
50	Rose	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	
51	Safflower	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
52	Sesame	-	-	2	-	1	-	13	-	-	-	-	-	-	-	-	-	2	
53	Small Cardamom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	
54	Sorghum	-	-	-	1	-	-	2	2	-	-	5	-	-	-	-	-	-	
55	Soybean	-	-	1	-	4	-	-	-	-	2	-	-	-	-	-	-	-	
56	Sugarcane	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	
57	Sunflower	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	
58	Tomato	-	-	1	3	-	-	7	-	-	-	-	-	-	-	-	-	-	
59	Turmeric	-	-	9	1	9	-	16	-	-	-	-	-	-	-	-	-	5	
60	Walnut	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
61	Wheat	-	-	6	1	3	-	4	-	-	1	-	-	-	-	-	2	1	
<b>Total</b>		<b>3</b>	<b>23</b>	<b>154</b>	<b>544</b>	<b>105</b>	<b>8</b>	<b>526</b>	<b>4</b>	<b>3</b>	<b>15</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>219</b>	<b>1629</b>



# Annexure VIII: Crops under Registration

## LIST OF CROPS UNDER REGISTRATION:

S. no.	Crop		Scientific Name
1	Rice	चावल	<i>Oryza sativa</i> L.
2	Bread wheat	चपाती गेहूँ	<i>Triticum aestivum</i> L.
3	Maize	मक्का	<i>Zea mays</i> L.
4	Sorghum	ज्वार	<i>Sorghum bicolor</i> (L.) Moench
5	Pearl millet	बजरा	<i>Pennisetum glaucum</i> (L.) R.Br.
6	Chickpea	चना	<i>Cicer arietinum</i> L.
7	Mungbean	मूँग	<i>Vigna radiata</i> (L.) Wilczek
8	Urdbean	उड़द	<i>Vigna mungo</i> (L.) Hepper
9	Fieldpea	मटर	<i>Pisum sativum</i> L.
10	kidney bean	राजमा	<i>Phaseolus vulgaris</i> L.
11	Lentil	मसूर	<i>Lens culinaris</i> Medik
12	Pigeon pea	अरहर	<i>Cajanus cajan</i> (L.) Millsp.
13	Indian mustard	सरसों	<i>Brassica juncea</i> L. Czern & Coss
14	Karan rai	राई	<i>Brassica carinata</i> A Braun
15	Rapeseed	रेप्पीड/तोरिया	<i>Brassica rapa</i> L.
16	Gobhi sarson	गोभीसरसों	<i>Brassica napus</i> L.
17	Groundnut	मूँगफली	<i>Arachis hypogaea</i> L.
18	Soybean	सोयाबीन	<i>Glycine max</i> (L.) Merrill
19	Sunflower	सूरजमुखी	<i>Helianthus annuus</i> L.
20	Safflower	कुसुम	<i>Carthamus tinctorius</i> L.
21	Castor	अरंड	<i>Ricinus communis</i> L.
22	Sesame	तिल	<i>Sesamum indicum</i> L.
23	Linseed	अलसी	<i>Linum usitatissimum</i> L.
24	Diploid cotton	द्विगुणित कपास	<i>Gossypium arboreum</i> L.
25	Diploid cotton	द्विगुणित कपास	<i>Gossypium herbaceum</i> L.
26	Tetraploid cotton	चर्तुगुणित कपास	<i>Gossypium hirsutum</i> L.
27	Tetraploid cotton	चर्तुगुणित कपास	<i>Gossypium barbadense</i> L.
28	Jute	पटसन	<i>Corchorus olitorius</i> L.
29	Jute	पटसन	<i>Corchorus capsularis</i> L.
30	Sugarcane	गन्ना	<i>Saccharum</i> L.

S. no.	Crop		Scientific Name
31	Black pepper	काली मिर्च	<i>Piper nigrum</i> L.
32	Small cardamom	छोटी इलाइची	<i>Elettaria cardamomom</i> Maton
33	Turmeric	हल्दी	<i>Curumma longa</i> L.
34	Ginger	अदरक	<i>Zingiber officinale</i> Rosc.
35	Tomato	टमाटर	<i>Lycopersion lycopersicum</i> (L.) Karsten ex. Farw.
36	Brinjal	बैंगन	<i>Solanum melongena</i> L.
37	Okra	भिंडी	<i>Abelmoschus esculentus</i> (L.) Moench.
38	Cauliflower	फूलगोभी	<i>Brassica oleracea</i> L.var. <i>botrytis</i>
39	Cabbage	पत्तागोभी	<i>Brassica oleracea</i> L. var <i>capitata</i>
40	Potato	आलू	<i>Solanum tuberosum</i> L.
41	Onion	प्याज	<i>Allium cepa</i> L.
42	Garlic	लहसुन	<i>Allium sativum</i> L.
43	Rose	गुलाब	<i>Rosa</i> spp.(other than <i>R.damascena</i> )
44	Chrysanthemum	गुलदाउदी	<i>Chrysanthemum</i> spp.
45	Mango	आम	<i>Mangifera indica</i> L.
46	Duram wheat	ड्यूरम गेहूँ	<i>Triticum durum</i> Desf.
47	Dicoccum wheat	डाइकोकम गेहूँ	<i>Triticum dicoccum</i> L.
48	Other Triticum sps.	ट्रिटिकम प्रजातियाँ	
49	Isabgol	इसबगोल	<i>Plantago ovata</i> Forsk
50	Menthol mint	पुदिना	<i>Mentha arvensis</i> L.
51	Damask Rose	गुलाब (इत्र)	<i>Rosa damascena</i> Mill
52	Periwinkle	सदाबहार	<i>Catharanthus roseus</i> L.
53	Brahmi	ब्राहमी	<i>Bacopa monnieri</i> L.Pennell
54	Coconut	नारियल	<i>Cocos nucifera</i> L.
55	Orchids	ओर्चिड	<i>Vanda</i>
56	Orchids	ओर्चिड	<i>Dandrobium</i>
57	Orchids	ओर्चिड	<i>Cymbidium</i>
58	Pomegranate	अनार	<i>Punica granatum</i> L
59	Orchid	ओर्चिड	<i>Cattleya</i> Lindl.
60	Orchid	ओर्चिड	<i>Phalaenopsis</i> Blume
61	Eucalyptus	सफेदा	<i>Eucalyptus camaldulensis</i> Dehnh.

