



ANNUAL REPORT

2018–19



Protection of Plant Varieties and Farmers' Rights Authority
Department of Agriculture, Co-operation & Farmers' Welfare
Ministry of Agriculture and Farmers' Welfare, Government of India
NASC Complex, DPS Marg, New Delhi-110012
www.plantauthority.gov.in

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सत्यमेव जयते



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Dr K V Prabhu

Chairperson

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

FOREWORD

I have great pleasure in presenting the Annual Report for the year 2018-19 of the Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA), a Statutory Body established by the Govt. of India in 2005 after the Parliament enacted PPV&FR Act in 2001.

The Authority is effectively protecting plant varieties and the rights of farmers, plant breeders and researchers to encourage the seed industry for developing new crop varieties and recognising the farmers for their contribution towards conserving and improving traditional plant genetic resources. I am convinced that right value to right seed which we ensure is one of the most effective means to achieving the bold call by our Hon'ble Prime Minister Shri Narendra Modi of doubling the farmers' income by 2022.

The Authority opened crop plants registration process in 2007 by notifying 12 crops; established the National Gene Bank, field gene banks, field testing networks for crops, etc. Farmers were provided with assistance for the registration of their traditional varieties and regular training-cum-awareness programs on conservation and sustainable use of plant genetic resources. In the year 2018-19, the Authority received a total of 592 applications belonging to three categories of farmers (461), new (50) and extant (81) varieties and a total of 184 certificates were issued. During the year, ten more crop species, such as Willow, Oat, Date Palm, Moringa etc were added to the list of species notified in the Gazette of India totaling 157 crop species eligible for registration.

During the reporting year, the Authority has conducted or participated in many training-cum-awareness programs in close co-operation with different Zonal Project Directorates, Krishi Vigyan Kendras (KVKs), ICAR Institutes, SAUs, NGOs and organizations across the country. During the year, the Authority has taken several measures to improve the DUS testing procedures, bringing innovation in introducing parental line testing and stability testing of hybrid varieties which the international community has also noted.

I place on record with gratitude the able guidance and direction provided by the Hon'ble Union Minister of Agriculture and Farmers Welfare, Sh. Radha Mohan Singh, during the period under report for the growth and development of the Authority. I am also equally grateful to Sh. Sanjay Agrawal, Secretary, Department of Agriculture, Co-operation & Farmers Welfare and his predecessor Sh. SK Pattanayak for their guidance, leadership and their constant support. I express my sincere gratitude to Sh. B Pradhan, Additional Secretary and Financial Adviser, Department of Agriculture, Co-operation & Farmers Welfare and Sh. Ashwani Kumar, 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 as well as the Registrar's offices and Branch offices who have helped the Authority in scaling new horizons and setting new standards.

I also thank Secretary DARE and Director General, Indian Council of Agricultural Research (ICAR), leaders of DUS centres of ICAR, State Agricultural Universities (SAUs), Council of Scientific and Industrial Research (CSIR), Indian Council of Forest Research and Education (ICFRE) and other Research Institutions for providing continuous support to the Authority. With a deep sense of sincere gratitude, I convey my thanks to the officers of the Seeds Division, such as Mr M Gunasekran, Asst. Commissioner and other officers at Department of Agriculture, Co-operation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare. Thanks are also due to ICFRE, CSIR, Ministry of Law and Justice, Ministry of Environment, Forest and Climate Change for their cooperation. I also take this opportunity to acknowledge the cooperation and help extended by Dr. AK Singh, Director, ICAR-Indian Agricultural Research Institute (IARI) and Dr. Kuldeep Singh, Director, ICAR-National Bureau of Plant Genetic Resources (NBPGR) for successfully shouldering various responsibilities entrusted by the Authority.

I acknowledge with thanks the services of State Bank of India and Syndicate Bank for their financial services. I am grateful to CAG team for their timely auditing, guidance and direction. The Authority received ₹ 1703.22 lakhs as grants in aid from DAC&FW, Ministry of Agriculture and Farmers Welfare during the year 2018-19 and utilized ₹ 1779.76 lakhs after adjustment of ₹ 126.69 lakhs of previous year leaving a balance of ₹ 50.15 lakhs at the end of FY 2018-19. The Annual Account of the Authority has been audited and submitted to CAG within prescribed time schedule.

The role played by the three Registrar(s), Dr Ravi Prakash; Dr TK Nagarathna and Dr. SA Desai, who led their teams and responsibilities with conviction and unbiased commitment to serve the national varietal protection system as well as rights of the plant breeders and farmers effectively with the help of Joint Registrar, Deputy Registrar(s) and their Registry Assistants is commendable. I must also acknowledge the enthusiastic and proactive support of Shri Raj Ganesh, Legal Adviser as well as Sh JP Singh, Financial Adviser of the Authority. I appreciate and compliment the excellent compilation of the report by Sh. DR Choudhury, Jt. Registrar and his editorial team for an effective coordination and timely compilation of the Annual Report 2018-19.

Dr. RC Agrawal, Registrar General of the Authority, I found a much willing companion, and colleague to take up logically proposed new path or modification of existing procedures during the year though some of them would have been at the cost of the existing protocols. Without this open hearted support which also got positively extended to the Seed Division of the Nodal Ministry, which in turn provided all financial, administrative and logistic support, I would not have felt as confident as I am now to have all the reasons to keep bright hopes in making the Authority not only unique, but the best for protection of IPR on plant varieties.


(KV Prabhu)

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to Dr. KV Prabhu, Chairperson, PPV&FR Authority, for his dynamism and valuable support, motivation and enthusiasm and critical views in the preparation of this report describing the performance of the Authority during the period of 2018-19. Under his leadership, the Authority has undertaken several innovative interventions, introduce parental testing mechanisms, and engage stakeholder(s) that will help the Authority in creating an effective IP landscape in India.

I acknowledge the kind support and guidance of Sh. Sanjay Agarwal, Secretary, Department of Agriculture, Co-operation and Farmers Welfare, his predecessor Sh. SK Pattanayak, Secretary, Ministry of Agriculture, Co-operation and Farmers Welfare and Sh. Ashwani Kumar, Joint Secretary (Seeds), Department of Agriculture, Co-operation & Farmers Welfare (DAC&FW).

I owe my special word of appreciations to Sh. Dipal Roy Choudhury, Joint Registrar, and his team for their sincere efforts in compiling and synthesizing this Annual Report. My appreciation goes to Dr. Ravi Prakash, Dr. TK Nagarathna (both Registrars), Sh. JP Singh (former Financial Advisor), Sh. DS Raj Ganesh (Legal Advisor), Sh. Uma Kant Dubey (Deputy Registrar), Sh. RS Sengar (Deputy Registrar) for their support in bringing out the Annual Report of the Authority.

I am grateful for the inputs provided by Dr. Ajay Kumar Singh (STO), Dr. DS Pilia (Technical Assistant), Sh. Shyam Narayan, Ms. Shipra Mathur, Sh. Sanjay Gupta, Sh. Nitesh Kr Verma and Sh. Arvind Kr Rai (all Computer Assistants); Dr. Jasbir Madan, Dr. Pravas Kole, Dr. RS Nagar, Dr. Nimit Kumar, Dr. Jyoti Jaiswal, Sh. Stephen Tamu (all Registry Assistants). My special word of thanks goes to Mr. Gourav Sharma, Mr. Vikram Singh, Ms. Neeta Kumari, Mr. Jatin, Mr. Santosh Singh Bisht, Sh. Vivek Sengar, Sh. Pawan Pandey, Sh. Ramvir, Ms. Anuradha (Office Assistants), Sh. Harmesh, Sh. Debu Kamti, Sh. Manoj Mathur, Sh. Hemant Kumar (all MTS) who have invested their heart and soul in providing assistance in preparing this document for completion in a time bound manner. This is also to acknowledge the contribution of Sh. BK Bansal (Sr Asstt Accounts) and Sh. Gurdass (Sr Asstt Admn) to work in tandem as back support in regular Financial and Administrative work. Appreciation is also due to Sh. PR Rao for taking the mandate of promoting Hindi in official work, conducting several workshop(s) and NARAKAS/TOLIC meetings at North Delhi.

It is needless to mention that the sincere contribution of Dr. Shivaji Gurav (Deputy Registrar, Pune Branch Office); Dr. TH Gowda (Deputy Registrar, Shimoga Branch Office); Sh. PS Malviya (Deputy Registrar Ranchi and Guwahati Branch Office), whose dedication towards the cause of PPV&FRA is a matter of great pride for us. I am also thankful to all the staff of PPV&FRA for providing necessary inputs in the preparation of Annual Report.

The Authority is highly thankful for the support and co-operation received from Seeds Division, Internal Finance Division of the DAC&FW and also from Indian Council of Agricultural Research (ICAR). We sincerely cherish the partnership that PPV&FR Authority has built over time with the various institutes of the ICAR, SAUs, CSIR, ICFRE, etc for their co-operation in conducting DUS trials and providing valuable inputs for the preparation of this report.



(RC Agrawal)
Registrar General

EXECUTIVE SUMMARY

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 in the year 2005. The Authority has been consistently improvising the system of registering the plant varieties, connecting the stakeholders, encouraging innovation in seed sector, acknowledging the contribution by the farmers/communities towards conservation of plant genetic resources and making them available to plant breeders, established a National Gene Fund, build and maintain gene banks etc.

So far, the Government of India has notified 157 crop species on the recommendations of PPV&FR Authority for plant variety registration. During the reporting period, the Authority has notified four genera & species. In the year 2018-19, the Authority received a total of 592 applications belonging to three categories of farmers (461), new (50) and extant (81) varieties. The maximum number of applications belonged to farmers' category including (461), followed by applications filed by private organizations (88) and public institutions (43). Highest number of applications were received for Maize (80), followed by wheat (61), rice (53), Rape seed mustard (36), Field Pea (25), Chickpea (20), Rose and Barley (17 each) and other crops. The Authority has revised procedures for plant variety registration w.e.f 01.09.2018 and notified 20 crop species whose time limit for registration under extant variety (extant notified varieties under Section 5 of seeds Act, 1966 and extant varieties about which there is common knowledge) category was expired.

In the annual year of 2018-19, a total of 184 certificates of registration were issued. Excluding the Farmers' varieties (67), other categories including new varieties (58), and varieties of common knowledge (43) and extant notified varieties (16) where plant varieties were registered. The highest number of certificates were issued in cereals (120), followed by fibre crops (43), vegetables (8), oilseeds (7) and spices (5).

In the 29th meeting of the Authority, several issues were discussed regarding notification of SAUs as centres for determination of benefit sharing claims; approval of budgetary estimates etc. In the 30th meeting, revised procedures for registration of plant varieties were approved along with recruitment rules for the posts of Registrar General, Legal Adviser, amendment of DUS test guidelines to include all characters as essential characters etc. Important issues discussed in the 31st meeting were web based system for online application through NICSI, revision of DUS test guidelines for Sorghum and Pearl Millet, creation of new posts at PPV&FRA etc.

The Legal Cell of the Authority pursued the cases filed in different Courts. Twenty nine cases were pending before the Authority and two cases were disposed-off. Other notifications were published in the Gazette of India regarding Rules for protection of PPV&FR (Community Award from Gene Fund) Rules, 2018; 10 crop species eligible for registration; appointment of Technical member etc. The Right to Information (RTI) Cell received 24 applications either directly or through transfer from other Departments seeking information under RTI Act, 2005. The information sought was made available within the stipulated timeframe.

Funds were provided to various institutions, DUS centers, ATARIs/ZPDs, KVKs and other stakeholders for conducting training-cum-awareness programs 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.



Under the framework of Indo-German Bilateral Cooperation on Seed Sector Development, workshops were organized including hands-on training on Potato, DNA based system were organised with the participation of Experts from CPVO, Scotland and Germany. Chairperson of the Authority also visited The Netherlands, Germany and attended Technical Committee, Administrative and Legal Committee during the 52nd Ordinary Session of UPOV Council at Geneva. Registrar General also visited FAO Headquarters on matters related to ITPGRFA. 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 conventions.

The Authority received ₹ 1703.22 lakhs as grants in aid from DAC&FW, Ministry of Agriculture and Farmers Welfare during the year 2018-19 and utilized ₹ 1779.76 lakhs after adjustment of ₹ 126.69 lakhs of previous year leaving a balance of ₹ 50.15 lakhs. The Annual Account of the Authority has been audited and submitted to CAG within prescribed time schedule.

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 2018-19 was finalized and audited within the prescribed time schedule and placed before both the houses of the Parliament within the statutory time limit.

Chapter 1: Brief Introduction

Plant genetic resources are vital for the survival of humanity as they serve as sources of genetic variation to create new varieties of plants for food, fibre, fodder, forest and industrial use. Traditional plant breeders, including farming community/forest dwellers, nurture & these diversity, made selection to produce plants of use since millennia. Modern plant breeders collected genetic diversity through exploration in biodiversity rich zones, use different tool to increase values for cultivation. Plant Breeders' Rights are therefore a mean to recognise their contribution and create an ecosystem that sustain innovation continuum, can establish a mechanism to exert responsible stewardship over germplasm, support long term research and development that enhance agricultural productivity, promote plant breeding in public/private sector and provide high quality seeds/planting material to farmers.

Enforcement of Intellectual Property Rights (IPRs) in Agriculture led to the "Plant Patent Act, 1930" in USA and formation of the *Union Internationale pour la Protection des Obtentions Végétales* (UPOV) or the International Union for the Protection of New Varieties of Plants in 1961 at Europe which was subsequently revised in 1972, 1978 and 1991. Presently, there are 75 member states as part of the UPOV convention including regional associations like EU, OAPI. India has been an observer to the UPOV.

Plant variety protection through Plant Breeder's Rights was brought into major focus by the General Agreement on Tariffs and Trade (GATT), a multilateral instrument governing international trade. GATT negotiations in Uruguay Round led to the establishment of World Trade Organisation (WTO) in 1995. Article 27.3(b) of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) under WTO, provides that members shall provide for the protection of plant varieties, either by patents or by an effective *sui generis* system or by any combination thereof.

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.

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).

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

1.3 PPV&FR Authority

The Authority is a body corporate, having perpetual succession and a common seal with the power to acquire, hold and dispose of movable and immovable properties and to contract, and shall by the said name sue and be sued. The head office of the Authority is at New Delhi and it is functioning from a 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 fifteen members as on 31 March, 2019.

1.4 Plant Variety Registration

The PPV&FR Authority has finalized the distinctiveness, uniformity and stability (DUS) test guidelines for registration of 157 crop species covering cereals, pulses, millets, oilseeds, spices, vegetables, flowers, medicinal and aromatic plants and fibre crops. The Authority has issued 184 certificates of registration for plant varieties (under new, extant and farmers' variety category) during the reporting year 2018-19. 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 (Distinctiveness, Uniformity and Stability) 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 (also a part of extant 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 to register their varieties:* A farmer who has bred or developed a new variety is entitled for registration and other protection as a plant breeder under this Act.
- *Right on seed:* A farmer is entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act; provided that the farmer is not entitled to sell branded seed of a variety protected under this Act.
- *Right for reward and recognition:* A farmer or community of farmers engaged in the conservation and improvement of plant genetic resources (landraces and wild relatives of economic plants) are entitled for the Plant Genome Saviour Award, Reward and Recognition, provided their plant material has been used in development of varieties registrable under this Act.
- *Protection of innocent infringement:* If a farmer being charged to infringement according to section 65 of PPV&FR Act, 2001, can prove before court that he or she was not aware of the existence of such rights at the time of infringement; he or she will not be charged.
- *Fee Exemption:* A farmer or group of farmers are not liable to pay any fee payable for inspection of any document or for obtaining a copy of any decision or order or document under this Act. Farmers have the privilege of being completely exempted from payment of any kind of fees or other payments that are normally payable for variety registration; testing of varieties and other services rendered by the PPV&FRA; as well as for legal proceedings related to infringement or other cases in courts, tribunal etc.
- *Reasonable Seed Price:* Farmers have the right to access seed of registered varieties at a reasonable and remunerative price. When this condition is not met, the breeder's exclusive right over the variety can be revoked under the provision concerning compulsory licensing, and the breeder is obligated to license the seed production, distribution and sales of the variety to any competent person. Most of the laws for plant variety protection have provisions on compulsory licensing of protected varieties to ensure adequate seed supply to farmers.

- *Authorization of farmers' variety*: In the development of an essentially derived variety from a farmer's variety and its commercialization. The authorization should be given with the consent of the farmer or group of farmers who have contributed in the conservation or development of such a variety. Such a process can allow farmers to negotiate the terms of authorization with the breeders, which may include royalties, benefit-sharing etc.
- *Right for compensation*: When any propagating material of a variety registered under this Act has been sold to a farmer, the breeder of such variety should disclose the expected performance under given conditions. If the propagating material fails to provide such performance under such given conditions, the farmer can claim compensation before the Authority. The Authority would then notify the breeder of the variety the issue and after providing him an opportunity to file an opposition, may direct the breeder to pay compensation to the farmer as it deems fit.

The Farmers' Cell at the Authority looks after the IPR registration of farmers' varieties, conducts country-wide training-cum-awareness programmes, and identifies farmers and farmer communities for their contribution towards conserving germplasm and developing new varieties.

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 date 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
- **Essentially Derived Variety**: A variety pre-dominantly derived from an initial variety and should fall either under new or extant category

1.8 Period of field-testing of varieties

The application is processed and the applicant is required to deposit DUS test, registration and any other fees, as may be required. After receipt of necessary fees and seeds and to an satisfactory examination of the application at the Plant Varieties Registry, the Registrar may sent the variety to crop specific centres 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 distinctiveness is ascertained through DUS test and comparison across the database. Subsequently, the passport data of the variety is published in the *Plant Varieties Journal of India*.

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:

1.8.1 Protection Period and Crops

A total of 157 crop species are presently eligible for protection (Annexure VIII). 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.

1.9 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.

1.10 Issues under Consideration Nodal Ministry

A consolidated proposal for amendment in PPV&FR Act, 2001, Rules, 2003, PPV&FR Regulation 2006 and PPV&FR Regulation 2009, notification under section 41 (3) and amendment in notification relating to annual fee were forwarded to DAC&FW vide D.O. No. PPV&FRA/Legal/05/2017/261 dated 6th September, 2018 and proposal for regularizing the services of Joint Registrar, Deputy Registrar and Plant Variety Examiner to Nodal Ministry vide letter No. PPV&FRA/1-3/2013/530 dated 02.06.2016.

1.11 Award/Rewards to Farmers'/Farming Communities

Section 45(2) of the Act reads with Rules 70 (2) (a) of PPV&FR Rules, 2003 provides for support and reward, to farmers, communities of farmers, particularly the tribal and rural communities engaged in conservation, improvement and preservation of genetic resources of economic plants and their wild relatives, particularly in areas identified as agro-biodiversity hotspots from National Gene Fund. To operationalize these provisions, Plant Genome Savior Community Award was instituted in 2009-10. A maximum of five such awards can be conferred annually. Along with this, ten farmers are conferred the Plant Genome Saviour Farmer Reward and fifteen farmers are conferred Plant Genome Saviour Farmer Recognition certificates. The details of the awards conferred are mentioned in Table 1. The selection of awardees is made by a committee of experts/ scientists headed by an eminent scientist/ subject matter specialist.

Table 1: Details of the Plant Genome Savior awards, rewards and recognition

Award	Details	Application
Plant Genome Saviour Community Awards	Five farming communities are awarded each year. Each award includes a citation, a memento and Rs. 10 lakh.	Advertisement for these awards is published in the National dailies and on the Authority website: (http://www.plantauthority.gov.in/forms.htm)
Plant Genome Saviour Farmers' Rewards	Ten farmers are rewarded every year. Each reward includes a citation, a memento and cash of Rs. 1.5 lakh.	The applications should be forwarded through Chairperson or Secretary of the concerned Panchayat Committee or concerned District Agricultural Officer or Director of Research of concerned State Agriculture University or District Tribal Development Officer
Plant Genome Saviour Farmers' Recognitions	Twenty farmers are rewarded every year. Each reward includes a citation, a memento and cash of Rs. 1 lakh.	

Chapter 2: Progress of Plant Varieties Registry

2.1 Publication of DUS test guidelines for crop species

During 2018-19, DUS guidelines have been developed for four crop species and published in *Plant Variety Journal of India* as mentioned in Table 2 totalling to 157 crop species for which Authority has developed DUS guidelines and notified in Gazette of India. Registrations are now open for plant variety protection under *PPV&FR Act, 2001* for the varieties under these different crop species.

Table 2: DUS test guidelines developed for different crop species during 2018-19

Sl. No.	Crop & Species	PVJ Publication details
1	Willow (<i>Salix</i> sp.)	April 16, 2018(Vol 12, No 3)
2	Oat (<i>Avena sativa</i> L.)	
3	Date Palm (<i>Phoenix dactylifera</i> L.)	
4	Pearl Millet (<i>Pennisetum glaucum</i> (L.) R.Br.).	June 5, 2018 (Vol. 12 No. 04)
5	Sorghum (<i>Sorghum bicolor</i> (L.) Moench)	
6	Melia (<i>Melia dubia</i> Cav.)	
7	Moringa (<i>Moringa oleifera</i> L.)	August 3, 2018 (Vol. 12 No. 05)

2.2 Progress in number of applications received

During 2018-19, a total of 592 applications were received for registration with major applications from cereals, vegetables and legumes (Table 3).

Table 3: Total number of applications received (crop group-wise)

Crop Group	Total	Crop Group	Total
Cereals	236	Medicinal and Aromatic plants	3
Cucurbits	39	Oilseeds	71
Fibre Crops	4	Spices	49
Flowers	17	Sugar Crops	1
Fruits	24	Vegetables	60
Legumes	88	Grand Total	592

Highest number of applications is received for Maize (80), Wheat (61) and Rice (53) among cereals; Rapeseed & Mustard(36), Field Pea(25), Chickpea(20), Rose & Barley (17 each), Chilli & Linseed (15 each), Garlic (14), Tomato(13) etc.

Table 4: Total number of applications received (crop-wise)

S.No.	Common Name	Total	S.No.	Common Name	Total	S.No.	Common Name	Total
1	Banana	2	24	Foxtail Millet	1	47	Pigeon pea	11
2	Barley	17	25	Garlic	14	48	Potato	4
3	Barnyard Millet	1	26	Ginger	5	49	Proso Millet	2
4	Bitter Gourd	5	27	Grapes	7	50	Pumpkin	6
5	Black gram	12	28	Green gram	7	51	Rajgeera	1
6	Black pepper	1	29	Groundnut	8	52	Rapeseed (Torja)	29
7	Bottle Gourd	11	30	Indian mustard (Sarso)	7	53	Rice	53
8	Brahmi	1	31	Jute	1	54	Ridge gourd	10

S.No.	Common Name	Total	S.No.	Common Name	Total	S.No.	Common Name	Total
9	Brinjal	5	32	Karanj	1	55	Rose	17
10	Cashew	1	33	Kidney bean	3	56	Safflower	3
11	Castor	3	34	Kodo Millet	1	57	Sesame	1
12	Cauliflower	1	35	Lentil	10	58	Sorghum	5
13	Chickpea	20	36	Linseed	15	59	Soybean	5
14	Chilli	15	37	Litchi	1	60	Sugarcane	1
15	Coriander	12	38	Little Millet	1	61	Taro	4
16	Cucumber	7	39	Maize	80	62	Tetraploid Cotton	2
17	Diploid Cotton	1	40	Menthol mint	1	63	Tomato	13
18	Durum Wheat	3	41	Muskmelon	2	64	Turmeric	9
19	Elephant Foot Yam	1	42	Okra/Lady's Finger	9	65	Vegetable Amaranth	1
20	Faba bean	5	43	Onion	2	67	Watermelon	8
21	Fenugreek	8	44	Papaya	2	68	Wheat	61
22	Fieldpea	25	45	Pear	1	Grand Total		592
23	Finger Millet	9	46	Pearl Millet	1			

Out of 592 applications, 461 applications were filed by farmers and 43 applications were filed by public and 88 by private sectors. Under extant notified category, 39 applications were received and 42 under extant VCK and 50 under new category were also filed for registration

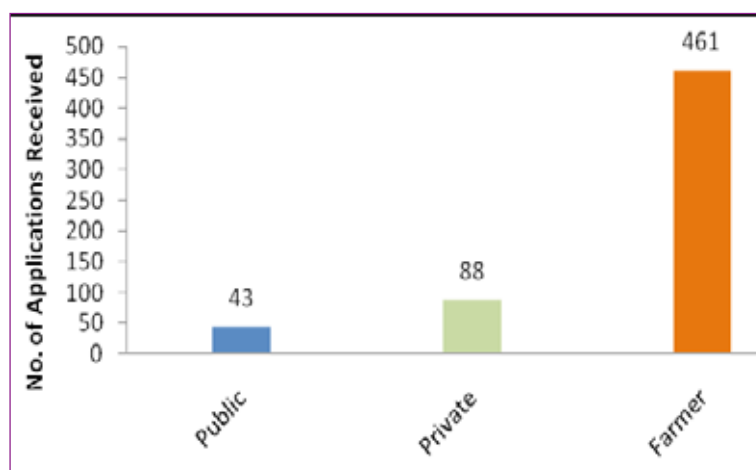


Fig 1: Applications received applicant category-wise during 2018-19

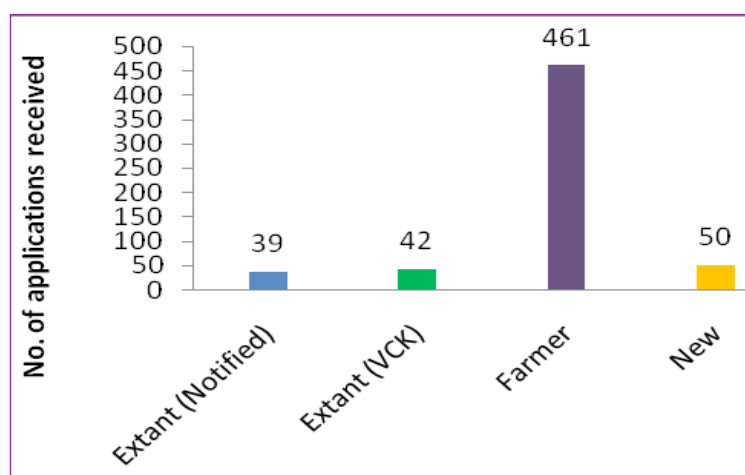


Fig 2: Applications received (2018-19) category-wise

The data on number of applications filed for registration from 2007-08 to 2018-19 reveals that, 654 applications were received when the Authority started accepting applications for registration and maximum (3569) was received during 2016-17 and 592 during the current year under report (Fig 3). Similarly, during 2007-18, applications were received for initially for 12 crop species which went upto 90 crop species in 2016-17 and 67 crop species for the reporting year (Fig 4).

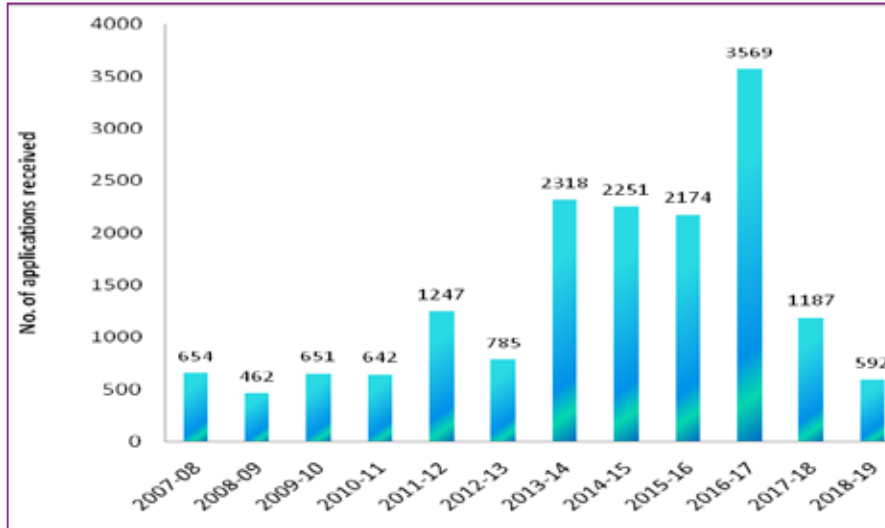


Fig 3: Applications received year-wise (2007-08 to 2018-19)

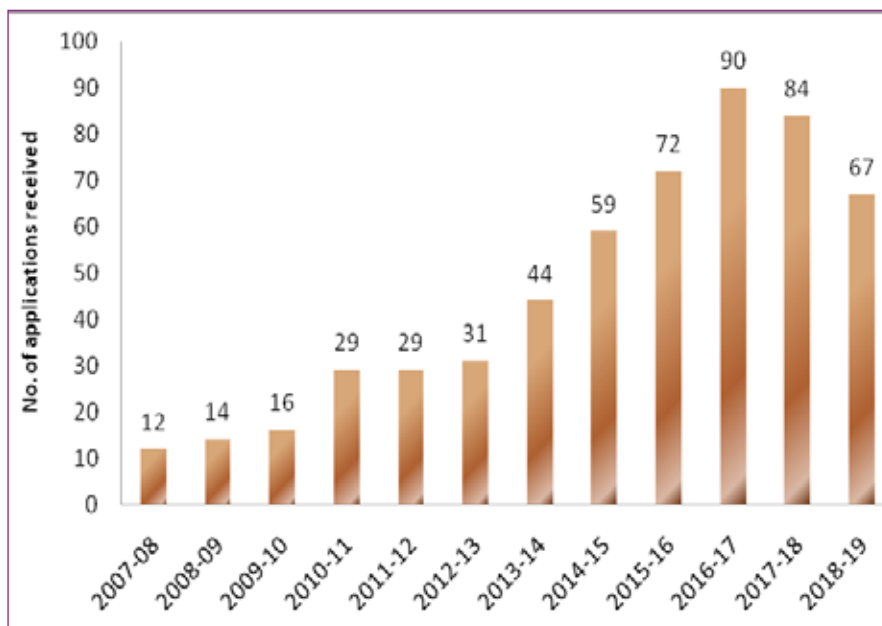


Fig 4: Applications received for number of crops year-wise (2007-08 to 2018-19)

2.3 Progress in registration of varieties

During 2018-19, registration process is completed and certificates were issued for 184 varieties under different crop species (Fig 5 & 6) with maximum number of certificates issued under farmers category(67) followed by new(58), extant VCK (43), extant-notified (16).

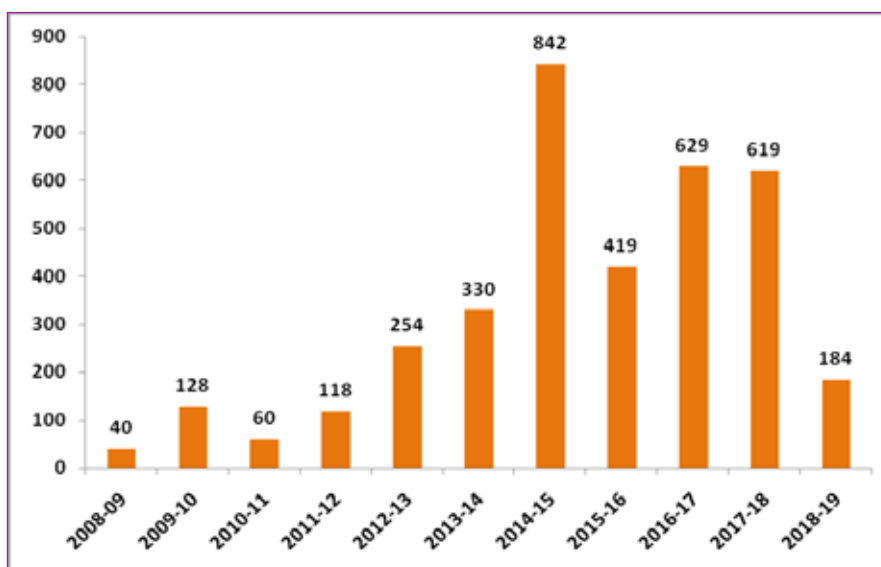


Fig 5: No. of registration certificates issued (2007-17)

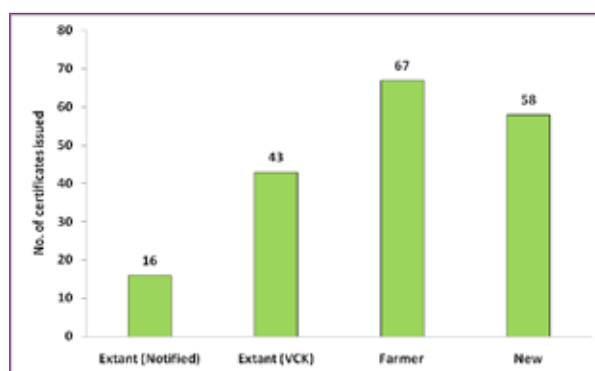


Fig 6: No of registration certificates issued category wise (2018-19)

Similarly, highest number of certificates were issued for cereals (120) followed by fibre crops (43) and vegetables(8).

Table 5: No. of certificates issued crop group-wise (2018-19)

Crop group	No. of certificate issued	Crop group	No. of certificate issued
Cereals	120	Oilseeds	7
Fibre crops	43	Spices	5
		Vegetables	8
Legumes	1	Grand Total	184

Table 6: No. of certificates issued category-wise from 2008-09 to 2018-19

Category	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Grand Total
EDV	0	0	0	0	1	0	0	0	0	0	0	1
Extant (Notified)	40	123	60	98	191	125	213	48	68	83	16	1065
Extant (VCK)	0	0	0	0	25	69	57	63	71	99	43	427
Farmer	0	3	0	0	3	76	461	238	388	361	67	1597
New	0	2	0	20	34	60	111	70	102	76	58	533

2.3.1 Progress in registration certificates issued

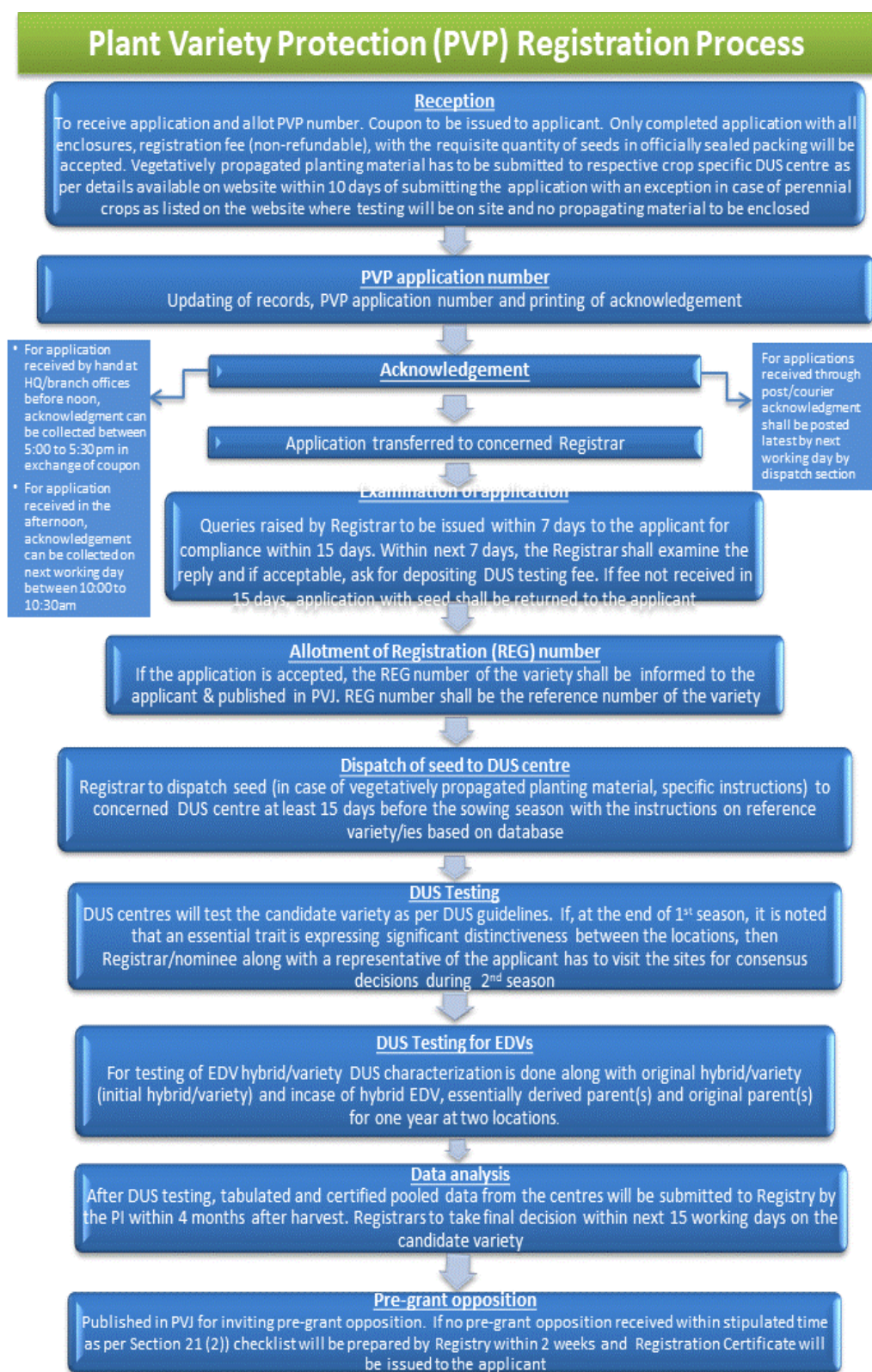
Year-wise and crop group-wise data on number of certificates issued starting from 2008-09 to 2018-19 in the Table 7 shows that, 71.38 % of certificates were issued for cereals (2586) and then to fiber crops (342), oilseeds (246) and least in case of flowers, fruits and plantation crops. The data also depicts that highest number of certificates are issued till 2018-19 is 1597 with farmers' category tops the list with maximum numbers followed by extant notified category (Table 6) as above.

Table 7: No. of certificates issued Year & Crop Group Wise

Crop Group	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Grand Total
Cereals	17	98	42	59	157	208	631	344	471	439	120	2586
Cucurbits	0	0	0	0	0	0	0	1	6	3	0	10
Fibre Crops		5	2	41	37	31	36	18	60	69	43	342
Flowers	0	0	0	0	0	0	0	0	1	0	0	1
Fruits	0	0	0	0	0	0	0	0	2	0	0	2
Legumes	23	25	16	18	34	6	32	7	9	19	1	190
Oilseeds	0	0	0	0	13	58	110	25	14	19	7	246
Plantation crop	0	0	0	0	0	0	6	0	0	0	0	6
Spices	0	0	0	0	1	0	3	1	11	6	5	27
Sugar Crops	0	0	0	0	11	25	1	1	4	6	0	48
Vegetables	0	0	0	0	1	2	23	22	51	58	8	165

2.3.2 Revised procedure for Plant Varieties Protection (w.e.f. 01.09.2018)

Authority has revised the plant variety registration procedure, viz., receipt of application, allotment of PVP no and issue of acknowledgement, examination of applications, allotment of registration no, dispatch of seeds, DUS testing, data analysis and the process related to issue of registration certificates. This was also approved in the 30th meeting of the PPV&FR Authority, held on 13th Nov, 2018. The flow chart is described with legends here below:



Approved on 28.11.2018

2.3.3 List of crop species whose time limit for registration under extant variety notified under Section 5 of Seeds Act, 1966 and extant varieties about which there is common knowledge category have expired

As per the procedure, applications after the date of expiry in that category for these crop species are not accepted. Only applications for new category are being accepted.