S. no.	Crop		Scientific Name
62	Eucalyptus	सफेदा	<i>Eucalyptus tereticornis</i> Sm.
63	Casurina	जंगली सरु	<i>Casuarina equisetifolia</i> L.
64	Casurina	जंगली सरु	<i>Casuarina junghuhniana</i> Miq.
65	Bitter Gourd	करेला	<i>Momordica charantia</i> L.
66	Bottle Gourd	लोकी / घिया	<i>Lagenaria siceraria</i> (Mol.) Standl.
67	Cucumber	खीरा	<i>Cucumis sativus</i> L.
68	Pumpkin	सीताफल	<i>Cucurbita moschata</i> Duch. ex Poir.
69	Barley	जौ	<i>Hordeum vulgare</i> L.
70	Coriander	धनिया	<i>Coriandrum sativum</i> L.
71	Fenugreek	मेथी	<i>Trigonella foenum graecum</i> L.
72	Almond	बादाम	<i>Prunus dulcis</i> (Mill.) D.A. Webb
73	Apple	सेब	<i>Malus domestica</i> Borkh
74	Pear	नाशपाती	<i>Pyrus communis</i> L.
75	Apricot	खुबानी	<i>Prunus armeniaca</i> L.
76	Cherry	चेरी	<i>Prunus avium</i> L.
77	Walnut	अखरोट	<i>Juglans regia</i> L.
78	Grapes	अंगूर	<i>Vitis</i> spp.
79	Indian jujube (Ber)	बेर	<i>Ziziphus mauritiana</i> Lamk.
80	Tea	चाय	<i>Camellia sinensis</i>
81	Tea	चाय	<i>Camellia assamica</i>
82	Tea	चाय	<i>C.assamica</i> ssp <i>lasiocalyx</i> .
83	Acid Lime	नींबू	<i>Citrus aurantifolia</i> Swingle
84	Mandarin	संतरा	<i>Citrus reticulata</i> Blanco
85	Sweet Orange	मौसमी	<i>Citrus sinensis</i> (L.) Osbeck
86	Bougainvillea	बेगनविलिया	<i>Bougainvillea</i> Comm. Ex Juss.
87	Banana	केला	<i>Musa</i> spp.
88	Orchid	आर्किड	<i>Oncidium</i> Sw.
89	Canna	केना	<i>Canna</i> L.
90	Gladiolus	ग्लेडिओलस	<i>Gladiolus</i> L.
91	Muskmelon	खरबूजा	<i>Cucumis melo</i> L.
92	Watermelon	तरबूज	<i>Citrullus Lanatus</i> (Thunb.) Mansf.

S. no.	Crop		Scientific Name
93	Jasmine	चमेली	<i>Jasminum auriculatum</i> . L.
94	Tuberose	रजनीगंधा	<i>Polianthes tuberosa</i> L.
95	Papaya	पपीता	<i>Carica papaya</i> L.
96	China Aster	चीन एस्टर	<i>Callistephus chinensis</i> (L.)Nees.
97	Peach	आडू	<i>Prunus persica</i> L Batsch.
98	Japanese Plum	जापानी बेर	<i>Prunus salicina</i> L.
99	Strawberry	स्ट्रॉबेरी	<i>Fragaria</i> × <i>ananasan</i> Duch.
100	Chilli, Bell Pepper and Paprika	मिर्च, शिमला मिर्च, लाल शिमला मिर्च	<i>Capsicum annuum</i> L.
101	Finger Millet	रागी	<i>Eleusine coracana</i> (L.) Gaertn.
102	Foxtail Millet	कँगनी	<i>Setaria italic</i> (L.) Beauv

# Annexure IX: Certificates of Registration issued during 2015–16

## LIST OF CERTIFICATE OF REGISTRATIONS ISSUED DURING THE FINANCIAL YEAR 2015–16:

S. no.	Registration no.	Category of variety	Denomination of candidate variety	Crop	Name of applicant
1	91 of 2015	New	NSCH-12 (SWEETCORN)	Maize	Nuziveedu Seeds Ltd
2	92 of 2015	New	VIVEK SANKUL MAKKA 37	Maize	Indian Council of Agricultural Research
3	93 of 2015	New	NBBH-913	Pearl millet	Navbharat Seeds Pvt Ltd
4	94 of 2015	New	86M66	Pearl millet	Pioneer Overseas Corporation
5	95 of 2015	Extant (VCK)	MIM 002	Maize	Monsanto India Limited
6	96 of 2015	New	DHM 117	Maize	Indian Council of Agricultural Research
7	97 of 2015	New	86M33	Pearl Millet	Pioneer Overseas Corporation
8	98 of 2015	Extant (VCK)	KML 5163	Maize	Kaveri Seed Company Ltd
9	99 of 2015	New	BPM907	Pearl Millet	Bayer Bioscience Pvt Ltd
10	100 of 2015	Extant (VCK)	Nirmal Bold (NML-64)	Indian mustard	Nirmal Seeds Pvt Ltd
11	101 of 2015	New	KBMS 231	Pearl Millet	Kaveri Seed Company Ltd
12	102 of 2015	New	KBR 864	Pearl Millet	Kaveri Seed Company Ltd
13	103 of 2015	New	PMH 4	Maize	Indian Council of Agricultural Research
14	104 of 2015	Extant (Notified)	Swarna Ajay (HABH-3)	Brinjal	Indian Council of Agricultural Research
15	105 of 2015	New	86M86	Pearl Millet	Pioneer Overseas Corporation
16	106 of 2015	Extant (Notified)	Swarna Sampada (HATH-3)	Tomato	Indian Council of Agricultural Research
17	107 of 2015	New	BIO 50265 H	Maize	DCM Shriram Limited
18	108 of 2015	New	BISCO 4564 (BISCO NR X 7)	Maize	Bisco Biosciences Pvt Ltd
19	109 of 2015	New	BISCO 777	Maize	Bisco Biosciences Pvt Ltd
20	110 of 2015	Farmer	Sundergarh-Jaiser-BHAJANA	Rice	Topodhan Naik
21	111 of 2015	Farmer	Balangir-KADALI KENDA	Rice	Murali Naik
22	112 of 2015	Farmer	Balangir-BASPATRI	Rice	Susantra Patra
23	113 of 2015	Farmer	Kendrapada-KALAMA	Rice	Durga Ch Biswal
24	114 of 2015	Farmer	Kendrapada-KALACHAMPA	Rice	Sukanta Jena
25	115 of 2015	Extant (VCK)	KML 5165	Maize	Kaveri Seed Company Ltd
26	116 of 2015	Extant (VCK)	KML 5277	Maize	Kaveri Seed Company Ltd
27	117 of 2015	Extant (VCK)	M 32	Maize	JK Agri Genetics Ltd

S. no.	Registration no.	Category of variety	Denomination of candidate variety	Crop	Name of applicant
28	118 of 2015	New	IH 8006	Maize	Monsanto India Limited
29	119 of 2015	Extant (VCK)	PSV-2	Sorghum	Acharya N.G. Ranga Agricultural University
30	120 of 2015	Extant (VCK)	WANI 11/6 (PKV ASHWINI)	Sorghum	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
31	121 of 2015	Extant (Notified)	SWARNA LALIMA	Tomato	Indian Council of Agricultural Research
32	122 of 2015	Extant (VCK)	NTJ 4 (NJ 2401)	Sorghum	Acharya N.G. Ranga Agricultural University
33	123 of 2015	New	DCS-107	Castor	Indian Council of Agricultural Research
34	124 of 2015	Farmer	Nuapada-Maharaji	Rice	Sujan Majhi
35	125 of 2015	Farmer	Belapada-KUSUMA	Rice	Gokula Sahu
36	126 of 2015	Farmer	Koraput-Sapur	Rice	Gopi Sisa
37	127 of 2015	Farmer	Tihidi-KHADIASOLA	Rice	Kasinath Nayak
38	128 of 2015	Farmer	Boriguma-Badi	Rice	Tripathi Muduli
39	129 of 2015	New	KSF-287R	Sunflower	Kaveri Seed Company Ltd
40	130 of 2015	New	KSF-284R	Sunflower	Kaveri Seed Company Ltd
41	131 of 2015	Extant (VCK)	JKCH 1050	Tetraploid Cotton	JK Agri Genetics Ltd
42	132 of 2015	Farmer	Remuna-Bls-SUNAKHADI	Rice	Harihar Parida
43	133 of 2015	Farmer	Kalahandi-BIRAMANI	Rice	Khira Sagar Sahu
44	134 of 2015	Farmer	Nayagarh-GANJAMGEDI	Rice	Somanath Panigrahi
45	135 of 2015	Farmer	Sambalpur-BASABHOG	Rice	Aswini Nayak
46	136 of 2015	Farmer	Kalahandi-BADSHAHA BHOG	Rice	Himansu Mohan Singh
47	137 of 2015	Farmer	Kalahandi-JHULIPAUGI	Rice	Sri Kishore Ch. Bhoi
48	138 of 2015	Farmer	Dhenkanal-RAMACHANDRA BHOGA	Rice	Ghurudu Pradhan & Others
49	139 of 2015	Farmer	Kalahandi-SAPURI	Rice	Chandramani Rana
50	140 of 2015	Farmer	Mayurbhanja-AGNISAL	Rice	Sudarsan Mohanta
51	141 of 2015	Farmer	Ganjam-KHANDI RATANCHUDI	Rice	Bhagitrathi Barika
52	142 of 2015	Farmer	Puri-RASAPANJARI	Rice	Lokanath Jena
53	143 of 2015	Farmer	CHITKANU	Maize	Bhandal Panchayat
54	144 of 2015	Farmer	RATTI (RED) MAKKA	Maize	Bhandal Panchayat
55	145 of 2015	Farmer	HACHHI KUKADI	Maize	Bhandal Panchayat
56	146 of 2015	Farmer	MALAN	Maize	Som Panchayat
57	147 of 2015	Farmer	SATHI	Maize	Som Panchayat
58	148 of 2015	Extant (VCK)	2219A	Sorghum	Indian Council of Agricultural Research
59	149 of 2015	Extant (VCK)	JKCH 99	Tetraploid Cotton	JK Agri Genetics Ltd
60	150 of 2015	New	KML 112	Maize	Kaveri Seed Company Ltd
61	151 of 2015	New	KML 5263	Maize	Kaveri Seed Company Ltd

S. no.	Registration no.	Category of variety	Denomination of candidate variety	Crop	Name of applicant
62	152 of 2015	Extant (VCK)	JKCH 1947	Tetraploid Cotton	JK Agri Genetics Ltd
63	153 of 2015	Farmer	Balangir-BASMATI	Rice	Hairsh Chandra Patel
64	154 of 2015	Farmer	Sambalpur-DESIJHILI	Rice	Sarathi Mirdha
65	155 of 2015	Farmer	Sambalpur-SUNAKATHI	Rice	Sushanta Pradhan
66	156 of 2015	Farmer	Sambalpur-JALDUBI	Rice	Santosh Kumar Behera
67	157 of 2015	Farmer	Sambalpur-BUDIDHAN	Rice	Tikeswar Pradhan
68	158 of 2015	Farmer	Subarnapur-AKULA	Rice	Sri Cheru Dharai
69	159 of 2015	Farmer	Subarnapur-JUBARAJ	Rice	Kausa Sahu
70	160 of 2015	Farmer	Baragarh-LALKAIN	Rice	Shakuntala Sahu
71	161 of 2015	Farmer	Cuttack-CHAMPEISIALI	Rice	Pradeep Kumar Rout
72	162 of 2015	Extant (VCK)	Champion-NPH 207	Rice	Nuziveedu Seeds Ltd
73	163 of 2015	New	CORAL 437 (PAC 437)	Indian mustard	Advanta India Ltd
74	164 of 2015	Extant (VCK)	NM-45	Maize	Nuziveedu Seeds Ltd
75	165 of 2015	Extant (VCK)	BCN402	Maize	Bayer Bioscience Pvt Ltd
76	166 of 2015	Extant (VCK)	JK VARUN (JKCH 555)	Tetraploid Cotton	JK Agri Genetics Ltd
77	167 of 2015	Extant (VCK)	NS-444R	Sorghum	Nuziveedu Seeds Ltd
78	168 of 2015	Extant (VCK)	Krishna Kranti	Indian mustard (Sarso)	Krishna Seeds Pvt Ltd
79	169 of 2015	Extant (Notified)	Swarna Naveen	Tomato	Indian Council of Agricultural Research
80	170 of 2015	Extant (VCK)	Naval (NVL-1)	Green gram	Nirmal Seeds Pvt Ltd
81	171 of 2015	New	NP-412	Rice	Nuziveedu Seeds Ltd
82	172 of 2015	Extant (VCK)	KAVERI RICE-3	Rice	Kaveri Seed Company Ltd
83	173 of 2015	Extant (VCK)	MUKTA (BNR 14)	Rice	Bharat Nursery Pvt. Ltd.
84	174 of 2015	New	VNR 8244	Rice	VNR Seeds Pvt Ltd
85	175 of 2015	New	NP-6330	Rice	Nuziveedu Seeds Ltd
86	176 of 2015	New	VNR 8235	Rice	VNR Seeds Pvt Ltd
87	177 of 2015	Extant (VCK)	NSO-15 (ANJALI)	Soybean	Nirmal Seeds Pvt Ltd
88	178 of 2015	New	NP-1041	Rice	Nuziveedu Seeds Ltd
89	179 of 2015	Extant (VCK)	VRH 606	Rice	Vibha Agrotech Limited
90	180 of 2015	Farmer	Mayurbhanja-AGNISAR	Rice	Chaitan Tudu
91	181 of 2015	Farmer	Sambalpur-KALAKRUSHNA	Rice	Ramakanta Behera