S.No.	Crops species	Date of expiry
1	Sugarcane	27.07.2018
2	Ginger	27.07.2018
3	Turmeric	27.07.2018
4	Black Pepper	30.04.2019
5	Small Cardamom	30.04.2019
6	Indian Mustard	30.04.2019
7	Rapeseed	30.04.2019
8	Sunflower	30.04.2019
9	Safflower	30.04.2019
10	Castor	30.04.2019
11	Sesame	30.04.2019
12	Linseed	30.04.2019
13	Groundnut	30.04.2019
14	Soybean	30.04.2019

Chapter 3: DUS Test Centers

3.1 DUS Centers

3.1.1 ICAR-Indian Institute of Rice Research, Hyderabad

DUS testing of 47 new candidate varieties of 2nd year, 33 new candidate varieties of 1st year, 2 VCKs along with 80 Reference varieties and characterization of 387 Farmers varieties and also Paired row test of 134 Farmers varieties with reference varieties were carried out during *khari* 2018-19 at ICAR-Indian Institute of Rice Research, Rajendranagar. DUS characterization of new reference collection of varieties viz DRR Dhan 41, DRR Dhan 42, DRR Dhan 43, DRR Dhan 44, DRR Dhan 45, DRR Dhan 46 was done as per the DUS test guidelines.

Table 8: Details of DUS testing of candidate varieties in 2018-19:

Crops	New		VCK	FV
	1 st year entries	2 nd year entries		
Rice	33	47	2	387

Table 9: Varieties under maintenance/characterized:

Crops	Name or No of varieties under maintenance breeding in 2018-19
Rice	50 varieties under maintenance breeding Characterization of varieties: DRR Dhan 41, DRR Dhan 42, DRR Dhan 43, DRR Dhan 44, DRR Dhan 45 and DRR Dhan 46

Table 10: 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 filed	Certificates issued	Pending applications	Reasons for pendency
Rice	51	25			Nil	

3.1.2 ICAR-Indian Agricultural Research Institute, (Regional Station), Karnal

DUS testing of two candidate varieties *viz.*, NPR-30, NPR-52 and 23 Farmers varieties along with 11 reference varieties were undertaken during *Khari* 2018 at ICAR-Indian Agricultural Research Institute, Regional Station, Karnal.

Ist Year: No CV was under first year trial. Out of 23 FVs; 19 were under 1st year trial/characterization

IInd Year: Two candidate varieties, *viz.*, NPR-30, NPR-52 and four farmers varieties (FVs) *viz.*, (Bhureka 1, Bhureka 2, Chwar Dhan and Gyasu Dhan) along with 11 Reference varieties (RVs) were under 2nd year testing.



Table 10: No of varieties under testing

Crop sp	New		VCK	FV	Date of monitoring
	1 st year entries	2 nd year entries			
Rice	-	02	-	23 (19 FV : 1st year) (04 FV: IInd year)	31-10-2018

Monitoring was undertaken on 31-10-2018 under chairmanship of Dr. V.K. Pandita, Head, IARI Regional Station, Karnal.

Table 11: Varieties under maintenance/characterised: 29 Basmati reference varieties were maintained during Kharif 2018

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2018-19	Source of varieties under maintenance breeding		Maintenance Breeding Data
		own	Others	
Rice	29	Own (9)	BEDF (20)	Data recorded

3.1.3 Assam Agricultural University, Jorhat, Assam

A set of 10 farmers' varieties received and evaluated in 2017-18 were evaluated further in second season during *kharif* season in 2018 along with reference varieties. Observations on DUS characteristics on all the characters were recorded as per the prescribed guidelines. Another set of 2 farmers' varieties received by the centre during 2018-19 were characterized during *kharif* season for grouping and other characters. 13 rice varieties were maintained as well as characterized during *kharif* season for use as reference varieties.



DUS testing of candidate varieties in 2018-19 Varieties under maintenance/characterized:

FV		Mandated Crop Species	Name or No of varieties under maintenance breeding in 2018-19	Source of varieties under maintenance breeding	
1 st year entries	2 nd year entries			own	Others
2	10	Rice	13	10	3



The two farmers' varieties received and evaluated in 2018-19 have been transplanted in DUS test for evaluation along with reference varieties. Seeds of the two varieties along with characterization data have also been sent to the NRRI, Cuttack for 2nd year evaluation.

A total of 71 varieties (60 varieties from PPV&FRA, Guwahati Branch office & 11 varieties from PPV&FRA, New Delhi) received during the reporting period upto 31/3/2019.

3.1.4 Tamil Nadu Agricultural University, Coimbatore

DUS testing for farmer varieties *viz.*, Thombe, Tichin, Bass Zinia and Raktashali received from the PPV & FRA, New Delhi, were carried out along with four reference varieties *viz.*, Improved Samba Mahsuri, Mahsuri, Sampada and Rasi during the year 2018-19. Characterization and maintenance breeding of the following 10 rice varieties *viz.*, Kattuyanam, US 282, Cotton Dora Somalo, GK 5028-3, GK 121, Thanu, MTU 1010, Dula I, BPT 5204 and JGL 11118 were done as per the DUS guidelines.



Table 12: Details of DUS testing of candidate varieties in 2018-19

Crops	New varieties		VCK	FV	Date of monitoring
	1 st year entries	2 nd year entries			
1. Rice	-	-	4	5*	30.11.2018
2. Sunflower	-	-	16	-	-

*One variety 'Ratansagar' recorded nil germination. DUS testing was done for all the other varieties.

Table 13: No of varieties under maintenance

Mandated Crop Species	Name or No. of varieties under maintenance breeding in 2018-19	Source of varieties under maintenance breeding		Data Submission (Maintenance Breeding) Yes/No
		Own	Others (mention)	
Rice	10	Own	-	Yes

Dr. L.V. Subba Rao, Principal Scientist, IIRR, Hyderabad visited the rice crop DUS testing field on 30.11.2018 along with the Director (Seeds) and the Professor and Head, TNAU, Coimbatore. The following comments were made during their visit.

- The layout of the trial was proper as per the DUS guidelines.
- The field was well maintained and the crop performance was also good.
- Documentation of the data was done properly as per the technical guidelines.
- No roguing should be followed and the number of off types observed was reported entry wise.
- The data should be observed in correct stage of the crop.

TNAU, Coimbatore is also co nodal DUS centre for Sunflower. In sunflower, 16 parental lines like ARM-243A, CMS-103A, CMS-17A, CMS-234A, CMS-71A, CMS-851A, CMS-10A (A lines), CMS-17B, CMS-234B, CMS-71B (B lines), 6D-1, AK1R, P61R, R-64NB, RHA-271 and RHA-272 (R lines) received from IIR, Hyderabad were tested and characterized during the year 2018-19.

3.1.4.2 Training cum Awareness programme conducted, publications and other significant achievements

TNAU conducted one training cum awareness programme on “Protection of Plant Varieties and Farmers’ Rights Act, 2001” for the farmers at MYRADA KVK, Gopichettipalayam, Erode District on 05.12.2018. Lectures on “Protection of Plant Varieties and Farmers’ Rights Act, 2001” and “Traditional crop varieties and its conservation” were delivered by University Scientists viz. Dr. R. Jerlin, Professor and Dr. K. Raja, Associate Professor, Department of Seed Science and Technology, Tamil Nadu Agricultural University, Coimbatore during the training programme. About 100 farmers and 50 students were participated in the programme.



3.1.5 ICAR-National Rice Research Institute, Cuttack

DUS testing was carried out in Kharif 2018 which had several unique results. The claimed grouping characters of candidate and VCKs were matched with the claimed character(s) of the breeder. All the the reference varieties which were grown against the candidate varieties and the VCKs fulfilling the claimed characters were conserved in Gene bank. All the morphological and biochemical data were recorded properly and computerized.



Table 14: Details of DUS testing of candidate varieties in 2018-19.

Crop	New		VCK	FV	Date of monitoring
	1 st year entries	2 nd year entries			
Rice	33	50	2	231	09.11.2018

- During the monitoring, Dr. S.A. Desai, Registrar, PPV&FRA suggested to match the candidate varieties with suitable varieties taken in to consideration as reference variety
- As per suggestion all the reference varieties were re-selected and were matched with candidate varieties. Varieties under maintenance/characterized in the DUS center during 2018-19.

Crop	Name or No. of varieties under maintenance breeding in 2018-19
Rice	285

3.1.6 Indira Gandhi Krishi Vishwavidyalaya, Raipur

The centre has one mandated crop Rice and undertakes DUS/Grow out test since last 4-5 years

Table 15: Details of DUS testing of candidate varieties in 2018-19

New		VCK	FV
1 st year entries	2 nd year entries		
394	27	22	421

Dr. L.V. Subba Rao, ICAR-IIRR, Hyderabad and Dr. Ravi Prakash, Registrar, PPV&FRA visited on July 24, 2018 and inspected the newly transplanted plots. As such, no monitoring team visited during crop season. Centre is also maintaining/characterized 421 FVs in Rice.

Table 16: Year wise progress of DUS/Grow out testing

	2014-15	2015-16	2016-17	2017-18	2018-19
Total farmers varieties	145	369	28	392	27
Reference varieties	21	41	21	22	-
	166	410	49	424	27
Total tested varieties	971				

- Total 402 farmers' varieties were received, seeds for 8 varieties did not germinate and 27 other farmers' varieties also received for year 2018-19
- Grow out test were conducted for 394(old) and another 27 farmers varieties with 22 check variety 16 as per DUS guidelines, PPV&FRA. Total 62 characters were recorded. These were characterized and differentiated in to 8 groups viz, basal leaf sheath colour, plant height, days to 50% flowering, Decorticated grain: Length, Decorticated grain: Shape, Decorticated grain: Colour, Endosperm: Content of amylose and Decorticated grain: Aroma
- Out of these 394 entries total 10 farmers varieties were identified as high yielding viz, REG/2017/582, REG/2017/452, REG/2017/1317, REG/2017/2331, REG/2017/275, REG/2017/296, REG/2017/362, REG/2017/435, REG/2017/444, REG/2017/1285.



3.1.6.1 Training cum Awareness programme conducted

District/KVK	Date of Training
Korea	13/02/2018
Ambikapur	15/02/2018

3.1.7 ICAR NEH Manipur

The DUS test material comprised of 7 entries and 5 reference varieties of Rice of North eastern states, obtained from nodal centre. Seven farmer varieties of Rice were again grown for 2nd year trials in randomized complete block design with two replications at research farm, ICAR RC Manipur centre, Imphal, were transplanted during *kharif*, 2018-2019. Each entry was sown in two rows of 4 m length at spacing of 20 cm between rows and 15 cm between plants. Observations have been recorded for 44 morphological characters and 15 post harvest character are recorded on five randomly chosen plants of each genotype per replication. The observation of various characteristics was recorded at different stages of growth with appropriate procedures as per DUS guidelines. Like UPOV, in PPV & FR Act, a variety must fulfill the criteria of Distinctiveness, Uniformity and Stability so as to get protection under this act. Some selective traits were found to be distinct like Basal leaf sheath, Anthocyanin colouration of auricles, Anthocyanin colouration of collar, colour of ligule, Time of heading, Color of stigma, intensity of anthocyanin colour, etc. Out of 7 varieties, 5 were found to be distinct. Entries, viz., Langphou chakhao, Darum phou, Rajen/marjen phou, Kathai phou and Sanayambi phou were found to be distinct and these varieties need to be further revalidated for the benefit of farmers.



3.1.8 ICAR NEH, Nagaland

ICAR Nagaland centre collected ten farmers' varieties and check varieties from for DUS testing from AAU, Jorhat. These ten farmers' varieties are Darum Phou, Rajen or Merjen Phou, Kathai Phou, Wamshu, Khamba Phou, Keshou Phou, Tahnyu, Yamnyak, Phuhah-Tah and Sanayambi Phou.

Reference varieties used were: Mahsuri, Swarna, Luit, Swarna Sub-1, Gitesh, Lachit, Bahdur, Ketkijoha, Manohar Sali, Aghoni bora, Ranjit and RCM-9.

Successful characterization for 62 descriptors in case of ten farmer's varieties along with reference varieties was completed in 2018-19. Data of all ten candidate varieties has been submitted along with data of two reference varieties i.e Swarna and Luit. Centre is maintaining the seeds of all these ten varieties along with ten reference varieties from Assam.

In February, 2019, ICAR NEH Nagaland centre has submitted the seeds of 60 varieties (for their registration under PPV & FRA, New Delhi seeking plant breeder rights.



Table 17: Applications filed with PPV & FRA

Crops	No. of applications filed	Pending applications
Rice	3 (upto 2017)	3
	63 (upto 2019)	63

Centre is planning to collect farmers' variety or land races and want to submit at least 30 land races of rice for registration and certification in 2019-20.

3.1.9 ICAR-Indian Institute of Wheat and Barley Research, Karnal

ICAR-IIWBR, Karnal is mandated for DUS test in all notified species of Wheat and Barley. The salient progress are as follows:

3.1.9.1 Wheat

During crop season 2018-19, 9 candidate varieties (NABIMG10, NABIMG11, NABIMG 12, SRW 111, SW 303, SRW 404, SRW 232, SRW 252 and MALAV 221) and 13 farmers varieties (Bilase, Shoda, Ulochana, Lamhrwan, Surajmani, SKFCN5, Narendra 09, Rituri, Punjab shingar, Superme 1111, Kathia Desi Gehu, Kayadhu N 49 and Bandhan gehua) were tested for DUS . Apart from this 60 farmer's varieties were sown (ear to row) for purification.

Table 18: Entries for DUS testing

Crops	New		VCK	FV	Total
	1 st yr	2 nd yr			
Wheat	MALAV 221 (durum) (private sector)	NABIMG10 NABIMG11 NABIMG12 (all public sector)	SRW 303, SRW 404, SRW 252, SRW 231, SRW 111 (all private sector)	13 + 60	83

In crop season 2017-18, 10 candidate varieties (WHEAT (BLUE), COLORED WHEAT (BLUE-2), COLORED WHEAT (BLUE-3), COLORED WHEAT (PURPLE), COLORED WHEAT (BLACK), NABIMG10, NABIMG11, NABIMG 12, HDCSW 16, HDCSW 18) and 3 Farmers varieties (MOHIT GOLD, SONALI-KAW and GOHOME) under new category were tested against 29 reference varieties in DUS trial. Data of all the test centres viz. Karnal, Indore and Dharwad was compiled, analyzed and submitted to PPV&FR Authority for making decision regarding registration during 2018-19. Besides, 67 farmers' varieties were grown for Grow-out test as well as purification.

3.1.9.2 Barley

A total of 19 farmer's varieties in barley were grown in DUS trial during 2018-19. This includes one farmer variety Bhagat Jau-1 for revalidation in grow-out test. While 16 other farmer's varieties were grown for characterization in grow-out test and two farmer's varieties namely, Laxhmi and Maghe were grown for purification and recording of grouping characters.

Table 19: List of Barley entries

Crops	New	VCK	FV	
	1 st year entries	2 nd year entries	1 st year entries	2 nd year entries
Barley	no entries	no entries	Laxhmi, Maghe	Bhagat Jau-1, Jau Amarwah, Vikarmpur Jwar, Sinhai Jawar, Nimha Jwar, Krishna Jwar, Jwa Nathuram, Jwa Gajendra, Surendra Jawa, Pratap Jawa, Rama Jawa, Paspi, Chikna, Krishna, JAU SURI LOCAL (6-rowed) (GKSS JAU-1), JAU SURI LOCAL (4-rowed) (GKSS JAU-2), JAU SURI LOCAL KALA (6-rowed) (GKSS JAU-3)

A total of 17 barley farmers varieties were tested under DUS trial during 2017-18. One farmer variety Bhagat Jau-1 in grow-out test and 16 farmers' varieties were grown for characterization and recording of grouping characters. 99 reference varieties were also grown for validation of 32 DUS characters. Data was compiled, analyzed and submitted to PPV&FR Authority in 2018-19.

3.1.9.3 Reference and example varieties maintained at IIWBR

In wheat, 122 example varieties beside 427 reference collection of released varieties are being maintained at IIWBR, Karnal. In Barley 100 reference varieties were maintained for validation of 32 DUS characters.

3.1.9.4 DUS test monitoring

The monitoring of Wheat and Barley DUS trials was carried out under the Chairmanship of Dr. SMS Tomar, Former PS, Genetic Division, IARI, New Delhi along with Dr. TK Nagarathna, Registrar PPV&FRA, New Delhi, Dr Arun Gupta, Nodal officer (DUS Wheat), Dr. Vishnu Kumar (Nodal officer DUS Barley) and Dr. Charan Singh, Co Nodal Officer (DUS Wheat) on 30.03.2019. Wheat and barley crops were in the early dough stage and most of the candidate varieties in DUS trials expressed the claimed characteristics at the time of monitoring and observations were recorded accordingly. The plots were laid out as per PPV&FRA guidelines. Candidate varieties were grown side by side to reference varieties for comparison.



Other information

IIWBR conducted one day Awareness Programme on “*Protection of Plant Varieties & Farmer's Right Act*” at Igoo village, Leh on Sep. 6th, 2018. A total of 71 participants attended the programme.

3.1.9.5 Registration of varieties with the PPV&VFRA

Four wheat varieties *i.e.*, HS 490, MPO 1215, HW 1098, and CoW 2 were registered by the PPV&FRA under extant category vide registration number 71, 76, 176 and 178 of 2018 respectively. Registration proposal of DBW 168 (extant category) and DBW 173 (New category) in Wheat and DWRB 123 and DWRB 137 (both in extant category) in Barley were submitted to the PPV&FRA, New Delhi seeking protection under PPV&FR Act, 2001.

3.1.10 ICAR-Indian Institute of Maize Research, New Delhi

During the reporting period the following candidate varieties were tested at DUS centres maize. PJTSAU, Hyderabad acted as a collaborating centre.

**Table 20:** No of maize entries for DUS testing

Maize	New Entries under Testing		VCK	Farmer's Varieties	Date of monitoring
	Inbred Lines	Hybrids			
	1 st Year	2 nd Year			
Hybrid	14	21	05	43	16.09.2018
Inbred	08	22	00		
Total	22	43	05		

3.1.11 ICAR-Indian Institute of Millets Research (Sorghum), Hyderabad

During *kharif* 2018, one candidate variety (Palamuru Jonna) was tested for DUS traits along with two reference varieties under 2nd year testing. The crop growth and expression of DUS traits was very good during the season. Under 1st year trial, ten farmers' varieties were planted for characterization along with one reference variety. All these farmers' varieties were found to be *rabi* season adapted, very late and there was no proper flowering. Hence, these farmers' varieties were planted again for characterization during *rabi* 2018-19. During *rabi*, under 2nd year testing 41 farmers' varieties were tested along with five reference varieties.

Out of 41 farmers' varieties, nine were having loose panicles and resembled fodder sorghum, while remaining were grain types. Some of the farmers' varieties were very similar in morphological appearance viz., Jwat Katki, Chhoti Jwar Suthiya, Jwar Uky, Jwar Uky Maharsa, Jwar Gajar, Jwar Mehtap and Jwar Santlal. Similarly, some of the forage types also (Malagar, Jhalri Sunil, Bichhua Jwar Sampat, Jwar Ganpat, Jhalari Chak and Jhalari Jhajhar) were morphologically looking alike for plant height and panicle type.



Table 21: No. of varieties for DUS testing

Crops	New		VCK	FV
	1 st year entries	2 nd year entries		
<i>Kharif</i> 2018	-	1	-	10*
<i>Rabi</i> 2018-19	-	-	-	41

(*proper expression were not found during *kharif* season, so planted and characterized during *Rabi* 2018-19)

Monitoring of *Rabi* 2018-19 trials was undertaken on 24th January 2019 under the chairmanship of Dr. T. Pradeep, Former Dir. of Research, PJTSAU, Hyderabad. Members of the committee were Dr. TK Nagarathna, Registrar, PPV&FR Authority; Dr. Hariprasanna K, Principal Scientist (Plant Breeding) & PI, IIMR; Dr. VR Shelar, Seed Research Officer, MPKV, Rahuri; Dr. Amasiddha B, Scientist (Plant Breeding) and Dr. Deepika C, Scientist (Plant Breeding), IIMR.

**Table 22:** List of reference and example varieties maintained

Sl.No.	Reference variety	Sl.No.	Reference variety	Sl.No.	Reference variety
1	C 43	31	Phule Maulee	61	104B
2	CSV 7R	32	Phule Uttara	62	IC 568477
3	CSV 8R	33	Phule Amruta	63	IS 18541
4	CSV 10	34	Phule Revathi	64	IS 40107
5	CSV 12R	35	Phule Vasudha	65	IS 3920
6	CSV 13	36	Phule Madhur	66	IS 3828
7	CSV 14R	37	Phule Panchami	67	IS 2806
8	CSV 18	38	Phule Rohini	68	IS 965
9	CSV 15R	39	Phule Suchitra	69	IS 1025
10	CSV 20R	40	Parbhani Moti	70	IS 1067
11	CSV 22	41	PSV 56	71	IS 11
12	CSV 24SS	42	RS 585	72	IS 12
13	CSV 26R	43	Selection 3	73	IS 37
14	CSV 29R	44	SSV 74	74	IS 25040
15	CSV 216R	45	SSV 84	75	IS 62
16	CSV 33MF	46	Surat 1	76	IS 3457
17	DSV 5	47	Swathi	77	IS 3589
18	HC 171	48	Bagdal PeeliJawar	78	IS 22361
19	M 35-1	49	Mogal Goal Jawar	79	IS 67
20	Man T 1	50	BarsiJawar	80	IS 74
21	MR 750	51	Kodamurka Jola	81	IS 1079
22	NTJ 3	52	Afzapur Local	82	IS 158
23	PKV Kranti	53	Rampur Local	83	IS 190
24	Pant Chari 3	54	2077 A	84	IS 60
25	Pant Chari 4	55	2077 B	85	IS 170

Sl.No.	Reference variety	Sl.No.	Reference variety	Sl.No.	Reference variety
26	Pant Chari 5	56	ICS 38A	86	IS 206
27	Pant Chari 6	57	ICS 38B	87	IS 3076
28	Parbhani Dagadi	58	PMS 28 A	88	IS 10284
29	Phule Anuradha	59	PMS 28B	89	IS 19303
30	Phule Chitra	60	104 A	90	IS 1481

3.1.12 Mahatma Phule Krishi Viswa Vidyalaya, Rahuri

In case of Cotton, five candidate varieties for first year and four candidate varieties for second year and one entries in VCK and FVs were tested for DUS. Seventy seven reference varieties received from Nodal officer, CICR, Coimbatore have been maintained at this centre.

Table 23: List of entries for DUS testing

Sr. No.	Entries in 1st year trial entries(New)	Entries in 2nd year trial entries(New)	Entry in extant category
1.	Phule Asmita	Bio GHY-60-2BG-II	RC 380(VCK)
2.	Phule Tarang	Bio 1678ID-212 BG II	
3.	Phule Dhara	Bio 512412 GG-II	
4.	PSCP-38 BG -I	PRCH-721 Bt	
5.	PSCP-33 BG-I		

Table 24: Varieties under maintenance/characterized

Mandated Crop Species	No of varieties and Source under maintenance breeding in 2018-19
Cotton	77 reference varieties received from Nodal officer, CICR, Coimbatore have been maintained in the centre.

Table 25: Applications filed with PPV&FRA

Crops	No of Var notified by the center Since 1999	No of applications filed	Certificates issued
Cotton	12	4(Extant) 6(VCK)	Phule-49, Phule-388, Phule-688, JLA-794, Phule Dhanwantary, Phule Anmol

3.1.13 ICAR-CICR, Nagpur

Table 26: Details of DUS testing of candidate varieties in 2018-19

Crop sp	New		VCK	FV	Date of monitoring
	1 st year entries	2 nd year entries			
1	5	4	1	-	Not held

The trials for 2018-19 included five genotypes under first year testing, four under second year testing, one under varieties of common knowledge, along with reference varieties. The spacing and plant population was maintained as per the DUS Test guidelines. The recorded observations of plant, flower, boll, lint and seed characters have been compiled and sent to the Nodal Officer at ICAR-CICR Regional Station, Coimbatore. There were few novel traits which clearly distinguished some of the varieties under first year trial. These include distinct and prominent boll tip,, longer peduncle and enlarged bracts . One of the candidate variety was found distinct by having unique green seed fuzz



color. The observation for distinct traits during second season entries were compared with those recorded in the previous year and found stable. The cleistogamy and double petaloidy observed in the reference varieties of previous year were not found stable during the current year.

Table 27: Varieties under maintenance/characterized:

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2018-19	Source of varieties under maintenance breeding own Others(mention)	Data Submission (Maintenance Breeding)
Cotton	31 varieties: <i>G. hirsutum</i> 2 varieties: <i>G. barbadense</i> 24 varieties: <i>G. arboreum</i>	Others	Data not yet submitted

Thirty one *G. hirsutum* varieties, two *G. barbadense* varieties and twenty four *G. arboreum* varieties have been characterized and are being maintained by selfing. To reduce the labour involved with selfing each flower, mosquito nets were utilized to enclose few true to type plants for their maintenance. The 24 varieties of *G. arboreum* are also being multiplied and 500gm selfed seed is available in each variety.

Sh R.S. Sengar, Deputy Registrar, PPV&FRA, New Delhi along with Shri. Kantesh Kamble, Research Associate

undertook visit to DUS Test plot of ICAR-CICR, Nagpur on 24.11.2018. He expressed his satisfaction with field maintenance and trait expression.



3.1.14 PAU Regional Station, Bhatinda

Table 28: Details of DUS testing of candidate varieties in 2018-19

Crop sp	New		VCK	FV	Date of monitoring
	1 st year entries	2 nd year entries			
Cotton	No entry was under testing during 2018-19				

Table 29: Varieties under maintenance/characterised:

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2018-19	Source of varieties under maintenance breeding	Maintenance Breeding
<i>G. hirsutum</i>	Badnawar 1 (H), MCU 5 Abadhita, JK 4, JLH 168 AKA 7, Veena, GSHV 112 L 604, PKV Rajat	Others	Maintenance breeding data submitted

3.1.15 ICAR-Indian Institute of Horticultural Research (Vegetable Crops), Bengaluru

Table 30: No. of varieties for DUS testing

Crops	Candidate/New Varieties		VCK	FV	Reference Varieties	Date of monitoring
	1 st year entries	2 nd year entries				
Tomato	6	9	0	9	18	12-03-2019
Brinjal	0	1	0	20	14	12-03-2019
Okra	-	6	2	5	7	29-10-2018
Cucumber	-	-	5	-	4	23-04-2019
Bitter Gourd	12		0	0	8	25-04-2018
Bottle Gourd	6		0	23	6	25-04-2018
Pumpkin	0	0	0	7	9	12-03-2019

Tomato: A total of 6 new/candidate varieties (1st season) and 9 farmers varieties (2nd season), 9 new/candidate varieties (2nd season) and 18 references varieties had been raised for conducting of DUS Test of Tomato. Monitoring of the DUS entries was conducted on 12.03.2018.



Brinjal: Total of 34 Reference varieties of brinjal were raised for maintenance breeding and seeds multiplication. 1 new/candidate varieties (2nd season) and 20 farmers varieties (2nd season) and 14 references varieties 4 farmers varieties (1st season) were raised for conducting of DUS testing and DUS test monitoring meeting was conducted on 12.03.2018.



Okra: 6 new, 2 VCK, 5 Farmer's varieties and 7 reference varieties okra were raised for conducting DUS test in okra and DUS test monitoring was conducted on 29th October, 2018.

Cucumber: 5 VCK and 4 Reference varieties were characterized as per the DUS guide lines.

Bitter gourd: 12 bitter gourd new entries along with 8 reference varieties were raised for conduct of DUS Testing.



They have been characterized for 31 morphological characters as per DUS test guidelines. DUS Test Monitoring was conducted on 25.4.2018.



Bottle gourd: 6 bottle gourd new entries along with 6 reference varieties have been raised for conduct of DUS Testing. They have been characterized for 31 morphological characters as per DUS test guidelines. DUS Test Monitoring was conducted on 12.03.2019.



Pumpkin: Seven farmers varieties along with nine reference varieties had been raised for conduct of DUS Test. Among the seven farmer's varieties, only four varieties were selected for testing based on germination and segregation during the initial trial previous year. Monitoring was conducted on 12/3/2019.

Table 31: No. of reference & example varieties maintained at the centre

Crops	Reference Varieties	Crops	Reference Varieties
Tomato	18	Cucumber	4
Brinjal	34	Bitter Gourd	8
Okra	7	Bottle Gourd	6
Pumpkin	9		

3.1.15.1 Divn of Vegetables, ICAR-IIHR, Bengaluru

The centre is also responsible for 3 crop species in Vegetable Amaranth, Palak and Ridge gourd. Eight entries of farmers varieties of Ridge gourd received from PPV&FRA were sown during Rabi season of 2017-18. Out of which 3 entries were found to be sponge gourd and the seeds were returned to the Authority as DUS test guidelines for sponge gourd were not available. Data has been recorded on five grouping characters like fruit length, fruit diameter, fruit shape, fruit skin color, fruit ridge shape and number of lobes from the remaining five entries. Out of five entries, the expression of four entries was uniform viz. REG /2017/408, REG /2017/409, REG /2017/546 and REG /2017/1005. The remaining one entry, REG/2017/416 segregated for fruit shape and 30% variation was recorded. However, as per the DUS



guidelines only 1% variation is allowed for new varieties and 2% for Farmers varieties. Hence, this entry did not meet the criteria for uniformity to take up further DUS testing. Report to this effect was sent to the PPV&FRA also. DUS test plot of 4 new entries and 4 farmers varieties has been raised during summer, once the crop attain fruit maturity stage, DUS test monitoring will be conducted. Another set of ten farmers varieties received during the year were raised for uniformity testing this year.



Monitoring of the Uniformity trial was done on 25.4.2018 and Dr. O.P.Dutta, Former Head, Division of Vegetable Crops, ICAR-IIHR, Bengaluru and Dr. T. K. Nagararathna, Registrar was the representative from PPV&FRA, New Delhi.

3.1.16 ICAR-AICRP- Indian Institute of Pulses Research (Chickpea), Kanpur

During 2018-19 *rabi* season, 40 chickpea farmers varieties were tested for 20 DUS traits. These includes 32 farmers varieties for 2nd year testing (e.g., Deshi Rajendra, Choti Gulabi, Khajiya Dhana, Khurhara Devra, Kala Chana, Kusum Chana, Khajua, Ram Chana, Jhokhu Khurpura, Haluka, Safeda, Khurhar, Vati Chana, Raj Chana, Maru Chana, Ram Chana, Bichhua Chana, Chana Kanhaiya, Chana Sipatiya Rang, Chana Kaliram, Chana Minsi, Chana Dongariya, Mohan Tendni Chana, Shivpal Chana, Somnath Tendni Chhota Chana, Gulabi Jalegaon, Chota Chana Brajbhan, Deeru Chana, Varpani Chana, Usari Chana, Tika Chani and Potmi-Ch) and 8 farmers varieties for 1st year testing (UJALA CH-3, RUNA CH-2, LAUNA CH-1, ANANDI-01, Prahladu-CH, Raju-C2, Suni-ek and RUNNA CHANNA). Off types were observed in two farmer's varieties *viz.*, Shivpal Chana, Somnath Tendni Chhota Chana and two farmer's varieties Prahladu-CH and RAJU-C2 failed to germinate. Centre is maintaining 145 reference varieties in Chick pea.

3.1.17 JNKVV, Jabalpur, Madhya Pradesh

The Lead DUS testing centre JNKVV, Jabalpur carried out maintenance breeding of 28 Linseed, 16 Lentil and 28 Field pea varieties and maintained as reference/example varieties. During the year total 03 Linseed, 07 Lentil and 02 Field Pea were tested and data recorded and submitted to the Authority. ICAR-IIPR, Kanpur, Uttar Pradesh acted as collaborating DUS centre has maintained 63 example/reference varieties and characterized 25 linseed farmers varieties. These includes 22



candidate farmers varieties for 2nd year testing (Alsi Naudhiya, Chikti Babu, Betal, Rahili, Sulheda Khela, Lenki Zamuna, Alsi Dongariya Utaira, Alsi Takhla, Shailwar Alsi, Alsi Uttam, Mulapara Alsi, Alsi Saritra, Karkeli Alsi, Alsi Prem, Alsi Jale Pandre, Theese, Amrit, Kaljan, Alish, Govind, Bamundiha- Li and Dhabh Tisi) and 3 farmers varieties for 1st year testing (Bhagwatpur Tisiwa, Sakhri and Tisi).

3.1.18 ICAR-VPKAS, Almora

Centre is responsible for 6 crop species: DUS testing, maintenance and characterisation of reference varieties. The progress in DUS testing is as follows:

Sl. No.	Crops	No. of FVs tested during 2018-19
	Soybean	2
	Kidney bean	4
	Maize	24
	Finger millet	7
	Barnyard millet	2
	Foxtail millet	1

Maintenance breeding of 90 reference varieties of soybean and 11 of kidney bean is being done at ICAR-VPKAs, Almora centre. Farmer's varieties (FVs) in kidney bean (Reg/2018/1859, Reg/2018/2137, 2138, 2182), soybean (Reg/2018/1708 & 1709), Maize (Reg/2018/190, 202, 204, 222, 197, 195, Reg/2018/198, 199, 200, Reg/2018/209, 207, 211, 203, 212, 216, 217, 213, 221, 214, 185, 188, 189, 192 & 193) finger millet (Reg/2017/1690, 1691, 1692, 1693, 1694, 1695 & 1696), barnyard millet (Reg/2017/1697 & 1698) and foxtail millet (Reg/2017/1699) were raised for grow out test and characterized for DUS traits as per national guidelines for the conduct of test for DUS in respective crops.



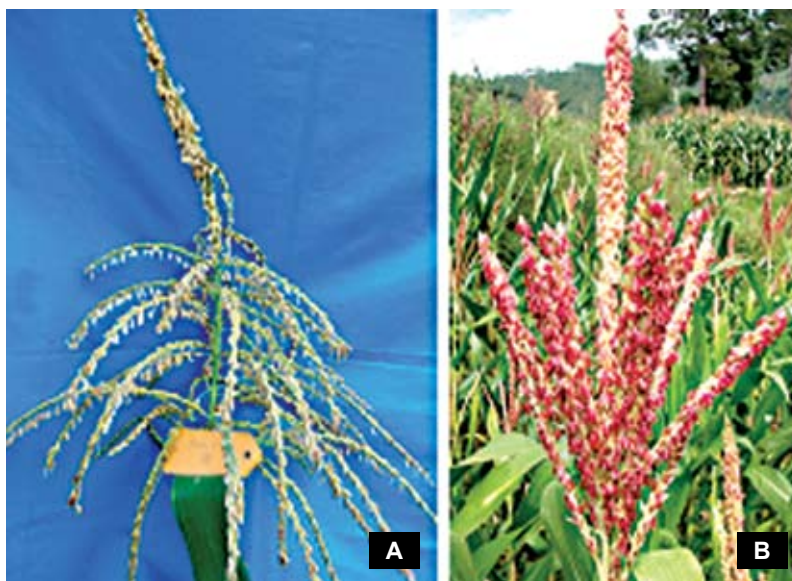
3.1.18.1 Major Research Achievements

Table 32: Yearwise achievements

Year	Crop Name	Number of lines/ varieties evaluated Under DUS/GOT
2018	Kidney bean	6 (4 candidate + 2 references)
	Maize	26 (24 candidate + 2 references)
	Soybean	4 (2 candidate + 2 references)
	Barnyard millet	3 (2 candidate + 1 references)
	Finger millet	9 (7 candidate + 2 references)
	Foxtail millet	1 (1 candidate)
	Soybean	95 (Maintenance)
	Rajmash	11 (Maintenance)

3.1.18.2 DUS/GOT trials

Maize: Twenty four farmers' varieties *viz.*, Reg/2018/190, 202, 204, 222, 197, 195, 198, 199, 200, 209, 207, 211, 203, 212, 216, 217, 213, 221, 214, 185, 188, 189, 192 & 193) finger millet (Reg/2017/1690, 1691, 1692, Reg/2017/1693, 1694, 1695 & 1696 along with two reference varieties *viz.*, Vivek QPM-9 and Vivek Maize Hybrid 53 were raised for grow out test (1st year of testing) and characterized for DUS traits as per national guidelines for the conduct of test for DUS on maize.



Tassel: Anthocyanin colouration of anthers (a) Absent (b) Present



Ear: Anthocyanin colouration of silk (a) Absent (b) Present

Kidney bean: Four farmers' varieties *viz.*, Reg/2018/1859, Reg/2018/2137, Reg/2018/2138 & Reg/2018/2182 along with two reference varieties *viz.*, IPR-98-5 & IPR 96-4 were raised for grow out test (1st year of testing) and characterized for 22 DUS traits as per national guidelines for the conduct of test for DUS on kidney bean.



Fig. 3. Seed: Testa variegation: (a) Absent (b) Present

Soybean: Two farmers' varieties of black soybean viz., Reg/2017/1708 and Reg/2017/1709 along with two reference varieties viz., VL Bhat 201 and VL Soya 65 were raised for grow out test (1st year of testing) and characterized for 22 DUS traits as per national guidelines for the conduct of test for DUS on Soybean.

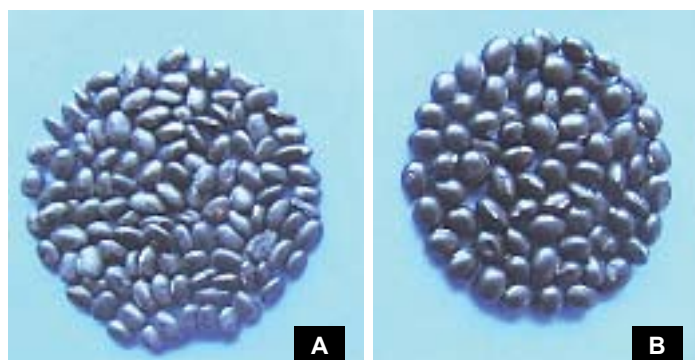


Fig. 4: Seed: Size (a) Small ($\leq 10\text{g}/100$ seed) (b) Large ($> 13\text{g}/100$ seed)

Millets: Seven farmers' varieties of finger millet along with reference varieties VL Mandua 376 and VL Mandua 379; 2 farmers' varieties of barnyard millet viz., Reg/2017/1697 and Reg/2017/1698 along with reference variety VL Madira 207 and 1 foxtail farmers' variety Reg/2017/1699 were raised for grow out test (1st year of testing) and characterized for DUS traits as per national guidelines for the conduct of test for DUS on respective crops.



Fig. 5: Field view farmers' varieties (a) Barnyard millet (b) Foxtail millet

At ICAR-VPKAS, Almora maintenance of soybean and kidney bean reference varieties was carried out during *Kharif* 2018-19. The list of the varieties under maintenance is given below.

Table 33: Reference varieties under maintenance at ICAR-VPKAS, Almora

Crop Species	Source of Varieties	Name of the varieties
Soybean	ICAR	12 (DS 228, DS 97-12, Pusa 16, Pusa 20, Pusa 22, Pusa 24, Pusa 37, Pusa 40, NRC 2, NRC 7, NRC 12, NRC 37)
	Own	7 (VL Soya 1, VL Soya 2, VL Soya 21, VL Soya 47, VL Soya 59, VL Soya 63, VL Baht 201, VL Soya 77, VL Soya 65 and VL Soya 89)
	Others (specify)	76 (ADT1, Alankar, Ankur, Birsa Soya 1, Bragg, CO 1, CO 3, CO Soya 2, Durga, Gujrat Soya 1, Gujrat Soya 2, Gaurav, Hara Soya, Hardee, Improved Pelican, Indira Soya 9, JS 2, JS 71-05, JS 75-46, JS 76-205, JS 79-81, JS 80-21, JS 90-41, JS 93-05, JS 95-60, JS 97-52, JS 335, KB 79, KHSB 2, Kalitur, Lee, LSB 1, MACS 13, MACS 57, MACS 58, MACS 124, MACS 450, MAUS 1, MAUS 2, MAUS 32, MAUS 47, MAUS 61, MAUS 61-2, MAUS 71, MAUS 81, Monetta, Palam Soya, PK 262, PK 308, PK 327, PK 471, PK 416, PK 472, PS 564, PS 1024, PS 1029, PS 1042, PS 1092, PS 1241, PS 1347, PS1368, Punjab 1, RAUS 5, Shilageet, Shivalik, SL 96, SL 295, SL 525, SL 688, TAMS 38, TAMS 98 and Type 49),
Rajmash	ICAR	IVFB 1, Arka Anoop, Arka Komal, Suridha & PDR 14
	Own	VL Rajma 63 and VL Rajma 125
	Others	HUR 15, HUR 137, HUR 203 and HUR 35

3.1.19 ICAR-Central Research Institute for Jute and Allied Fibers, Barrackpore & CSRSJAF, Bud Bud Burdwan, WB

Table 34: Varieties under maintenance/characterised

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2018-19	Source of varieties under maintenance breeding		Data Submission (Maintenance Breeding) Yes/No
		own	Others (mention)	
1) <i>Corchorus olitorius</i>	30 varieties	22	8 (SAUs & BARC)	Yes
2) <i>Corchorus capsularis</i>	19 varieties	13	6 (SAUs)	Yes

Salient Achievements: During 2018-19, no candidate varieties were tested for DUS. Reference collections of both *Corchorus olitorius* (30 varieties) and *Corchorus capsularis* (19 varieties) have been maintained through plant to progeny row method. Database of reference collections have been prepared taking observations during the maintenance of reference collection.

Table 35: Applications filed with PPV&FRA

Crops	No. of Var notified by the center Since 1966	No. of Var notified by the center Since 1999	No of applications filed Extant			Certificates issued	Pending applications
			Notified	New	VCK		
<i>C. olitorius</i>	15	10	9	5	---	7	1
<i>C. capsularis</i>	11	8	7	3	---	6	-

3.1.20 ICAR-Indian Institute of Vegetable Research, Varanasi

IIVR, Varanasi is the lead centre for DUS testing in 8 vegetable crop species. Salient achievements are as follows:

Table 36: Crop wise detail of candidate varieties for DUS testing (2018-19)

Type of variety	New		VCK	FV	Total
	1st year	2 nd year			
Bitter gourd	12	-	-	-	12
Cucumber	-	-	-	1	1
Pumpkin	-	-	-	7	7
Bottle gourd	6	-	-	23	29
Okra	1	6	1	5	13
Cabbage	-	2	-	-	2
Brinjal	-	1	-	6	7
Tomato	6	9	-	-	15
Total	25	18	1	42	86

3.1.20.2 No. of reference & example varieties maintained at the centre and details of DUS testing

The reference varieties of tomato, brinjal, okra, cauliflower, cabbage, vegetable pea, French bean, cucumber, bitter gourd, bottle gourd, pumpkin and pointed gourd were collected from different ICAR institute and SAUs are being maintained at IIVR, Varanasi.

Table 37: Crop wise details of reference varieties maintained and characterized.

Crops	No. of reference variety	Crops	No. of reference variety
Tomato	90	Cucumber	24
Brinjal	86	Bitter gourd	25
Okra	42	Bottle gourd	31
Cauliflower	03	Pumpkin	24
Cabbage	02	Pointed gourd	21
Vegetable Pea	42	French Bean	26
Total	416		

Bitter Gourd: A total 12 new entries of bitter gourd have been observed for claimed and grouping characters along with 6 similar reference varieties.

Cucumber: Only one farmer variety of cucumber has been observed for grouping characters with a similar reference variety Pant Kheera-1.



Pumpkin: A total 7 Farmer's Varieties of pumpkin have been observed for claimed and grouping characters. Among the evaluated farmer's variety, seeds of two varieties did not germinate, fruit were absent in three varieties due to highly infection of virus and two varieties had variation in fruit shape, size and colour.

Bottle gourd: A total 29 varieties received including six new entries and 23 farmer's varieties have been observed for claimed and grouping characters. Among 23 farmer's varieties two entries were not germinated, eight entries had no fruiting (it may be due to photoperiod and thermosensitivity) and four entries were observed for mixing in their population. Remaining entries of FV perform well. All the candidate varieties of bottle gourd were tested along with 8 similar reference varieties.





Okra: A total 13 entries including 6 entries of 2nd year and 7 entries of 1st year (one new variety, one VCK and 5 farmer's varieties) have been observed for claimed and grouping characters. Among the farmer's, one variety had variation, seeds of one did not germinate and one farmer variety 'Lalan Bhindi' had no flowering and fruiting till end of the crop. All the candidate varieties of okra were tested along with 9 similar reference varieties.

Cabbage: Two entries of 2nd year have been observed for claimed and grouping characters along with four similar references.



Brinjal: A total seven entries including one entry of 2nd year and 6 FV of New Year were received and observed for claimed and grouping characters. Among the six FV, two did not germinate and one variety 'Kali' had variation in fruit shape, size and maturity date, while, fruits of 'Surla' variety had pointed blossom end. All the candidate varieties of brinjal were tested along with 5 similar reference varieties.

Tomato: A total 15 entries including 9 entries of 2nd year and 6 entries of 1st year have been observed for claimed and grouping characters. Three entries viz., 'Abhirang', 'Garv' and 'Ansal' were expressed a special character like 'pointed' at blossom end of their fruit in a branch but this 'pointed' character was absent in other branch of same plant. All the candidate varieties of tomato were tested along with 12 similar reference varieties.



Table 38: Eight vegetable crops have been monitored for DUS testing during 2018-19

Name of crops	Date of monitoring	Committee members
Bitter gourd	02.06.2018	Chairman: Dr. A.N. Maurya, Ex-Director, IAS, BHU, Varanasi Committee members: Dr. B. Singh, Director & Nodal Officer, Dr. S. Pandey & Dr. T. Chaubey, Co-Nodal Officer, ICAR-IIVR, Varanasi.
Cucumber	02.06.2018	Chairman: Dr. A.N. Maurya, Ex-Director, IAS, BHU, Varanasi Committee members: Dr. B. Singh, Director & Nodal Officer, Dr. S. Pandey & Dr. T. Chaubey, Co-Nodal Officer, ICAR-IIVR, Varanasi.
Pumpkin	02.06.2018	Chairman: Dr. A.N. Maurya, Ex-Director, IAS, BHU, Varanasi Committee members: Dr. B. Singh, Director & Nodal Officer, Dr. S. Pandey & Dr. T. Chaubey, Co-Nodal Officer, ICAR-IIVR, Varanasi.
Bottle gourd	26.06.2018	Chairman: Dr. A.N. Maurya, Ex-Director, IAS, BHU, Varanasi Committee members: Dr. B. Singh, Director & Nodal Officer, Dr. S. Pandey & Dr. T. Chaubey, Co-Nodal Officer, ICAR-IIVR, Varanasi and a representative of Bioseed Research India, Hyderabad
Okra	22.09.2018	Chairman: Dr. S.K. Pandey, Ex-Director, ICAR-CPRI, Shimla, H.P. Committee members: Dr. B. Singh, Director & Nodal Officer, Dr. S. Pandey & Dr. T. Chaubey, Co-Nodal Officer, ICAR-IIVR, Varanasi and Dr. T.K. Nagarathna, Registrar as a representative of PPV&FRA, New Delhi
Cabbage	12.02.2019	Chairman: Dr. B. Singh, Director & Nodal Officer, ICAR-IIVR, Varanasi, U.P. Committee members: Dr. S. Pandey & Dr. T. Chaubey, Co-Nodal Officer, ICAR-IIVR, Varanasi
Brinjal	25.03.2019	Chairman: Dr. A.N. Maurya, Ex-Director, IAS, BHU, Varanasi, U.P. Committee members: Dr. S. Pandey (Nodal Officer), Dr. T. Chaubey (Co-Nodal Officer), Dr. S.K. Verma PC (I/c), AICRP-VC, ICAR-IIVR, Varanasi and Dr. T.K. Nagarathna, Registrar as a representative of PPV&FRA, New Delhi
Tomato	25.03.2019	Chairman: Dr. A.N. Maurya, Ex-Director, IAS, BHU, Varanasi, U.P. Committee members: Dr. S. Pandey (Nodal Officer), Dr. T. Chaubey (Co-Nodal Officer), Dr. S.K. Verma PC (I/c), AICRP-VC, ICAR-IIVR, Varanasi and Dr. T.K. Nagarathna, Registrar as a representative of PPV&FRA, New Delhi

3.1.21 ICAR-CITH, Srinagar

ICAR- CITH, Srinagar is the DUS testing centre for testing of various temperate horticulture fruits and nuts. During the year centre has maintained total 159 reference varieties of temperate horticultural crops like apple (50), pear (20), peach (21), plum (13), apricot (18), cherry (10), almond (10) and walnut (17) were characterized as per DUS descriptor. On-site data of 05 new varieties of walnut, 01 farmer's variety of walnut and 30 farmers' varieties of apricot were monitored, validated and recommended for processing at PPV&FRA, New Delhi.

3.1.22 ICAR-NRC Grapes, Pune

3.1.22.1 On-site DUS testing of Grapes in Kargil region

Total five candidate varieties were evaluated for on-site DUS testing during the year. Among these four were from Kargil (Jammu & Kashmir) which included Margun, Bargun, Rukuchan and Churgun. One candidate variety (New Sonaka) was from Solapur Maharashtra. The on-



site DUS testing of Kargil entries was conducted on 6th September, 2018. All of these entries had only single vine grown on the tree. These vines had naturally grown berries (untreated with any plant growth regulator, as in case of seedless grape varieties commercially grown in plains). Not much infestation/incidence of disease/insects were recorded during the testing. Only symptoms of hen and chicken was observed in few bunches. All the entries were more than 30 years old and trunk were grown like a tree. Bunch was naturally loose, which is one of the commercially desirable characters. As Kargil is a temperate zone of India, only one pruning and one harvest is carried out. The vines undergo dormancy during the winters and growth starts from the march and fruit reaches to maturity in September. Observations were recorded for bunch and berry characters as per DUS guidelines.



3.1.22.2 On-site DUS testing of Grapes in Solapur, Maharashtra



Second year on site monitoring was conducted on 20th February, 2019 at Nannaj village of Solapur, Maharashtra for the candidate variety New Sonaka. The monitoring team consisted of Dr. S. B. Gurav (Deputy Registrar, PPV&FRA, Pune) and Dr. Roshni R. Samarth (Scientist, ICAR-NRC for Grapes & Nodal Officer, Grape DUS centre). The vines were trained on bower system. Observations were recorded for mature leaf, bunch and berry characters at maturity for the candidate as per DUS guidelines. The candidate variety had bold/large berries (responsive to growth regulators), seedless and good uniformity of berries within bunch was observed. On discussion with the applicant, it was told that the variety is becoming popular in name of DANAKA derived from Dattatray Kale of Nannaj.



3.1.23 ICAR-IIHR, Bengaluru

A total of 8 VCK of watermelon and 2 entries of muskmelon were tested during Rabi season of 2018-19. All entries were found to be uniform. Monitoring of the DUS trial was conducted on 06/4/2019. The monitoring committee recommends that *“Characters pertaining to fruit shape and rind pattern needs to be reviewed and suggested that the states for these characters may be made more elaborated”*.



Table 39: No. of varieties for DUS testing

Crops	New		VCK	FV	Total entries tested
	1 st year entries	2 nd year entries			
Watermelon	-	-	8	-	8
Muskmelon	1	-	-	1	2

Table 40: No. of reference & example varieties maintained at the centre

Mandated Crop Species	No of varieties under maintenance breeding in 2018-19
Watermelon	9
Muskmelon	13

3.1.24 IFGTB (ICFRE), (Casurina & Eucalyptus), Coimbatore

The reference collection of more than 100 clones of Casuarina is maintained at DUS centre as reference/example varieties and periodically observed for the expression of various characters included in the DUS testing procedure. Six candidate varieties have been process for on-site verification of DUS testing. The DUS Centre continued its effort on creating awareness among the wood-based industries, forest departments, forest development corporations and tree farmers. A two and a half year old trial plot Casuarina established with the new clones in Ludhiana, Punjab.



3.1.25 ICAR-SBI Coimbatore

The ICAR-Sugarcane Breeding Institute (SBI), Coimbatore, Tamil Nadu is acting as Lead Centre and ICAR-SBI Research Centre, Agali (Kerala) is the Collaborating Centre for conducting DUS test for tropical sugarcane varieties. The major activities carried out at both Centres during the year is maintenance of 208 tropical sugarcane reference varieties in field through clonal propagation and in disease free condition at Lead and Collaborating Centres (ICAR-SBI, Coimbatore and ICAR-SBI Research Centre, Agali). Seed cane of 25 newly released varieties namely, CoC 774, CoC 775, CoC 777, CoC 778, CoC 779, CoC (SC) 23, CoC (SC) 25, CoG 94077, CoG 95076, CoJn 95-05, CoTI 1153, CoTI 1358, CoN 98133, CoOr 10346, CoOr 03152, 87 R 40, 88 R 58, CoSnk 15101, CoSnk 15102, CoSnk 13103, CoSnk 15104, CoVC 99463, CoVSI 08005, CoVSI 03102 and VSI 08121 from 10 research stations in the country were obtained for inclusion in the reference collection list. The RV maintained at Coimbatore Centre (189 varieties) were re-characterized (old data were verified) during 2017-18 as well as in the current season (2018-19). DUS test for six farmers' varieties, i.e., Kudrat Ka Karishma, Kaptan Basti, Desi 1, Desi II, Meitei Chu Angougba and Meitei Chu Angangba were conducted during 2018-19 season at both centres.



Table 41: List of entries in DUS testing

S. No.	Name of the Farmers' varieties (FV)	Closely resembling RV chosen for comparison
1	Kudrat Ka Karishma	Thirumadhuram and Co 419
2	Kaptan Basti	Co 356, Co 740 and Co 8208
3	Desi I	IJ 76-317 and Tahiti-3
4	Desi II	NG 77-137 and 57 NG 192
5	Meitei Chu Angougba	Pounda, IJ 76-567 and 51 NG 115G
6	Meitei Chu Angangba	NG 77-015, HM Black and Red sport

3.1.26 ICAR-Indian Institute of Sugarcane Research, Lucknow

The ICAR-Indian Institute of Sugarcane Research, Lucknow is acting as Lead Centre and ICAR –Sugarcane Breeding Institute, Regional Centre, Karnal is the collaborating centre for conducting DUS test for tropical sugarcane varieties. The major activity carried out at both centres during 2018-19 is maintenance of reference varieties of sugarcane.

3.1.26.1 Synchronization of Reference Variety Collection at ICAR-IISR, Lucknow and SBIRC, Karnal

With a view to synchronize the reference Collection at both the centres for sub-tropical India, a set of 42 varieties were sent from IISR, Lucknow to SBIRC, Karnal and another set of 14 varieties was collected from SBIRC, Karnal for planting at IISR, Lucknow. It was found that the Reference Collection at both Centres had 110 sugarcane varieties in common.



3.1.26.2 DUS Testing Trial: The status of DUS Testing during 2018-19 was as below:

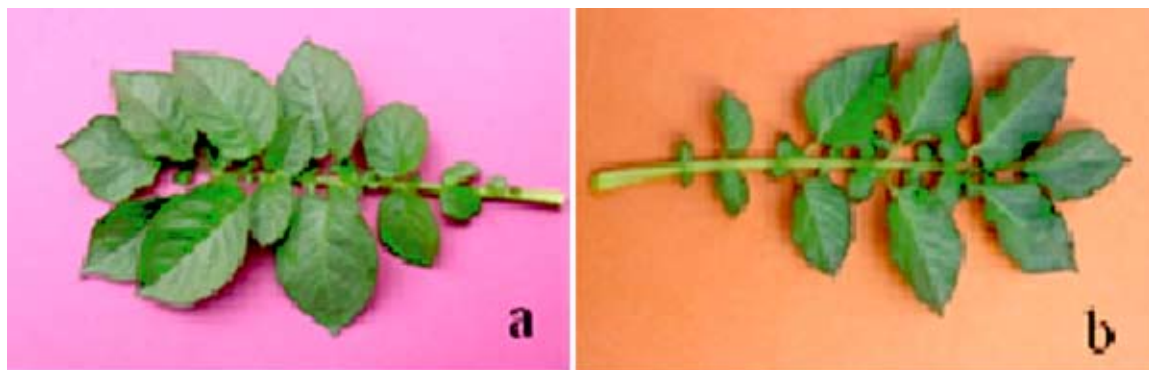
- Desi No. 1 (REG/2014/2182): Zero Survival due to high susceptibility to wilt.
- Desi No. 2 (REG/2014/2183): Zero Survival due to high susceptibility to wilt.
- Kudrat Ka Karishma (REG/2015/226): The variety has 03 buds per node, which seems to be a mutant.
- Captan Basti (REG/2015/1586): Extremely low survival due to Red Rot disease. Again replanted in field for multiplication during 2019-20.
- Sugam Katari (REG/2016/2323): Limited survival for the bud setts. The data collected on the morphological characters indicated that it is not a hybrid variety and may be a *Saccharum officinarum* germplasm. Thus, the applicant is required to send the material to ICAR-SBI, Coimbatore so that it can be tested along with the related reference varieties.
- Jeet Katari (REG/2016/2314): Limited survival for the bud setts. The data collected on the morphological characters indicated that it is not a hybrid variety and may be a *Saccharum officinarum* germplasm. Thus, the applicant may be requested to send the material to ICAR-SBI, Coimbatore again so that it can be tested along with the related reference varieties.
- Fu Sen (REG/2013/1450): Limited survival. The data collected on the morphological characters indicated that it is not a hybrid variety and may be a *Saccharum spp.* germplasm. Thus, the applicant may be requested to send the material to ICAR-SBI, Coimbatore again so that it can be tested along with the related reference varieties.
- Pursa (REG/2017/1416): Planting material received on 26.02.2019 and has been planted in field for observations during 2019-20.

3.1.27 ICAR-CPRI, Shimla

DUS testing of candidate potato varieties: DUS characterization of four varieties viz., Nafida, Sassy, Dolly and Edony along with reference varieties Kufri Frysona, Kufri Arun and Kufri Pukhraj was done for floral traits at CPRS, Kufri while one variety Santana along with reference variety Kufri Frysona was DUS characterized for vegetative and tuber traits at CPRI Regional Station, Modipuram and CPRS, Jalandhar.

Maintenance of DUS reference varieties: Two hundred and thirteen reference varieties were maintained in *in vitro* conditions while 135 and 114 were maintained under field condition at CPRS, Kufri and CPRI Regional Station, Modipuram, respectively.

Monitoring was not done for the current crop season.



Leaves of potato variety (a) Santana and (b) Kufri Frysona



Sprouts and tuber of Santana variety



View of Poatato DUS Testing Block

3.1.28 Division of Vegetable Science, ICAR-IARI, New Delhi

The centre is mandated for testing of four cucurbitaceous crop species and no of varieties for DUS testing during the reporting period is as follows:

Table 42: No of entries for testing in different cucurbit crops

Crop Species	Candidate varieties tested for DUS	Reference varieties under maintenance
Ridge gourd	22 (4 new and 18 farmer varieties)	9
Bottle gourd	3 (FVs)	18
Pumpkin	3 (FVs)	10
Cucumber	5 (FVs)	10

Ridge gourd: Among twenty two entries received, four were candidate varieties those were tested with two reference varieties (Pusa Nasdar and Pusa Nutan) and eighteen were farmer varieties. All these candidate varieties were similar to one another and also similar to reference varieties but found to be distinct with respect to fruit shape at blossom end. Among eighteen farmers' varieties (FVs), eight were of sponge gourd (*Luffa cylindrica*). All ridge gourd farmers' varieties were similar to one another all showing short fruit length which is distinct from reference varieties.

Bottle gourd: Among the three farmers' varieties (FVs) tested, FV-Chhaya showed only vegetative growth and did not flower in Delhi Condition. The FV-TANRI LAUKA showed variation in fruit colour. Another FV (Lauki Dharidhar) was similar to Narendra Dharidhar (reference variety).

Cucumber: Among five Farmers varieties received three were phoont (*Cucumis melo* var. *momordica*) and other two were similar to reference varieties of cucumber.



RGGL 204



RGGL 192



RGGL 201



RGGL 211

Ridge gourd 4 new accessions



Pumpkin KOHIRA-N

Farmer's variety with different fruit shape



Bottle gourd: TANRI LAUKA (FV)
Farmer's Variety with different fruit colored



Cucumber: Ghaghra Kheera (FV)



Cucumber: Sant Lal Deshi Kheera (FV)

Pumpkin: Among three FVs, two showed only vegetative growth and did not flower under Delhi condition and one FV (KOHIRA-N) produced two types of fruit shape.

3.1.29 ICAR- CISH (Mango), Lucknow

Mandated Crop Species	No of varieties under maintenance breeding in 2018-19
Mango	755 (Accessions maintained)

For registration of farmer's varieties of mango, on site DUS testing of 25 candidate varieties for registration is was carried out. Reference and farmer varieties were maintained in the field genebank. DUS characterization of mango varieties available in the field gene bank in 50 varieties was undertaken. For registration of extant and farmers varieties proposals were submitted to the authority. Organized the awareness program in the areas where farmer's varieties of mango exist and require registration (2 diversity show organized). Training cum awareness programme was successfully organized to educate farmers about benefits of registration of their potential varieties under PPV & FRA.

Activity	No of varieties
Maintenance of reference varieties in the field gene bank	100
DUS characterization of mango varieties available in the field gene bank	50
DUS testing of varieties submitted for registration	100
DUS testing of varieties submitted for registration in CISH at Lucknow	37
Submission of registration proposal of extent varieties	25
Organizing the awareness program in the areas where farmer varieties of mango exist and require registration	2

Centre is also responsible for maintaining a DUS centre in Guava. Reference varieties including other accessions were maintained in the field gene bank (140). Characterization of guava varieties (20) was undertaken. Guava varieties died due to wilt were multiplied for replacement. DUS testing of farmers variety submitted for registration was performed. Training cum awareness programme was successfully organized to educate farmers about benefits of registration of their varieties under PPV & FRA. Centre has notified 4 varieties in Guava. The plan for FY 2019-20 is as follows:

- Maintenance of reference varieties and other accessions in the field gene bank (140 varieties)
- DUS characterization of guava varieties available in the fields gene bank (20 varieties)
- Regeneration of guava varieties affected by guava wilt
- DUS testing of varieties submitted for registration (4 no)
- Submission of registration proposals of extent varieties (6 varieties)
- Organizing the awareness program in the areas where farmers varieties of guava exist and require registration

3.1.30 ICAR- DoGR, Pune

Onion and Garlic

A total of 35 lines in onion were planted for seed production. Similarly, 12 varieties of garlic were also maintained through bulb production. Onion needs to be maintained through both bulb and seed production since it is a biennial crop. Hence, 31 varieties of onion were planted for bulb production so that they can be used for seed production in next year.



During the reporting period, no candidate varieties under new/VCK were tested in Onion and only two farmer varieties were tested, the details are as follows:

Table 43: No of entries in DUS testing

Crops	New		VCK	FV	Date of monitoring
	1 st year entries	2 nd year entries			
Onion	-	-	-	-	Only two garlic farmers' varieties received in Nov 2018 which was about one month late than normal planting time. Hence, only planted for multiplication and DUS test will be initiated in next year.
Garlic	-	-	-	1. Pras Lahsun (Reg/2018/685) 2. Brij Lahsun (Reg/2018/688)	

Table 44: No. of reference and example varieties maintained at the centre

Crop species	No of varieties under maintenance breeding in 2018-19
Onion	53 <i>rabi</i> and 11 <i>kharif</i> varieties of onion (Annexure-I).
Garlic	24 varieties of garlic (Annexure-I).

3.1.30.2 Summary of the DUS result

ICAR-DOGR is working as Nodal Centre for conduct DUS test of onion and garlic and maintaining 61 onion and 24 garlic varieties under this project. These varieties of onion and garlic are treated as reference varieties. In case of onion, 53 *rabi* season varieties and 11 *kharif* season varieties and 24 varieties of garlic are being maintained at ICAR-DOGR, Rajgurunagar. Long day onion and garlic varieties are being maintained at ICAR-CITH, Srinagar and multiplier onion varieties at TNAU, Coimbatore. All the data recorded as per DUS test guideline in all the maintained varieties of onion and garlic under DUS project. Only two garlic farmers' varieties received were planted for multiplication and DUS test will be initiated in next year.



Onion varieties		Garlic
Kharif season	Rabi season	
Agrifound Dark Red, Arka Kalyan, B-780, Bhima Raj, Bhima Red, Bhima Shubhra, Bhima Shweta, Bhima Dark Red, Bhima Super, N-53, Bhima Safed	Pusa White Round, Pusa White Flat, Pusa Ridhi, PRO-6, RO-01, RO-59, RO-252, Udaipur-102, Phursungi Local *, Pilipatti Junagadh*, Sukhsagar*, Telgi Local*, CO-1**, CO-2**, CO-3**, CO-4**, CO-5**, Brown Spanish***, Early Grano*** VL Piaz-3***, Palam Lohit***, Talaja Red, GJRO-11, HOS-4, GJWO-3, Udaipur Local, GWO-2, Pusa Sona, Pusa Shobha Sel, JNDWO-85, VL Piyyaj	Agrifound Parvati***, VL Garlic-1***, VL Garlic-2***, Rani Bennur Local*, Ooty Local*, Sikkim Local*, Silkuei Local, CITH-G-1***, GAG-6, GAG-7, Bhima Omkar, Bhima Purple, G-1 (YS), G-41 (Agrifound White), G-50 (YS-2), G-282 (YS-3), G-323 (YS-4), G-386 (YS-9) G-189 (YS-5), G-384 (YS-8), PG-17, PG-18, GG-2, GG-3, GG-4, Godawari, Phule Baswant,

* Land races; ** maintained at TNAU, Coimbatore; *** Maintained at CITH, Srinagar; Rest of the varieties maintained at DOGR, Rajgurunagar and IARI, New Delhi; # Bhima Raj, Bhima Red and Bhima Shweta common in *kharif & rabi*

3.1.30.3 Varieties registered with PPV&FRA

Two onion varieties (Bhima Dark Red and Bhima Light Red) under New category, two varieties (Bhima Shubhra and Bhima Safed) under extant category and one garlic variety (Bhima Purple) under extant category have been registered with PPV&FRA, New Delhi for its protection. Three onion varieties (Bhima Kiran, Bhima Red and Bhima Raj) as well as one garlic variety (Bhima Omkar) have already registered with PPV&FRA. Three onion varieties (Bhima Shakti, Bhima Shweta and Bhima Super) are under registration/ DUS Testing by PPV&FRA.

3.1.31 ICAR-Indian Institute of Soybean Research, Indore Madhya Pradesh

ICAR –IISR, Indore is the Lead DUS testing centre for soybean. During the reporting period 13 farmers' varieties (*SKF 148, Saraitola, Sonar, Khrachi, SKF-433, SKF-SPS-11, SKF-BS-9, SKF-1050, Chapta Hariya, Peela Sona, Peelia, Harkawa Ramsakha and Say Lunghi*) were tested for their DUS characteristics. Total 112 varieties were maintained and characterized as example and reference varieties. UAS, Dharwad acted as Collaborating DUS Centre for Soybean.

3.1.32 ICAR-Project Coordinating Unit (Sesame and Niger), Jabalpur

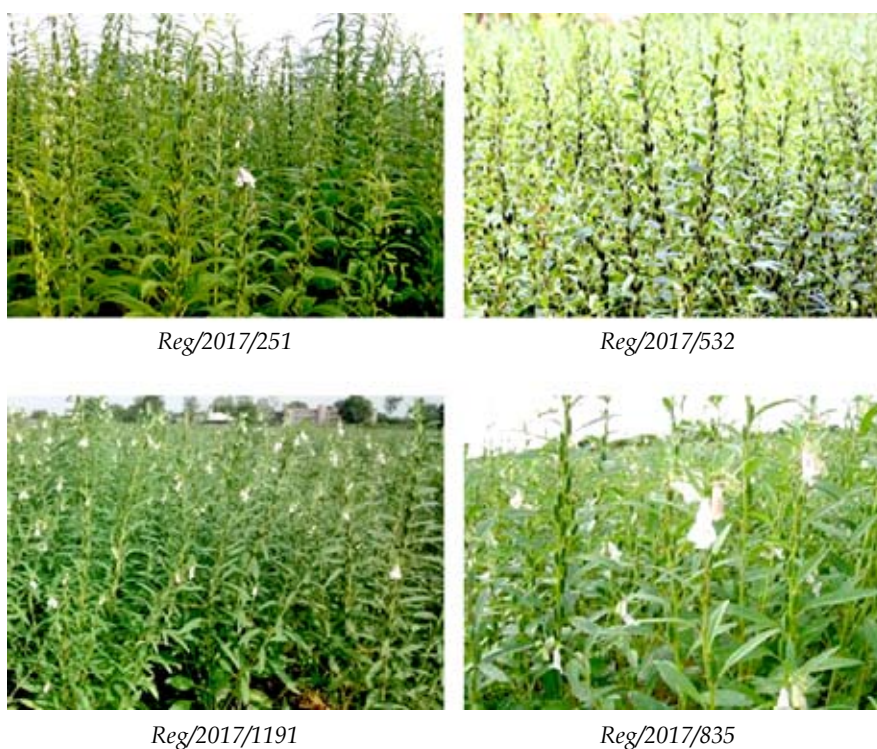
During the reporting period, the centre has evaluated example and reference varieties (85 in sesame and 21 in Niger) for morphological characterization. Under DUS testing of candidate varieties, 35 Farmers varieties for 2nd year evaluation was done and then report were submitted. The centre has identified some lines with specific traits given below:

- Determinate type- Reg/2017/494, Reg 2017/532
- Indeterminate type- Reg/2016/1004
- Early maturing varieties-Reg/2017/497, Reg/2017/496, Reg/2017/494, Reg/2017/532
- Multicapsular -Reg/2017/309, Reg/2016/1004

CONSTRAINTS Variable expressions of some characters during different seasons.



Indeterminate nature of most of the varieties



3.1.33 ICAR- Central Agricultural Research Institute, Port Blair

CIARI, Port Blair is a lead centre for DUS testing of Noni (*Morinda citrifolia*). The morphological characters of CARI HD-6 (CARI Sampda), CARI- Noni Saline -1 (CARI Rakshak), CARI-TRA-1 (CARI Noni Samridhi), CARI-TRA (CARI Noni Sanjivini) were recorded at the centre.

3.1.33.1 Noni registration, Seedling production and Modified planting system.

During the reporting period a number of 1000 seedlings were produced and distributed to the farmers for expansion the noni cultivation area. Seedlings of released varieties in Noni (Sampada, Sanjivini and Sanjivini) were planted at Dollygunj, Chidiyatoppu and Mithakari area in appox. 15 acres for evaluation of its growth and yield performance at private farming area.



Nursery for production of elite planting material



Mulching of noni reference variety block with coconut husk



Pruning of the noni plantations

3.1.34 ICAR-IIHR (Jasmine)

During the reporting period lead centre, ICAR-IIHR, Bangalore maintained and characterized the reference/example varieties in different *Jasminum spp.* such as *J.sambac* (33 nos.), *J. auriculatum* (22 nos.), *J.multiflorum* (23 nos.) and *J.grandiflorum* (31 nos.). Collaborating DUS centre is at HC&RI, Tamil Nadu Agricultural University, Coimbatore. DUS centre has maintained 70 genotypes belonging to following 12 species *J. sambac*, *J. auriculatum*, *J. grandiflorum*, *J. multiflorum* (Syn: *J. pubescens*) *J. nitidum*, *J. calophyllum*, *J. rigidum* (Syn: *J. laurifolium*), *J. humile* (Syn: *J. bignoneaceum*), *J. primulinum*, *J. flexile*, *J. arborescens* and *J. angustifolium*.



3.1.35 ICAR-IISR, Kozhikode

The centre is the Lead DUS testing centre for major spices including black pepper, small cardamom, ginger and turmeric. The collaborating centres are **ICAR Research Complex for NEH Region**, Umiam, Meghalaya for ginger and turmeric and Indian Cardamom Research Institute (Spices Board), Myladumpara, Kerala for small cardamom.

Under DUS testing total 04 black pepper, 06 small cardamom, 04 FV & 03 VCK ginger and 14 FV & 5 VCK Turmeric. Under maintenance of example varieties of black pepper (18), small cardamom (14), ginger (27) and turmeric (34) were undertaken at respective centres.



3.1.36 ICAR- Central Institute for Cotton Research, Regional Station, Coimbatore

During 2018-19, DUS trial on cotton was conducted with two new candidate varieties for second year of testing and four new and two VCK varieties in the first year testing along with 15 reference varieties. Morphological observations on 37 characters were recorded. Under maintenance breeding program, 117 in *G.hirsutum*, 7 in *G.barbadense*, 38 in *G.arboreum* and 5 in *G.herbaceum* varieties were grown, The off type plants were periodically removed and varieties have been purified with true to type plants. Seed cotton harvested were stored and ginned as and when seeds are required for reference purpose.

Table 45: Details of DUS testing of candidate varieties in 2018-19

New		VCK
1 st year entries	2 nd year entries	
4	2	2

Table 46: Varieties under maintenance/characterized:

Crops	Name or No of varieties under maintenance breeding in 2018-19
Tetraploid cotton- <i>G. hirsutum</i> (117)	Abadhitha, ACP-71, AH107, AK 235, American Nectariless, Anjali, ARBH 813, Badnawar, Bikaneri Nerma, BN, BN Red, BN-1, CA 116, CCH 2623, CPD 423, CSH 19, Deviraj, DHY 286-1, DS 28F, EC 344025, EC 344034, Extreme Okra, F 1054, F 1378, F 1861, F 320, F 505, F846, F846, G Cot. 12, G.Cot. 10, G.Cot. 100, G.Cot. 16, G.Cot.18, G.Cot.20, G.Cot.22, GL Co24-4, GLM 5, GSHV 112, Gujarat 67, H 1098, H 1117, H 1157, H 1220, H 1226, H 1236, H 974, HC 122-66, HLS 329, HS 6, J34, JCC 1, JK 35, JK 4, JLH 168, KC 2, KC 3, Khanchana, Khandwa 2, Khandwa 3, L 604, LAHH 5, Laxmi, LH 1134, LH 2076, LH 2108, LH 372, LH 900, LRA5166, MCU 11, MCU 12, MCU 13, MCU 5, MCU 5 VT, MCU 8, MCU 9, MCU-10, MCU3, N-1, Narasimha, NC 217, NCH 11, NH 452, NH 545, NH 615, P-15, P-15 DP, P-15-1, PG 6, PH 93, PHULE 492, PKV Rajat, Pratima, PRS 74, PUSA 8-6, RAJHH 769, Reba B 50, RHC 003, RMPBS155, RMPBS155, RS 2013, RS 810, RS 875, Sahana, SH 2379, Sivanandhi, Suman, Sumangala, Supriya, Surabhi, Suraj, SVPR 5, T 7, TCH 1716, Vagad kalia, VC 21, Vikram
Tetraploid cotton- <i>G. barbadense</i> (7)	Sujatha, RHC 001, P4, SBYF 425, TCB 209, Suvin, RSP 4
Diploid cotton- <i>G. arboreum</i> (38)	HD 226, AKA 7, AKA 8, AKA 8401, AKA5, Dhumad, DLSa 17, DS 5, GMS Line, HD 107, HD 110- 115, HD 123, HD 321, HD 324, HD 432, Jawahar Tapti, JK 5, JLA 794, K 11, KR 111, KR 64, LD 210, LD 327, LD 491, LD 694, NACH 12, PA 183, PA 402, Phule Anmol, Phule Dhanwantry, RAJDH 9, RG 18, RG 8, Veena, Y1
Diploid cotton- <i>G. herbaceum</i> (5)	G.Cot. 23, G.Cot. 25, DDhc 11, Jayadhar, Raghavendra

Morphological observations to be taken up on DUS trials with 7 candidate varieties under second year of testing in 2019-20 and four new candidate varieties in the first year of testing along with 15 reference varieties will also be tested in subsequent season. Maintenance breeding of Tetraploid and Diploid cotton varieties would be taken up followed by seed multiplication of reference and example varieties. The DUS trial data received from Co-Nodal centers would be compiled and submitted to PPV&FRA.

3.1.37 ICAR-IIHR (Carnation), Bengaluru, Karnataka

ICAR-IIHR, Bengaluru, being the Lead centre, has collected 80 accessions of carnation which were being maintained under field gene bank and observed, recorded and multiplied for the important grouping characteristics for maintenance breeding. Application for Arka Flame in Carnation has been submitted for PPV&FRA registration under extant category. Dr. Y. S. Parmar University of Horticulture and Forestry, Nauni-Solan, Himachal Pradesh was acted as collaborating Centre for Carnation.



3.1.38 ICAR-IIHR (Tuberose), Bengaluru Karnataka

DUS centre collected and maintained 24 genotypes of tuberose reference along with 8 breeding lines in the field gene bank under maintenance breeding. These reference collections were observed and recorded some important grouping characteristics. Four accessions of tuberose were also characterized.

3.1.39 ICAR-CTCRI, Thiruvananthapuram (Cassava and Sweet potato)

ICAR-CTCRI, Thiruvananthapuram, Kerala acted as lead DUS centre and maintained 55 of cassava varieties (30 Released, 25 farmers varieties) and 52 of sweet potato varieties (40 Released, 12 farmers varieties) under maintenance breeding and conserved in the field. ICAR-Central Tuber Crops Research Institute, Regional Centre, Bhubaneswar, Odisha acted as collaborating DUS centre.



3.1.40 ICAR-IIHR (Chilli, Sweet Pepper and Paprika), Bengaluru

Under PPV&FRA project on 'DUS testing in chilli, bell pepper and paprika', 35 candidate varieties were characterized along with 13 reference varieties during the period. Among the candidate lines, twelve were VCKs, nine new F_1 hybrids (8 under Ist year evaluation & one under IInd year evaluation), five new inbred lines and 9 farmers' varieties (1 for characterization and 8 for evaluation). All the candidate lines along with reference varieties replicated thrice and were evaluated for 55 traits as per the DUS guidelines. Severe incidence of leaf curl virus observed in all the lines evaluated. All the farmers' varieties are segregating with varied fruit shapes and have become difficult for which fruit type they need to be selected; moreover purification of lines by one season selection will not be uniform. The centre is maintaining 50 varieties as reference/example varieties.