S. no.	Registration no.	Category of variety	Denomination of candidate variety	Crop	Name of applicant
92	182 of 2015	Farmer	Keonjhar-KALACHAMPA	Rice	Anirudhha Jena
93	183 of 2015	Farmer	Raigada-KALIKATI	Rice	Nilakantha Gaolabisi
94	184 of 2015	Farmer	Mayurbhanja-MALATA	Rice	Bailochan Barik
95	185 of 2015	Farmer	Keonjhar-JANGALIJATA	Rice	Adyita Kumar Rout
96	186 of 2015	Extant (VCK)	RCH 118 Bt	Tetraploid Cotton	Rasi Seeds Pvt Ltd
97	187 of 2015	Extant (VCK)	SIGMA	Tetraploid Cotton	Nusun Genetic Research Ltd
98	188 of 2015	New	MIHR-006	Rice	Devgen NV
99	189 of 2015	New	NP-3113-7	Rice	Nuziveedu Seeds Ltd
100	190 of 2015	Extant (VCK)	30R77	Maize	Pioneer Overseas Corporation
101	191 of 2015	Extant (VCK)	BISCO NEW 704 (BISCO 97 GOLD)	Maize	Bisco Biosciences Pvt Ltd
102	192 of 2015	Extant (VCK)	BS-2	Indian mustard	Krishna Seeds Pvt Ltd
103	193 of 2015	Extant (VCK)	PAC 832	Rice	Advanta India Ltd
104	194 of 2015	Extant (VCK)	PAC 807	Rice	Advanta India Ltd
105	195 of 2015	Extant (VCK)	GRACE	Tetraploid Cotton	Vibha Agrotech Limited
106	196 of 2015	Extant (VCK)	BISCO 764 (BISCO SUPER PRINCE)	Maize	Bisco Biosciences Pvt Ltd
107	197 of 2015	Extant (VCK)	P3540	Maize	Pioneer Overseas Corporation
108	198 of 2015	Extant (VCK)	BISCO 2668 (BISCO AAA)	Maize	Bisco Biosciences Pvt Ltd
109	199 of 2015	Extant (VCK)	JKBH-550	Pearl Millet	JK Agri Genetics Ltd
110	200 of 2015	New	VBBH 3115	Pearl Millet	Vibha Agrotech Limited
111	201 of 2015	Extant (VCK)	BISCO SURAJ-11 (BISCO SHIVA)	Maize	Bisco Biosciences Pvt Ltd
112	202 of 2015	Extant (VCK)	BISCO 74 (BISCO 740 DELUXE)	Maize	Bisco Biosciences Pvt Ltd
113	203 of 2015	Extant (VCK)	NBH-1188 (Big B)	Pearl Millet	Nath Bio-Genes (I) Ltd
114	204 of 2015	Extant (VCK)	86M01	Pearl Millet	Pioneer Overseas Corporation
115	205 of 2015	New	G 6882644	Tetraploid Cotton	Monsanto Genetics India Pvt Ltd
116	206 of 2015	Extant (VCK)	NBH-1134	Pearl Millet	Nuziveedu Seeds Ltd
117	207 of 2015	Extant (VCK)	NBH-2223	Pearl Millet	Nuziveedu Seeds Ltd



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118	208 of 2015	Extant (VCK)	NBH-4455	Pearl Millet	Nuziveedu Seeds Ltd
119	209 of 2015	Extant (VCK)	NBH-216	Pearl Millet	Nuziveedu Seeds Ltd
120	210 of 2015	New	KBR 721	Pearl Millet	Kaveri Seed Company Ltd
121	211 of 2015	Extant (VCK)	Aishwarya (NCH-744)	Tetraploid Cotton	Nirmal Seeds Pvt Ltd
122	212 of 2015	Extant (VCK)	NBH-1717	Pearl Millet	Nath Bio-Genes (I) Ltd
123	213 of 2015	Extant (Notified)	Gujarat Junagarh Groundnut-17 (JSP-48)	Groundnut	Indian Council of Agricultural Research
124	214 of 2015	Farmer	Phoudum	Rice	Shri P. Devakanta
125	215 of 2015	Farmer	Batiasora	Rice	Pawan Rahang
126	216 of 2015	Farmer	Danaguri	Rice	Khirajuri Malindasi S.K.U.S. Ltd
127	217 of 2015	Farmer	NIMISAAL	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
128	218 of 2015	Farmer	Titabora	Rice	U L Khathar
129	219 of 2015	Farmer	Nata	Rice	Dr. Debal Deb
130	220 of 2015	Farmer	Mullankayama (Mullanchanna)	Rice	P. V. Suresh, For Seed Care, Malabar
131	221 of 2015	Farmer	Valichoori	Rice	P. V. Suresh, For Seed Care, Malabar
132	222 of 2015	Farmer	Onavattan	Rice	P. V. Suresh, For Seed Care, Malabar
133	223 of 2015	Farmer	Kurumottan	Rice	P. V. Suresh, For Seed Care, Malabar
134	224 of 2015	Farmer	Kunjootti Matta	Rice	P. V. Suresh, For Seed Care, Malabar
135	225 of 2015	Farmer	Marathondi	Rice	P. V. Suresh, For Seed Care, Malabar
136	226 of 2015	Farmer	Chenthadi	Rice	P. V. Suresh, For Seed Care-, Malabar
137	227 of 2015	Farmer	Koduveliyan	Rice	P. V. Suresh, For Seed Care, Malabar
138	228 of 2015	Farmer	Thuroodi	Rice	P. V. Suresh, For Seed Care, Malabar
139	229 of 2015	Farmer	Ramjeera	Rice	Dushyant Kumar Singh
140	230 of 2015	Farmer	Changlei	Rice	Shri P. Devakanta
141	231 of 2015	Farmer	Thonnuran Thondi	Rice	P. V. Suresh, For Seed Care, Malabar
142	232 of 2015	Farmer	CHAKHAO POIREITON (Black Manipuri rice)	Rice	Shri P. Devakanta
143	233 of 2015	Farmer	Taothabi	Rice	Shri P. Devakanta
144	234 of 2015	Farmer	Lal Dhepa	Rice	Dr. Debal Deb
145	235 of 2015	Extant (Notified)	SWARNA SHOBHA	Brinjal	Indian Council of Agricultural Research
146	236 of 2015	Extant (Notified)	GUJARAT JUNAGADH GROUNDNUT-22	Groundnut	Indian Council of Agricultural Research
147	237 of 2015	Farmer	BAID DULAH	Rice	Dr. Debal Deb
148	238 of 2015	Farmer	Kumbi Phou	Rice	Shri P. Devakanta
149	239 of 2015	Farmer	Moirangphou Khokgangbi	Rice	Shri P. Devakanta
150	240 of 2015	Farmer	Ausha Bonkata	Rice	Dr. Debal Deb
151	241 of 2015	Farmer	GANDHA MALATI	Rice	Dr. Debal Deb
152	242 of 2015	Farmer	BANSHPATI	Rice	Dr. Debal Deb