3.1.41 ICAR-NRCSS, Ajmer

ICAR- NRCSS, Ajmer is the Lead centre for seed spices crops and it has maintained 33 Coriander and 22 Fenugreek example / reference varieties. During reporting period 09 candidate farmers varieties of coriander were under DUS testing at DUS centre.



3.1.42 ICAR- CIAH, Bikaner (Watermelon & Muskmelon)

Centre raised eight entries of watermelon and two entries of muskmelon during 3rd week of February, 2019 for DUS testing. Initially the germination, plant stand and growth were good. However, due to sudden rise in temperature which caused heat stroke during April month and subsequently during May month leads to poor performance of crop and DUS test could not be completed. DUS testing of only five entries of watermelon and two entries of muskmelon is in progress. Eight reference varieties of watermelon and twelve of muskmelon are being maintained in the centre.



Variation in seed traits of DUS test entries of watermelon



Variation in seed traits of DUS test entries of muskmelon

3.1.43 ICAR-Indian Institute of Pulses Research, Kanpur (AICRP on MULLaRP)

- In *Kharif* season (2018), sixtyseven varieties of Mungbean and 41 varieties Urdbean were maintained. In *Rabi* season (2018-19), sixty one varieties of pea, 39 varieties of Lentil and 14 varieties of Rajmash were maintained.
- For maintenance of these varieties, 10 single plants were selected from each variety and harvested individually.
- In *Kharif* season (2018): 14 farmer's varieties of mungbean & 11 farmers varieties of urdbean were tested along with reference varieties & data recorded as per DUS guideline. In the second year, 13 farmers' varieties of Mungbean & 52 farmer's variety of Urdbean tested along with reference varieties & data recorded as per DUS guideline. In *Rabi* season (2018-19), in the first year, 2 farmers' varieties of pea & 7 varieties of lentil were tested along with reference varieties & data recorded as per DUS guideline. Forty six farmers' varieties of pea, 17 farmers' varieties of Lentil and 3 farmers' varieties of Rajmash tested along with reference varieties & data recorded as per DUS guideline.

Crop	New		FV
	1 st Year	2 nd Year	
Mungbean	14	13	27
Urdbean	11	52	63
Lentil	7	17	24
Field pea	2	46	48
Rajmash	-	3	3

- Some of the farmers's varieties, i.e., Phool Urd was highly affected due to red mites and BARI, ARRA, HAR URD, RAM URD, BHAWAT URD, NARSINGHPUR URD, KANCHEDI URD, DHAN URD, PRASAD URD, URID PYARIBAI, BISAN URD, KARAN URAD, URADA GAYAPRASAD, KAI URD BRAJBHAN PRATAP, MANKALI URADA, URD ARCHNA, DEVKI URD, UDADHA KOPE, URD SATHWARI & FIRST YEAR GKSS MASH SURI LOCAL in urdbean were found highly infected by the incidence of MYMV at pre flowering stage. Hence, data could not be recorded because of pest incidence.
- During *rabi* season (2018-19), entries in first year field pea, farmers' variety is Sheetala Deshi matar is bakla type.
- In *Kharif* season (2018), two variety(s) of urdbean (UDAY, UDWI) and in *rabi* season, the farmers' variety(s) in rajmash (Reshma mansa, Raj) did not germinate and three variety of urdbean (MURA, SUKUMAR & MUKUND) were very late flowering type. One candidate variety ORAD, in urdbean was found resemblance as mungbean type plant. During first season, orad (kartik) was found is a climbing type plant.
- One candidate variety in mungbean, RAMAIPUR was found resemblance as urdbean type plant.
- In case of candidate varieties, i.e., Bhai mung ramesh and Kalyanpur moong in mungbean, flowering is very late.

Table 47: Varieties under maintenance breeding 2018-19

Crop Species	Name of the varieties
Green gram [<i>Vigna radiata</i> (L.) Wilczek]	Total Number of reference varieties : 67 JM 721, TARM 1, PANT M-5, SML-32, OUM 11-5, PUSA BAISAKHI, ML-818, LGG-407, GM-3, TARM-2, PANT-M-2, GM-4, BM-2002-1, PUSA 9072, ML-131, GANGA-8, PUSA-9531, BPMR-145, VAMBAN-1, IPM-2-3, BM-2003-2, MH-2-15, PANT-M-5, CO-6, TMB-37, ML-613, BM-4, LGG-450, ML-267, IPM-2-14, PUSA-VISHAL, ML-5, HUM-1, TARM-18, SML-134, NDM-1, PUSA-RATNA, SML-668, BM-2003-1, PDM-139, OBG-52, SUJATA, SHALIMAR-M-1, KM-2, ASHA, PRATAP, RMG-62, RMG-344, RMG-268, IPM-99-125, HUM-12, PUSA-0672, PKVAKM-4, PANT M-1, MH-96-1, PAIRY MOONG, MUM-2, SONA MUNG, BDN-2, PDM-54, PS-16, DHOULI, T-44, AKM 8803, CO-4, GANGA-1, HUM-6.
Black gram [<i>Vigna mungo</i> (L.) Hepper]	Total Number of reference varieties : 41 TAU-1, VAMBAN-7, TBG-104, LBG-685, PANT-U-30, BARABANKI LOCAL, PANT-U-19, LBG-709, NDU-1, IPU-2-43, KUG-479, LBG-645, LBG-787, NUL-7, SHEKHAR-3, LBG-752, TPU-4, TU-96-2, LBG-623, IPU-94-1, BDU-1, PANT-U-40, LBG-20, MASH-1-1, PANT-U-31, TBG-123, INDIRA, NAVEEN, SHEKHAR-1, KU-96-7, AZAD-2, HIM-MASH-1, SHEKHAR-2, UG-338, AZAD-1, MASH-144, GU-1, SARLA, WBU-108, PDU-1, T-9
Lentil (<i>Lens culinaris</i>)	Total Number of reference varieties : 39 DPL-62, DPL-15, IPL-81, IPL-315, IPL-406, NDL-1, PL -4, PL-5, PL-24, PL-63, PL-234, PL-406, PL-639, PL-77-12, L-4076, LL-56, LL-147, LL-699, L-4147, LH-84-8, VL-1, VL-4, VL-103, VL-126, VL-507, WBL-77, JL-1, JL-3, K-75, KLS-218, HUL-57, ASHA, RANJAN, SUBRITA, BARABHIA LOCAL (RUST SES.), S.S.I.S. IPL-316, PL-7, PL-8.
Pea (<i>Pisum sativum</i>)	Total Number of reference varieties : 61 ARKEL, AZAD P-1, AZAD P-2, AZAD P-3, AZAD P-4, AZAD P-5, AZAD P-31, AGETA-6, DDR-23, DDR-27, VRP-3, VRP-5, VRP-6, VRP-7, VRP-22, KPMR-9 DDR-44, HUDP-15, HFP-4, HFP-529, HFP-8909, IPFD-99-13, IPFD-1-10, IPFD-6-3, JAYANTI, KPMR-144-1, KPMR-400, KPMR-522, IFP-48, PG-3, PANT P-14, SWATI, VL-3, HFP 715, PANT 25, RFPG 79, INDIRA MATAR 1, B-22, DMR-7, HUP-2, IM-9101, IPF-99-25, IPF-4-9, IPF-5-19, IPF-4-26, JM-6, JP-885, KFP-103, PANT P-5, RACHNA, TRCP-8, VL-1, VL-42, VL-45, VL-46, PANT P 42, HFP-9426, HFP- 9907B, IM9102, PANT P74, SKNP 04-9.
Rajmash (<i>Phaseolus vulgaris</i>)	Total Number of reference varieties : 14 HUR-15, ARKA KOMAL, PDR-14, IPR-98-5, SHRIDHA, ARKA ANOOP, IPR-98-3-1, HUR-137, IVFB-1, HUR-203, ARKA BOLD, HPR-35, GUJRAT RAJMASH, Amber

Table 48: Application field with PPV&FRA

Crops	No of variety notified by the center since 1966	No of variety notified by the center since 1999	No of applications field			Certificates issued	Pending applications
			Extant Notified	NEW	VCK		
Mungbean	120	41	33	2	-	18	17
Urdbean	82	29	14	2	-	8	8
Lentil	43	17	12	1	-	6	7
Rajmash	6	3	4	1	-	2	3
Pea	44	25	18	3	-	10	11
Lathyrus	3	2	-	-	-	-	-

3.1.44 Darjeeling Tea Research & Development centre, Tea Board of India, Kurseong

Tocklai Tea Research Institute, Assam, Jorhat is the Lead DUS centre for DUS testing of Tea. During the year centre maintained 112 example/reference varieties and generated database. TRA has also submitted the application for the registration of two newly released clones, one seed stocks and one extant variety. The applications of candidate varieties are under process to initiate On-site DUS testing. Darjeeling Tea Research and Development Centre, Tea Board, Darjeeling, West Bengal and UPASI Tea Research Foundation, Tea Research Institute, Valparai, Coimbatore, Tamil Nadu are the other collaborating centres for Tea.



3.1.45 ICAR- IARI, Regional Station, Indore

Wheat trials were sown as per the DUS test guidelines of PPV&FRA. In crop season 2018-19, eight candidate varieties under new category (2nd year of testing) were tested in three replications against 20 reference varieties in DUS trial (1). In DUS trial (2), six farmer's varieties (1st year of testing) were tested in two replications against 17 reference varieties. 4 farmer's varieties (1st year of testing) were grown for Grow-out test for purification. The observations as per DUS testing guidelines were recorded.

Table 49: Entries in DUS testing

Crops	Varieties
Wheat (1st trial)	
1 st year entries (5)	SRW 231, SRW 252, SRW 303, SRW 404, SRW 111
2 nd years (3)	NABIMG10*, NABIMG11*, NABIMG 12*
Wheat (2nd trial)	
Farmer varieties (for evaluation) (6)	Bilase, Shoda, Surajmani, Ulochna, SKF-CN 5, Lamhrwan Gegun (DBR)
Farmer Varieties (4)	Narendra 09, Ritur, Wheat Punjabi Shingar, Supreme 1111

3.1.46 Reference & Example varieties maintained at the centre: 130 reference collection of wheat varieties are being maintained at ICAR-IARI, Regional Station, Indore.

Table 50: No of varieties in maintenance breeding

Crops	Name or No of varieties under maintenance breeding in 2018-19
Wheat	Released varieties <i>aestivum</i> – 80 Released varieties <i>durum</i> & <i>dicoccum</i> – 50

3.1.46.1 Summary of the DUS trial

The plots were laid out as per PPV&FRA guidelines. Candidate varieties were grown side by side to the reference varieties for comparison. The overall performance of the DUS trials was very good. Few of the candidate varieties have 1-2 % mixture whereas the mixture percentage in farmer's varieties was high. The claimed characteristics were found to be expressed throughout the trials. The monitoring was conducted when the crop was in the soft dough stage. Most of the candidate varieties of DUS trials expressed the claimed characteristics at the time of monitoring.



3.1.47 ICAR-CPCRI, Kasargod

During the year 2018-19, Morphological traits were recorded from 09 arecanut germplasm/accessions. Special character like total phenol content has been estimated in 32 arecanut accessions.



The DUS centre has maintained 11 coconut varieties as example and reference varieties. A new candidate variety was received for DUS testing at DUS centre. 18 seedlings of the VCK candidate variety were planted in the DUS field along with seedlings of 03 reference varieties for DUS testing of Coconut varieties.



3.1.48 ICAR-CCRI (Citrus), Nagpur

During the reporting period ICAR-CCRI, Nagpur has maintained 21 citrus varieties as example and reference at DUS centre. During the year Mandarin 03 new varieties & 02 VCK, Sweet Orange 02 New & 01 VCK and Acid lime 05 New and 03 VCK candidate varieties were under DUS testing at the Centre for registration.



3.1.49 ICAR- Regional Centre of Central Tuber Crops Research Institute, Bhubaneswar

The centre has maintained 22 reference varieties of Taro & 18 reference of Elephant foot yam characterized under maintenance breeding as example/reference varieties and tested 06 lines of Taro candidate varieties under DUS testing. Other than, ICAR-CTCRI, Directorate of Research, BCKV, Kalyani, West Bengal and ICAR Research Complex for NEH region Nagaland Centre, Nagaland acted as collaborating centre. BCKV centre maintained 23 of Elephant Foot Yam and 26 of Taro varieties as example and reference varieties.



3.1.50 Dr. BSKKV (Nutmeg) Dapoli, Ratanagiri, Maharashtra

During the year centre tested 06 candidate farmers varieties i.e. DEEPVAN, KHANOL'S-1, KHANOL'S-2, KHANOL'S-3 GEETAROSE, SHREEHARI at DUS centre and initiated for 04 candidate farmers varieties for On-site DUS testing i.e. KOCHUKUDY, MUNDATHANAM, POOTHARA, PULLAN.

3.1.51 ICAR-Indian Agricultural Research Institute, New Delhi

ICAR-IARI, New Delhi is the co-nodal center for testing the chilli, capsicum and paprika varieties for northern region of the country. The centre maintains fifty one reference varieties. The center evaluated 52 entries in summer season of 2018-19 from private companies which included 13 new entries, 18 entries under second year trial, 12 VCKs and 9 farmers' varieties along with reference varieties.

The candidate varieties were raised in three replications with approximately thirty plants per replication as per DUS guidelines. Some of the farmer's varieties have been found to have off types and were not completely pure lines. Some disparities in the claimed character and observed character of some candidate entries at the center were observed.

Table 51: No of entries for DUS Testing

Crops	New		VCK	FV
	1st	2nd		
Chilli, Capsicum, Paprika	13	18	12	9



Field view of DUS Trials at ICAR-IARI, New Delhi



Visit of monitoring filed to chilli field

3.1.52 University of Agricultural Science (UAS), Dharwad

3.1.53.1 Cotton: During 2018-19, centre was allotted eight entries for evaluation of DUS characters. The trial was laid out in RBD with 3 replications. Optimum plant population (120 plants) per replication was maintained in all the trial with the spacing of 90 x 60 cm (tetraploid) and 90x30 cm (diploid). Four

candidate varieties for 1st year, two candidate varieties for 2nd year and 2 VCK entries were evaluated during 2018 - 19. Sixty reference varieties were evaluated and maintained during 2018-19.

3.1.54.1.1 Soybean: Thirteen farmer varieties along with their respective reference varieties were sown in randomized block design with three replications. Optimum plant population of 360 plants per replication was maintained in all the replications with spacing of 45 x 10 cm. All the morphological and post-harvest observations were recorded and biochemical tests have been completed. 115 reference varieties were maintained and evaluated for DUS characteristics in separate block.

Table 51: Details of DUS testing of candidate varieties in 2018-19

Crops	New		VCK	FV		Date of monitoring
	1 st year entries	2 nd year entries		1 st year entries	2 nd year entries	
Cotton	4	2	2	-		-
Soybean	-	-	-	-	13	26/06/2018
Groundnut	-	1	-	-	7	-
Sesame	-	-	-	9	35	-

The crop growth and expression of morphological characters were good in all of the farmer varieties in Sesame. The expression of characteristics of each candidate variety was verified as per the proforma of PPV & FRA. The overall performance, crop growth, the method of conducting trial and recording of observation were excellent and encouraging. The soybean DUS trial was monitored by Dr. Mrinal Kuchlan, Nodal officer DUS Project, IISR, Indore and Dr. S A Desai, Registrar, PPVFRA along with Dr. B. Nandini, Co-nodal officer, DUS project of seed unit UAS, Dharwad and Dr. Priya K, Senior Research Fellow of DUS project. The review team, appreciated the layout and conduct of the experiment as per the DUS guidelines.

3.1.54.1.2 Sesame: Nine farmer's varieties for first year and thirty farmer's varieties for second year along with forty three reference varieties were sown in RBD with three replications. Optimum plant population of 240 plants per replications was maintained in all the replication. All the morphological and post harvest observations were recorded timely.

3.1.54.1.3 Groundnut: During 2018-19, one candidate variety in 2nd year trial and 7 farmer varieties along with 8 reference varieties were sown in RBD with three replications with the spacing of 30 x 10 cm. Recommended package of practices were followed to raise successful crop. Morphological and post harvest observations were recorded timely.

Table 52: Varieties under maintenance/characterized:

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2018-19	Source of varieties under maintenance breeding		Data Submission (Maintenance Breeding) Yes/No
		Own	Others(mention)	
Cotton	60	-	CICR, Coimbatore	Yes
Soybean	115	-	IISR, Indore	Yes
Groundnut	8	-	ICAR-IIGR, Junagadh	Yes
Sesame	43	-	PC Unit, Jabalpur	Yes

3.1.54.2 DUS test centre (Durum Wheat)

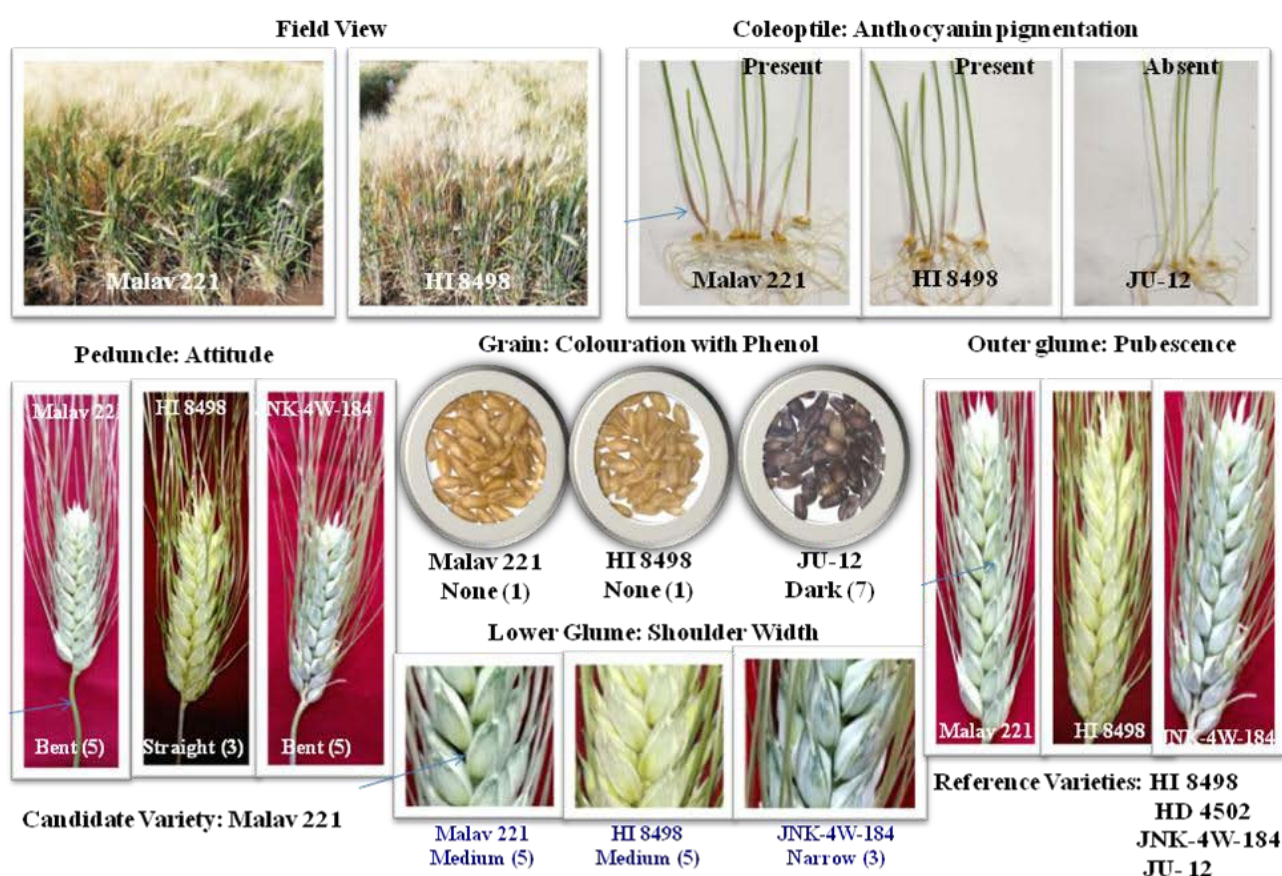
Table 53: Number of reference and example varieties maintained at the centre

Trial	Candidate/ Farmers varieties	Reference varieties	Checks
DUS Trial I	1	5	2
DUS Trial II	3	13	-
Example varieties maintained	-	17	-

The two DUS experiments were conducted at DUS test centre (Durum wheat), UAS, Dharwad comprised of 8 and 16 entries from trial I and trial II respectively. In DUS trial-I, one Candidate variety namely, Malav 221, five reference varieties and two check entries were included. Similarly, DUS trial-II comprised of three Farmers' variety and 13 Reference varieties. Totally, four candidate varieties of DUS trial-I and II were tested against 18 reference varieties and 2 check entries for total of 45 characters for growth habit characters, earhead characters, grain characters, etc.

Observations were recorded in DUS trials conducted during 2018-19 for the following descriptors : Coleoptile colour, Plant growth habit, Flag leaf auricle pigmentation, Flag leaf auricle pubescence, Foliage colour, 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 length, Peduncle Attitude, Grain coloration with phenol, Grain color, Grain shape, Grain crease, Brush hair length, Threshability, Rachis brittleness, Anther extrusion, Anther colour, Grain germ width, Awn presence, Seasonal type,

DUS CHARACTERS



Grain hardness, leaf length, leaf width, Plant height, Ear length, Awn length, Peduncle length, Seed size and male fertility.

The crop was raised during *Rabi* 2018-19 and harvested during the last week of March, 2019. Quantifiable variation in various DUS characters was observed among the candidate and reference varieties. However, in DUS trial I, the candidate variety Malav 221 found similar with reference varieties HI-8498, HD 4502, JNK-4W-184 and JU-12 for the characterized DUS traits namely, foliage colour, flag leaf anthocyanin colouration of auricles, lower glume shape and season type.

Claimed characters in grouping characters namely, ear: time of emergence, plant height, awn: colour, outer glume: pubescence and ear: colour differed from the observation made in the study.

3.1.55 ICAR-AICRP-Pigeonpea, Indian Institute of Pulses Research, Kanpur

- During FY 2018-19, total 109 farmers' varieties were characterized for all 21 different characters according to the DUS Test Pigeonpea guidelines of PPV & FRA.
- In kharif 2018-19, two farmers' varieties, viz., **Dudesing Arhar (Reg/2017/727)** and **Gajpal Arhar (Reg/2017/743)** were not sown because it was other crop species seed and reported during 2017-18 report.
- During 2018-19 we received 19 farmer varieties for DUS Testing. All the entries were successfully grown and characterized except one i.e. **Kumare Rahar (Reg/2017/1844)**



Table 54: No of varieties under testing and maintenance

Particulars	Details
No. of varieties for DUS Testing	<p>109 Farmers varieties</p> <p>90 Farmers varieties were in 2nd year DUS test, which was received during kharif 2017</p> <p>19 Farmers varieties were in 1st year DUS test, which were received during kharif 2018</p>
No. of reference & example varieties maintained at the centre	<p>Long Duration: NDA 1, PUSA 9, NDA 2, T-7, AMAR, DA 11, MA 3, MAL 13, BAHAR, MA 6, AZAD, IPA 9F, IPA 203, IPA 8F, IPA 15F, IPA 16F, KPL 43, IPA 2012-1, KPL-44, ALLAHABAD LOCAL, KUDRAT-3, ERRAMA CHCHAKAMTI, DHOLI DWARF. RAJENDRA ARHAR-1</p> <p>Medium Duration:BDN 708, LRG 38, ICPL 85063, AK 101, TS 3, WRG 27, BRG 2, LRG 30, GS 1, WRG 53, GC 11-39, JA-4, AKP-1, JKM 7, CO 5, JKM 189, GT 1, TV 1, VIPULA, VAMBAN-2, PT 221, AK 022, WRP 1, T 15-15, C 11, ICPL 332, TTB 7, CO 6, VBN-3, PRG-176, TJT 501, BSMR 853, BSMR 736, AASHA, MARUTHI</p> <p>Early Duration: PUSA 855, ICP 84031, PUSA 2001, PUSA 84, AL 15, PUSA 33, GT 100, AL 201, PUSA 991, GT 101, ICPL 151, CORG 9701, TAT 10, ICPL 87, PUSA 992, PA 291, AL 2091, AL 1992, PAU 881, VLA 1, UPAS 120, MANAK, PARAS, PUSA ARHAR-16</p>

3.1.56 CIMAP, Lucknow

Table 55: List of example and reference varieties under maintenance/ characterization.

S. No.	Crops	Name or Number of varieties under maintenance breeding in 2018-19	
		Number	Name of varieties
1	Menthol Mint	10	Kosi, MAS-1, Kalka, Shivalik, Gomti, Himalaya, Sakashm, Kushal, CIMAP, Saryu, CIM Kranti
2	Perwinkle	3	Dhawal, Nirmal, Prabal
3	Damask Rose	4	Ranisahiba, Noorjahan, Aligarh, Kanouj
	Brahmi	2	CIM-Jagriti, Subodhak



During the reporting period one candidate variety of menthol mint were under DUS testing at the centre for registration.

3.1.57 AICRP on Small Millets, GKVK, Bengaluru

During the Kharif 2018, second year DUS characterization has been done for Finger millet, Foxtail millet, Kodo millet and Little millet . The number of testing entries in finger millet and foxtail millet were characterized in replicated trials for DUS traits along with reference varietal sets as per the DUS guidelines prescribed for each crop by PPV&FRA. In kodo millet and little millet only farmers' varieties were characterized along with reference set.

Table 58: List of entries for testing

Crops	Total entries tested in 2018-19
Finger millet	23
Foxtail millet	8
Kodo millet	49
Little millet	86
No. of entries with mixture	14

Apart from this, three new entries were received one each in finger millet, little millet and kodo millet. In little millet and finger millet, entries did not germinated. One entry in kodo millet in replicated trials were characterized for DUS traits along with reference varietal sets as per the DUS guidelines prescribed for each crop by PPV& FRA.

Table 59: Number of reference and example varieties maintained at the centre

Crops	Name or No of varieties under maintenance breeding in 2018-19
Finger millet	77 Reference varieties
Foxtail millet	28 Reference varieties
Kodo millet	26 Reference varieties
Little millet	17 Reference varieties
Barnyard millet	12 Reference varieties
Proso millet	12 Reference varieties

Monitoring of DUS experiments were conducted at lead centre, PC Unit of AICRP on Small Millets, Bengaluru on 16th November 2018 and at co-operating centre CEM, Athiyandal, TNAU, on 17th November. The monitoring team consisted of Dr. Prabhakar, Chairman, Ex-Project Co-ordinator (Small Millets), Dr. TK Nagarathna, Registrar, PPV&FRA and Dr. TV Krishna, Junior Geneticist, as member.



3.1.58 ICAR-Indian Agricultural Research Institute, (Bougainvillea), New Delhi

ICAR-IARI, New Delhi acted as lead centre for Bougainvillea, the centre has maintained and characterized 100 example /reference varieties and multiplied from the original mother stock. One candidate under new category of Bougainvillea i.e *Geoffrey Nagpal* was under DUS testing at Centre.

3.1.59 ICAR-IIHR (Custard Apple & Papaya), Bengaluru

Fruit Exocarp Colour



Arka Sahan

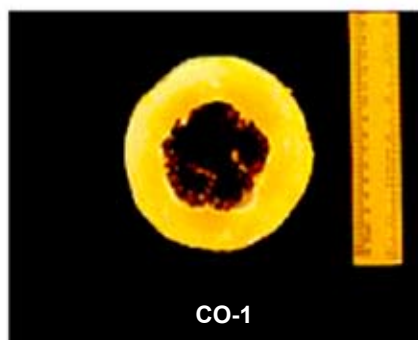


Balanagar

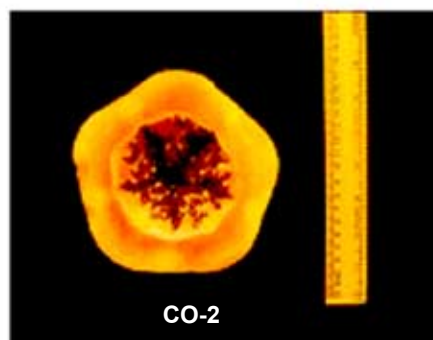


NMK-1

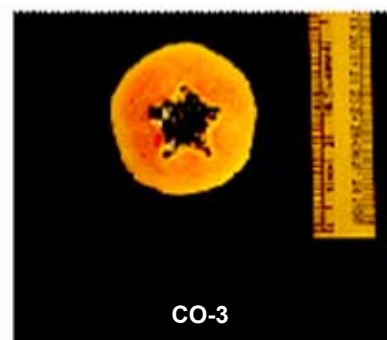
This centre is the lead centre for Custard Apple & Papaya and maintained/characterized 10 Custard Apple (*Balanagar*, *Raidurg*, *APK-1*, *Red Sitaphal*, *Mammoth*, *Barbados*, *Washington 07005*, *Washington 98797*, *Taiwan* and *Arka Sahan*) are being maintained in the field gene bank and 15 Papaya varieties (*Arka Prabhat*, *Arka Surya*, *Coorg Honey Dew*, *Sunrise Solo*, *Washington*, *Pant 2*, *PAU selection*, *Pusa Dwarf*, *Pusa Nanha*, *Pusa Giant*, *CO.1*, *CO.2*, *CO.3*, *CO.5*, *CO.6*, *CO.7*, and *CO.8*) as reference/example varieties. One Candidate variety NMK-1 tested and evaluated On-site for two years and data has been submitted to PPV&FRA. Tamil Nadu Agricultural University, Coimbatore is the collaborating DUS centre for Papaya 18 reference varieties has maintained and observed the traits in the field.



CO-1



CO-2



CO-3

3.1.60 ICAR- Central Institute for Arid Horticulture (Chironji and Tamarind), Godhra, Gujarat

DUS centre has maintained 10 genotypes/ cultivars of Chironji and 10 Tamarind varieties were maintained as reference varieties. The morphological characters like vegetative and fruiting attributes were recorded and characterized.



3.1.61 ICAR-Institute of Horticultural Research, Bengaluru

The centre has maintained 40 varieties (4 released, 36 FV/VCK/germplasm) in Betelvine and recorded observations of morphological characters.



Achievements

- DUS traits recorded in example varieties and 10 germplasm lines.
- DUS traits recorded onsite (two farmers' garden in two varieties).
- A total collection of 109 germplasm of betelvine being maintained under field gene bank which includes example varieties, released varieties and land races collected from different parts of the country.

3.1.61.1 Collaborating DUS centre for Betelvine: BCKV, Kalyani, WB

Table 60: The following 41 lines/varieties are maintained at this center

Bangla Cultivars				Sanchi Cultivars	
1.	Bagerhat Bangla	16	Lakshman	30	Halisahar Sanchi
2	Bankura Bangla	17	Malishapur Bangla	31	Kalipatti
3	Bhabani Bangla	18	Sada Bangla (Baheral)	32	Simurali Sanchi
4	Bhainchigodi	19	Sada Bangla (Fatepur -1)	33	Gangarampur Sanchi
5	Bhandarkhola	20	Sada Bangla (Fatepur -2)	Kapoori Cultivars	
6	Dogapan Sada	21	Sada Bangla (Gangarampur)	34	CARI-6 (AN)
7	Ghanagette	22	SGM -1	35	Kapoori (Chinacheppali)
8	Godi Bangla	23	Simurali Bhabna	36	Kapoori (Doddipatla)
9	Halisahar Jhal	24	Simurali Chamundali	37	Kapoori (Pedacheppali)
10	Harishpur Bangla	25	Simurali Deshi	38	Kapoori (Swarna)
11	Jabalpur Bangla	26	Simurali Gole Bhabna	Meetha Cultivars	
12	Kadwa	27	Uttare Pan	39	Meetha-1
13	Kal Bagini	28	CARI-2 (AN)	40	Meetha-2
14	Kali Bangla	29	Bilhari	41	Meetha-3
15	Kotki Bangla				



Betelvine germplasm in Boreja



Boreja (Outside)

3.1.62 ICAR- Indian Institute of Horticultural Research, Bengaluru (China Aster)

The centre has maintained 25 varieties and evaluated for morphological and quality characters as per DUS test guidelines (10 vegetative traits and 11 flower traits).

Ray floret: arrangement



*Semi-Upright
Arka Kamini*



*Horizontal
Matsumoto White*



*Reflexed
Arka Aadya*

Plant type



*Erect
Local White*



*Semi-erect
Phule Ganesh Pink*



*Spreading
Arka Aadya*

3.1.62.1 Collaborating DUS centre for China Aster: National Agriculture Research Project, Ganeshkhind, Pune, Maharashtra

At the collaborating DUS centre 08 China Aster varieties i.e. a) *Poornima*, b) *Kamini*, c) *Shashank*, d) *Violet chustion*, e) *PG White*, f) *PG Purple*, g) *PG Violet*, h) *PG Pink* were under maintenance and morphological characters recorded.

3.1.63 ICAR- Indian Agricultural Research Institute, New Delhi

The IARI, New Delhi is lead DUS centre for Chrysanthemum and maintained 88 example and reference varieties and recorded observations of morphological characters. ICAR-IIHR, Bengaluru acted as collaborating DUS centre and maintained 78 varieties as example and reference varieties. Total fourteen applications were received for registration (03 New, 03 farmer and 08 under Extant VCK category).

3.1.64 ICAR- Indian Institute of Horticultural Research, Hesaraghatta Lake Post, Bengaluru (Rose)

The centre is acting as Lead DUS centre for Roses and conducted DUS test for 03 candidate varieties at DUS centre and 101 varieties of Rose maintained as example and reference varieties and recorded observations of morphological characters. Total of 442 varieties are being maintained in the field repository.

A varietal digital repository on roses has been developed for 85 varieties. Database has been developed for the storage of the characterization data being collected, expanding the data base of more varieties. Images for many of the descriptors have also been included in the database. A web-enabled interface has been developed for the selective retrieval of varietal information having desired characters through drop down menus, Collection of more commercial varieties for Rose Repository are in progress.

3.1.65 ICAR- Indian Agricultural Research Institute, New Delhi (Marigold)

During the year under report, 50 genotypes (including 21 reference varieties/lines) of marigold were propagated in the nursery and transplanted in the main field at DUS centre. These varieties/lines were maintained well following standard cultural operations required for marigold crop. The sexually propagated reference varieties/lines were selfed after flowering. Undesired plants were roughed out before selfing to maintain purity of seed. In addition, one farmer's variety i.e. Pushkash was also grown along with reference varieties and selfed for purification this year also in order to enhance homozygosity before putting in DUS testing trial. Five reference varieties were subjected for DUS characterization. ICAR- IIHR, Bengaluru acted as collaborating DUS centre and DUS test conducted for 01 candidate varieties at DUS centre for Marigold and 43 varieties of Marigold under maintenance breeding characterized as example/reference varieties.

3.1.66 ICAR-National Research Centre on Pomegranate, Solapur, Maharashtra

During the year, total 25 varieties of pomegranate characterised under maintenance breeding as example and reference varieties. 47 new pomegranate accessions were collected from France and USA through NBPGR, New Delhi. Out of which, 12 accessions survived. In total, 360 pomegranate germplasm accessions are available at ICAR-NRCP, Solapur. In 2018-19, 18 pomegranate accessions were characterised for 36 DUS characters PPV&FRA guidelines along with their digital photographs. Second year On-site DUS testing of ICAR-NRCP, Solapur (NRCPH-6 and NRCPH-12) was carried out on 15.01.2019. The data showed that all the genotypes have tall growth with spreading habit. Shoot thorniness was medium in all accession: however it's low in IC-318706, IC-318702 and IC-318707.

3.1.67 ICAR- National Research Center for Banana, Trichy

The centre has conducted DUS test for 05 New, 28 VCK and 06 farmers candidate varieties of Banana and 18 varieties of Banana characterised under maintenance breeding as example/reference varieties i.e. *Anaikomban, Kanai Bansi, Red banana, Ney Poovan, Kunnan, Nendran, Poovan, Pachanadan, Malaikali, Jwari · Bale, Ladan pointed, Nendrapadathi, Karpuravalli, Peyan, Ankur II, Kachkel, Bangrier, Kothia, Nutepong, Pacha Bontha Batheesa, Birbutia, Ashy Batheesa, Sabri, Amrit Sagar, Local Balbisiana, Udhayam, Namwakhom, Popoulu.*

Out of 39 accessions (which included 28 reference accessions, 5 new accession and 6 farmers' varieties) planted, DUS characterization has been completed for 18 reference accessions and three farmers' varieties.

3.1.68 Rajasthan Agricultural Research Institute, Durgapura, Jaipur (Barley)

During rabi 2018-19, ninety nine released varieties and nineteen farmer's varieties of barley were evaluated and data recording done for all the thirty two characters/traits mandatory including both the qualitative as well as quantitative traits, for the project DUS on barley funded by the PPV&FRA, New Delhi.

For evaluation work two trials were framed i.e. DUS Trial - 1 and DUS Trial - 2. In DUS Trial - 1, following ninety nine released varieties were planted with two replications and evaluated for different qualitative as well as quantitative traits decided.

Table 61: List of entries under maintenance

S.No.	Variety	S.No.	Variety	S.No.	Variety	S.No.	Variety
1	Alfa93	26	DWRB123	51	Lakhan	76	RD2503
2	Amber	27	DWRB73	52	LSB2	77	RD2508
3	Azad	28	DWRB91	53	Manjula	78	RD2552
4	BCU73	29	DWRUB64	54	Norboo	79	RD2592
5	BG25	30	DWRB137	55	NB1	80	RD2624
6	BG105	31	Gitanjali	56	NB2	81	RD2660
7	BH75	32	HBL113	57	NB3	82	RD2668
8	BH393	33	HBL276	58	NDB943	83	RD2715
9	BH885	34	HBL316	59	NDB1173	84	RD2786
10	BH902	35	HBL391	60	NDB1445	85	RD2794
11	BH946	36	Himani	61	PRB502	86	RD2849
12	BH959	37	HUB113	62	PL56	87	RD2899
13	BHS46	38	Jagrati	63	PL172	88	RD2907
14	BHS169	39	JB58	64	PL419	89	RDB1
15	BHS352	40	JB1	65	PL426	90	RS6
16	BHS380	41	Jyoti	66	PL751	91	Sindhu
17	BHS400	42	K141	67	PL807	92	Sonu
18	Bilara2	43	K409	68	Raj Kiran	93	UPB1008
19	Clipper	44	K508	69	Ranjeet	94	Vijaya
20	DL88	45	K551	70	Ratna	95	VLB1
21	Dolma	46	K560	71	RD31	96	VLB56
22	DWR28	47	K603	72	RD57	97	VLB85
23	DWRUB52	48	Kailash	73	RD103	98	VLB94
24	DWRB92	49	Karan16	74	RD2035	99	VLB118
25	DWRB101	50	Kedar	75	RD2052		

Table 62: In DUS Trial – 2, following farmers varieties were planted.