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153	243 of 2015	Extant (Notified)	RHRBH-9808	Pearl Millet	Mahatma Phule Krishi Vidyapeeth
154	244 of 2015	Extant (Notified)	MAUS-162	Soybean	Indian Council of Agricultural Research
155	245 of 2015	Extant (Notified)	MACS 1188	Soybean	Indian Council of Agricultural Research
156	246 of 2015	Extant (Notified)	JS 20-29	Soybean	Indian Council of Agricultural Research
157	247 of 2015	Extant (Notified)	JS 20-34	Soybean	Indian Council of Agricultural Research
158	248 of 2015	Extant (Notified)	Pratap Soya 45 (RKS 45)	Soybean	Indian Council of Agricultural Research
159	249 of 2015	Extant (Notified)	Pratap Soya-2 (RKS-18)	Soybean	Indian Council of Agricultural Research
160	250 of 2015	Extant (Notified)	RAUS-5 (Pratap Soya-1).	Soybean	Indian Council of Agricultural Research
161	251 of 2015	Extant (Notified)	Kashi Pragati (VRO-6)	Okra/Lady's Finger	Indian Council of Agricultural Research
162	252 of 2015	Extant (Notified)	Kashi Vivhuti (VRO-5)	Okra/Lady's Finger	Indian Council of Agricultural Research
163	253 of 2015	Extant (Notified)	Kashi Samridhi (VRPMR-11)	Fieldpea	Indian Council of Agricultural Research
164	254 of 2015	Extant (Notified)	Kashi Kranti (VRO-22)	Okra/Lady's Finger	Indian Council of Agricultural Research
165	255 of 2015	Extant (Notified)	Kashi Lila (IIVR-11)	Okra/Lady's Finger	Indian Council of Agricultural Research
166	256 of 2015	Extant (Notified)	Kashi Satdhari (IIVR-10)	Okra/Lady's Finger	Indian Council of Agricultural Research
167	257 of 2015	Extant (Notified)	Kashi Bhairo (DVR-3)	Okra/Lady's Finger	Indian Council of Agricultural Research
168	258 of 2015	Extant (Notified)	Swarna Mukti (CHP-2)	Fieldpea	Indian Council of Agricultural Research
169	259 of 2015	Extant (Notified)	Yamuna Safed-4 (G-323)	Garlic	National Horticultural Research & Development Foundation
170	260 of 2015	Extant (Notified)	NHRDF RED (L-28)	Onion	National Horticultural Research & Development Foundation
171	261 of 2015	Extant (Notified)	NHRDF RED 2 (L 355)	Onion	National Horticultural Research & Development Foundation
172	262 of 2015	Extant (Notified)	Bhima Raj (B-780-5-2-2)	Onion	Indian Council of Agricultural Research
173	263 of 2015	Extant (Notified)	Bhogavati	Rice	Mahatma Phule Krishi Vidyapeeth
174	264 of 2015	Extant (VCK)	RS 627	Sorghum	Indian Council of Agricultural Research
175	265 of 2015	New	JAWAHAR POP CORN-11	Maize	Indian Council of Agricultural Research
176	266 of 2015	New	45S45	Indian mustard	Pioneer Overseas Corporation

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177	267 of 2015	Extant (Notified)	Phule Radha	Rice	Mahatma Phule Krishi Vidyapeeth
178	268 of 2015	Extant (Notified)	Co 4	Rice	Tamil Nadu Agricultural University
179	269 of 2015	Extant (Notified)	Sabour Agrim (SBECF-01/09)	Cauliflower	Bihar Agricultural University
180	270 of 2015	New	KSF-274A	Sunflower	Kaveri Seed Company Ltd
181	271 of 2015	New	KSF-272A	Sunflower	Kaveri Seed Company Ltd
182	272 of 2015	New	KSF-266A	Sunflower	Kaveri Seed Company Ltd
183	273 of 2015	New	KSR 6178	Sorghum	Kaveri Seed Company Ltd
184	274 of 2015	New	Kaveri Sampada	Pigeon pea	Kaveri Seed Company Ltd
185	275 of 2015	Extant (Notified)	Bhagya (NTH-301)	Tomato	Nuziveedu Seeds Ltd
186	276 of 2015	Extant (Notified)	PAC 837 (PAC 85037) (IET 19746)	Rice	Advanta India Ltd
187	277 of 2015	Extant (Notified)	JKRH 3333 (IET 20759)	Rice	JK Agri Genetics Ltd
188	278 of 2015	Extant (Notified)	CoVSI 9805	Sugarcane	Vasantdada Sugar Institute
189	279 of 2015	Extant (Notified)	US 382 (IET 20727)	Rice	Seed Works International Pvt Ltd
190	280 of 2015	Extant (Notified)	Anurag	Bottle Gourd	Nuziveedu Seeds Ltd
191	281 of 2015	New	KSF-079R	Sunflower	Kaveri Seed Company Ltd
192	282 of 2015	New	KML 5015	Maize	Kaveri Seed Company Ltd
193	283 of 2015	New	KPP 004	Pigeon pea	Kaveri Seed Company Ltd
194	284 of 2015	Extant (Notified)	NBH-180	Okra/Lady's Finger	Nuziveedu Seeds Ltd
195	285 of 2015	Extant (Notified)	KR-64	Diploid Cotton	M/S Shakti Vardhak Hybrid Seeds Pvt Ltd
196	286 of 2015	Farmer	Cuttack-Narsinghpur-MAGURA	Rice	Jambeswar Sahoo
197	287 of 2015	Farmer	Haladiropa	Rice	Tankadhar Machha
198	288 of 2015	Farmer	Jajpur-SITA BHOGA	Rice	Baikuntha Kandi
199	289 of 2015	Farmer	Kendrapada-HALADIGUNDI	Rice	Shiba Prasad Das
200	290 of 2015	Farmer	Mbj-Rasagobindapur-AHIRMAN	Rice	Ramakanta Mandal
201	291 of 2015	Farmer	Balangir-Belpada-LAXMIVILASH	Rice	Chandra Bhanu Meher
202	292 of 2015	Farmer	Ngrh-Bhapur-BAIGANAMANJI	Rice	Prabitra Ku. Sahoo
203	293 of 2015	Farmer	DUBRAJ	Rice	Lakhi Patel
204	294 of 2015	Farmer	Koraput-HALADI SAPURU	Rice	Ganesh Badanaik
205	295 of 2015	Farmer	Khariar-SAPARI	Rice	Thakur Ch. Bhoi
206	296 of 2015	Farmer	BALI-BHAJANA-J	Rice	Narasingha Naik
207	297 of 2015	Farmer	Jajpur-PIMPUDIBASA	Rice	Minaketan Samal