Denomination	Category	Reference variety
Bhagat Jau-1, Jau Amarwah, Vikrampur Jwar, Sinhai Jwar, Nimha Jwar, Krishna Jwar, Jwa Nathuram, Jwa Gajendra, Surendra Jawa, Pratap Jawa, Rama Jawa Paspi, Chikna, KRISHNA, JAU SURILOCAL (GKSS JAU-1), JAU SURILOCAL (GKSS JAU-2), JAU SURILOCAL (GKSS JAU-3)	Farmer	DL 88, K 603, PRB 502, PL 172, PL 807, Ranjeet, RDB 1, RS 6

All the above ninety nine released varieties, farmer's varieties and seven reference varieties of barley were maintained at this center. Observations were recorded on randomly selected ten plants for each variety in both the replications and their values were averaged. Data recording for characters 1-26 was done in standing crop in the field while for grain characteristic (27-32) observations were made after harvesting.

The trials were very good as in this year of crop season, the winter was prolonged due to this there is no any adverse effect of high temperature during the maturity period so the yields are good. Monitoring was not done as the monitoring team was not visited our center.

3.1.69 ICAR- Seed Technology Research Unit (MPKV), Rahuri

Table 63: No. of varieties for DUS testing at STRU, MPKV, Rahuri.

Sr. No.	Crop	Season	I st year	II nd year	Total
1.	Sorghum	<i>Kharif</i>	10 (*)Farmers Varieties)	01 (Candidate Varieties)	11
		<i>Rabi</i>	10 (Farmers Varieties)	42 (Farmers Varieties)	52
2.	Pearl millet	<i>Kharif</i>	13 (Candidate Varieties) + 02 (Farmers Varieties) = 15	23 (Candidate Varieties) + 01 (Farmers Varieties) = 24	39
3.	Chick pea	<i>Rabi</i>	08 (Farmers Varieties)	32 (Farmers Varieties)	40

(*) These farmers varieties were of *rabi* type hence all these varieties were tested in *rabi* 2018

Table 64: No. of reference & example varieties maintained at the centre

Crop	No. of varieties maintained
Chick Pea	13

3.1.69.1 Summary of the DUS trial (Sorghum)

The hard copy of duly signed field books with data comparison sheet and single page format of data comparison sheet of (01 candidate + 02 reference varieties) for second year of DUS testing in *kharif* 2018 season was submitted to Nodal center, IIMR, Hyderabad on 27.11.2018. The hard copy of duly signed field books with data comparison sheet and single page format of data comparison sheet of (10 Farmers varieties + 01 reference variety) for first



year of DUS testing and (42 farmers variety + 05 reference variety) for second year of DUS testing during *rabi* 2018 season was submitted to Nodal center, IIMR, Hyderabad.

3.1.69.2 Summary of the DUS trial (Pearl millet)

The hard copy of duly signed field books with data comparison sheet and single page format of data comparison sheet of 36 candidate varieties and 03 Farmers varieties along with 14 reference varieties of pearl millet for first and second year of DUS testing during *khariif* 2018 season was submitted to Nodal center, Project Coordinator, Pear millet, AICPMIP-ICAR, Mandor, Jodhpur.

3.1.69.3 Summary of the DUS trial (Chick pea)

The hard copy of duly signed field book with data comparison sheet and single page format of data comparison sheet of 08 farmers varieties for first year and 32 farmers varieties for second year trial along with 12 reference varieties of chick pea for *rabi* 2018 season was submitted to Nodal center, Project Coordinator, Chick pea, IIPR, Kanpur.



Table 65: DUS Monitoring

Sr. No	Crop	Season	Date of monitoring	Name of committee members
01	Sorghum	<i>Khariif</i>	9 th October 2018	Dr J.V. Patil, Chairman, Sorghum DUS Monitoring and Former Director IIMR, Hyderabad. Dr. S.B. Gurav, Deputy Registrar, PPV & FRA, New Delhi, Branch office Pune. Dr. V.R. Shelar, Nodal Officer and Seed Research Officer, STRU, MPKV, Rahuri.
		Rabi	22 nd January 2019	Dr. T. Pradeep, Chairman, Sorghum DUS Monitoring and Principal Scientist, PJTSAU, Hyderabad. Dr. T.K. Nagarathna, Registrar, PPV & FRA, New Delhi. Dr. S.B. Gurav, Deputy Registrar of PPV & FRA, New Delhi, Branch office Pune. Dr. Hariprasanna K., Principal Scientist, IIMR, Hyderabad. Dr. V.R. Shelar, Nodal Officer and Seed Research Officer, STRU, MPKV, Rahuri.
02	Pearl millet	<i>Khariif</i>	16 th October 2018	Dr. H.T. Patil, Chairman, Pearl millet DUS Monitoring and Bajra breeder, Bajra Research Scheme, College of Agriculture, Dhule. Dr. S. B. Gurav, Deputy Registrar of PPV & FRA, New Delhi, Branch office Pune. Dr. V.R. Shelar, Nodal Officer and Seed Research Officer, STRU, MPKV, Rahuri
03	Chick Pea	<i>Rabi</i>	-	Monitoring not done

3.1.70 ICAR- Dr Y S Parmar University of Horticulture and Forestry, Nauni

During the reporting period, DUS centre has also maintained 17 number of reference/example varieties in *Salix* and characterized. The details are as under:-

Table 66: List of entries for maintenance of referral collection

S. No.	Name of Clones	Species/hybrid	Collection Source
1.	PN-731	<i>S. nigra</i>	New Zealand
2.	SE-63-016	<i>S. jessoensis</i>	Italy
3.	PN 227	<i>S. matsudana</i>	UK
4.	FLS	<i>Salix tetrasperma</i>	Local collection
5.	SI-64-017	<i>S. alba</i>	Italy
6.	SI-63-007	<i>S. alba</i>	Italy
7.	006/05	<i>S. alba</i> cv. <i>caerulea</i>	UK
8.	Ghagas	<i>S. acmophylla</i>	Bilaspur (HP)
9.	J 799	<i>S. matsudana</i> x <i>S. alba</i>	UK
10.	NZ-1140	<i>S. matsudana</i> x <i>S. alba</i>	UK
11.	131/25	<i>S. babylonica</i> x <i>S. alba</i>	UK
12.	J-194	<i>S. matsudana</i> x <i>S. arbutifolia</i> x <i>S. matsudana</i>	UK
13.	J-795	<i>S. matsudana</i> x <i>S. alba</i>	UK
14.	Austree	<i>S. matsudana</i> x <i>S. alba</i>	UK
15.	Kashmiri Local	<i>Salix alba</i>	Jammu and Kashmir
16.	V-99	<i>Salix</i> x <i>rubens</i>	Croatia
17.	DEVMATA	<i>Salix tetrasperma</i>	Rajasthan

During the reporting period DUS centre has maintained 15 number of reference/example varieties and characterized.



Table 67: The details are as under:-

S. No.	Name of Clones	Source
1-4	L-30/06, L-62/84, G-48, L-61/05	Lalkuan, Haldwani, Uttarakhand
5-8	S ₇ C ₁₅ , S ₇ C ₈ , WSL22, WSL39	WIMCO Seedling
9-12	6503, 5503, 1007, L-200/86	Dept. of TIGR,UHF, Nauni
13-15	PL-3, PL-6, PL-7	PAU, Ludhiana

3.1.71 ICAR-Directorate of Cashew Research, Puttur

A total of 44 varieties characterized and maintained. Digital database developed and a block of reference varieties (30 No.) has been established during the year 120 germplasm accessions has been assessed. 44 released varieties that are characterized for 68 characters are maintained in the National Cashew Field Gene Bank. The block of 30 reference varieties is maintained.



3.1.72 ICAR-Central Institute for Subtropical Horticulture, (Aonla) Lucknow

ICAR-CISH, Lucknow is the Lead DUS centre has maintained and characterized 08 example varieties i.e. *NA-6, NA-7, NA-10, Kanchan, Krishna, Banarasi, Chakaiya, Francis*. CHES, Godhra, Collaborating DUS Center for Aonla are also maintaining nine example varieties viz., *NA-7, NA-6, Banarasi, Chakaiya, Francis, Anand-1, Anand-2, NA-4* and *NA-5* at DUS centre. A farmer's variety from Maharashtra is under On-site DUS received in 2018-19; work On-site testing has been initiated during the year.



Different views of aonla variety NA-7

3.1.73 ICAR-Central Horticultural Experiment Station, (Bael), Godhra, Gujarat



CHES, Godhra, Gujarat is the Lead DUS centre for Bael and maintained 12 example/reference varieties (*Goma Yashi, CISH-B-1, CISH-B-2, NB-16, NB-17, NB-5, NB-7, NB-9, Pant Aparna, Pant Shivani, Pant Sujata and Pant Urvashi*) at DUS centre. Application for 13 farmer's varieties is received out of which 5 FV from Chhattisgarh are under testing during current year. CISH-Lucknow acted as Collaborating Centre for Bael.



3.1.74 ICAR- NRC on Litchi, Mushahari, Muzaffarpur, Bihar

DUS centre for Litchi is maintaining nine litchi varieties as example and reference varieties viz., *CHL-4, CHL-7, SARGUJA Sel- 1, CSL-1, CSL-2, CSL-3, CSL-4, CSL-5* and *CSL-6* evaluated for morphological characterization.

3.1.75 CSIR-National Botanical Research Institute, (Canna and Gladiolus and Collaborating DUS centre for Bougainvillea) Lucknow, Uttar Pradesh

CSIR-National Botanical Research Institute, Lucknow, Uttar Pradesh is the Lead Centre for Canna and Gladiolus and Collaborating centre for Bougainvillea. The centre has maintained and characterized 125 Bougainvillea, 41 Canna and 81 Gladiolus as example and reference varieties by recording morphological characters.



3.1.76 DUS centre for Neem, Karanj and Jatropha: Forest College and Research Institute, Tamil Nadu Agricultural University, Mettupalayam, Tamil Nadu

FCRI, Mettupalayam has maintained 32 Neem, 32 Karanj and 18 Jatropha varieties as example/reference varieties and recorded morphological characters. One candidate variety of Gurusthan Neem filed by Shri Saibaba Sansthan was under On-site DUS testing for registration.



3.1.77 ICAR-IARI, Regional Station, Katrain, Kullu

It is a DUS Centre for Cabbage and Cauliflower (mid late group). Two new entries of cabbage supplied by PPV&FRA were tested along with the reference & example varieties/ hybrids for second year for 28 DUS characteristics, including four grouping characters. The trial was monitored on 19-2-19 and the evaluation sheets and trial data was submitted to PPV&FRA subsequently.

Table 68: No. of reference & example varieties maintained at the centre

Crops	Number of reference varieties maintained at IARI, New Delhi	Number of reference varieties maintained at IARI Regional Station, Katrain, Kullu valley, H.P.
Cauliflower	7	8
Cabbage	1	13

3.2 Field Gene Banks

3.2.1 BBSKKV, Dapoli, Maharashtra

Centre is maintaining a Field Gene Bank mandated to crop species in Western India eco system. The salient details are as follows:

3.2.1.1 Varieties under maintenance/Characterised

Table 69: No of varieties/germplasm lines under maintenance

Sr. No.	Crop	No. of varieties/Ecotypes under maintenance
1.	Mango	36
2.	Turmeric	13 Ecotypes
		31 Varieties
3.	Cardamom	5
4.	Citrus	4 Species
5.	Kachai Lemon	1
6.	Black pepper	6
7.	Banana	30+8
8.	Nutmeg	1 Variety (3 Plants)
9.	Jackfruit	2 Variety (14 Plants)
10.	Farmers' varieties	160

3.2.3.2 Collected and conserved the following material in Field Gene Bank

Table 70: List of species where collections were made

Sr. No.	Name of species	No. of germplasm collected	Source
1.	Mango	20 Varieties	RFRS Mango Research Station Vengurla, Department of Horticulture, Dapoli. CES Wakwali, Shri. Bhushan Padmakar Nabar, Math, Vengurle
2.	Mango (Villaikolamban)	280 Plants	CES, Wakawli
3.	Banana	30 Varieties	NRC, Tamil Nadu
4.	Citrus	3 Varieties	National Research Centre for citrus, Nagpur
5.	Turmeric	38 Varieties	Dr. Ashok Chiwate, Agri. Research Station Digras Sangli, Indian institute of Spices Research Farm, Peruvannamuzhi, Shri Sanjay Jadhav, Badlapur, Maharashtra
6.	Ginger	4 Varieties	Dr. Ashok Chiwate, Koregaon, Maharashtra, Agri. Research Station Digras Sangli, Shri. Shripad Digamane, Sangli, & Shri. Santosh Darekar, Borgaon, Satara.

3.2.3.3 Material received and conserved in the Field Gene Bank

Table 71: List of material received at FGB

Sr. No.	Name of species	No. of germplasms received	Source
1.	Banana	8 Varieties	Sri Vijayan, President, Chengalikodan Banana Growers Association Erumaprtty, Thrissur, Kerala
2.	Kachai Lemon	10 Plants	Manipur Centre, Imphal
3.	Jackfruit	2 Varieties	PPV & FR Authority, New Delhi.
4.	Chilli	15 gm	Central Costal Agri. Research Institute, Goa
5.	Turmeric	2 Varieties	Punjab Agri. University Ludhiana
6.	Planting Material	160 Plants	IPR Cell, Kerala Agricultural University, Kerala
7.	Yam	5 Varieties	Shaji . N. M. Arattuthara wayanad, Kerala
8.	Planting Material	42 Plants	Mr. P. V. Jose, Pullan House, Chalakkudy Perambra, Pootta, Thrissur Kerala 680722.
9.	Planting Material	21 species	Mr. K. R. Jayan, Kaipully Madam, Avittathur, Kallettumkara, Thrissur Kerala 680683.
10.	Planting Material	44 species	Mr. Raveendran. R., Reji Bhavan, KRA 172, Panachavila Lane, Ulloor, Medical College P. O., Thiruvananthapuram, Kerala 695011
11.	Planting Material	21 species	Mr. K.R. Jayan, Kaipully Madam, Avittathur, Kallettumkara, Thrissur Kerala 680683.
12.	Medicinal (Seed material)	1 species	Mr. Prasad Rama Hedge Kankodlu Village Hemmadi Post, Yellapur Taluk- 581402 Uttara Kannada District, Karnataka State India.
13.	Lime (Plant)	6 plants	
14.	Lime (Scion Material)	4 Species	
15.	Lime (Seed material)	6 species	
16.	Banana	5 Varieties	
17.	Dalchini	2 Varieties	
18.	Mango	39 Varieties	
19.	Black Pepper	Varieties	

3.2.3.4 Varieties nominated for registration being maintaine maintained in Field Gene Bank

Table 72: Variety submitted for registration

Sr. No.	Name of species	Nominated name	No. of germplasm nominated	Source
1.	Coconut	Konkan Bhatye Coconut Hybrid-1	30 Nuts	Regional Coconut Research Station, Bhatye, Ratnagiri

3.2.4 National Gene Bank, NBPGR Old Campus, New Delhi

3.2.4.1 Medium Term Storage of Seeds of Registered Varieties & DUS Repository

Seed samples of 3427 varieties notified under section 5 of the Seeds Act, 1966 are being kept in seed cabinets designed specifically for seed storage. These are being kept under controlled conditions of 4°C temperature and 30±5% relative humidity, to ensure that their viability is maintained for longer duration. The seed samples of registered varieties are stored up to the period of protection and viability is checked at prescribed intervals as per crop specific standards and requirement. A total of 6972 seed samples of various categories of varieties were arranged in DUS test repository.

3.2.4.2 Short Term storage of seeds of varieties under DUS testing

Progress of seed samples of registered varieties conserved in the National Gene Bank under

Table 73: Medium term storage condition & DUS Repository (as on 31 March, 2019)

S. No.	Crops	DUS Test Repository (STS)					Medium Term Storage					GRAND TOTAL (A+B)
		(Candidate varieties for DUS test kept at 22°C)					(4°C)					
		SEED RECEIVED A					CERTIFICATE ISSUED B					
		New	VCK +EDV	Farmer	Extant Notified	Total (A)	New	VCK +EDV	Farmer	Extant Notified	Total (B)	
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Wheat	22	7	91	19	139	25	5	24	135	189	328
2	Brinjal	111	88	78	4	281	5	24		11	40	321
3	Cabbage	17	1			18				1	1	19
4	Castor	4	2	7		13	3	2		5	10	23
5	Cauliflower	37	11	13	1	62	1			3	4	66
6	Chickpea			73	3	76	2		2	46	50	126
7	Cotton	403	190 157	1	14	765	74	126+1	1	79	281	1046
8	French Bean			4		4						4
9	Pea	3	2	81	2	88				27	27	115
10	Green Gram	4	1	50	5	60		1	2	30	33	93
11	Groundnut	3		19		22				34	34	56
12	Jute	8	1	4		13	6			11	17	30
13	Lentil			58		58				12	12	70
14	Linseed			49	2	51				5	5	56
15	Maize	271	43	280	8	602	105	50	6	76	237	839
16	Mustard	14	9	59	2	84	3	12	6	51	72	156
17	Okra	76	43	16	2	137	8	12		15	35	172
18	Onion	3	12	5	2	22				8	8	30
19	Pearl Millet	137	25	18	8	188	43	30		49	122	310

1	2	3	4	5	6	7	8	9	10	11	12	13
20	Pigeon Pea	13	2	163	4	182	8	2	7	20	37	219
21	Rapeseed			21	1	22			5	13	18	40
22	Rice	278	33+2	2252	53	2618	89	46	1526	181	1842	4460
23	Safflower	1		1	3	5				6	6	11
24	Sesame			58	1	59			1	10	11	70
25	Sorghum	58	8	58	5	129	57	36	4	37	134	263
26	Soybean	3		22	2	27	2	1		31	34	61
27	Sunflower	63	7			70	28	17		10	55	125
28	Tomato	118	79+3	17	8	226	12	17		10	39	265
29	Urdbean	2	1	109	2	114			1	19	20	134
30	Kidney Bean		2	20		22		2		8	10	32
31	Corriander	1		30		31				1	1	32
32	Bitter Gourd	13	21	11		45						45
33	Pumpkin			28		28				3	3	31
34	Bottle Gourd	8	10	42		60				4	4	64
35	Cucumber	7	20	14		41				2	2	43
36	Barley	5	5	26	4	40		1		14	15	55
37	Fenugreek			9		9						9
38	Watermelon	4	14			18						18
39	Muskmelon	5		1		6				2	2	8
40	Finger Millet	1		32	5	38				5	5	43
41	Foxtail Millet			23	1	24				1	1	25
42	Chilli	99	103	15	8	225				7	7	232
43	Ridge Gourd	8		18		26				1	1	27
44	Vegetable Amaranth			3		3				1	1	4
45	Spinach Beet									1	1	1
46	Little Millet			75	1	76				1	1	77
47	Isabgol			1		1						1
48	Barnyard Millet			35		35						35
49	Custard Apple			1		1						1

1	2	3	4	5	6	7	8	9	10	11	12	13
50	Grain Amaranth			1		1						1
51	Kodo Millet			96		96						96
52	Kulthi (Horsegram)			1		1						1
53	Marigold			3		3						3
54	Papaya			2		2						2
55	Perilla			1		1						1
56	Spider Flower (Cleome Viscosa)			1		1						1
57	Faba Bean			1	1	2						2
58	Lima Bean				1	1						1
59	Turmeric				1	1						1
	TOTAL	1800	902	4097	173	6972	471	385	1585	986	3427	10399

3.2.4.3 Monitoring of registered varieties for viability and moisture content

Seeds samples of 232 registered varieties stored in the Gene-bank (MTS) of PPV&FRA were tested after 5 years of their storage for cereals and legumes.

Table 74: Monitoring data for germination and moisture

Crops	No. of varieties monitored during 2018-19	Germination Range	Moisture range
Maize	1	0-100	5.3350-12.7043
Cotton	10	38-96	5.8716-12.2888
Chickpea	1	74-100	9.0295-14.0893
Jute	2	80-94	9.7473-13.1695
Wheat	10	100-100	8.1576-14.6973
Pearl Millet	19	54-100	8.19855-13.5723
Rice	151	0-100	5.7819-14.5659
Brinjal	4	64-100	10.072-13.233
Sorghum	29	52-100	6.5524-13.689
Black gram	1	94	12.8749
Pigeonpea	2	64-74	8.3710-8.4718
Green Gram	1	82-98	8.771
Garden Pea	1	94	11.3815-11.62

3.2.4.4 Seed Standards

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		3	4	6	7	8	9	10
2	Rice (<i>Oryza sativa</i> L.)		3000	80	11-12%	98	Kharif-March-Apr	230x300
3	Bread Wheat (<i>Triticum aestivum</i> L.)		3000	95	8-9%	98	Rabi-Aug	230x300
4	Maize (<i>Zea mays</i> L.)		3000	80 (inbred/SCH) 90 (var/DCH)	8-10%	98	Kharif-Mar-Apr Rabi-Aug	230x300
5	Sorghum (<i>Sorghum bicolor</i> (L.) Moench)		3000	80 (inbred/SCH) 90 (var/DCH)	10-12%	98	Kharif-March Rabi-Aug	230x300
6	Pearl Millet (<i>Pennisetum glaucum</i> (L.) R.Br.)	1/11/2006	1000	80 (inbred/SCH) 90 (var/DCH)	10-12%	98	Kharif-March	165x220
7	Chickpea (<i>Cicer arietinum</i> L.)		2000 (desi) 3000 (kabuli)	95	8-9%	98	Rabi-Aug	230x300
8	Green Gram (<i>Vigna radiata</i> (L.) Wilczek)		1000	95	8-9%	98	Kharif-March	230x300
9	Black Gram (<i>Vigna mungo</i> (L.) Hepper)		1000	95	8-9%	98	Kharif-March	165x220
10	Field Pea (<i>Pisum sativum</i> L.)		2000	85	8-9%	98	Rabi-Aug	230x300
11	Kidney Bean (<i>Phaseolus vulgaris</i> L.)		3000	85	8-9%	98	June-July	230x300
12	Lentil (<i>Lens culinaris</i> Medik)		1000	85	8-9%	98	Rabi-Aug	230x300
13	Pigeonpea (<i>Cajanus cajan</i> (L.) Millsp.)		2000	95	8-9%	98	Kharif-Mar	230x300
14	Cotton (<i>Gossypium hirsutum</i> L.)		2000	75	10	98	Kharif-North-Feb Peninsular-South-May	230x300
15	Cotton (<i>G. barbadense</i> L.)		2000	75	10	98	Kharif-North-Feb Peninsular-South-May	
16	Cotton (<i>G. arboreum</i> L.)	31/12/2007	1500	75	10	98		
17	Cotton (<i>G. herbaceum</i> L.)		1500	75	10	98		
18	Jute (<i>Corchorus capsularis</i> L.)		1000	85	9	97	Pre-Kharif-early Jan	165x220
19	Jute (<i>Corchorus olitorius</i> L.)		1000	85	9	97	Pre-Kharif-early Jan	

1	2	3	4	5	6	7	8	9	10
19	Sugarcane (<i>Saccharum L.</i>)		400 single bud sett						
20	Ginger (<i>Zingiber officinale</i> Rosc.)	27/7/2009	5000 g (clean and whole sum rhizome of 25-30 g each of 150 pieces)						
21	Turmeric (<i>Curcuma longa</i> L.)		6 kg (clean and whole sum fresh rhizome with 35-40% moisture content)						
22	Indian Mustard (<i>Brassica juncea</i> L. Czern & Coss)		500	250					
23	Karan rai (<i>Brassica carinata</i> A Braun)		500	250					
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					
26	Groundnut (<i>Arachis hypogaea</i> L.)		3000 (Spanish & Valencia) 8000 (kernel) for Virginia bunch and runner type	1500 4000	80	9	98	Kharif: May-June Rabi: Aug-Sept	300x450
27	Soybean (<i>Glycine max</i> (L.) Merrill)	30/4/2010	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	Sesamum (<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 no of rooted cuttings						
34	Small cardamom (<i>Elettaria cardamomom</i> Maton)		50 Suckers						
35	Tomato (<i>Lycopersion lycopersicum</i> (L.) Karsten ex. Farw.)		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.)	2/12/2010	200	-					
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

1	2	3	4	5	6	7	8	9	10
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
70	Almond (<i>Prunus dulcis</i> (Mill.) D.A. Webb)		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.)		60 rooted plant (plant should be in 250 cc root trainer) having minimum age of 6 months						
80	Tea (<i>Camellia sinensis</i> L.)		75 Plants (15-18 inches height), young plant having pencil thick stem with their own root						
81	Tea (<i>C. assamica</i>)		75 Plants (15-18 inches height), young plant having pencil thick stem with their own root						
82	Tea (<i>C. assamica</i> ssp lasiocalyx.)		75 Plants (15-18 inches height), young plant having pencil thick stem with their own root						
83	Acid Lime (<i>Citrus aurantifolia</i> Swingle)	16/10/2014	10 plants for each DUS centre. Age should be above six months						
84	Mandarin (<i>Citrus reticulata</i> Blanco)		10 plants for each DUS centre. Age should be above six months						
85	Sweet Orange (<i>Citrus sinensis</i> (L.) Osbeck)		10 plants for each DUS centre. Age should be above six months						

1	2	3	4	5	6	7	8	9	10
86	Bougainvillea (<i>Bougainvillea</i> Comm. Ex Juss.)		10 well rooted and established plant						
87	Banana (<i>Musa</i> spp.)		40 uniform tissue cultured plant in one submission per location						
88	Orchid (<i>Oncidium</i> sw.)		20 plants 2-3 year old with at least two pseudo-bulbs/shoots						
89	Canna (<i>Canna</i> L.)		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.)	21/1/2015	100 gm seed for open field cultivation	-	80	8	98		
92	Watermelon (<i>Citrullus Lanatus</i> (Thumb.) Mansf.)		150 gm seed for open field cultivation	-	80	8	98		
93	Jasmine (<i>Jasminum auriculatum</i> . L.)		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						
95	Papaya (<i>Carica papaya</i> L.)		20 gm for gy-nodioecious 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.)	2/7/2015	10 grafted or budded plants						
99	Strawberry (<i>Fragaria x ananasa</i> n Duch.)		120 runners or plant propugules or seedling plants (tissue cultured plant hardened at 4-5 leaf Stage)						
100	Chilli, Bell Pepper and Paprika (<i>Capsicum annuum</i> L.)		15 gm for Open polinated crop & 10 gm for Hybrid and Parental line	-	85	8	98		
101	Finger Millet (<i>Eleusine coracana</i> (L.) Gaertn.)		250 gm & 10 Panicles	-	80	10-12%	97%		
102	Foxtail Millet (<i>Setaria italica</i> (L.) Beauv)		250 gm & 10 Panicles	-	80	11-12%	97		

1	2	3	4	5	6	7	8	9	10
103	Vegetable Amaranth (<i>Amaranthus tricolor</i> L.)		150 g (in one submission only)	80	<8%	98			
104	Ridge gourd (<i>Luffa acutangula</i> (L.) Roxb.)	19/4/2016	250g or 1500 seeds (in one submission only)	80	<8%	98			
105	Spinach beet (<i>Beta vulgaris</i> var. <i>bengalensis</i> Roxb.)		250 g (in one submission only)	80	<8%	98			
106	Carnation (<i>Dianthus caryophyllus</i> L.)		150 rooted cuttings						
107	Orchid (<i>Paphiopedilum</i> Pfitz.)		10 plants for each centres						
108	Noni (<i>Morinda citrifolia</i> L.)		10 grafted or budded plants for each location						
109	Bael (<i>Aegle marmelos</i> (L.) Correa)		5 Plants for each centres						
110	Jamun/Black plum (<i>Syzygium cumini</i> (L.) Skeels.)		07 grafts for each location						
111	Nutmeg (<i>Myristica fragrans</i> Houtt.)	13/7/2016	10 grafted or budded plants for each location						
112	Jasmine/Mogra (<i>Jasminum sambac</i> L.)		20 rooted plants for each location						
113	Custard apple / Sugar apple (<i>Annona squamosa</i> L.)		8 grafts						
114	Kalmegh /King of Bitters (<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees)		30 gm	95%	8-9%	98			
115	Neem (<i>Azadirachta indica</i> A. Juss.)		40 clonally rooted plants with 60 cm height						
116	Karanj (<i>Pongamia pinnata</i> (L.) Pierre.)		40 clonally rooted plants with 60 cm height						
117	Indian Gooseberry (<i>Emblica officinalis</i> Gaertn.)		03-04 months old plants						
118	Betelvine (<i>Piper betle</i> L.)		Rooted cutting terminal shoots shall be 3 months old with 25 cm height						
119	Marigold (<i>Tagetes</i> spp. L.)	12/5/2017	10 gm seed or 200 Nos rooted cuttings	80%	Not more than 8%	98%			
120	Guava (<i>Psidium guajava</i> L.)		10 grafts/ air layers for each locations						
121	Litchi (<i>Litchi chinensis</i> Sonn.)		7 air layers for each location						
122	Deodar (<i>Cedrus deodara</i> (Roxb.) G. Don)		5 trees						

1	2	3	4	5	6	7	8	9	10
123	Chir pine (<i>Pinus roxburghii</i>) Sargent		5 trees						
124	Mulberry (<i>Morus</i> spp.)		50 stem cuttings of 12-15 cm length & 1.0-1.5 cm diameter						
125	Jasmine (<i>Jasminum multiflorum</i> L.)		20 numbers of 6 months old, fully rooted plants						
126	Buckwheat (<i>Fagopyrum esculentum</i>)		500 gram	80%	not more than 10%	98%			
127	Buckwheat (<i>Fagopyrum tataricum</i>)		500 gram	80%	not more than 10%	98%			
128	Grain Amaranth (<i>Amaranthus hypocondricus</i>)		50 gram	80%	not more than 10%	98%			
129	Grain Amaranth (<i>A. cruentus</i>)		50 gram	80%	not more than 10%	98%			
130	Grain Amaranth (<i>A. caudatus</i>)		50 gram	80%	not more than 10%	98%			
131	Grain Amaranth (<i>A. edulis</i>)		50 gram	80%	not more than 10%	98%			
132	Faba bean (<i>Vicia faba</i> L. var. major Harz)		150 gram	70%	not more than 9%	98%			
133	Elephant Foot Yam (<i>Amorphophallus paeoniifolius</i>)		36 tubers 200-400g each						
134	Taro (<i>Colocasia esculenta</i> var. <i>esculenta</i> , <i>Colocasia esculenta</i> var. <i>antiquorum</i> , <i>Colocasia esculenta</i> var. <i>stoloniferum</i>)		36 tubers 30-40g each						
135	Taro (<i>Cyrtosperma chamissonis</i> / <i>C. merkusii</i>)		36 tubers 30-40g each						
136	Jatropha (<i>Jatropha curcas</i> L.)		60 rooted plants with 60 cm height, in June-July						
137	Barnyard millet (<i>Echinochloa frumentaceae</i> (Roxb.) Link)		250 grams seed with 10 panicles	80%	12%	97%			
138	Kodo millet (<i>Paspalum scorbiculatum</i> L.)		500 grams seed with 10 panicles	80%	12%	97%			
139	Little millet (<i>Panicum sumatrense</i> Roth. Ex Roemer And Schultes)		150 grams seed with 10 panicles	80%	12%	97%			

1	2	3	4	5	6	7	8	9	10
140	Proso millet (<i>Panicum miliaceum</i> L.)		200 grams seed with 10 panicles	80%	12%	97%			
141	Giant Swamp - Taro								
142	Cashew (<i>Anacardium occidentale</i> L.)	23/10/2017	8 grafted plants						
143	Arecanut (<i>Areca catechu</i> L.)		10 numbers of one year-old seedlings						
144	Chironji (<i>Buchanania lanzan</i> Sperrng.)		09 grafts for each location						
145	Tamarind (<i>Tamarindus indica</i> L.)		09 grafts for each location						
146	Sweet potato (<i>Ipomoea batatas</i> (L.) Lam.)	9/1/2018	150 vine cuttings (each one with a length of 30cm with 5 to 8 buds) for both centres						
147	Cassava (<i>Manihot esculenta</i> Crantz.)		100 cuttings for each centre, length 20 cm with minimum 5 to 8 viable buds						
148	Poplar (<i>Populus deltoides</i> L.)		120 cuttings from 1 year old plants						
149-155	Willow (<i>Salix</i> species) <i>Salix tetrasperma</i> , <i>Salix nigra</i> , <i>Salix jessoensis</i> , <i>Salix x rubens</i> , <i>Salix matsudana</i> , <i>Salix alba</i> , <i>Salix acmophylla</i> .		120 hardwood cuttings, diameter 1 cm and length 20 cm						
156	Oat (<i>Avena sativa</i> L.)	-	1,000 gm	85%	10%	98%			
157	Date Palm (<i>Phoenix dactylifera</i> L.)		06 Rooted suckers (offshoots), weight 8-10 kg						
158	Moringa (<i>Moringa oleifera</i> L.)	-	30 plants or 100 pure seeds for each centre						

3.3 National Review Meeting of DUS Centers and Projects

3.3.1 Kharif Workshop

Around 35 scientists from various lead centres and co-ordinating centres participated in the workshop held at NASC on 31st May, 2018. During inauguration, Dr.K.V.Prabhu, Chairperson, PPV&FRA informed about the purpose of conducting review meeting which was mainly to discuss and review the DUS testing protocol and procedures to *kharif* crops. He also urged for the importance of selecting SRF/RA's with good ability to record data in DUS experiments, conducting DUS testing on outsource basis, selection of proper reference varieties *etc.*

3.3.1.1 Technical Session I

In the first technical session, presentations were made by Registrar-General, Registrar(s) and Joint Registrar on various topics. Dr. T.K.Nagarathna, Registrar, PPV&FRA made a presentation on principles of DUS testing and submission of quality data by DUS centres. She gave introduction about PPV&FRA, how *sui generis* system was adopted by Indian Government, objectives of PPV&FRA, rights conferred to breeders, researchers and farmers under PPV&FR Act, 2001 *etc.*, crop jurisdiction to Registrars, principles of DUS testing, important points to be considered while conducting DUS testing, DUS test guidelines, submission of quality data by DUS centres, monitoring of DUS centres and recent decisions taken by Authority regarding registration of crop varieties.

- Dr. S.A. Desai, Registrar, PPV&FRA briefed about Guidelines for purification of farmers varieties and evaluation of hybrids & EDV's" covering important topics about farmers' Rights, different rights granted to farmers, importance of farmers' rights, status of applications in the Authority, uniqueness of registered farmers varieties, concept of Essentially Derived Varieties, authorization for the commercialization of EDV's, general guidelines for registering EDV's and he highlighted on decision taken during 29th authority meeting on EDV's.
- Dr.Ravi Prakash, Registrar, PPV&FRA explained about submission of DUS test reports by nodal and co-nodal centres and on site DUS testing mainly covering status of DUS test reports received from DUS centres, on site DUS testing, status of applications received for kharif and rabi, submission of consolidated DUS test reports and prescribed format for submission of DUS test reports.
- Sh.Dipal Roy Choudhury, Joint Registrar, PPV&FRA made presentation on "Selection and maintenance of reference varieties for DUS testing". He briefed about selection of reference varieties, characters used in DUS test, selecting varieties for growing trials, identification of suitable reference varieties in the trial, establishing reference varieties and basic requirements for maintaining cultivar purity.
- Dr. R.C. Agrawal, Registrar-General, PPV&FRA explained about "Statistical designs in DUS testing". He explained in detail about statistical methods to be followed in DUS testing, statistical examining distinctness and population Standard and Acceptance probability and also how to plan layouts in DUS experimental plots and statistical analysis of DUS data.
- Sh. J.P. Singh, Finance Advisor of PPV&FRA in his presentation, briefed about submission of new GFR 12A form and PFMS for online payment of funds. He also presented the status of fund utilization by DUS centres.

Salient points from Technical session I:

- Principal Investigators of DUS centres have to contact respective Registrars for any clarifications regarding DUS testing including monitoring team visits at proper stage of the crop growth
- Quality and quantity of seed material has to be checked by DUS centres before taking up sowing

- For recording colour characters, RHS colour chart is a must in every DUS centres
- Applications are accepted for registration only during the stipulated time period. Crop wise time frame will be provided based on requirement
- For benefit sharing, registered varieties are to be popularized in specific regions
- Recorded DUS data should be submitted to nodal centre in proper format and DUS centres have to submit the data within 4 months after harvest
- Co-ordination between lead and co-ordinating centres to be maintained regarding varieties sown, observation differences etc.
- Lead centre has to collect the data from co-ordinating centres, compile and submit DUS data to PPV&FRA
- Both lead and coordinating centres have to maintain all reference varieties and they should be same across the centres while testing candidate varieties
- All DUS centres should submit passport data of reference varieties along with good quality photographs
- Journal PVJ is available on line. Henceforth no hard copies are published
- In any DUS centres, if land is not sufficient, farmers varieties can be tested in nearby farmers' field and spared land could be used for DUS testing
- DUS field need to be protected, fenced and monitored for any theft
- The feasibility of including DUS testing before variety release needs to be explored. So that a promising variety though not identified can at least be registered
- Hybrids submitted for registration need to be done along with parental lines and shall be tested for 2nd year by producing fresh seeds by Authority
- Protection for EDV can be provided only if IV is registered. EDV II shall be tested against its EDV I and initial variety if identified
- EDV has to essentially be similar to IV for all essential characters
- Farmers' variety cannot be registered if it is not being under cultivation. Instead Authority can help him in conserving the same
- In vegetatively propagated crops, only standard root stock used material shall be tested for DUS. Rest only in-situ maintenance

3.3.1.2 Technical Session II

1. The references set should be common at lead and cooperating centres in all the crops
2. DUS test is time bound, thus the data should be submitted within four months from the harvest of the crop.
3. The candidate inbred lines, open pollinated varieties, hybrids should be compared with respective reference inbred lines, open pollinated varieties, hybrids respectively.
4. The crop-specific cut-off date may be uploaded on the PPVFRA website for filing application for registration of varieties for rabi and kharif crops instead of single date for all the crops.
5. Consolidated budget by PPV&FRA will be released to lead centre and lead centre will release to coordinating centres as per the allocation made by PPVFRA. It is the responsibility of lead centre to give consolidated AUC to PPVFRA. Further, due to increase in the minimum wages, the budget requirement will be enhanced case by case considering only after receipt of requests from the centre.

3.3.1.2.1 Maize, Plantation crops, Forestry, Fruits, Medicinal & Aromatic plants and sugar crops Maize

- Maintenance of reference inbred lines and development of reference hybrids/OPVs every year at Lead Centre is laborious and many times maintaining the genetic integrity of references is difficult due to adaptability issues. Thus, procuring genetically pure seeds of reference inbred lines, hybrids and OPVs in bulk from the respective institutes which have developed the references and storing in -20°C is most practical. The requirements of cold module (if required) in this regard may be submitted to PPVFRA by the lead centre.
- There is need to update the list of reference varieties in INDUS by including new varieties, accordingly it is advised to take initiatives for the same.

3.3.1.2.2 Plantation Crops

- PPVFRA can facilitate benefit sharing by licensing or connecting the exporters especially in case of Ginger to APEDA or by informing State Biodiversity Board.
- PPVFRA has to entertain if farmer applying for protection of pepper or ginger varieties through SAUs or ICAR institutes.
- Revision of DUS guidelines of Ginger may be initiated.
- Several requests have been receiving through farmers for protection of banana varieties. So, the farmers will have to advise to apply for DUS testing by following SAU/ICAR route.