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208	298 of 2015	Farmer	KUSUMA-K	Rice	Lambodar Pradhan
209	299 of 2015	Farmer	Ganjam-RATANCHUDI	Rice	Sri Janardan Pradhan
210	300 of 2015	Farmer	K-HUNDER	Rice	Babaji Naik
211	301 of 2015	Farmer	DEULABHOGA-R	Rice	Sri Muna Patra
212	302 of 2015	Farmer	ODISIALI-M	Rice	Chaitanya Bindhani
213	303 of 2015	Farmer	Dkl-Odapada-HARISHANKAR	Rice	Shikhar Roul
214	304 of 2015	Farmer	Puri-CHAMPEISIALI	Rice	Sachitra Dangua
215	305 of 2015	Farmer	Mbj-PIMPUDI BASA	Rice	Ajit Ku Sahu
216	306 of 2015	Farmer	Balangir-Mirdhapali-KALA KRUSHNA	Rice	Arjun Patel
217	307 of 2015	Farmer	Mbj-JANGALIJATA	Rice	Kartik Ch. Singh
218	308 of 2015	Farmer	Ganjam-Bhanja nagar-RATANCHUDE	Rice	Santosh Pradhan
219	309 of 2015	Farmer	Balangir-MAHIPAL	Rice	Chamaru bhue
220	310 of 2015	Farmer	Balangir-JABAFUL	Rice	Khageswar Bhoi
221	311 of 2015	Farmer	Balangir-TULASIBAS	Rice	Kumar Meher
222	312 of 2015	Farmer	JHALKAKERI-S	Rice	Bimbodhar Thanapati
223	313 of 2015	Farmer	Balangir-Ampali-HARISHANKAR	Rice	Dhanamali Patel
224	314 of 2015	Farmer	Balangir-KALA KRUSHANA	Rice	Ganapati Bhoi
225	315 of 2015	Farmer	Mugudhi Jhuli	Rice	Chetanananda Majhi
226	316 of 2015	Farmer	Puri-RATANCHUDI	Rice	Pandab Jena
227	317 of 2015	Farmer	Balangir-MAHIPAL-B	Rice	Sudan Adabaria
228	318 of 2015	Farmer	Puri-CHAMPA-P	Rice	Anama Khatua
229	319 of 2015	Farmer	Dkl-Gondia-CHAMPEISIALI	Rice	Naba Barik
230	320 of 2015	Farmer	JHITIPITI-B	Rice	Narayana Naik
231	321 of 2015	Farmer	Puri-Delang-CHAMPEISIALI	Rice	Trinath Parida
232	322 of 2015	Farmer	Mbj-Pallo-PIMPUDIBAS	Rice	Hapana Tudu
233	323 of 2015	Farmer	Mbj- KALACHAMPA	Rice	Tarakanath Mohanta
234	324 of 2015	Farmer	AKUL-S	Rice	Madhu Bhoi
235	325 of 2015	Farmer	LAXMI-S	Rice	Kulamani Sahoo
236	326 of 2015	Farmer	Smb-BASAPATRI	Rice	Lithu Khamari
237	327 of 2015	Farmer	Ganjam-Soroda-KALAJIRA	Rice	Gourahari Gouda
238	328 of 2015	Farmer	Nuapada-Boden-JHILLI	Rice	Sunadhar Bag
239	329 of 2015	Farmer	Umurichudi	Rice	Sonia Nali
240	330 of 2015	Farmer	BHAJANA-S	Rice	Sobha Chandra Majhi
241	331 of 2015	Farmer	RATKARANI	Rice	Laxman Rana
242	332 of 2015	Farmer	Dkl-HARISHANKAR	Rice	Naresh Ch. Biswal
243	333 of 2015	Farmer	BITI SUPARI	Rice	Golap Majhi
244	334 of 2015	Farmer	Ngrh-Bhapur-CHAMPEISIALI	Rice	Gangadhar Patra

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245	335 of 2015	Farmer	Nuapada-Padampur-ASAN CHUDI	Rice	Chandra Sekhar Patel
246	336 of 2015	Farmer	KAKUDIMANJI-P	Rice	Swadeshi Biswal
247	337 of 2015	Farmer	Kandhamal-Barapali-RATANCHUDI	Rice	Kishore Chandra Pradhan
248	338 of 2015	Farmer	Blng-r-KALAKRUSHNA	Rice	Surasen Naik
249	339 of 2015	Farmer	KALKATI-K	Rice	Jhuru Dishari
250	340 of 2015	Farmer	Boudh-JHOLIPUAGI	Rice	Biranchi Mahar
251	341 of 2015	Farmer	KAKUDIMANJI-G	Rice	Benudhar Barik
252	342 of 2015	Farmer	K-KARPURA KRANTI	Rice	Paramananda Naik
253	343 of 2015	Farmer	KUSUMA-Bal	Rice	Puspa Bagarty
254	344 of 2015	Farmer	Ngrh-Khandapada KADILA CHAMPA	Rice	Ramesh Behera
255	345 of 2015	Farmer	DENGBARI	Rice	Vgrasen Dharua
256	346 of 2015	Farmer	BAIKANI-D	Rice	Sabitri Sahu
257	347 of 2015	Farmer	SARIAN-P	Rice	Saroj Sahi
258	348 of 2015	Farmer	Balangir-Dhubalpada-MAHIPAL	Rice	Madhu Mahamallik
259	349 of 2015	Farmer	Dkl-KALACHAMPA	Rice	Bhagirathi Mahapatra
260	350 of 2015	Farmer	K-JHILLI	Rice	Bahadur Dharua
261	351 of 2015	Farmer	Sundargarh-KARPURKRANTI	Rice	Sunil Sanjay Toppo
262	352 of 2015	Farmer	KUSUMA	Rice	Chandra Mani Majhi
263	353 of 2015	Farmer	SARUBHUJUNI	Rice	Kishore Kumar Sahoo
264	354 of 2015	Farmer	SARIAN	Rice	Gunanidhi Meher
265	355 of 2015	Farmer	Balangir-Khaliapali-MAHIPAL	Rice	Chithal Nag
266	356 of 2015	Farmer	HUNDAR-B	Rice	Chittaranjan Thanapati
267	357 of 2015	Farmer	Smb- HARISANKAR	Rice	Binaya Behera
268	358 of 2015	Farmer	MUTURA-T	Rice	Sridhar Pr. Behera
269	359 of 2015	Farmer	KALKATI-S	Rice	Gajapati Kheti
270	360 of 2015	Farmer	Jajpur-MUGUDI	Rice	Ramakanta Sahoo
271	361 of 2015	Farmer	Balangir-Asurla-LUCHAI	Rice	Madhusudan Sahu
272	362 of 2015	Farmer	Balangir-Amapali-MAGURA	Rice	Hara Patel
273	363 of 2015	Farmer	Balangir-Dhungiamunda-Mahipal	Rice	Dharamsing Majhi
274	364 of 2015	Farmer	MALJHULI	Rice	Tunu Mahananda
275	365 of 2015	Farmer	Smb-KALAJIRA	Rice	Bhabani Sankar Hota
276	366 of 2015	Farmer	Balangir-GELHEI KANTI	Rice	Bibhuti Bhusan Sai
277	367 of 2015	Farmer	Balangir-JUBRAJ	Rice	Kamal Lochan Pradhan
278	368 of 2015	Farmer	DUBARAJ-N	Rice	Salekram Sahu
279	369 of 2015	Farmer	Ngrh-CHAMPEI SIALI	Rice	Haluri Swain
280	370 of 2015	Farmer	CHAMPESIALI-C	Rice	Ajaya Ku Lenka
281	371 of 2015	Farmer	SARIA-D	Rice	Ajaya Behera