3.3.1.2.3 Cereals (except maize and rice), wheat, legumes and vegetables

- Crop specific experts should be included in all the DUS test centres in each of the crops.
- In small millets it was suggested to include quality traits but since quality traits are more labile or sensitive to environment or soil properties, it is not considered. Because essential traits should be highly heritable with least influence by the environment.
- In case of pigeon pea, large numbers of farmers' varieties have received for DUS testing. In order to maintain isolation, use of net has been suggested.
- DUS test of cucurbits should be done in two different seasons at lead and cooperating centre due to heat waves in north India. In North India it is rainy season and in South India it will be in summer. Rules should not dictate the crop but crop should dictate the seasons.
- Renaming of maturity duration in cauliflower may be included in revised DUS guidelines like early, mid-early, mid-late, and late.
- In okra, addition of variant of stem colour like purple needs to be added.
- In pepper, revision of DUS guidelines may be initiated or require amendment for some of the traits like inclusion of cross section in pepper, unit in pericarp thickness, seed weight on wet basis, open bell pepper and poly house bell pepper

3.3.1.2.4 Rice, fibre crops, oil seeds, flower & ornamental species

- The paired row planting in castor is not possible in case of tree type castor varieties submitted by farmers; however, as per the DUS guidelines it will be planted depending on the crop habit.
- In case of jute, essential characters of seed may be removed as seed is not an economically important trait.
- In case of multi-crop DUS test centre, allocation of manpower may be revised.

3.3.1.2.5 Overall recommendations

- Consolidated, corrected, compiled and certified DUS experimental data to be submitted within 4 months after harvest by Principal Investigator of respective lead centres
- Funds will be released by PPV&FRA to lead centres which in turn release the funds to co-ordinating centres
- Similar set of reference varieties to be maintained at both centres and same reference varieties should be used while DUS testing of candidate varieties
- Time line to be followed for submission of application for registration, preliminary screening of application by Registry and dispatch of seed material to respective DUS centres w.e.f. ensuing Rabi season
- No applicant shall be allowed in DUS experimental plots and also during monitoring, as there is no legal requirement for such involvement of applicants). If need arises, Registrar shall invite the applicant for any clarification in the DUS testing of a variety
- Initial screening and multiplication of farmers varieties shall be conducted at SAU's/ICAR institutions by crop specific breeders. Later, application has to be certified by breeder and forwarded to Authority through Director of Research/Directors/Programme Co-ordinators of ICAR institutions
- Principal Investigator of lead centre has to visit co-ordinating centre during DUS testing
- DUS testing for hybrids along with parental lines shall be done even if the applicant has applied for registration of hybrids only
- Wherever DUS testing is in the progress for multiple crops, separate individual Co-PI will be nominated by respective SAU's/ ICAR institutions
- Cut off dates along with time line for submission of application for registration will be notified in PVJ
- Regarding DUS testing, release of funds etc. PI's have to contact respective Registrars
- Revision of DUS guidelines is recommended for ginger, okra, jute and cotton
- DUS monitoring team will consist of Director of Research and Vice Chancellor of concerned SAU/Director /Programme coordinator of ICAR Institutions or their nominee not lower than Professor cadre, a crop expert if necessary.

3.4 Review Meeting of DUS testing centers: Rabi

The 14th Review Meeting of DUS Test Centers for Rabi crops 2018 was held on 4th October, 2018 at NASC Complex, New Delhi. The welcome address was given by Dr.R.C. Agrawal, Registrar General PPV&FRA. He mentioned about the recent developments of the Authority including the release of funds to DUS test centers and ICAR institutes in a single installment instead of two as practiced earlier to continue the work smoothly.

1. The technical session I, was chaired by Dr R.C. Agrawal, Registrar General PPV&FRA. Dr Ravi Prakash, Registrar, PPV&FRA, presented the principles of DUS testing for seed and vegetatively propagated crops.
2. Guidelines for purification of farmer's varieties and evaluation of hybrids & EDV's were presented by Dr. S.A. Desai, Registrar, PPV&FRA.
3. Dr. T.K. Nagarathna, Registrar, PPV&FRA presented the procedure for protection of plant varieties and submission of DUS testing reports by DUS centers.

4. Sh. Dipal Roy Choudhury, Joint Registrar, PPV&FRA presented "Selection and maintenance of reference varieties for DUS testing". He elaborated about Article 7 of UPOV 1991 and Sec. 15.3 (b) of PPV&FR Act, 2001 along with the Prior Art of Varieties of Common Knowledge and importance of the reference varieties and how to identify suitable reference variety in the trial.
5. Dr. R.C. Agrawal, Registrar General PPV&FRA presented "Statistical designs and procedures for DUS testing." He described about the plot design for the DUS test conduct at field level. He also talked about Null hypothesis (H₀) and Alternative Hypothesis (H₁) and real situation and decision for distinctiveness including statistical parameters such as population standard, percentage of off-types and acceptance probability to measure the distinctiveness.

3.4.1 Technical Session -II

- Dr. D.K. Yadava, Assistant Director General (Seeds) ICAR, New Delhi and Chairman of the session was of the opinion that DUS testing is very important for registration of the varieties.
- Sh. J.P. Singh, Financial Advisor, PPV&FRA made a presentation on submission of GFR-12 A & PFMS system.
- Sh. U.K. Dubey, Deputy Registrar made presentation explaining various steps on PFMS. Chairman observed that problem is of linking with PFMS.
- Chairperson asked the participants to submit hard copy the AUCs particularly by those who brought AUCs in 12-A should submit it with concerned Registrar.
- Chairperson suggested those applicants not giving response of queries; O-3 should be issued. He suggested ready reckoner to know which institutes, which query of which crops is pending in which reply is not given within one year, then O-3 be issued. Chairperson was of the view that for proper recording of the data Rs. 1.00 lakh grant be given to each center for imparting training for recording the data and conducting the trail so that deficiency is removed & efficiency & uniformity is enhanced.

3.4.2 Overall recommendations

- Applications are accepted for registration only during stipulated time period. Crop wise time frame shall be provided.
- Principal Investigators of DUS centers have to contact respective Registrars for any clarifications regarding DUS testing including monitoring team visits at proper stage of the crops growth well in advance.
- Funds shall be released in a single installment to lead centre which in turn have to release to co-ordinating centre w.e.f. 2019
- Co-ordination between lead and co-ordinating centres to be maintained regarding varieties sown, observation differences, selection of reference varieties etc.
- Similar set of reference varieties to be maintained at both centres and same reference varieties should be used while DUS testing of candidate varieties
- Co-ordinating centre has to submit DUS data to lead centre in proper format and lead centre have to submit the compiled data to PPV&FRA within 4 months after harvest including replicated raw data in soft copy and hard copy and to be certified
- The lead centre should also provide the statements about the uniformity on all characters
- The data on individual plant as measured should also be maintained by lead centre
- All DUS centres should submit passport data of reference varieties along with good quality photographs to create data base at PPV&FRA for the distinct characters

- Hybrids submitted for registration will be tested along with parental lines and for 2nd testing of new variety fresh seeds by Authority
- Protection for EDV can be provided only if IV is registered. EDV has necessarily be similar to IV for all recurrent parental characters
- Initial screening of farmers varieties for uniformity shall be done by crop specific breeder of SAU/ICAR and then forwarded by Director of Research/Director or Project Coordinator of ICAR institutes before the onset of next season
- Consolidated SOE, AUC and progress report of both centres to be submitted by lead centre
- Those centres who have not mapped PFMS link between lead and PPV&FRA to done immediately
- No applicant shall be allowed in DUS experimental plots and also during monitoring, as there is no legal requirement for such involvement of applicants). If need arises, Registrar shall invite the applicant for any clarification in the DUS testing of a variety
- Wherever DUS testing is in the progress for multiple crops, separate individual Co-PI will be nominated by respective SAU's/ICAR institutions

3.4 Regeneration and Multiplication of Registered Varieties

The PPV&FR Authority, has established one National Gene Bank under Sec 27 whereas seeds of registered varieties including parental materials are kept under Medium Term storage at 4°C ± 30 % RH. Seeds of registered varieties for cereals, millets, commercial crops, vegetables, oil seeds are being maintained at the above mentioned condition with the Technical help from NBPGR. However, it is needless to mention that viability of a living entity, like seeds, are expected to reduce over a prolonged period of storage under MTS and hence these need to be rejuvenated.



As per the provisions under Sec 27 of the PPV&FR Act, 2001, breeders can be asked to deposit seeds/propagating material of registered varieties, it shall be necessary that the Authority shall regenerate and multiply seeds(orthodox) seeds of registered varieties and generate DUS data of these varieties. The planting for few of the crop species suitable for winter season was done for the following and regeneration work was undertaken:

Table 74: No of varieties under regeneration programme

Sl No	Crop Sp	No of Entries	Place of sowing (IARI Genetics Division Fields)
1	Bread Wheat	111	Genetics A 9 Strip 2
2	Durum Wheat	9	
3	Dicoccum Wheat	3	
4	Chickpea	41	Genetics A 9 Strip 1
5	Lentil	11	
6	Field Pea	26	

Chapter 4: Development of DUS Test Guidelines and Establishment of Germplasm Banks

4. DEVELOPMENT OF DUS TEST GUIDELINES

4.1.1 Development of DUS Test guidelines for Radish and Carrot

Divn. of Vegetable Science, IARI, New Delhi is entrusted with the development of DUS test guidelines for Radish and Carrot. Salient technical details are as follows:

- No. of varieties & hybrids for DUS testing: Radish = 38; Carrot = 33
- No. of reference & example varieties maintained at the centre: Radish = 15; Carrot = 14

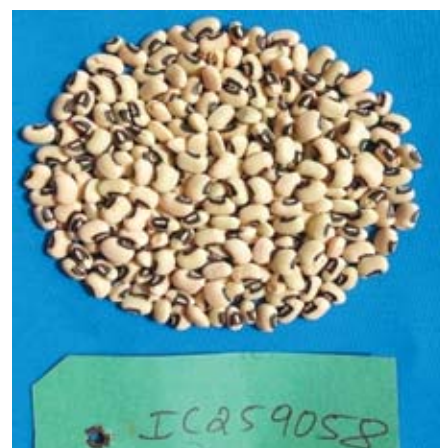
Nineteen F_1 hybrids/ varieties of radish and 18 of carrot were collected from different private companies. From public sector institutions, 19 varieties of radish and 15 of carrot (13 OPVs and 2 F_1 hybrids) were collected. A total of 38 varieties/ F_1 hybrids of radish were characterized for 29 DUS characteristics. In carrot, 33 varieties/ F_1 hybrids were characterized for 25 DUS characteristics. Maintenance breeding of public sector varieties of radish and carrot was done.

4.1.2 DUS characterization using diverse germplasm, released varieties and land races of Cowpea (*Vigna unguiculata* (L.) Walp.)



The project was initiated at Department of Genetics and Plant Breeding, University of Agricultural Sciences, Dharwad during 2017-18 and 2018-19, for three successive seasons (Kharif 2017, Summer 2018 & Kharif 2018). The test material comprised of 231 germplasm lines (procured from NBPGR, New Delhi and land races collected from Karnataka, Maharashtra, Andhra Pradesh, Tamilnadu and 15 released varieties. Important commercial cultivars viz., GC 3, RC 101, DC 15, DCS 47-1, C 152, Lola, Vyjayanthi, Anaswara, Bhagyalakshmi, Arka Suman, Arka Garima, KBC 8, KBC 9 were included in the study.

These germplasm lines / varieties were evaluated using the cowpea descriptors provided by NBPGR, New Delhi and IITA, Nigeria as well as considering the descriptors of related pulse crops based on literature available. Three successive seasons of evaluation has led to the identification and documentation of 63 cowpea traits comprising of both qualitative and quantitative features. Interestingly, the study has also identified four new descriptors (vertically growing twines, upright nature of pods, anthocyanin pigmentation and extra long peduncle) which are stable over three seasons with more than 95% penetrance and hence found to be most appropriate for cowpea DUS characterization. In addition to new descriptors, 17 descriptors were identified as fairly stable traits for characterization in



cowpea. In nut shell, of the 63 distinguishable characteristics documented over three seasons, 21 traits were observed to be stable in expression (with high penetrance and expressivity over the seasons).

4.1.3 SASRD, Nagaland

The centre is developing DUS test guideline(s) in Ash gourd, Snake gourd, Ivy Gourd and Chow Chow.

Table 75: No. of reference & example varieties maintained at the centre:

Name of Crops	Reference varieties	Other than released varieties
Ash gourd	12	21
Snake Gourd	8	2
Ivy Gourd	6	5
Chow Chow	0	21

Detailed progresses are listed below:

a) Ash gourd

Collection of reference varieties/landraces of ash gourd has been done from different State Agricultural Universities, ICAR Institutes and farmers' fields. List of morphological parameters of ash gourd have been finalized for taking observations for DUS testing based on different source of descriptor lists *i.e.* UPOV, NBPGR, Biodiversity International and other cucurbitaceous DUS guidelines. Data of forty three (43) morphological parameters have been recorded in the first year crop. Second year crop for confirmation of first year results is in the field and data recoding is in progress.



b) Snake gourd



Collection of reference varieties/landraces of snake gourd has been done from the different State Agricultural Universities and ICAR Institutes. List of morphological parameters of snake gourd have been finalized for taking observations for DUS testing based on different source of descriptor lists *i.e.* UPOV, NBPGR, Biodiversity International and other cucurbitaceous DUS guidelines. Total of thirty eight (38) morphological parameters data has been recorded in the first year crop. Second year crop for confirmation of first year results is in the field and data recoding is in progress.

c) Ivy gourd

Collection of reference varieties of ivy gourd (6) has been done from IGKV-Raipur, ICAR, CHES-Bhubaneswar, KAU-Kerala in the month of February, 2018. Five (5) diverse landraces has been

collected from Assam, Eastern U.P. and Bihar in the month of Oct-Nov, 2018. Mother block of total varieties/germplasm (eleven) is being maintained in the field. List of morphological parameters of ivy gourd (37) have been finalized for taking observations for DUS testing based on different descriptor *i.e.* UPOV, NBPGR, Biodiversity International and other Cucurbitaceous DUS Guidelines. Data recording of thirty seven morphological parameters are in progress.



d) Chow chow

Collection of twenty one germplasm/landraces of chow-chow has been done from different states of North Eastern Region in 2018. Mother block is being maintained in the field. List of morphological parameters of chow-chow have been finalized for taking observations for DUS testing based on different descriptor *i.e.* UPOV, NBPGR, Biodiversity international and other cucurbitaceous DUS guidelines. Data recording of thirty six (36) morphological parameters are in progress.

4.1.4 DUS test guideline in Pointed Gourd

A meeting to finalise the draft DUS test guideline was conducted on Sep 4, 2018 under the Chairmanship of Dr Brahma Singh, Fmr Director(Life Sc), DRDO and Director FRL along with participation of members like Dr B Singh, Director, ICAR-IIVR; Dr T K Behera, Principal Scientist, ICAR-IARI; Dr S Pandey, Principal Scientist, ICAR-IIVR; Dr Arup Chattopadhyay, Prof and O I/c Vegetable Crops, Directorate of Research, BCKV; Sh Dipal Roy Choudhury, Joint Registrar and Member Secretary; Registrar(s), staff and employees of PPV&FRA. Dr T.K. Behera, Principal Scientist, Division of Vegetable Science, ICAR-IARI was invited as an Expert in Cucurbitaceous crop from IARI, New Delhi to participate, deliberate and suggest for the finalisation of the guideline.

Dr Arup Kr Chattopadhyay, BCKV, made a detailed presentation on the botany, distribution, cultivation and propagation methodology of Pointed Gourd in India. Thereafter draft guideline was discussed on technical matter, descriptors, photographs/sketches etc. Few recommendations are given below:

Dr T.K. Behera, IARI, suggested that no of male plants to be mentioned in the guideline; season of planting in Sep/Oct, maintenance of 1:10 of male:female ratio.

- Dr Bijender Singh, Director, ICAR-IIVR, informed that presently Pointed Gourd is not under AICRP system while certain states might have notified state specific varieties; also informed that traditionally vine cuttings with 4-5 nodes or fleshy root cuttings are used for repeated propagation and chances of plant material borne diseases, nematode infestation are quite high.

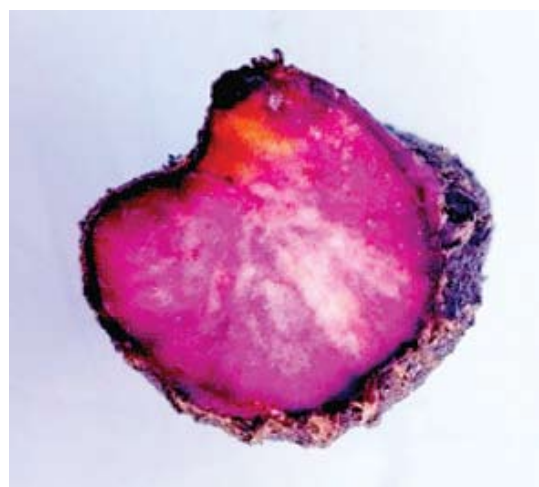
Dr K V Prabhu, Chairperson, PPV&FRA, advised that Pointed Gourd, being dioecious in nature, in case of hybrids, DUS guideline shall mention the requirement for planting material, population and distinguishing characteristics of parental lines to be evaluated; applicants shall be required to inform the source of parental materials including their characteristics and supply planting material

to Centres and Pointed Gourd being asexually propagated, it will be the responsibility of the DUS centers to maintain all reference/example varieties, parental lines and varieties for which applications will be submitted seeking plant variety protection. The DUS test guideline has been finalised with the input of Task Force members after the visit at BCKV, West Bengal on Sep 15, 2019 and subsequently Competent Authority has approved for the same.



4.1.5 DUS Test Guideline on Yam Bean and Greater Yam

The project for development of DUS test guidelines for two crop species **Yam bean (*Pachyrhizus erosus*)** and **Greater Yam (*Disoscorea alata*)** was awarded to ICAR-CTCRI, Trivandrum, Dr. Archana Mukherjee as PI of the project. The draft DUS test guidelines was developed and placed before the Task force and it was finalized during the meeting held on 20th March, 2018.



4.1.6 DUS test guideline on Teak and Melia

The project for development of DUS test guidelines for two crop species **Teak (*Tectona grandis*)** and **Melia (*Melia dubia*)** was awarded to IFGTB, Coimbatore, Dr. Siva Kumar as PI of the Project. The DUS test guidelines for **Melia (*Melia dubia*)** was finalized by the task force in the meeting held on 08th March, 2018 and submitted to the Authority subsequently. The draft DUS test guidelines on Teak are under development stage.



4.1.7 DUS test guideline for Seabuckthorn

A two years project for development of DUS test guidelines for **Seabuckthorn (*Hippophae rhamnoides* Linn.)** was awarded to Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, Solan, Dr. H. P. Sankhyan as PI of the Project. The draft DUS test guidelines was placed before the task force at DIHAR, Leh, Ladakh held on dated 8th October, 2018. Expert group suggested some modification and inclusion of the inputs from the DIHAR, DRDO, Leh.

4.1.8 DUS test guideline for Fennel and Cumin

A project for development of DUS test guidelines for various major Spices *viz.* **fennel and cumin** and minor Seed Spices **Ajwain, Dilli and Anise** was awarded to National Research Centre on Seed Spices, Tabiji, Ajmer, Dr. R. S. Meena as PI of the Project. The centre has developed the draft DUS guidelines

for fennel and cumin which was placed before the Task force meeting held on 2nd January, 2019. Expert group suggested to take data for one more season and revised the guidelines as suggested. The DUS guidelines of **Ajwain**, **Dilli** and **Anise** are under process.



4.1.9 DUS test guideline for **Crossandra**

A project for development of DUS test guidelines for **Crossandra** (*Crossandra infundibuliformis*) flowers was awarded to ICAR-IIHR, Bangalore, Dr. T. Manjunath Rao as PI of the project. The draft DUS guideline was developed by the centre and a Task force was constituted to finalize the guidelines.



4.1.10 DUS test guideline for **Jackfruit**

A two years project was awarded to University Agriculture Sciences, GKVK, Bangalore, Dr. Shyamamma as PI of the Project and ICAR- Research Complex for NEH Region, Umiam, Meghalaya as collaborating centre for development DUS test guidelines of **Jackfruit** (*Artocarpus heterophyllus Lamk.*). The draft DUS guideline was developed by the centre and a Task force was constituted to finalize the guidelines.



4.1.11 DUS test guideline for Coffee

A two years project was awarded to Central Coffee Research Institute, Coffee Research Station, Chikmagalur, Karnataka, Dr. N. Surya Prakash Rao as PI of the project for development of DUS test guidelines on **Coffee** (*Coffea arabica* and *Coffea canephora*). The centre has developed draft DUS guidelines and submitted to constitute the expert group to finalize DUS test guidelines.

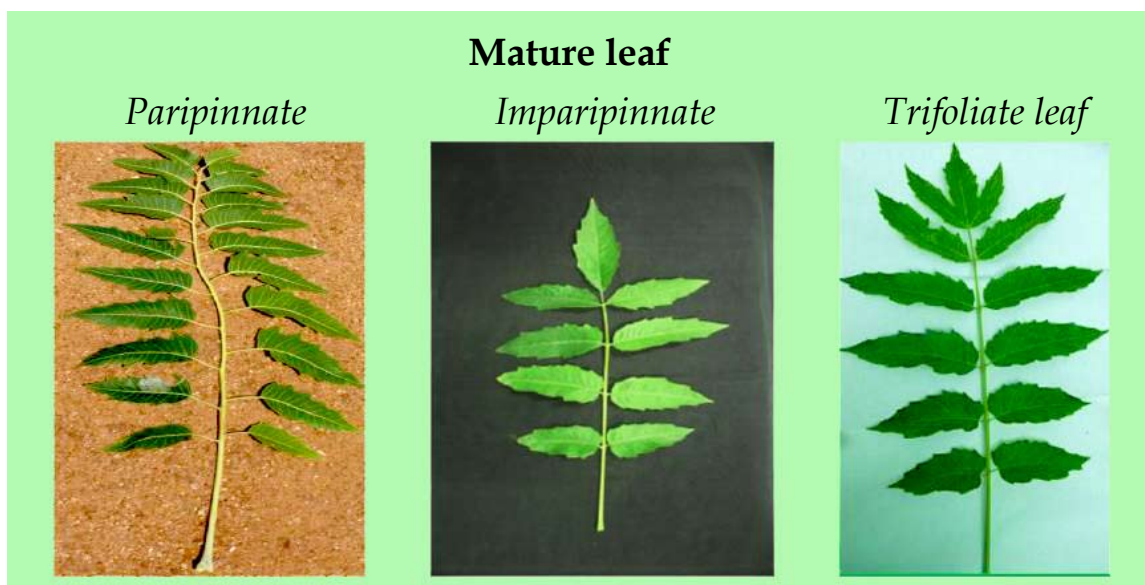
4.1.12 DUS Testing guidelines for Liliium

A two years project was awarded to Dr. YS Parmar University of Horticulture and Forestry Nauni Solan, Himachal Pradesh, Dr. S. R. Dhiman as PI of the project for Validation of DUS Testing guidelines for **Lilium** (*Lilium sp.*, *Oriental*, *Asiatic*, *LA Hybrids* and *OT Hybrids*). The draft DUS guideline was developed by the centre and a Task force was constituted to finalize the guidelines.



4.1.13 Project on “Development of DUS testing guidelines for *Ailanthus excels Roxb.* and Establishment of Gene Bank”

ICFRE-IFGTB, Coimbatore is working on “Development of DUS testing guidelines for *Ailanthus excelsa Roxb.* and Establishment of Gene Bank”.



The main objectives of the project is to study the tree morphological characters of different populations/ clones for identification of distinct and unique characters, to identify the stable characters across different locations/ years in *Ailanthus excelsa*.

Progress/Outcomes/Findings of the study

- Two plantations of *Ailanthus excelsa* located at Field Research Station, Chennai and in Kurumbappatti, Salem, and Tamil Nadu of IFGTB were visited.
- Natural population of *Ailanthus excelsa* in Eastern, western, southern and northern zones of Tamil Nadu was surveyed and variability in morphological characters of leaf, bark, fruits and seeds were studied in randomly selected trees. The *Ailanthus excelsa* trees here are in vegetative and reproductive stage also found. Therefore, leaf; bark and seed morphological variations were finalizing the DUS characters recorded.
- Samples of leaves and seeds were collected from each selected trees in these plantations. Various leaf morphological characters also being finalizing were using Image analyzer (Leica Quantimet 500+).
- Established the DUS testing field trial at IFGTB.

4.1.14 Project on “Development of DUS Testing Criteria and Establishment of National Genebank for Cocoa”

ICAR- CPCRI, Vittal, Karnataka is working on “Development of DUS Testing Criteria and Establishment of National Genebank for Cocoa”. DUS testing characters for cocoa such as morphological traits on flushes, flowers and fruits have been short listed. In leaves- colour with respect to anthocyanin pigmentation in young flushes, shapes of leaf base and leaf apex, In flowers- anthocyanin in flower sepals, pedicels, length of pedicels, In fruits (immature/ mature)- colour, shape, apex form, bottle neck, surface rugosity of cherelles and pods were identified as distinct characters. Expressions of these characters were recorded from adult trees of different clones of cocoa, photographic documentation and diagrammatic representations were done. Development of DUS guideline is under progress in validation with UPOV guidelines. Example/ Reference varieties were multiplied as clones and established as DUS plot/ gene bank/ clonal orchard.



4.1.15 Project on “Validation of DUS testing guidelines for Gerbera (*Gerbera jamesonii* Bolus ex. Hooker F.)”

ICAR- IHR, Bangalore, Karnataka is working on “Validation of DUS testing guidelines for Gerbera (*Gerbera jamesonii* Bolus ex. Hooker F.)” The DUS centre is in the process of Development of DUS guidelines for Gerbera. 36 varieties of Gerbera has been collected and grown under polyhouse condition with GAP. 52 vegetative and floral characters have been recorded for 32 varieties for last 3 years. Final draft of the DUS guidelines have been prepared and submitted to constitute the expert group to finalize DUS test guidelines.



4.1.16 Project on “Formulation and validation of DUS testing guidelines for lemon (*Citrus limon* L. Burm.) and Pummelo (*Citrus grandis*)”

ICAR-IARI, New Delhi is Lead centre and ICAR RC for NEH region, Meghalaya is Collaborating centre for “Formulation and validation of DUS testing guidelines for lemon (*Citrus limon* L. Burm.) and Pummelo (*Citrus grandis*)”

- Characterisation of NEH region lemon varieties (Assam lemon, Ellaichi Lemon and Jaintia Lemon) at lead centre and lemon variety (kagzi Kalan, Pant lemon, Konkan seedless, Hill lemon) at co-operation centre will be essentially required.
- Seedlessness/seediness (under both self and cross pollination condition) as some lemon varieties set seedless fruit in self-pollination, while produce many fruits in cross pollination conditions. These citrus species are in perineal nature and needs minimum 4-5 years for complete characterization.
- Intensity of anthocyanin on buds and leaves at different growth period needs to be recorded for validation of characters' stability.
- Observation of example varieties of pummel (Growth, habit, juice colour, intensity and self-fruitfulness) for validation of characters' stability.



At collaborating centre during development of DUS guidelines for Lemon & Pummelo crops they have collected promising germplasm/reference lines of lemon (22 Nos.) and pummel (05 Nos.) from the North eastern region which is planted in Field Gene Bank. The draft DUS guidelines have been prepared for both crops and submitted to constitute the expert group to finalize DUS test guidelines.



4.1.17 Project on “Development of Descriptors for Kokum (*Garcinia indica*)”

The project entitled “Development of Descriptors for Kokum (*Garcinia indica*). Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Ratanagiri act as lead centre, this centre has selected and recorded the data after survey in Kokan area to develop DUS guidelines of Kokum. ICAR-CCARI, Old Goa acted as collaborating centre at this centre studies were continued during this year also. They visited Thrissur





and Calicut in Kerala and studied the accessions available in their germplasm bank also. The fruit and leaf samples were brought to Goa and observations were recorded. Thus, variation in fruit and leaf characters were estimated in more than 100 naturally existing trees of *Garcinia indica* from different populations geographically distributed in Goa and Kerala by assessing the phenotypical variations of fruit during April to June, 2018. Later on, in July-August 2018, involved in clonal propagation of promising trees identified from the previous project and also the running DUS project. After planting in the existing germplasm bank, the remaining grafts are being maintained in the nursery currently. Thereby, promising accessions are being ex-situ conserved and evaluated at institute.

4.1.18 Project on “Development of Distinctiveness Uniformity and Stability (DUS) Guidelines for FCV and Bidi Tobacco

CTRI is working on “Development of Distinctiveness Uniformity and Stability (DUS) Guidelines for FCV and Bidi Tobacco”. During 2018-19, the identification of DUS characters specific to tobacco, 32 FCV and 18 Bidi varieties were characterized for 50 morphological characters and 2100 germplasm lines and 305 core collection for 29 characters at ICAR-CTRI, Rajahmundry. Compiled the data collected during 2017-18 on 31 FCV and 15 Bidi varieties recorded at ICAR-CTRI, Rajahmundry, four FCV varieties at CTRI RS, Jeelugumilli, five tobacco varieties at CTRI RS, Guntur and 53 characters recorded 11 bidi varieties at Bidi Tobacco research Centre, Anand was completed, Digital photographs of FCV & bidi varieties, and few germplasm accessions were taken. Work initiated for the preparation of sketches for 12 and 09 floral characters.



4.1.19 Project on “Validation of DUS descriptors for Dahlia (Dahlia Sp.)”

RHRTS, Sirmour Himachal Pradesh comes under YS Parmar University of Horticulture and Forestry Nauni Solan, Himachal Pradesh is working on “Validation of DUS descriptors for **Dahlia (Dahlia Sp.)**”.



The project work was initiated during 2018-19, during the period established germplasm bank of varieties of dahlia which will be used for enlisting of characters and production of propagules for evaluation trials, listing of characters for DUS testing, approx. 50 cultivars of dahlia under different group have been collected and evaluated for growth and flowering characteristics. Essential observation is being recorded in the field which will help to development of DUS guidelines on Dahlia.

4.1.20 Project on “Development of DUS guidelines on Lemon Grass (*Cymbopogon flexuosus* L.)”

CSIR- NEIST, Jorhat, Assam is working on “Development of DUS guidelines on Lemon Grass (*Cymbopogon flexuosus* L.)”. The project work was started during 2018-19 to developed the DUS guidelines on Lemon grass. A total 370 germplasms of Lemongrass were collected and maintained at the field trial



centre. During the year 2018-19 the evaluation of total 9 representative characters were completed. The characters studied and recorded *i.e.* habit of the plant, vegetative plant height, breadth of leaves, length of leaves, leaf color, tillers/clump, colour of exposed stem, color of basal sheath and drooping behaviour.

4.1.21 Project on “Validation and development of DUS testing guidelines for Olive”

ICAR- CITH, Srinagar is working on “Validation and development of DUS testing guidelines for Olive”. During 2018-19, a total of 18 Olive example varieties/genotypes were evaluated under Indian conditions for vegetative flowering, fruiting and stone characters as mentioned in UPOV guidelines at ICAR-CITH, Srinagar. One year observations on most of the characters were recorded and are being compiled for development of DUS guidelines of Olive crop under Indian conditions.



4.1.22 Project on “Development of descriptor for promoting DUS guidelines for Saffron (*Crocus sativus* L.) indigenous to temperate regions of Jammu & Kashmir”



Saffron Research Station, SKUAS&T, Pampore, Srinagar is working on “Development of descriptor for promoting DUS guidelines for Saffron (*Crocus sativus* L.) indigenous to temperate regions of Jammu & Kashmir. The project started during 2018-19, during the period PI and Co-PI surveyed for identification of hot spots of saffron. During the survey, 23 hot spots were identified in district Pulwama, 8 in Budgam, 3 in Srinagar and 11 Doda. A total of 411 germplasm lines were collected from these hot spots with a sample size of 50 corns of uniform weight. The exotic germplasm as well as the germplasm available at Saffron Research Station, SKUAS&T, Srinagar were also included for development of DUS guidelines.

4.2 Project Appraisal Committee

The Project Appraisal Committee meeting was held on Nov 15, 2018 under the Chairmanship of Dr. RC Agrawal, Registrar General, PPV&FRA. There were 29 new project proposals received from various ICAR institutions and State Agricultural Universities and 2 projects for extension of duration. There were 16 projects for the development of new DUS test guidelines; 7 projects for survey, characterization and documentation of farmer varieties; 2 projects under on-farm conservation; 2 projects for establishment of community seed bank and two for continuation. Out of 29 projects proposals, 6 projects were selected for the development of DUS guidelines for new crop species for funding for FY 2018-19 (*Anthurium*, *Hibiscus*, *Kaempferia galang*, *Dolichos* beans, minor tuber crops and Kalazeera).

4.3 Extant Varieties Recommendation Committee

During 2018-19, two Extant Varieties Recommendation Committee meetings for registration of varieties notified under Section 5 of the Seeds Act, 1966 were conducted on Nov 30, 2018 and March 8, 2019 under the Chairmanship of Dr. H.S. Gupta, Fmr Director, ICAR-Indian Agricultural Research Institute. In 32nd EVRC meeting held on Nov 30, 2019, forty nine applications were placed in the agenda for examination and the committee recommended forty applications for registration.

The 33rd meeting was held on March 08, 2019, wherein 44 applications filed by ICAR institutes SAU's and private seed companies under extant category were placed and examined by the committee. Out of which, 33 applications were recommended by the committee for registration.

4.4.1 Essentially Derived Variety Committee

Sixth meeting of the Essentially Derived Varieties Committee, were held on April, 09, 2018, under the Chairmanship of Dr. S. A. Patil, Ex Director IARI, New Delhi, at GKVK Campus, UAS, Bengaluru and the following guideline(s) were made,

1. In case of the act of essential derivation happens on parent (s), therefore while establishing whether a hybrid is essentially derived or not, the DUS characterization of essentially derived hybrid (EDH) should be done along with original hybrid, essentially derived parent(s) and original parent(s) for example, in a single cross hybrid if both parents are essentially derived, the DUS characterization has to be undertaken on P1 (IV), EDV-P1, P2(IV), EDV-P2 and the original hybrid (P1 X P2), EDH (EDV-P1 X EDV-P2). Seeds of original parents, EDV-Parent(s) and their respective hybrids need to be submitted by applicants for DUS testing. The protection to hybrids can be only ensured through parents therefore, while protecting hybrids, it is mandatory to protect parents as a package irrespective of whether the hybrid is a new hybrid or essentially derived hybrid.
2. In case of CGMS lines, all the lines viz., original A-line, B-line and R-line should be submitted along with their respective EDVs for testing.
3. Along with DUS characterization, a thorough characterization of EDV/EDH with respect to the trait which is the act of derivation is a must to ascertain the value of EDV/EDH.
4. In addition to DUS data, supporting evidence with molecular data on recovery of Recurrent Parent Genome (RPG) i.e initial variety (IV) must be provided by the applicant, where genomic markers resources are available as authenticated by DDG (CS), DDG (Hort) of ICAR and Director, Forest Research Institute. In consultation with these authorities, The Registrar General with the approval of the Chairperson will fix a Standard Operating Procedures (SOPs) for molecular profiling along with threshold for RPG on case-to-case basis for each species. Such data may be provided by the applicant or further verified by the Authority on outsource basis upon payment of appropriate fee by the applicant.
5. In case an application is filed under EDV category and its IV is in public domain, majority of members agreed that said EDV shall be considered for registration under New/VCK category only and shall become an IV for future derivation.

4.4.2 EDV committee

7th meeting of the EDV was held on 02.11.2018 at Conference Hall, NASC, under the chairmanship of Dr A K Singh, Head, Divn of Genetics, IARI. The committee formed the guideline for evaluation of applications for registration as EDV as per the following:

1. The applications filed for registration under EDV category were verified if their respective Initial Variety(IV) was registered under PPV&FRA or not. Only those EDVs were considered for examination whose IVs were registered.
2. The EDV and its IV were confirmed to have undergone DUS test for one year together under both protected against insect pests and unprotected conditions at two test Centres.
3. It was verified if the data for all DUS characteristics (including essential as well as other traits) were recorded as per the laid-out procedure of DUS testing for EDV.
4. All applications which fulfilled the above criteria were taken up for examination and evaluation of their suitability for registration as EDV, based on the expression of DUS characters observed at DUS centre only.

5. The DUS characterization of EDV and IVs were undertaken under both protected and unprotected conditions and the priority for the purpose of qualification for registration of EDV was given to similar DUS expression under protected and/ or unprotected condition at least at one DUS centre.
6. The EDVs showing an acceptable range of variation in DUS expression in relation to their respective IVs, at least at one location, were examined for registration as EDVs. For few candidate varieties where DUS data records were available at only one location due to circumstances beyond the control of the Registrar, the available data of one centre whose trial conduct was approved as satisfactory by the monitoring team was considered valid and assessed for the similarity and derived trait.
7. Thirteen candidate varieties/hybrids were found suitably qualifying for registration as EDV whose IVs were registered by the PPV & FRA.

S. No.	Acknowledgement No.	Registered IV Denomination & Category	Registration number and year of IV
1.	REG/2008/327	JKCH Ishwar (JKCH 634) (REG/2008/336) & Extant VCK	60 of 2015
2.	REG/2008/329	JK VARUN (2008/345) & Extant VCK	166 of 2015
3.	REG/2008/332	JKCH 226 (REG/2008/343)	53 of 2016
4.	REG/2008/479	NCS-145 BUNNY, (2008/410) & Extant notified variety	91 of 2011
5.	REG/2008/486	NCS 207 (REG/2008/411) & Extant notified variety	26 of 2011
6.	REG/2008/487	NCS-207, (2008/411) & Extant notified variety	26 of 2011
7.	REG/2008/489	NCS 913, (2009/108) & Extant VCK	330 of 2017
8.	REG/2009/250	NC-113 (2009/177) & Extant VCK	399 of 2016
9.	REG/2009/253	NC 1108, (2009/215) & Extant VCK	385 of 2016
10.	REG/2009/256	NC-126, (2009/178) & Extant VCK	210 of 2018
11.	REG/2013/455	NC-2153 (2009/230) & Extant VCK	336 of 2017
12.	REG/2013/447	AC-1207, (2012/270) & Extant VCK	388 of 2016
13.	REG/2013/88	NC-47 (GMS) (2009/165) & Extant VCK	400 of 2016

The committee deferred 83 applications whose corresponding IVs are not yet registered with PPV&FRA. Once IV will be registered, the final comparative data of IV and EDV for all essential characters will be presented once again before this EDV committee. The committee also rejected 53 applications after thorough examination as EDV since EDV is distinct from IV for one or more essential characters.