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282	372 of 2015	Farmer	Ngrh-MAYURAKANTHA	Rice	Baikuntha Nayak
283	373 of 2015	Farmer	Malkangiri-CHUDI	Rice	Laxman Nayak
284	374 of 2015	Farmer	MUGEI-J	Rice	Suresh Behera
285	375 of 2015	Farmer	Balangir-SANKRI	Rice	Balahari Tandi
286	376 of 2015	Farmer	SARIA-A	Rice	Chemara Sahu
287	377 of 2015	Farmer	KUSUMA-T	Rice	Bhakta Puta
288	378 of 2015	Farmer	Jsg-SAPURI	Rice	Romanchala Rohidas
289	379 of 2015	Farmer	CHUDI-M	Rice	Padalam Gouda
290	380 of 2015	Farmer	Nbr-HALADICHUDI	Rice	Tiki Sahu
291	381 of 2015	Farmer	SARIA-B	Rice	Mahendra Patel
292	382 of 2015	Farmer	SARIAN-Bal	Rice	Gabraaj Patel
293	383 of 2015	Farmer	Bolangir-Baidipali-MAHIPAL	Rice	Ananta Pradhan
294	384 of 2015	Farmer	Balangir-Khaliapali-ASAM CHUDI	Rice	Jogeswar Barik
295	385 of 2015	Farmer	JHILLI	Rice	Tarun Kumar Parta
296	1 of 2016	Farmer	TIKIMASURI-C	Rice	Meghanada Dora
297	2 of 2016	Farmer	Kandhamal-KALAJIRA	Rice	Mrutyunjaya Amata
298	3 of 2016	Farmer	Balangir-Talgauj-JHILLI	Rice	Pabitra Rana
299	4 of 2016	Farmer	CHAMPASOLA	Rice	Satrughana Mallik
300	5 of 2016	Farmer	Kandhamal-CHINAMALI	Rice	Sukadev Sahu
301	6 of 2016	Farmer	BHUNDI-B	Rice	Ghanasyam Das
302	7 of 2016	Farmer	BADACHAMAPA	Rice	Basanta Ku Samal
303	8 of 2016	Farmer	Balangir-Hatisara-Mahipal	Rice	Surendra Sahu
304	9 of 2016	Farmer	HALADIGUNDI-J	Rice	S K Saufuddin
305	10 of 2016	Farmer	Balangir-Kurenbahali-Harisankar	Rice	Archhu Puta
306	11 of 2016	Extant (VCK)	NSFL-605 A	Sunflower	Nuziveedu Seeds Ltd
307	12 of 2016	New	KSR 6173	Sorghum	Kaveri Seed Company Ltd
308	13 of 2016	Extant (VCK)	RCH 377 Bt	Tetraploid Cotton	Rasi Seeds Pvt Ltd
309	14 of 2016	New	KSMS 283	Sorghum	Kaveri Seed Company Ltd
310	15 of 2016	Extant (Notified)	SAHYADRI-2	Rice	Indian Council of Agricultural Research
311	16 of 2016	Extant (Notified)	SAHYADRI-4	Rice	Indian Council of Agricultural Research
312	17 of 2016	Extant (Notified)	DHH 543	Tetraploid Cotton	University of Agricultural Sciences
313	18 of 2016	Extant (Notified)	SAHYADRI-3	Rice	Indian Council of Agricultural Research
314	19 of 2016	New	PH698	Maize	Pioneer Overseas Corporation
315	20 of 2016	Farmer	Kottathondi	Rice	P. V. Suresh, for Seed Care, Malabar
316	21 of 2016	Farmer	Kayama	Rice	P. V. Suresh, for Seed Care, Malabar

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317	22 of 2016	Farmer	Mannuveliyam	Rice	P. V. Suresh, for Seed Care, Malabar
318	23 of 2016	Farmer	Adukkam	Rice	P. V. Suresh, For Seed Care, Malabar
319	24 of 2016	Farmer	Phourelamubi	Rice	Shri P. Devakanta
320	25 of 2016	Farmer	Gandheswari	Rice	Dr. Debal Deb
321	26 of 2016	Farmer	Kankri	Rice	Dr. Debal Deb
322	27 of 2016	Farmer	Chandrakanta	Rice	Dr. Debal Deb
323	28 of 2016	Farmer	Srabanti-Sal	Rice	Dr. Debal Deb
324	29 of 2016	Farmer	Bagh Jhapta	Rice	Dr. Debal Deb
325	30 of 2016	Farmer	Pelela Jonna	Sorghum	Biodiversity Management Committee
326	31 of 2016	Farmer	Dadal (Rabi)	Sorghum	Indramal Tribal Seed Saver Group
327	32 of 2016	Farmer	Vayunowka Jonna	Sorghum	Biodiversity Management Committee
328	33 of 2016	New	P3470	Maize	Pioneer Overseas Corporation
329	34 of 2016	New	P3502	Maize	Pioneer Overseas Corporation
330	35 of 2016	Extant (VCK)	Su-flum	Tetraploid Cotton	M/S Shakti Vardhak Hybrid Seeds Pvt Ltd
331	36 of 2016	Extant (VCK)	Anmol Rattan-8108	Tetraploid Cotton	M/S Shakti Vardhak Hybrid Seeds Pvt Ltd
332	37 of 2016	New	463B	Sorghum	Indian Council of Agricultural Research
333	38 of 2016	Extant (VCK)	Nirbhay(NW-1)	Wheat	Nirmal Seeds Pvt Ltd
334	39 of 2016	New	P3441	Maize	Pioneer Overseas Corporation
335	40 of 2016	New	86 M 40	Pearl Millet	Pioneer Overseas Corporation
336	41 of 2016	New	86 M 76	Pearl Millet	Pioneer Overseas Corporation
337	42 of 2016	New	86M11	Pearl Millet	Pioneer Overseas Corporation
338	43 of 2016	New	PHM6T	Maize	Pioneer Overseas Corporation
339	44 of 2016	Extant (Notified)	PBG 5	Chickpea	Indian Council of Agricultural Research
340	45 of 2016	Extant (VCK)	NSFL-136 R	Sunflower	Nuziveedu Seeds Ltd
341	46 of 2016	Extant (VCK)	27P52	Rice	Pioneer Overseas Corporation
342	47 of 2016	Extant (VCK)	27P88	Rice	Pioneer Overseas Corporation
343	48 of 2016	New	VIVEK MAIZE HYBRID 43	Maize	Indian Council of Agricultural Research
344	49 of 2016	New	VIVEK MAIZE HYBRID 39	Maize	Indian Council of Agricultural Research
345	50 of 2016	Extant (VCK)	FL 1867	Potato	PepsiCo India Holding Pvt Ltd
346	51 of 2016	New	NMH-1242	Maize	Nuziveedu Seeds Ltd
347	52 of 2016	New	Aparna (NSRR-676)	Sorghum	Nirmal Seeds Pvt Ltd
348	53 of 2016	Extant (VCK)	JKCH 226	Tetraploid Cotton	JK Agri Genetics Ltd
349	54 of 2016	New	KSR 6310	Sorghum	Kaveri Seed Company Ltd
350	55 of 2016	Extant (VCK)	Chandramukhi(NCH-996)	Tetraploid Cotton	Nirmal Seeds Pvt Ltd
351	56 of 2016	Extant (VCK)	KML 2168	Maize	Kaveri Seed Company Ltd
352	57 of 2016	Extant (VCK)	KML 2254	Maize	Kaveri Seed Company Ltd
353	58 of 2016	New	KSR 6313	Sorghum	Kaveri Seed Company Ltd
354	59 of 2016	Extant (VCK)	FL 2027	Potato	PepsiCo India Holding Pvt Ltd

S. no.	Registration no.	Category of variety	Denomination of candidate variety	Crop	Name of applicant
355	60 of 2016	Extant (VCK)	BIO 340-2	Tetraploid Cotton	DCM Shriram Limited
356	61 of 2016	Extant (VCK)	ARKA ANOOP	Kidney bean	Indian Council of Agricultural Research
357	62 of 2016	Farmer	Malkangiri-BODIKABERI	Rice	Trinath Gouda
358	63 of 2016	Farmer	Moirangphou yenthik	Rice	Shri P. Devakanta
359	64 of 2016	Farmer	Marichsaal	Rice	Lokamata Rani Rashmoni Mission
360	65 of 2016	Farmer	Kattuyanam	Rice	Sathanoor Uzhavar Mandrom
361	66 of 2016	Farmer	Kallundai	Rice	Senthamizh Uzhavarmandram
362	67 of 2016	Farmer	Tulaipanji	Rice	Basian Samabay Krishi Unnayan Samity Ltd
363	68 of 2016	Farmer	Nadna	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
364	69 of 2016	Farmer	Dhulia	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
365	70 of 2016	Farmer	Bhutia	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
366	71 of 2016	Farmer	KOKHURIA	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
367	72 of 2016	Farmer	Dudheswar	Rice	Lokamata Rani Rashmoni Mission
368	73 of 2016	Farmer	Mugi	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
369	74 of 2016	Farmer	Gayabali	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
370	75 of 2016	Farmer	Modra	Rice	Jankapur Janokalyan Samobay Krishi Unnayan Samiti Ltd
371	76 of 2016	Farmer	MAYURKANTHA-Ke	Rice	Dhinki Naik
372	77 of 2016	Farmer	Kandhamal-GALEI	Rice	Narayana Pradhani
373	78 of 2016	Farmer	Balangir-HARISHANKAR	Rice	Tika Patel
374	79 of 2016	Farmer	Balangir-TULASIBASB	Rice	Giridhari Puta
375	80 of 2016	Farmer	Kandhamal KalaKrushna	Rice	Kanista Nayak
376	81 of 2016	Farmer	DHALA SHREE-K	Rice	Sarjan Patel
377	82 of 2016	Farmer	Ranisiali	Rice	Lalajee Jharkar
378	83 of 2016	Farmer	Jaipur-JANGAL JATA	Rice	Ramanarayana Bhadra
379	84 of 2016	Farmer	Balangir-Khaliapali-JHILLI	Rice	Suresh Patel
380	85 of 2016	Farmer	JHILI-S	Rice	Prakash Kumar Hota
381	86 of 2016	Farmer	Puri-CHAMPA	Rice	Laxmidhar Biswal
382	87 of 2016	Farmer	KANSAPURI MAJHLIJHULI	Rice	Lalit Bhoi
383	88 of 2016	Farmer	Balangir-JHILLI	Rice	Dolamani Bhoi
384	89 of 2016	Farmer	Raigada-BAIGANAMANJI	Rice	Sri Laxman Behera
385	90 of 2016	Farmer	Balangir-JHILLI-B	Rice	Gopinath Patel
386	91 of 2016	Farmer	KALAKATIKI	Rice	Parsuram Barik
387	92 of 2016	Farmer	Kandhamal-Mugudi	Rice	Surendra Patra




S. no.	Registration no.	Category of variety	Denomination of candidate variety	Crop	Name of applicant
388	93 of 2016	Farmer	Sundargarh-LUCHAI	Rice	Umashankar Pradhan
389	94 of 2016	Farmer	Sundargarh-Gargabahal-BHAJANA	Rice	Jayadev Sahu
390	95 of 2016	Farmer	Kala Champa-J	Rice	Balaram Parida
391	96 of 2016	New	KML 5264	Maize	Kaveri Seed Company Ltd
392	97 of 2016	Extant (Notified)	PHULE SAMARTH	Onion	Mahatma Phule Krishi Vidyapeeth
393	98 of 2016	Extant (Notified)	WH 1105	Wheat	CCS Haryana Agricultural University
394	99 of 2016	Extant (Notified)	SWARNA BAIBHAV	Tomato	Indian Council of Agricultural Research
395	100 of 2016	Farmer	Geleikathi	Rice	Bidyadhar Thanapati
396	101 of 2016	Farmer	GAHAMPHUL	Rice	Jagdish Singh
397	102 of 2016	Farmer	HUNDAR-D	Rice	Goutam Podh
398	103 of 2016	Farmer	Kadalikenda-D	Rice	Bhubaneswar Sahu
399	104 of 2016	Farmer	Bhadrak-Tihidi-PATINI	Rice	Narayana Panigrahi
400	105 of 2016	Farmer	Gethu-B	Rice	Patari Sagar
401	106 of 2016	Farmer	KADALI KENDA-G	Rice	Kuber Tandi
402	107 of 2016	Farmer	Smb-MACHHAKANTA	Rice	Binodsagar Dash
403	108 of 2016	Farmer	Kalakrushna	Rice	Santosh Kumar Nail
404	109 of 2016	Farmer	Kandhamal-kainjhar-CHINAMALI	Rice	Bisu Kishore Patra
405	110 of 2016	Farmer	Cuttack-Barang-HARISHANKAR	Rice	Prahallad Pradhan
406	111 of 2016	Farmer	PATINI-B	Rice	Rajendra Pr. Dash
407	112 of 2016	Farmer	Balangir-Chanutmal-HARISHANKAR	Rice	Sahadev Patel
408	113 of 2016	New	NSO-84	Soybean	Nirmal Seeds Pvt Ltd
409	114 of 2016	New	KMH-2446	Maize	Kaveri Seed Company Ltd
410	115 of 2016	New	KMH-3712	Maize	Kaveri Seed Company Ltd
411	116 of 2016	New	KML 5013	Maize	Kaveri Seed Company Ltd
412	117 of 2016	New	KML 2276	Maize	Kaveri Seed Company Ltd
413	118 of 2016	New	KML 5080	Maize	Kaveri Seed Company Ltd
414	119 of 2016	New	KSMS 220	Sorghum	Kaveri Seed Company Ltd
415	120 of 2016	Extant (Notified)	GUJARAT OBLONG BRINJAL 1	Brinjal	Indian Institute of Vegetable Research
416	121 of 2016	New	KML 5004	Maize	Kaveri Seed Company Ltd
417	122 of 2016	New	DGR-008	Rice	Devgen NV
418	123 of 2016	New	DGR-007	Rice	Devgen NV
419	124 of 2016	New	BIO 2113-2	Tetraploid Cotton	DCM Shriram Limited

# Annexure X: Acronyms

AICRP	All India Coordinated 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
CMD	Chairman-cum-Managing Director
CSIR	Council of Scientific and Industrial Research
CHES	Central Horticultural Experiment Station
CSSRI	Central Soil Salinity Research Institute
DAC	Department of Agriculture & Co-operation
DUS	Distinctiveness, Uniformity and Stability
EVRC	Extant Variety Recommendation Committee
ETL	Economic Threshold Level
GATT	General Agreement on Tariffs and Trade
IARI	Indian Agricultural 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)
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
KAU	Kerala Agriculture University
KVK	Krishi Vigyan Kendra
NASC	National Agricultural Science Centre
NGO	Non-Governmental Organization
NORV	Notified and Released Varieties of India
NSAI	National Seed Association of India
NRCPB	National Research Centre on Plant Biotechnology
NSRTC	National Seed Research and Training Centre
MSEZ	Mangalore Special Economic Zone Limited
OECD	Organization for Economic Co-operation and Development
PS	Principal Scientist
PD	Project Director
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 and 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
VCK	Variety of Common Knowledge
WTO	World Trade Organization

Approved in 26th Meeting (Agenda item No. 5) of Protection of  
Plant Varieties and Farmers' Rights Authority held on  
11th November, 2016 at New Delhi



## **Protection of Plant Varieties and Farmers' Rights Authority**

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