Chapter 5: Activities Related to Farmers

5.1 Training-cum-awareness programmes

Awareness Programs/Workshops (1st April 2018 to 31st March, 2019)

S.No	Date	Programme	Institutions	Type of Meeting
1	3rd April, 2018	Chairperson and Registrar, PPV&FR Authority participated as a resource speaker and delivered lecture on PPV&FR Act, 2001 in one day training cum awareness programme at Patiala, Punjab which was organized by NGO and others.	NGO	Awareness programme
2	4th April, 2018	Training cum awareness programme organized on PPV&FR Act, 2001 through BAU, Bhagalpur at KVK, Banka, Bihar.	SAU	Awareness programme
3	11th April, 2018	Training cum awareness programme organized on PPV&FR Act, 2001 through BAU, Bhagalpur at KVK, Rohtas, Bihar.	SAU	Awareness programme
4	18th April, 2018	Chairperson, PPV&FRA participated in Hindi Karyeshala at India Habitat Centre, New Delhi. Dr D.S. Pilia, TA participated in the exhibition during this programme.	IHC	Exhibition
5	11th June, 2018	Two days workshop on "DUS testing in Potato" at CPRI, Shimla on 11-12 June, 2018 organized by PPV&FR Authority and ICAR-CPRI, Shimla under Indo-German Bilateral Co-operation in seed sector development. More than forty participants were participated which include leading potato Industries. Dr R.C. Agarwal, Registrar General gave inaugural remark and Dr T.K. Nagratna, Registrar-II briefed the detailed programme.	PPV&FR Authority & ICAR-CPRI, Shimla	Workshop
6	14th June, 2018	Chairperson and Registrar General, PPV&FR Authority, New Delhi participated in discussion on Kisan Channel for the Rights of Farmers on Seed and importance of conservation of traditional varieties on dated 14 June, 2018 at Khel Goan.	PPV&FR Authority	Awareness programme
7	29th June, 2018	Dr S.B. Gurav, Dy. Registrar, PPV&FRA Branch office, Pune Participated in the training cum awareness programme and delivered lecture on Protection of Plant Varieties and Farmers' Rights Act, 2001 on 29th June, 2018 at Agharkar Research Institute, Pune.	PPV&FR Authority	Awareness programme
8	29th June, 2018	Sh R.S. Sengar, Dy. Registrar participated in the Exhibition during the Agri Vikas 2018 at SOA Campus-2, Bhubaneswar, Odisha from 29 to 30 June, 2018. In the PPV&FRA stall chart, poster, brochures, pamphlets were displayed and documentary film of Nukkad natak & Biodiversity Hot Spot on PPV&FRA also screened during the period of exhibition. It was highly appreciated by the farmers to understand the Farmer rights. The Exhibition was attended by large number of farmers of Odisha and others neighbouring States.	PPV&FR Authority	Exhibition
9	05th - 07th August, 2018	Dr.R.C.Agrawal, Registrar General attended the National Farmers Science Congress on Grassroots Innovations in Farm Production, Value Chain Integration and Market Linkage for Doubling Farmers Income at BAU, Sabour, Bhagalpur, Bihar in commemoration of its foundation day. Programme was attended by farmers, Scientists, agribusiness leaders and others stakeholders. Registrar General delivered lecture on protection of intellectual property rights of farming communities.	SAU	Science Congress

10	17th August, 2018	PPV&FR Authority organized one day "Dialogue on realization on Farmer's Rights and Benefit Sharing" compulsory license, provision of conservation under PPV&FRA Act, 2001 on 17th August, 2018 at Jaypee Sidhartha Hotel, N. Delhi. Sh S.K. Pattanayak, Secretary, DAC&FW; Dr . K. V. Prabhu, Chairperson; Dr R.C. Agrawal, Registrar General; Registrar(s) and Dy. Registrar of PPV&FR Authority and other dignitaries attended the programme. In this workshop Chairperson, Registrar General and others dignitaries discussed on realization on Farmer's Rights and Benefits sharing and interact with the experts.	PPV&FR Authority	Workshop
11	1st September, 2018	PPV&FRA Organised the Farmer Welfare Workshop "Badalta Banaras" at Bada Lalpur, Deendayal Hastkala Sankul, Banaras, Uttar Pradesh. The programme inaugurated by Shri Radha Mohan Singh ji, Hon'ble Minister of Agriculture and Farmers Welfare, Govt. of India. Nearly 5,000 farmers, from Uttar Pradesh, Bihar, Uttarakhand, Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh and Delhi are participated in the programme. The Union Minister also released Kashi's Sustainable Development Book. On this occasion, BJP's state in-charge Sunil Ojha, Minister of State, Nilkanth Tiwari, MLC Ashok Dhawan, KN Singh, Surendra Narayan Singh, Avdhaysh Singh, Regional President Mahesh Chandra Srivastava, Regional Vice President, Nagendra Raghuvanshi etc. were present.	PPV&FRA	Workshop
12	6th to 8th October, 2018	Dy. Registrar, Technical Assistant of PPV&FR Authority participated in the Exhibition during the "Krishi Mela" at Deen Dayal Dham, Farah, Mathura. Chairperson along with Registrar General also attended the programme on 07 October, 2018. In the PPV&FRA stall chart, poster, brochures, pamphlets were displayed and documentary film of Nukkad natak & Biodiversity Hot Spot on PPV&FRA also screened during the period of exhibition. It was highly appreciated by the farmers to understand the Farmer rights.	Deen Dayal Dham	Exhibition
13	9th October, 2018	Chairperson, PPV&FR Authority given Interview with Akashwani, FM Gold on PPV&FRA.	Akashwani	Interview
14	12th October, 2018	Chairperson; Dr Ravi Prakash, Registrar PPV&FR Authority attended the Regional Workshop and also participated in Awareness programme on Farmers Rights at UAHS, Shivamogga, Karnataka and Sri R.S. Sengar, Dy. Registrar participated in the exhibition through our PPV&FRA Shivamogga. Branch office.	UAHS, Shivamogga	Regional Workshop & Exhibition
15	26th October, 2018	Dr K.V. Prabhu, Chairperson, PPV&FR Authority Participated in Indian council of Food & Agriculture, AGRO WORLD -2018 on 26th October, 2018 at IARI, Exhibition Ground, New Delhi.	IARI, New Delhi	Exhibition
16	26th to 28th October, 2018	Sri R.S. Sengar, Dy. Registrar Dr Pilia, Technical Assistant PPV&FR Authority participated in the Exhibition during the Badalta Bharat Exhibition-2018 at IISR, Lucknow from 26th to 28th October, 2018. In the PPV&FRA stall chart, poster, brochures, pamphlets were displayed and documentary film of Nukkad Natak & Biodiversity Hot Spot on PPV&FRA also screened during the period of exhibition. It was highly appreciated by the farmers to understand the Farmer rights. The exhibition was attended by large number of farmers of Uttar Pradesh and other neighboring States.	IISR, Lucknow	Exhibition

17	23rd -26th November, 2018	Sri R.S. Sengar, Dy. Registrar and Registry Assistant of PPV&FR Authority participated in the Exhibition during the "10th Agro Vision Workshop" at Nagpur, Maharashtra. In the PPV&FRA stall chart, poster, brochures, pamphlets were displayed and documentary film of Nukkad Natak & Biodiversity Hot Spot on PPV&FRA also screened during the period of exhibition. It was highly appreciated by the farmers to understand the Farmer rights. Chairperson attended "Experts Panel Discussion" on 25th September, 2018. The session was chaired by Shri Nitin Gadkari, Hon'ble Minister for Road Transport & Highways, Shipping and Water Resources, River Development & Ganga Rejuvenation, Government of India who agreed to a proposal to motivate Governmental process to link agriculture with industry in the same manner as IPs are used in other sectors.	DAC&FW	Exhibition
18	2nd December, 2018	Organized "Regional Awareness Programme Farmers Rights on Plant Varieties and Benefit Sharing" at Katoria, Banka, Bihar. More than 8000 farmers are participated in the programmes. Shri Radha Mohan Singh, Hon'ble Minister of Agriculture and Farmers Welfare, Govt. of India graced the occasion as Chief Guest and inaugurated the Programme.	PPV&FRA	Awareness Workshop
19	12th December, 2018	Registrar General given presentation on Farmers' Rights in the Regional Workshop- "National Reports on the Implementation of the International Treaty for National Focal Points of the International Treaty of the Asia Region at NASC, New Delhi.	ITPGRFA	Regional Workshop
20	20th December, 2018	Registrar General deliver a lecture on "India's experience in plant variety protection and the way forward" in the Awareness programme on policy issue related to Plant Genetic Resources under the UN Environment on Mainstreaming agricultural biodiversity conservation and utilization in agricultural sector to ensure ecosystem services and reduce vulnerability at ICAR, NBPGR, New Delhi.	ICAR-NBPGR	Awareness Programme
21	22nd December, 2018	Chairperson attended the "Global Partnership in Agricultural Education and Research" GPA-2018 at Banaras Hindu University, Varanasi.	SAU	Awareness Programme
22	12th January, 2019	Registrar General attended the programme of बीज स्वावलंबन के लिए गठबंधन अक्षय कृषि हेतु कुशक बीज तथा कुशक किस्म संवर्धन, संरक्षण और प्रसार हेतु चिंतन और व्यवहार ' at Nandurbar, Maharashtra.	PPV&FRA	Awareness Workshop
23	29th January, 2019	Registrar General delivered the Plenary talk on "Intellectual property rights: Protecting plants for food security" during a national conference being organised by ANGRAU at SV College, Tirupati.	ANGRAU	National Conference
24	31st January, 2019	Registrar General delivered a special address about the "Farmers Rights as per the PPV&FR Act, 2001" during the National Conference being organised by Indian Institute of Soil and Water Conservation, Regional Centre at Udhamandalam, Tamil Nadu and Soil Conservation Society of Indian at Coimbatore/Ooty.	IISWC and SCSII	National Conference
25	31st January, 2019	National Workshop on "Securing Wood Demand through Enhancing productivity of Planted Forests" at IFGTB (ICFRE), Coimbatore, Tamil Nadu.	IFGTB, Coimbatore	National Workshop

26	9-11 February, 19	Dr. Ravi Prakash, Mr. R.S. Sengar, Deputy Registrar, participated in Krishi Kumbh at Motihari District, east Champaran Bihar organised by Ministry of Agriculture and Farmers Welfare, Government of India. The Programme was inaugurated on 9th February 2019 by His Excellency, Sh. Lalji Tandon, Hon'ble Governor of Bihar and Hon'ble Minister Shri Radha Mohan Singh, Ministry of Agriculture and Farmers Welfare, GOI.	MoA&FW	Krishi Kumbh
27	14th February 2019	Registrar General delivered a lecture on "DUS Testing and PPV&FRA related issues on vegetables crops" during a Model Training Course "Hybrid Seed Production of Vegetable crops for Enhancing Productivity & Nutritional Security" organised by Division of Vegetable Service, IARI, New Delhi.	MoA&FW	Training Programme
28	16th February 2019	Registrar General and other staff of PPV&FRA attended the Awareness programme on Farmers Rights during the Kumbh Mela at Allahabad.	Allahabad	National Conference
29	20 th -23rd February, 2019	Chairperson, Registrar General and other staff of PPV&FRA attended XIVth Agricultural Science Congress on Innovations for Agricultural Transformation Organized by NAAS & IARI, New Delhi at NASC Complex, Pusa, New Delhi. PPV&FRA also participated in Exhibition during this Congress.	NAAS & IARI	Science Congress
30	26-27 February 2019	Registrar General along with other staff of PPV&FRA attended the Regional Workshop on Farmers Rights as per PPV&FRA Act at Deendayal Research Institute (DRI) Chitrakoot, Allahabad. It was organised by Zonal Project Director, Jabalpur.	ZPD, Jabalpur	Regional Workshop
31	15th March, 2019	Organised Regional Workshop on "Protection of Plant Varieties and Farmers' Welfare" at West Bengal University of Animal & Fishery Sciences, Belagachia, Kolkata. It was jointly organised with Zonal Project Director, Kolkata Zone.	ZPD, Kolkata	Regional Workshop
32	23rd March, 2019	Sh. U.K. Dubey, Dy. Registrar participated in on day training-cum awareness programme sponsored by PPV&FRA at Rewari Bujurg, Fatehpur (UP).	SAU	Training Programme

5.2.1 During the period under report PPV&FR Authority has carried out following activities by conducting/participating in various extension programme, exhibition, workshop held in different location of the country.

5.2.1.1 PPV&FR Authority organized a National programme "Badalta Banaras" at Bada Lalpur, Deendayal Hastkala Sankul, Banaras, Uttar Pradesh on 1st September, 2018. The programme was inaugurated by Shri Radha Mohan Singh, Hon'ble Union Minister of Agriculture and Farmers Welfare, Govt. of India. Dr. K.V. Prabhu, Chairperson, Dr. R.C. Agrawal, Registrar-General, Dr. Ravi Prakash, Registrar, Sh. R.S. Sengar, Dy. Registrar PPV&FR Authority and nearly 5,000 farmers, from Uttar Pradesh, Bihar, Uttarakhand, Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh and Delhi participated in the programme. The Union Minister also released a book on Sustainable Development at Kashi. On this occasion, BJP's state in-charge





Sh Sunil Ojha, Minister of State, Sh Nilkanth Tiwari, MLC; Sh Ashok Dhawan; Sh KN Singh, Sh Surendra Narayan Singh, Sh Avdhaysh Singh, Regional President, Sh Mahesh Chandra Srivastava, Regional Vice President, Sh Nagendra Raghuvanshi were present. An exhibition on Framers' varieties was also showcased.

5.2.1.2 PPV&FR Authority organized a National programme on "Farmers Rights and Benefit Sharing" at Katoria, Banka, Bihar on 02nd December, 2018. Shri Radha Mohan Singh, Hon'ble Union Minister of Agriculture and Farmers Welfare, Govt. of India graced the occasion as Chief Guest and inaugurated the Programme. Dr. Nikki Kumari Hembrom (Authority member) was also present in the programme. Dr. K.V. Prabhu, Chairperson, Dr. R.C. Agrawal, Registrar-General, Dr. Ravi Prakash, Registrar, Sh. R.S. Sengar, Dy. Registrar, Sh. Phool Singh Malviya, Dy. Registrar PPV&FR Authority and nearly 8,000 farmers, from Jharkhand and Bihar attended the programme.

5.2.1.3 The PPV&FR Authority participated in Krishi Kumbh at Motihari District, East Champaran Bihar organized by Ministry of Agriculture and Farmers Welfare, Government of India. The Programme was held during 9th to 11th February, 2019 by His Excellency Sh. Lalji Tandon, Hon'ble Governor of Bihar and Hon'ble Minister, Shri Radha Mohan Singh, Ministry of Agriculture and Farmers Welfare, graced the occasion. Dr. Ravi Prakash, Registrar, Mr. R.S. Sengar, Deputy Registrar, Sh. Phool Singh Malviya, Dy. Registrar, PPV&FRA participated in the Krishi Kumbh.

5.2.2 Regional Workshop:

During the period under report, four Regional workshop were conducted as detailed given below:

5.2.2.1 The PPV&FR Authority organized Regional Workshop on Farmers' Rights was organized at UAHS, Shivamogga, Karnataka. An exhibition was also arranged during regional workshop officers from PPV&FRA Shivamogga. Branch office and headquarter New Delhi were participated on 12th October, 2018. Dr. K. V. Prabhu, Chairperson; Dr. Ravi Prakash, Registrar; Sh. R.S. Sengar, Dy. Registrar PPV&FR Authority participated in the programme

5.2.2.2 The PPV&FR Authority organized Regional Workshop- "National Reports on the Implementation of the International Treaty for National Focal Points of the International Treaty of the Asia Region" at NASC, New Delhi on 12th December, 2018. Dr. K. V. Prabhu, Chairperson; Dr. Ravi Prakash, Registrar; Sh. R.S. Sengar, Dy. Registrar, PPV&FR Authority participated in the programme



5.2.2.3 The PPV&FR Authority organized *Regional Workshop on Farmers' Rights as per PPV&FRA Act* at Deendayal Research Institute (DRI) Chitrakoot, Allahabad on 26-27 February 2019. It was organised by Zonal Project Director, Jabalpur. Dr. R. C. Agrawal, Registrar General, Sh. R. S. Sengar, Deputy Registrar and Ms. Jyoti Jaiswal, Registry Assistant attended the Regional Workshop.



5.2.2.4 The PPV&FR Authority organized Regional Workshop on "*Protection of Plant Varieties and Farmers' Welfare*" at West Bengal University of Animal & Fishery Sciences, Belgachia, Kolkata on 15th March, 2019. It

was jointly organized with Zonal Project Director, Kolkata Zone. Dr. R. C. Agrawal, Registrar General, Dr. Ravi Prakash, Registrar along with other staff of PPV&FRA attended the Regional Workshop.

5.2.3 Farmer Training-Cum-Awareness Programme:

The Authority has conducted 44 training-cum-awareness programme for farmers under PPV&FR Act, 2001 in different location(s) of the country. In some of the programme, officers from Authority participated and delivered talk on Farmers' Rights and PPV&FR Act, 2001.

5.2.4 Project related to Farmers' Varieties: Characterization and Documentation

During the reporting year, nine different projects for farmers' varieties characterization, documentation and conservation of crops species are being managed at different locations. There are two projects out of nine for establishment of seed bank for conserved farmers varieties located in Karnataka. The progress report during the period under report found satisfactory in all most of the projects and utilization details of the fund released to the project were also obtained. However an important project "*Collection, characterization, Evaluation, Maintenance and Registration of Minor seed spices grown in farmers field*" found unsatisfactory and Project Investigator has been requested to submit the details of the work carried out during the period under report to be submitted along with the seed and farmers application for registration to the Authority for further necessary at this end.

Table 76: List of projects at Farmers' Cell

Sl. No.	Project Title	Duration	Budget provision for this project (in lakh)	Year of sanctioned	Budget sanction	Report
1.	Establishment of Community seed bank and conservation of farmers varieties of rabi sorghum, wheat and redgram in Northern region of Karnataka.	2 years	10	2017-18	Total amount sanction Rs 5 Lakh. Breakup 1.Manpower-1.50 lakh, 2. Field Exp-1 lakh, 3.Contengy-2 lakh and 4.travel-05 thousand for the period of 2017-18	Progress report for purchase of seeds during kharif 2016
2.	Mainstreaming farmers varieties through participatory seed production & establishment of community seed bank.	2 years	10	2017-18	Total amount sanction Rs 5 Lakh.breakup 1.Manpower-2.50 lakh, 2. Field Exp-1 lakh, 3.Contengy-1 lakh and 4.travel-05 thousand for the period of 2017-18	Progress Report for the period (April 2017 to March, 2018) received.

3	Survey, Collection, Characterization and registration of Pulses, Vegetables and cereals of farmers' varieties of Konkan region of Maharashtra.	2 years	18	2016-17	Total amount sanction Rs 9 Lakh. breakup 1.Manpower-4 lakh,2. Field Expenses-2 Lakh, 3. Contingency-2.50 lakh, 4.Travelling -0.50 thousand for the period of 2016-17	Progress Report received.
4	Identification, collection, documentation and Registration of Maize, Millete, Pulses and Vegetables of Farmers Varieties of Vidhyan Region of Eastern Uttar Pradesh.	2 years	18	2017-18	Total amount sanction Rs 9 Lakh.breakup 1.Manpower-4 lakh, 2. Field Exp-2 lakh, 3.Contengy-2.50 lakh and 4.travel-05 thousand for the period of 2017-18	Progress Report for the period (April2017 to September, 2017) received.
5	"Collection, characterization and utilization and registration of farmers varieties of Maize land races from Kashmir valley"	2 years	18	2016-17	Total amount sanction Rs 9 Lakh.breakup 1.Manpower-4 lakh, 2. Field Exp-2 lakh, 3.Contengy-2.5 lakh and 4.travel-05 thousand for the period of 2016-17	Progress report not received
6	Collection, documentation and registration of farmers varieties cereals, Pulses and Vegetables and their protection under PPV&FR Act, 2001	3 years	9	2016-17	Total amount sanction Rs 3.30 Lakh. breakup 1.Manpower-2.05 lakh, 2. Contingency-0.95 lakh, 3.Travelling -0.30 thousand for the period of 2016-17	Progress Report for the period (April2017 to March, 2018) received.
7	To collection, characterization, Evaluation, Maintenance and Registration of Minor seed spices grown in farmers field "	1years	18	2016-17	Total amount sanction Rs 9 Lakh. breakup 1.Manpower-4 lakh,2. Field Expenses-2 Lakh, 3. Contingency-2.50 lakh, 4.Travelling -0.50 thousand for the period of 2016-17	Progress report not received
8	Survey, Collection, Documentation and Registration of Farmers Varieties in different crops in Karnataka.	3 years	27	2017-18	Total amount sanction Rs. 9 Lakh. breakup 1.Manpower-4 lakh, 2. Field Exp-2 lakh, 3.Contengy-2.50 lakh and 4.travel-05 thousand for the period of 2017-18	Progress report for the period of 2018-19 received
9	Collection, Documentation and Registration of Farmers Varieties of entire Chhattisgarh	3 years	19.95	2014-15	--	--

Chapter 6: Plant Variety Journal of India, National Register of Plant Varieties and Publications of the Authority

6.1 Plant Variety Journal of India

In accordance with Rule 2(g) of PPV&FR Rules, 2003 the Authority publishes its official journal "*Plant Variety Journal of India*" (PVJ) as a monthly bilingual (Hindi & English) publication and made available to public on the first working day of each month on its official website. 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 117 plant varieties along with photographs, published DUS test guidelines of different crop species like Willow, Oat, Date Palm, Melia etc; details of certificate of registration and other related matters.

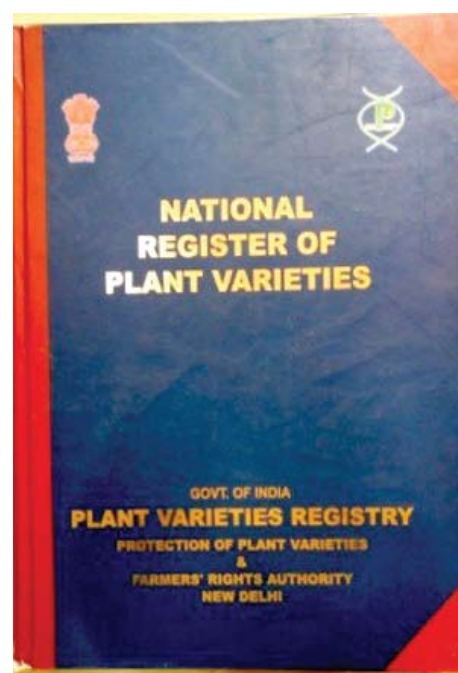
6.2 National Register of Plant Varieties

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.

6.3 Publications of the Authority

Authority is regularly published in bilingual mode (Hindi as well as in English), the brochures on PPV&FR Act, 2001 and Farmers' Rights, Frequently Asked Questions (FAQ) and distributed in several Farmers fair organized by the different institute of ICAR, State Agricultural Universities and by the Ministry of Agriculture and Farmers Welfare, meetings, training-cum- awareness programmes, workshops etc.

Compendium of registered varieties, posters, annual report, annual accounts 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 year DUS test guidelines of 10 crops species have been published and sent to Department of Agriculture, Co-operation and Farmers Welfare for notification. These crop species represent cereals, dry fruits and forestry crops. 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 Database, IINDUS, NORV, Website and Information and Communication Technology (ICT)

Website

The official website (www.plantauthority.gov.in) of the Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA) was shifted from National Informatics Centre (NIC) shared server to NIC cloud server. It is essential for all government departments and related offices to shift their websites and web applications to NIC cloud server. The feature of cloud server is scalability/elasticity, more performance, improved disaster recovery system and flexible billing over existing shared server. The website shifting work has been done by Authority officials with the assistance of NIC coordinator in time bound manner.

The website is maintained in bilingual



(Hindi and English). Improved crop DUS guidelines web page is introduced in Hindi version of Authority website also. In this page table is divided into crop group, crop name followed by botanical name along with crop DUS guideline in downloadable format in pdf. Total 157 crop species have been listed. A new FAQ web page is introduced with collapse and expands all features using java script. Other web pages designed are Plant Genome Saviour Community Award, Reward & Recognition, RTI Page, Plant Variety Registry Related Information Webpage, Annual report and annual account web page, about the employees of the authority, list of registration open for 157 crop species under the category of New / Extant/ Farmer Variety and important Gazette notifications webpage etc.

Online Tracking of Application Status

The Authority has developed the online tracking system of applications on the website. It is a dynamic mode search page in which applicant can search its application status either their Acknowledgement number or by denomination or Name of applicant. It is very feasible to view and print the status report. This web page is compatible with all web browsers.



Information and Communication Technology (ICT)

The Authority also gives a copy of tenders on Central Public procurement portal (<https://eprocure.gov.in/eprocure/app>), purchase for Authority is taken from GeM (Government E-Marketplace), update General Pool Residential Accommodation (<http://gpra.nic.in/gpra>), quarterly reports of RTIs (<http://dsscic.nic.in/users/pn-login>), New Pension System Contributions Accounting System (<https://npscan-cra.com/CRA/>), Representation of Reserved Categories in Posts and Services in Govt. of India Monitoring System (<http://www.rrcps.nic.in/>). The Authority is also trying to fulfil the concept of national e-governance and has taken initiatives in this regard.

Online Filing of Application for Registration

The Authority initiated registration of plant varieties in 2007 with 12 crop species which has been extended to 157 crop species at present. Authority is accepting the applications filled by the applicants along with prescribed fee (fee deposited in the form of demand drafts) either by hand or by postal services. Development of online application submission and payment processing for registration process of plant varieties will facilitate/permit the applicants to file their applications online in the Authority and also to pay the prescribed fee through 'Payment Gateway' which may be either through Debit card/Credit card/Net Banking. The system is now being implemented by NIC/NICSI and development of software has been contracted. The scope of the project includes System Study, Design, Development, Installation and Configuration, Commissioning and Publishing of Web Portal. Post development tasks including Performance tuning, Security Penetration Testing & Auditing by CERT-IN empanelled Auditors, GIGW Compliance Certification. Post Go-Live tasks like Backup Activities, Training, comprehensive maintenance support including backend support from application, system & database admins to perform activities like performance tuning, security patch updates, backup, archival / retrieval etc. The detailed scope is as below:

- Study the existing flow and processes of Plant Varieties and Farmers Rights Authority (PPV&FR)
- Requirements, understanding and analysis with respect to developing new Web Application.
- Design, Develop, Implement, Install, test, publish and rollout of the developed Web Portal
- Design Online filing and process workflow of applications to reduce processing time enhance transparency into the process.
- On line management and processing of the applications for Grant of Plant Variety.
- Real-time notification and communication between stakeholders like Applicants and Plant Varieties Registry to enhance user experience.
- The scrutiny of applications for grant of PVP to be done more effectively using the on-line tools thereby reducing time.
- The monitoring of the DUS Test Results (Varieties are sent for a test known as DUS to various centers across India) shall be more effective, accurate and reduce processing time.
- Architect the solution to addresses the future scalability requirements, in terms of application, infrastructure and backend process.
- Integration of payment gateway for application and DUS Test fee collection.
- Dashboard of the entire application to monitor the process, check status, and progress in real-time.
- MIS Module for Generating various reports related to the applications.
- Off-site warranty, Maintenance & Technical support from date of issue of compilation certificate and annual maintenance of website/ application with onsite technical support as required.
- Ensure that website comply with the GIGW in full along with mobile compatibility.

- Ensure that the website is security audited by Cert-in empaneled agency.
- Identify and execute training requirements for successful execution of project
- Creation of detailed user manual for all the stakeholders of the application.
- Creation of manuals and documents for the project executed.
- Report generation in PDF/ MS office formats or any other format as desired and/or required by PPV&FR.
- Send email and SMS to respective registered user to enter/ update the relevant information.
- Develop training material for Department staff and officials to get acquainted with the service platform

E-National Register

The database of all the registered varieties in the PPV&FR Authority is maintained in a Register known as National Register of Plant Varieties. The same database is also maintained in digital form in E-national register. Through this software one can search data by registration number, crop name, denomination and can generate report. There are many important entries like Registration No., Nationality of Breeder, Date of grant of registration certificate, denomination as granted, date of gazette notification, essential characters making the variety distinct etc. in this software.

Public Financial Management System (PFMS)

The Authority has implemented PFMS, Digital Payment Systems and e-payment like RTGS/ NEFT. The Authority discourages off-line payment system like deposition of cash in the different accounts of Authority. The Authority has been shifted on e-payment systems like PFMS and other digital payments.



Database Management Software

ICAR-IASRI, has been entrusted with development of one database software, i.e., "*Knowledge Management of DUS Characteristic of Crops*". Project team has migrated the INDUS data from earlier version of Oracle database into Excel files and after transformation into suitable new database format, transferred the data to new database developed at ICAR-IASRI. Other data of reference varieties received from PPVFRA in Excel sheets are also being converted into desired format before migration into database. System is being designed and developed using modular approach based on user categories and mainly four categories of users are identified (PPVFRA authority, DUS Centers, Contractual Staff under DUS center and Administrator). System is being developed using ASP.Net technology and SQL Server as Database. System has been hosted from the ICAR Data Center and is made available on <https://ppvfradus.icar.gov.in>. Principle features of the software are as follows:

1. DUS Centre information
2. Candidate variety passport/DUS features and other information
3. Reference/Example/Registered variety information and DUS characteristics
4. Reference variety comparison and trial composition
5. DUS test data template, tabulation, compilation
6. Generation of various DUS test reports

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. The Legal Cell of the Authority is LIMBS (Legal Information Management & Briefing System) compliant and the progress of the cases are updated regularly and monitored in LIMBS.

During the reporting period, 29 cases were pending against the Authority and two cases (W.P. (C) No. 788 of 2017 and O. A. No. 4165 of 2013) were disposed of. The Hon'ble Central Administrative Tribunal (PB), New Delhi upheld the order passed by this office by order dated 31.10.2018 in O.A No. 4165 of 2013. The Hon'ble Delhi High Court by its order dated 07.01.2019 in W.P. (C) No.788/2017 (MAHYCO -Vs- UOI & Ors) set aside the order of the Registrar and held that the renewal fee will be computed in accordance with Rule 39 of PPV&FR Rules, 2003 and not in accordance with Second Schedule of PPV&FR Rules, 2003. It was decided to implement the judgment and accordingly a proposal in this regard has been forwarded nodal Ministry also.

Table 77: The details of forum and number of cases pending for adjudication are given below:

Central Administrative Tribunal	High Courts	Supreme Court
2	20	5

The following Gazette Notifications were published in the year 2018-19:

- Gazette Notification No. G.S.R. 391(E) dated April 28, 2018 regarding Rules of Protection of Plant Varieties and Farmers Rights (Community Award from the Gene Fund) Rules, 2018.
- Gazette Notification S.O. 3396(E) dated July 11, 2018 regarding notification on the nine crop species for the purpose of registration of varieties.
- Gazette Notification No. S.O. 3547(E) dated July 20, 2018 on "Gazette notification for appointment of Dr. Onkar Nath Singh as Technical Member of the "Plant Varieties Protection Appellate Tribunal".
- Gazette Notification S.O. 1020(E) dated February 25, 2019 regarding notification on the one crop species Moringa for the purpose of registration of varieties.

8.2 Rights of Information (RTI)

Under the RTI Act, 2005, the Protection of Plant Varieties & Farmers' Rights Authority (PPV&FRA) has nominated officers as Central Public Information Officer (CPIO) and Assistant Central Public Information Officer (ACPIO) and first Appellate Authority for furnishing information to the concerned applicants. The details of the designated officers are available on website of the Authority 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) are being done on a regular basis. During the reporting period, the Authority received 24 applications either directly from the applicant or transfer from other departments seeking Information under RTI Act, 2005. The information sought was made available within the stipulated period. There are no applications pending before the first Appellate Authority or Chief Information Commissioner (CIC).

The status of the applications received by the authority is uploaded on its website on regular basis. The quarterly status of the applications is available on the website of the Authority and on the Chief Information Commissioner (CIC) website with full details including receipt of fees too.

8.3 Administration

During the period under report the following changes has taken place in PPV&FR Authority.

1. Dr. R. C. Agrawal, Registrar-General, PPV&FR Authority has been assigned additional responsibility as National Director in ICAR, National Agricultural Higher Educational Project, at KAB-II, New Delhi.
2. Dr. S. A. Desai, Registrar, PPV&FR Authority has repatriated to his parent department due to his personal request on 05.12.2018.
3. Sh. R. R. Pradhan, Legal Advisor was removed from the service due to insubordination on 23rd May, 2018.
4. Sh. Phool Singh, Malviya, Deputy Registrar has joined branch office Ranchi on deputation basis from Department of Agriculture, Govt. of Madhya Pradesh.
5. Dr. A. K. Singh, PVE, was transferred from Branch office Guwahati to Branch Office Shivamogga.
6. Dr. D. S. Pilania, Technical Assistant was transferred from PPV&FR Authority New Delhi to Branch office Shivamogga.
7. The PPV&FR Authority has granted modified assured carrier progression scheme to the following employees during the period under report.
 - Sh. D. S. Raj Ganesh, Legal Advisor, PPV&FRA
 - Dr. D. S. Pilania, Technical Assistant, PPV&FRA
 - Sh. Arvind Kumar Rai, Computer Assistant, PPV&FRA
 - Sh. Sanjay Kumar Gupta, Computer Assistant, PPV&FRA
 - Smt. Shipra Mathur, Computer Assistant, PPV&FRA
 - Sh. Nitesh Kumar Verma, Computer Assistant, PPV&FRA

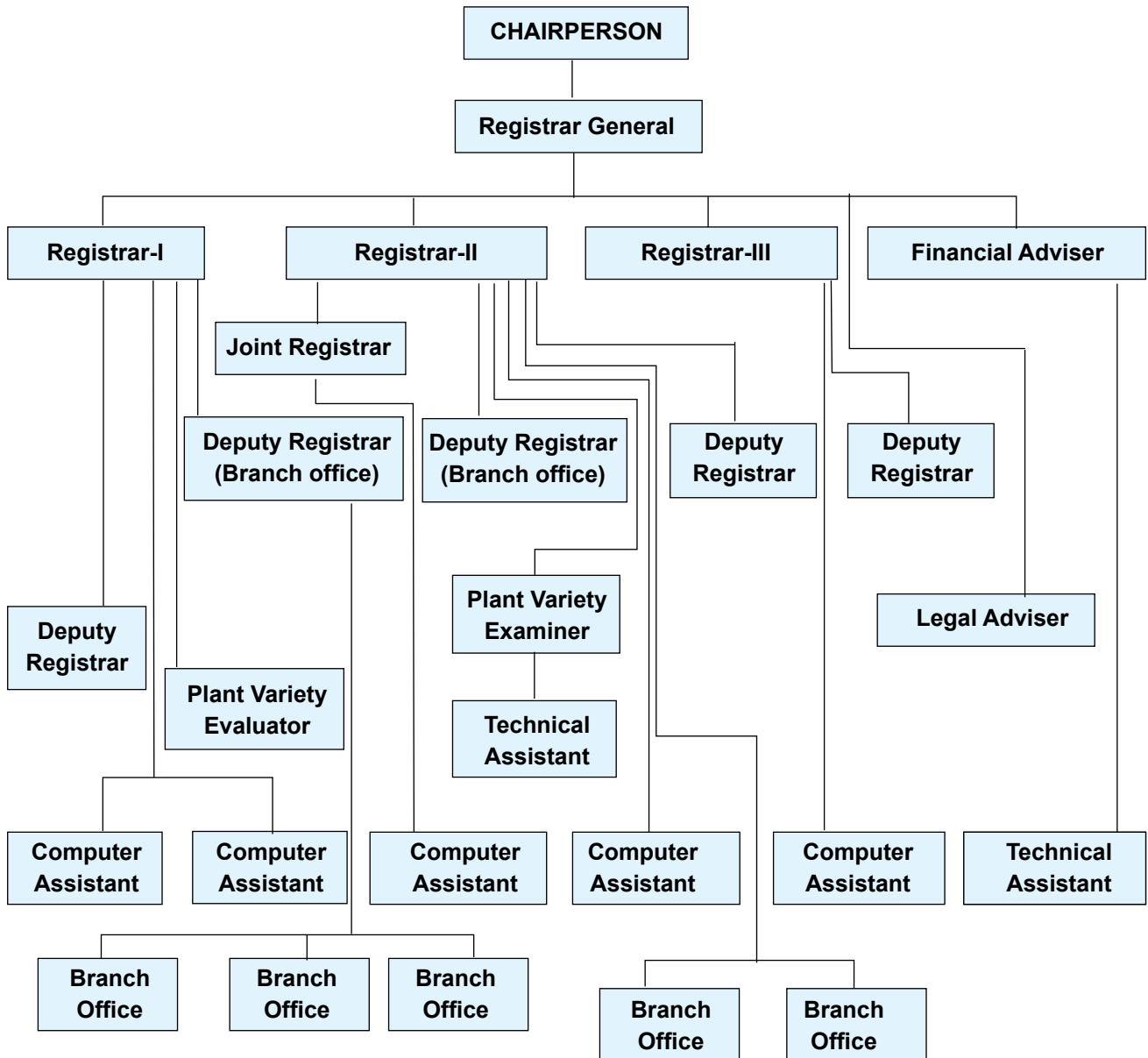
8.3.1 Branch Offices

There are five branch offices located in different parts of the country headed by Deputy Registrar as detailed below:

- **Sh. Phool Singh Malviya, Deputy Registrar**
Protection of Plant Varieties and Farmers' Rights Authority
Department of Agriculture, Co-operation & Farmers Welfare,
Computer Centre Building, Near Damodar International Guest House,
Birsa Agriculture University Campus, Kanke, Ranchi (JH)-834006
- **Sh. Phool Singh Malviya (Additional charge)**
Protection of Plant Varieties and Farmers' Rights Authority
Govt. of India, Ministry of Agriculture & Farmers Welfare,
Department of Agriculture, Co-operation & Farmers Welfare,
Assam Agricultural University, Near Administrative Building, Khanapara, Guwahati-781022
- **Dr. Shiv Kumar Sharma, Deputy Registrar (on contract basis)**
Protection of Plant Varieties and Farmers' Rights Authority
Department of Agriculture, Co-operation & Farmers Welfare,
CSK HP Krishi Viswavidyalaya, Palampur, Dist. Kangra, Himachal Pradesh-176061
- **Dr. S. B. Gurav, Deputy Registrar (on contract basis)**
Protection of Plant Varieties and Farmers' Rights Authority
Department of Agriculture, Co-operation & Farmers Welfare,
Centenary Building, College of Agriculture Campus,
Mahatma Phule Krishi Vidyapeeth, Pune, Maharashtra-411005

- **Dr. T.H. Gowda, Deputy Registrar (on contract basis)**
Protection of Plant Varieties and Farmers' Rights Authority
Department of Agriculture, Co-operation & Farmers Welfare,
UAHS Shivamogga, Abbalagere post, Shivamogga, Karnataka-577204

8.3.2 Organisational Chart



Chapter 9: General Activities of the Authority

9.1 Progress in use of Hindi

Department of Office Language, Ministry of Home Affairs, Govt. of India has awarded Chairmanship of the Town Official Language Implementation Committee to PPV & FRA in November, 2018. There are 60 member offices in this Committee. Immediately, 2nd Meeting of the TOLIC (North Delhi) was organized under the Chairmanship of Dr. K.V. Prabhu, Chairman, PPVFRA on 27th November, 2018. All the Heads of the Member Offices attended the meeting in which the review of the half yearly progressive reports of the member offices was presented in power point. The shortfalls in the given targets with respect to Hindi Implementation were pointed out and necessary suggestions were given to fulfil these shortfalls. A Coordination Committee consisting of 12 members of different member offices was constituted to assist the Member-Secretary of TOLIC (North Delhi) in different activities. Thereafter, a meeting of the Coordination Committee was organized on 02 Jan., 2019 in which it was proposed to conduct two competitions for the officers and other members of staff of member offices. Accordingly on 29th Jan., 2019 a competition on "Chitra Aadharit Laghu Katha Lekhan" and on 05th Feb., 2019 "Lokokti Pallavan" were conducted in which 73 and 87 participants respectively participated from different member offices. Cash Prizes will be awarded to the winners in the forth coming TOLIC (North Delhi) Half Yearly Meeting.

9.1.1 Inspection of Parliamentary Committee on Official Language

An inspection was made by Parliamentary Committee on Official Language on the progress of Hindi in PPVFRA along with 9 other member offices of TOLIC (North Delhi) on 15th February, 2019. The Committee had expressed its satisfaction on the progress.

9.1.2 Official Language Implementation Committee of PPVFRA

A Committee on Official Language Implementation under the Chairmanship of the Authority is existing since a long time. All the four meetings of the committee were held where various issues pertaining to the implementation of Hindi were discussed.

9.1.3 Hindi Pakwada

PPV&FR Authority celebrated Hindi Pakhwara during the period from 14.09.2018 to 28.09.2018. During the period various Hindi Competitions were held in which large number of employees



including contractual staff participated. Winners of various competitions were awarded Cash Prizes.

9.2 Observance of Vigilance Awareness week

During the period from 29th October to 3rd November, 2018, the Authority observed the Vigilance Awareness Week. The Officers and Staffs of the Authority joined together in pledging their support to fight corruption and being vigilant as part of the Vigilance Awareness Week (29th October to 3rd November, 2018 with the theme “*Eradicate Corruption- Build a New India*”. A debate competition was organized on 01.11.2018 as part of the activity under the vigilance week.

9.3 PPV&FR Authority Meetings

During FY 2018-19, 3 meetings of the PPV&FR Authority were held and detailed minutes of meetings are available in the PPV&FRA website. Salient points are given:

9.3.1 Twenty-ninth meeting on 16th April, 2018

- Approval of DUS test guidelines under Rule 29(9) of PPV&FR Rules, 2003; fixation of times limits for registration of extant varieties and DUS test/On site fee for Willow, Oat and Date Palm
- Notification of SAUs as centres under section 41(1) of PPV&FR Act, 2001 for determination of claims for plant variety protection
- Issue of Expression of Interest for outsourcing of DUS testing to reputed/ accredited centres
- Execution of MoU with ICAR Centres for DUS testing.
- Reconstitution of the selection committee for Plant Genome Saviour Farmers Reward and Plant Genome Saviour Farmers Recognition
- Issuing of advertisement to public inviting their views regarding priority of crops for framing of DUS test guidelines
- Jurisdiction of Registrars, Change in Member-Secretary of Extant Variety Release Committee, Reconstitution of the Committee for registration of EDV
- Amendment in Rules relating to endorsing authorities for application form for registration of farmers varieties and swearing of affidavit by endorsing authority relating to genetic purity, uniformity and stability for registration of farmers varieties
- Approval of budget estimate 2018-19 and SFC for construction of *Plant Authority Bhawan*
- Proposal for Training-Cum-Awareness programmes and participation in Exhibition/Seminar/Symposium / Workshop etc. during 2018-19

9.3.2 Thirtieth meeting on 13th Nov, 2018

- Revised procedure for Registration of Plant Varieties w.e.f. 01.09.2018
- Approval of DUS test guidelines under Rule 29(9) of PPV&FR Rules, 2003; fixation of times limit for registration of extant varieties and DUS test/On site fee for Moringa
- Amendment of DUS test guidelines to include all characters as essential characters
- Recruitment Rule for the post of Registrar-General, Legal Adviser
- Approval of Annual Report, Annual Accounts for 2017-18 of PPV&FR Authority
- Extending Period of Protection of plant varieties registered under PPV&FR Act, 2001
- Up-gradation of the Posts of Registrars to Matrix 14 and creation of a post of a Registrar

9.3.3 Thirty one meeting on 30th April, 2019

- Status of PGSC Awards
- Proposal for the salary on outsource staff

- Important issues approved by the Authority pending execution/Implementation with Nodal Ministry
- Web-based system for online application through NIC(NICSI)
- Revision of DUS test guidelines under Rule 29(8) and (9) of PPV&FR Rules, 2003 for Sorghum and Pearl Millet
- Creation of new posts at PPVFR Authority
- Amendment in Certificate of Registration
- Proposal for conducting awareness programme/workshops
- Restoration of provision for special policy for career advancement or promotion of Registrar and other staff and providing upward mobility/ promotional opportunities for technical cadre of PPV&FR Authority

9.4 Participation of Chairperson in various meetings and discussions during 2018-19

Date	Description
3 rd April, 2018	Chairperson participated in "Awareness cum interaction program about PPV&FR Act and Seed Sector" at Patiala.
7 th April, 2018	Chairperson Co-Chaired and delivered a talk as lead speaker for session "Technological Innovations" in the 9 th Indian Youth Science Congress at Career Point University, Hamirpur, Himachal Pradesh.
12 th April, 2018	Chairperson attended meeting with Ekkehard Schroeder, German Project Team Leader, Indo-German Cooperation on Seed Sector Development at PPV&FR Authority, New Delhi. Chairperson attended meeting "Global Forum for Farmers (GFF)" at India Habitat Centre, New Delhi.
16 th April, 2018	29 th Authority meeting was conducted at Board Room IGH, New Delhi. The agenda related to technical, legal and progress of registry was discussed during the meeting.
18 th April, 2018	हिन्दी के कार्यान्वयन को और आगे बढ़ाने के आशय से नराकास, दिल्ली (उपक्रम-2) द्वारा एक दिवसीय 'दिल्ली नराकास सम्मेलन' का आयोजन सिल्वर ओक हॉल, इंडिया हैबीटेट सेंटर, लोधी रोड, नई दिल्ली में किया गया, जिसमें अध्यक्ष ने भाग लिया
26 th April, 2018	Chairperson attended First meeting of the National Advisory Committee on Management of Genetic Resources held at NBPGR, New Delhi. Chairperson attended meeting "Global Forum for Farmers (GFF)" at NAS Complex, New Delhi.
27 th April, 2018	Chairperson attended meeting with Secretary (Agriculture) regarding pending issues with PPV&FRA and DAC&FW.
3 rd -10 th June, 2018	Study Visit of Chairperson to Germany and Netherlands under Indo-German Bilateral Cooperation on Seed Development. The discussed on various issues of mutual interest under the bilateral cooperation programme on Seed sector development and interact with the experts of the German Federal Plant Variety office and Naktuinbouw Variety Testing Department, Netherlands.
14 th June, 2018	Chairperson participated in discussions "Rights of farmers on seed and importance of conservation of traditional varieties" on Kisan Channel at Khel Gaon (Vad Samvad Programme).
21 st June, 2018	Chairperson participated in the brainstorming session "Critical Reforms for Agriculture Sector at North Block, Ministry of Finance, New Delhi.

Date	Description
22 nd June, 2018	नगर राजभाषा कार्यान्वयन समिति (उत्तरी दिल्ली) की बैठक को एन.ए.एस.सी. परिसर, नई दिल्ली में आयोजित की गई। जिसमें अध्यक्ष ने भाग लिया।
27 th June, 2018	Chairperson attended meeting with Hon'ble Minister of Agriculture and Secretary Agriculture at Krishi Bhavan, New Delhi.
11 th July, 2018	Chairperson attended meeting with Secretary, Financial Advisor and Joint Secretary (Seeds), DAC&FW to discuss pending issues.
16 th July, 2018	Chairperson participated in the 90 th Foundation Day and the Award Ceremony of ICAR, A.P. Shinde Symposium Hall, NASC Complex, New Delhi.
17 th July, 2018	Chairperson along with other staff of PPV&FRA attended meeting of Consolidated proposal for amendment in PPV&FR Act, Rules and Regulations" at PPV&FRA.
18 th July, 2018	Chairperson attended first review meeting on the Mission Programme on "Genetic Enhancement of Minor Pulses" held at the Department of Biotechnology, CGO Complex, Lodi Road, New Delhi.
19 th July, 2018	Chairperson along with other staff of PPV&FRA attended meeting with German delegation under the Indo - German Cooperation Project on Seed Sector Development at PPV&FR Authority, New Delhi.
20 th July, 2018	Chairperson attended meeting of Indo German Cooperation and Sector Development & German Experts at Board Room, NASC, New Delhi.
26 th July, 2018	Chairperson attended meeting TSSOCA - Indo - German Cooperation Project on Seed Sector Development - Project Steering Committee Meeting at Hyderabad.
27 th July, 2018	Chairperson attended meeting on Brainstorming Harnessing Intellectual Property to Stimulate Agriculture Growth at IARI, New Delhi.
2 nd August, 2018	Chairperson attended interview of <i>Fasal Kranti</i> related to Farmers Rights at PPV&FRA, New Delhi.
3 rd August, 2018	Chairperson attended 2 nd Annual General Meeting (AGM) of Federation of Seed Industry of India (FSII) at Digital Greens, Golf Course Extension Road, Sector- 61, Gurgaon.
17 th August, 2018	Chairperson attended the workshop on "Dialogue on realization on Farmers' Rights and Benefit Sharing" at Jaypee Siddhartha Hotel, New Delhi. The meeting was chaired by Dr. S.K. Pattanayak, Secretary, DAC&FW.
1 st September, 2018	Chairperson attended the Farmer Welfare Workshop " <i>Badalta Banaras</i> " at Bada Lalpur, Deendayal Hastkala Sankul, Banaras, Uttar Pradesh. The programme inaugurated by Shri Radha Mohan Singh ji, Hon'ble Union Minister of Agriculture and Farmers Welfare, Govt. of India.
12 th September, 2018	Chairperson attended " <i>Key issues related to IPR in Seed Sector for Accelerating Agriculture Growth in India</i> " as a Special Guest, The Metropolitan Hotel, New Delhi.
25 th September, 2018	Chairperson attended the Workshop on Maize DUS Testing Indo-German Cooperation on Seed Sector Development at PJTSAU, Hyderabad, Telangana.
27 th September, 2018	Chairperson attended meeting with Mr. Shivendra Bajaj, Alliance for Agri Innovation at PPV&FRA, New Delhi.
28 th September, 2018	Chairperson attended meeting with Sh Rajiv Agrawal, Joint Secretary (DIPP) at Department of Industrial Policy and Promotion, New Delhi.
4 th October, 2018	Chairperson attended "14 th Review Meeting of DUS test centres for Rabi Crops" at NASC Complex, New Delhi.

Date	Description
07 th October, 2018	Chairperson attended the "Krishi Mela" at Deendayal Dham, Farah, Mathura.
9 th October, 2018	Chairperson interviewed with Aakashvani, FM Gold at All India Radio, Aakashvani, FM, Gold, Sansad Marg, New Delhi.
10 th October, 2018	Chairperson attended Interface meeting with Seed Industry at NASC Complex New Delhi.
11 th -13 th October, 2018	Chairperson attended workshop on Farmers' Rights and conservation of Agro Biodiversity by communities at Shivamogga.
16 th -17 th October, 2018	Chairperson attended the meeting of Unleashing Potentials in Agriculture for Young Agripreneurs (UPAYA) at NASC Complex, New Delhi. Chairperson delivered a lecture on Technology Transfer to Start-ups for Commercialization and IP issues.
25 th October, 2018	Chairperson delivered a lecture on <i>Bridging the genotype-phenotype gap to improve abiotic stress tolerance in Wheat</i> at Division of Plant Physiology, IARI, New Delhi.
29 th Oct.- 2 nd Nov., 2018	Chairperson attended Technical Committee, Administrative and Legal Committee, 52 nd Ordinary Session of UPOV the Council at Geneva, Switzerland.
12 th November, 2018	PPV&FR Authority Celebrated 16 th Foundation Day at Dr. B.P Pal Auditorium, IARI. On this occasion First Foundation Day lecture delivered by Dr. Anil Joshi from Uttarakhand.
13 th November, 2018	Chairperson attended 30 th Authority meeting at Board Room IGH, New Delhi. The agenda related to technical, legal and progress of registry was discussed during the meeting.
20 th -21 st Nov., 2018	Chairperson attended Indo-German international workshop on DNA based system and techniques for consolidate DUS at International Guest house, NASC Complex, New Delhi.
25 th November, 2018	Chairperson attended "Experts Panel Discussion" in the 10 th Agrovision Workshop on 25 th September, 2018 at Nagpur, Maharashtra. The session was chaired by Shri Nitin Gadkari, Hon'ble Union Minister for Road Transport & Highways, Shipping and Water Resources, River Development & Ganga Rejuvenation, Government of India who agreed to a proposal to motivate Governmental process to link agriculture with industry in the same manner as IPs are used in other sectors.
27 th November, 2018	नगर राजभाषा कार्यान्वयन समिति (उत्तरी दिल्ली) की बैठक को एन.ए.एस.सी. परिसर, नई दिल्ली में आयोजित की गई। जिसमें अध्यक्ष ने भाग लिया।
2 nd December, 2018	Chairperson attended "Regional Awareness Programme Farmers' Rights on Plant Varieties and Benefit Sharing" at Katoria, Banka, Bihar. More than 8000 farmers are participated in the programmes. Shri Radha Mohan Singh ji, Hon'ble Union Minister of Agriculture and Farmers Welfare, Govt. of India graced the occasion as Chief Guest and inaugurated the Programme.
15 th December, 2018	Chairperson delivered a Lead lecture in the 1 st National Genetics Congress (NGC) on "Creating harmony and balance among diverse regulatory bodies for efficient use and management of genetic resources in India" in Session VII: Ethics, IPR and Regulations for use of Genes/ Genetic Resources at Indian Agricultural Research Institute (IARI)
19 th December, 2018	Chairperson attended the meeting on pending issue with Secretary (Agri), AS&FA, and JS (seeds) at Krishi Bhawan, New Delhi.
22 nd December, 2018	Chairperson attended the "Global Partnership in Agricultural Education and Research" GPA-2018 at Banaras Hindu University, Varanasi.
23 rd December, 2018	Conducted the "Swachhta Day" on 23 rd December, 2018 during the Swachhta Pakhwara from 16 th to 31 st December at PPV&FR Authority.

Date	Description
29 th December, 2018	Chairperson attended the visit of Hon'ble Prime Minister on the occasion for inauguration of IRRI office at Varanasi.
09-11 th January, 2019	Chairperson participated in the First National Conference on Crop Improvement for 21 st Century and delivered a speech on " <i>Indian Agriculture-Challenges & Solutions</i> " at Aurangabad, Maharashtra
15 th January, 2019	Chairperson attended the Meeting regarding " <i>Vision and Mission of National Rainfed Area Authority</i> " under the chairmanship of Dr. Ashok Dalwai, CEO, MoA&FW (NRAA) at NASC Complex, New Delhi.
19 th January, 2019	Chairperson invited as a Chief Guest of 6 th Convocation of Gondwana University, at Gadchiroli, Maharashtra.
24 th January, 2019	Chairperson a lecture on " <i>Can India Achieve SDG 2 - Eliminate Hunger and Malnutrition by 2030</i> " by Dr. Prabhu Pingali on XIth Foundation Day of TAAS at IARI, New Delhi.
31 st January, 2019	Chairperson attended meeting with Sh. Ravindra Borade Representative of Maharashtra Rajya Draksh Bagaitdar Sangh (MRDBS) at PPV&FRA, Pune Branch Office.
1 st -2 nd February, 2019	Chairperson participated in " <i>XXIth Agriculture Research Council</i> " at Mahatma Phule Krishi Vidyapeeth, Rahuri.
5 th February, 2019	Chairperson attended meeting with Deputy Counsellor of Netherland Embassy and Mr Theo Ruys, Moerhem Roses, at PPV&FRA.
9 th February, 2019	Chairperson attended Annual Wheat Day at ICAR-Indian Institute of Wheat & Barley Research, Karnal.
12 th February, 2019	Chairperson delivered a lecture on <i>Plant Variety Protection: Indian Prospective</i> at ICAR, IARI, New Delhi.
14 th February, 2019	Chairperson participated in the 13 th <i>International Conference on Development of Drylands</i> at CAZRI, Jodhpur.
20 th -23 rd February, 2019	Chairperson participated in the XIV th <i>Agricultural Science Congress on Innovations for Agricultural Transformation and Regional Workshop</i> Organized by NAAS & IARI, New Delhi at NASC Complex, Pusa, New Delhi.
25 th February, 2019	Chairperson attended meeting with Secretary Expenditure and Joint Secretary, at North Block, Ministry of Finance, Govt of India
27 th February, 2019	Chairperson participated in the 8 th Annual Convocation of University of Horticultural Sciences, Bagalkot.
28 th February, 2019	Chairperson attended meeting with Secretary Agriculture on status, challenges and issues related to potato seed production, DAC&FW, Krishi Bhawan, New Delhi.
05 th -07 th March, 2019	Chairperson attended " <i>Krishi Unnati Mela</i> " at ICAR, IARI, Pusa Campus, New Delhi.
11 th -12 th March, 2019	Chairperson participated in " <i>9th Indian Seed Congress</i> " at Hyderabad International Convention Centre (HICC) Novotel, Hyderabad. He was also a panelist on 12 th March during a panel discussion on ' <i>IPR in Indian Seed Industry: Interface of PPV&FRA Framework with other Systems of IPR protection and benefit sharing</i> in the Indian Seed Congress.
15 th March, 2019	Chairperson attended meeting on High Power Committee for efficacious management of Fall Army Worm at Krishi Bhawan, New Delhi.

9.5 Participation of Registrar General in various meetings and discussions

Date	Description
6th to 8th April, 2018	Registrar General attended the site verification for Bio-diversity Awards of KUMMS, Bhuj.
9th April, 2018	Registrar General attended Sixth meeting of the Essentially Derived Varieties Committee held at Bangalore under the chairmanship of Dr. S.A. Patil.
10th April, 2018	Registrar General attended site verification of Bio-diversity Awards at Bangalore and Mysore.
12th April, 2018	Registrar General attended meeting with Ekkehard Schroeder, German Project Team Leader, Indo-German Cooperation on Seed Sector Development at PPV&FR Authority, New Delhi.
16th April, 2018	Registrar General 29th Authority meeting was conducted at Board Room IGH, New Delhi. The agenda related to technical, legal and progress of registry was discussed during the meeting.
23rd April, 2018	Registrar General attended 3rd meeting of Award Selection Committee for Indian Biodiversity Awards 2018 held at National Biodiversity Authority, Chennai.
26th April, 2018	Registrar General participated in panel discussion on curated case-study presentations of IP Administrators held at Hotel Le-meridian and organised by Confederation of Indian Industry (CII) and Department of Industrial Policy & Promotion on 10th National Intellectual Property Awards.
28th April, 2018	Registrar General participated to the inaugural session of Indian National Conference on Agriculture, Allied & Applied Services held at JNU, New Delhi.
7th June, 2018	Registrar General conducted Selection Committee meeting for Plant Genome Saviour Community Awards 2015-16 at NAAS Committee Room no. III, NASC Complex.
11th -12th June, 2018	Organized International Workshop on "DUS testing in potato" at CPRI, Shimla. It was under the Indo-German Bilateral Co-operation. Dr R.C. Agarwal, Registrar General briefed the participants about PPV&FRA programme. It was attended by about 40 participants from CPRI, Private Seed Companies and DUS centres.
14th June, 2018	Registrar General participated in discussions "Rights of farmers on seed and importance of conservation of traditional varieties" on Kisan Channel at Khel Gaon (Vad Samvad Programme).
18th June, 2018	Registrar General attended meeting of International Treaty on Plant Genetic Resources for Food and Agriculture at ITPGRFA through tele. conferencing.
21st June, 2018	Registrar General Conducted of 2nd Quarterly Meeting of all staff of PPV&FR Authority at Conference Hall, NASC Complex, New Delhi.
22nd June, 2018	Registrar General attended meeting of Probation Clearance at Chamber of Registrar General, PPVFRA.
27th June, 2018	Registrar General attended meeting with Hon'ble Minister of Agriculture and Secretary Agriculture at Krishi Bhavan, New Delhi. Interviews for the post of Joint Registrar conducted in the Chamber of Registrar General, PPVFRA.
11th July, 2018	Registrar General attended meeting with Secretary, Financial Advisor and Joint Secretary (Seeds), DAC&FW to discuss pending issues.
16th July, 2018	Registrar General Participated 90th Foundation Day and the Award Ceremony of ICAR, A.P. Shinde Symposium Hall, NASC Complex, New Delhi.
17th July, 2018	Registrar General attended meeting to Finalize the Plant Genome Saviour Farmers Reward and Recognition 2016-17 at PPV&FRA, New Delhi

Date	Description
17th July, 2018	Registrar General attended meeting of Consolidated proposal for amendment in PPV&FR Act, Rules and Regulations” at PPV&FRA.
18th July, 2018	Registrar General attended meeting with Dr. R.S. Paroda, Chairman at Trust for Advancement of Agricultural Sciences Avenue II, IARI, New Delhi.
19th July, 2018	Registrar General attended meeting with German delegation under the Indo - German Cooperation Project on Seed Sector Development at PPV&FR Authority, New Delhi.
20th July, 2018	Registrar General conducted the meeting of experts for consideration of Plant Genome Saviour Reward/Recognition under the chairmanship of Additional Secretary (Extn.) DAC&FW. Conducted the Meeting of Indo German Cooperation and Sector Development & German Experts also participate at Board Room, NASC, New Delhi.
21st - 23rd July, 2018	Registrar General conducted on-site spot verification regarding Plant Genome Saviour Community Award of farming community for Village Gomal, Tehsil Karnah, Tangdhar, Gomal, Kupwara, J&K.
24th July, 2018	Registrar General attended meeting of Executive Council of Indian Society of Plant Genetic Resources (ISPGR) at NBPGR, Pusa Campus, New Delhi.
5-7 th August, 2018	Registrar General attended “National Farmers’ Science Congress” and delivered the lead lecture at Bihar Agricultural University, Sabour, Bhagalpur, Bihar during the congress.
11-14 th August, 2018	Registrar General with Dr. T.K. Nagarathna, Registrar attended onsite spot verification of farming communities claimed for Plant Genome Saviour Community Awards at Marayoor and Kanthaloore, Idukki District, Kerala.
17 th August, 2018	Registrar General Conducted the workshop on “Dialogue on realization on Farmers’ Rights and Benefit Sharing” at Jaypee Siddartha Hotel, New Delhi. The meeting was chaired by Dr. S.K. Pattanayak, Secretary, DAC&FW.
27 th August, 2018	Registrar General conducted meeting of IAS Probationers (2016 batch) were briefed about PPV&FR Act at PPV&FRA, New Delhi. Mr. Ashish Tiwari, MP Cadre and Mr. Bashrat Qayoom, Jharkhand, Cadre attended this programme.
29 th August, 2018	Registrar General conducted the meeting to initiate technical collaboration with UPOV with the Registrars, Deputy Registrars at PPV&FRA.
1st September, 2018	Registrar General Organised the Farmer Welfare Workshop “Badalta Banaras” at Bada Lalpur, Deendayal Hastkala Sankul, Banaras, Uttar Pradesh. The programme inaugurated by Shri Radha Mohan Singh ji, Hon’ble Minister of Agriculture and Farmers Welfare, Govt. of India.
11th -14th September, 2018	Registrar General attended meeting of Proposal for forwarding the checklist to visit ITPGRFA at Rome, Italy, at FAO Headquarters
17th September, 2018	Conducted the meeting of DPC in the chamber of Registrar General at PPVFRA. Registrar General attended hearing in RTI Appeal at PPV&FR Authority, New Delhi.
24th September, 2018	Registrar General attended the 14th Foundation Day of NRC on Pomegranate at Solapur, Pune and delivered lecture about PPV&FR Act, 2001.
28th September, 2018	Registrar General attended meeting with Rajiv Agrawal, Joint Secretary (DIPP) at Department of Industrial Policy and Promotion, New Delhi.
4th October, 2018	Registrar General conducted “14th Review Meeting of DUS test centres for Rabi Crops” at NASC Complex, New Delhi.
5th October, 2018	Registrar General and Dy. Registrar attended meeting on NIC for online automation in the Chamber of Joint Secretary (Seeds), chaired by Join

Date	Description
07th October, 2018	Registrar General attended the “Krishi Mela” at Deendayal Dham, Farah, Mathura.
8th October, 2018	Registrar General attended the meeting of Indo-German bilateral co-operation on seed development in the Chamber of Joint Secretary (Seeds), Krishi Bhawan, New Delhi.
10th October, 2018	Registrar General conducted Interface meeting with Seed Industry at NASC Complex New Delhi.
16th-17th October, 2018	Registrar General attended the meeting of Unleashing Potentials in Agriculture for Young Agripreneures (UPAYA) at NASC Complex, New Delhi. Registrar General participated in the panel discussion on “Technology transfer to start ups for commercialization and IP issues” organized by ICAR during “Agri start-ups and Entrepreneurs Conclave”
22nd October, 2018	Registrar General attended the ASEAN - Indian Cooperation Project on Regional Training Workshop on Development and Implementation of ABS Legal framework to implement Nagoya Protocol on Access and Benefit Sharing (ABS) & Traditional Knowledge Digital Library (TKDL) at National Biodiversity Authority, Chennai, India and part in panel discussion.
25 October, 2018	Registrar General attended the International Conference on Seeds at IARI Exhibition Grounds at IARI and took part in panel discussion.
2nd November, 2018	Registrar General delivered a lecture about PPV&FR Act during a programme of Innovations and Entrepreneurship for Rural Prosperity: Doubling Farmers’ Incomes by 2022 at Vibha Vani, New Delhi.
5th November, 2018	Registrar General attended meeting regarding amendments in PPV&FRA Regulations 2006 at Chamber of Additional Secretary (DAC&FW), Krishi Bhawan, New Delhi.
12th November, 2018	Registrar General with PPV&FR Authority Celebrated 16th Foundation Day at Dr. B.P Pal Auditorium, IARI. On this occasion First Foundation Day lecture delivered by Dr. Anil Joshi a Mountain Man.
13th November, 2018	Registrar General Conducted 30th Authority meeting was conducted at Board Room IGH, New Delhi. The agenda related to technical, legal and progress of registry was discussed during the meeting.
20th-21st Nov., 2018	Registrar General organized the Indo-German international workshop on DNA based system and techniques for consolidate DUS at International Guest house, NASC Complex, New Delhi.
27 th November, 2018	नगर राजभाषा कार्यान्वयन समिति (उत्तरी दिल्ली) की बैठक दिनांक 27 नवम्बर, 2018 को एन.ए.एस.सी. परिसर, नई दिल्ली में आयोजित की गई। जिसमें महा-पंजीकार ने भाग लिया।
28 th November, 2018	Registrar General attended the meeting of Indo-German Annual Negotiation at Hotel Royal Plaza, New Delhi.
2nd December, 2018	Registrar General Organized “Regional Awareness Programme Farmers Rights on Plant Varieties and Benefit Sharing” at Katoria, Banka, Bihar. More than 8000 farmers are participated in the programmes. Shri Radha Mohan Singh ji, Hon’ble Minister of Agriculture and Farmers Welfare, Govt. of India graced the occasion as Chief Guest and inaugurated the Programme.
12th December, 2018	Registrar General given presentation on Farmers’ Rights in the Regional Workshop- “National Reports on the Implementation of the International Treaty for National Focal Points of the International Treaty of the Asia Region at NASC, New Delhi.
13th December, 2018	Registrar General Organised the meeting for finalization of Plant Genome Saviour Farmers Reward & Recognition 2016-17 at IGH, NASC Complex, New Delhi.

Date	Description
13th December, 2018	Registrar General discussed Proposal on Designing incentives for in-situ conservation of agro-biodiversity & capacity building of the Genome Saviour Awardees for documenting, augmenting and sustaining the in-situ conservation efforts with Prof Anil K Gupta, Founder, Honey Bee Network, SRISTI, GIAN, and NIF.
15th December, 2018	Registrar General Delivered a Lead lecture in the 1st National Genetics Congress (NGC) on “Creating harmony and balance among diverse regulatory bodies for efficient use and management of genetic resources in India” in Session VII: Ethics, IPR and Regulations for use of Genes/Genetic Resources at Indian Agricultural Research Institute (IARI)
19th December, 2018	Registrar General attended the meeting on pending issue with Secretary (Agri), AS&FA, and JS (seeds) at Krishi Bhawan, New Delhi.
19th December, 2018	Registrar General conducted the Meeting of MACP Scheme to the Employees of PPV&FR Authority.
20th December, 2018	Registrar General deliver a lecture on “India’s experience in plant variety protection and the way forward” in the Awareness programme on policy issue related to Plant Genetic Resources under the UN Environment on Mainstreaming agricultural biodiversity conservation and utilization in agricultural sector to ensure ecosystem services and reduce vulnerability at ICAR, NBPGR, New Delhi.
20th December, 2018	Registrar General as a nominee of Director General, ICAR conducted the assessment of one Scientist of ICAR Hqrs under CAS for Placement in the High-grade meeting for DPC at ICAR Headquarter.
21 st December, 2018	हिंदी कार्यान्वयन समिति की तिमाही बैठक दिनांक 21 दिसंबर 2018 को पी.पी.वी. और एफ.आर.ए, नई दिल्ली में आयोजित की गई। जिसमे महा-पंजीकार ने भाग लिया।
23 rd December, 2018	Registrar General Conducted the “Swachhta Day” during the Swachhta Pakhwara from 16 th to 31 st December at PPV&FR Authority.
27 th December, 2018	Registrar General conducted the meeting of clearance of probation period and confirmation of officers at PPV&FR Authority.
28 th December, 2018	Registrar General attended the meeting of Committee on Benefit Sharing at PPVFRA, NASC Complex.
31st December, 2018	Registrar General attended the 1st meeting of the New Executive Council (2019-2021) of Indian Society of Plant Genetic Resources (ISPGR) at Dr. H.B. Singh Committee Room of NBPGR, New Delhi.
3rd January, 2019	Registrar General conducted the meeting of the project review committee to review the progress for construction of the Plant Authority Bhawan at PPVFRA, New Delhi.
8th January, 2019	Registrar General attended discussion on partnering and setting up a SNP Genotyping facility in India for the ultimate benefit to Indian Farmers at PPVFRA.
12th January, 2019	Registrar General attended the programme of बीज स्वावलंबन के लिए गठबंधन अक्षय कृषि हेतु कृषक बीज तथा कृषक किस्म सवर्धन, संरक्षण और प्रसार हेतु चिंतन और व्यवहार’ at Nandurbar, Maharashtra.
24th January, 2019	Registrar General attended a lecture on “Can India Achieve SDG 2 – Eliminate Hunger and Malnutrition by 2030” by Dr. Prabhu Pingali on this XI Foundation Day of TAAS at IARI, New Delhi.
25th January, 2019	Registrar General attended the 1st meeting of the Executive Committee of National Genomics and Genotyping facility (NGGF) by Department of Biotechnology.
29th January, 2019	Registrar General delivered the Plenary talk on “Intellectual property rights: Protecting plants for food security” during a national conference organised by ANGRAU at SV College, Tirupati.

Date	Description
31st January, 2019	Registrar General delivered a special address about the “Farmers Rights as per the PPV&FR Act, 2001” during the National Conference organised by Indian Institute of Soil and Water Conservation, Regional Centre at Udthagamandalam, Tamil Nadu and Soil Conservation Society of Indian at Tamil Nadu.
5th February, 2019	Registrar General attended meeting with Deputy Counsellor of Netherland Embassy and Mr Theo Ruys, Moerhem Roses, at PPV&FRA.
8-12th February, 2019	Registrar General participated in Krishi Kumbhat Motihari District, East Champaran Bihar organised by Ministry of Agriculture and Farmers Welfare, Government of India from 9-11 February, 2019.
14th February, 2019	Registrar General Organised a review meeting as Chairman of NARAKAS “संसदीय राजभाषा समिति आलेख एवं साक्ष्य उप समिति का विचार विमर्ष कार्यक्रम” at Ashoka Hotel, New Delhi. The review was conducted by the Sh. Satyanarayana Jatia Ji along with 5 other MPs. Registrar General delivered a lecture on “DUS Testing and PPV&FRA related issues on vegetables crops” during a Model Training Course “Hybrid Seed Production of Vegetable crops for Enhancing Productivity & Nutritional Security” organised by Division of Vegetable Service, IARI, New Delhi.
16th February 2019	Registrar attended the Awareness programme on Farmers Rights during the Kumbh Mela at Allahabad.
20th-23rd February, 2019	Registrar General attended XIVth Agricultural Science Congress on Innovations for Agricultural Transformation and Regional Workshop Organized by NAAS & IARI, New Delhi at NASC Complex, Pusa, New Delhi.
25th February, 2019	Registrar General attended meeting with Secretary Expenditure and Joint Secretary, at North Block, Ministry of Finance, New Delhi-110001. Registrar General attended the Research Advisory Committee meeting of National Innovation Foundation at Indian National Science Academy (INSA), New Delhi.
26-27 February 2019	Registrar General along with other staff attended the Regional Workshop on Farmers Rights as per PPV&FRA Act at Deendayal Research Institute (DRI) Chitrakoot, Allahabad. It was organised by Zonal Project Director, Jabalpur.
6th March, 2019	Registrar General delivered a lecture about PPV&FRA prospective on Agro-biodiversity during workshop on “Experience sharing workshop for the FAO supported TCP Agro-biodiversity Project” at Delhi, UN Conference Hall, Lodi Estate, New Delhi. Registrar General chaired a technical session on “Current Status of IT Research Activities in NARS and Scope of Emerging ICT's” during the workshop “National Consultation on ICT in Agriculture” organised by ICAR at NASC Complex.
8th March, 2019	Registrar General delivered a lead lecture about the recent initiatives of PPV&FRA during 30th Annual Group Meeting ICAR-All India Coordinated Research Projection Small Millets at Birsa Agricultural University, Kanke, Ranchi.
13th March, 2019	Registrar General attended the Meeting for discussion on the draft Joint Declaration on Intent (JDI) for the third phase under the Indo-German bilateral cooperation on seed development at DAC&FW, New Delhi.
15th March, 2019	Registrar General and participated in the Regional Workshop on “Protection of Plant Varieties and Farmers' Welfare” at West Bengal University of Animal & Fishery Sciences, Belagachia, Kolkata. It was jointly organised by PPV&FRA with Zonal Project Director, Kolkata Zone.
26th March, 2019	Registrar General attended the Second meeting of the Executive Council (2019-2021) of Indian Society of Plant Genetic Resources (ISPGR) at Dr. H.B. Singh, Committee Room, ICAR-National Bureau of Plant Genetic Resources (NBPGR), Pusa Campus, New Delhi.

9.6 Progress of work at Branch Office, Guwahati

Dr. AK Singh, Plant Variety Examiner, visited Head Office of PPV & FRA at New Delhi and collected the posters of PPV & FRA prepared in Hindi and English languages. These posters were distributed to all KVKs of different states of North East for creating awareness for registration and protection of farmers' varieties and varieties developed by the agricultural institutions in North Eastern states. Latest revised procedure for registration of plant varieties w.e.f 1st September 2018, filing of applications along with seed material, timeline for *Kharif*, *Rabi* and Summer/ Spring season to be followed by applicants, characterization of farmers varieties for one year by the crop breeder at ICAR/ SAU's and subsequent certification by the breeder for its purity and uniformity before forwarding the application by SAU's or ICAR institutions to the PPV & FRA for registration was communicated to all concerned. Applications and seed material received from the applicants were forwarded to the Head Office for further processing for registration.

9.6.1 Applications / Seed Samples Received

During the reporting period from 1st April, 2018 to 31st March, 2019 eighty five applications were received for different crops under various categories. During 2018-19 seed material for 60 applications of rice were received from the state of Nagaland and was subsequently submitted to New Delhi in March, 2019.

9.6.2 Participation/Visits of Deputy Registrar and Plant Variety Examiner (PVE), PPV & FR Authority Branch Office, Guwahati

- Dr. AK Singh, PVE visited Head Office, New Delhi from 29th May, 2018 to 4th June, 2018 for collection of publication material for Guwahati Branch Office. He also participated in the DUS Review meeting for *Kharif* Crops.
- Dr. AK Singh, PVE visited Head Office, New Delhi on temporary transfer for one month from 1st August, 2018 to 02nd September, 2018.

9.7 Progress of work at Branch Office, Ranchi

9.7.1 Plant Variety Registrations

During the reporting period Branch office Ranchi received applications under Farmers, New & Extant varieties (166 in farmer's varieties; 08 under new category and 05 under extant category). Five applications under new category are under process & rest were submitted to headquarter for further processing. According to new registration policy, applications for 259 Farmers Varieties were also returned to the concerned due to several deficiencies. Branch office Ranchi also efforts for submitting of different fee i.e. Annual fee, Renewal fee & DUS test fee etc from Institutes.



Seventy three samples of different varieties of crop species were received for DUS and Grow out Test (GOT) were also sent to the Plant Variety Registry at HQ in New Delhi.

KVKs were contacted through emails regarding new policy for registration for new/VCK/ Farmer's applications. At the Branch Office Ranchi, 56 applications under Farmers' variety category which were received with their seed samples were send back to Bihar Agricultural University, Sabour Bihar for DUS/Characterisation as per the new procedure.

9.7.2 Participation in Seminars/Workshop/Kisan Gosthi/Meetings

- Deputy Registrar, PPV&FRA Branch office at Ranchi participated in DUS Review meeting organized at NASC Complex, New Delhi on May 31, 2018
- Deputy Registrar attended staff meeting, Hindi language workshop, Rabi workshop, & Plant Genome Saviour Community Award & other various meeting at PPV& FRA, HQ at New Delhi during 02.10.2018 to 10.10.2018
- Deputy Registrar attended meeting with Director, ATARI, Kolkata on 19.11.2018
- Deputy Registrar attended exhibition cum awareness programme & meeting on 02.12.2018 at Katoria, Banka & Patna, Bihar respectively.
- Deputy Registrar attended meeting with Director, ATARI, Patna, Bihar regarding organizing awareness programme at Motihari, Bihar on 22.12.2018. He also took official training at Head office from 23.12.2018 to 31.12.2018
- Participated in Agrotech Kisan Mela-2019 from 02.02.2019 to 04.02.2019 at BAU, Kanke, Ranchi, Jharkhand
- Participation in Agri Summit (Krishi Kumbh Kisan fair 2019) from 09.02.2019 to 11.02.2019 at Gandhi Maidan, Motihari, Bihar:
- Participated in workshop meeting on Little millets organized at Birsa Agricultural University (BAU) & also official visit of PPV& FRA, Branch Office Ranchi Dated 07&08/03/2018:



9.8 Progress of work at Branch Office, Shivamogga

9.8.1 DUS characterization, Hybridisation and Rejuvenation programme:

The branch Office was headed by Deputy Registrar and as this centre is designated for DUS Test of Parental material and production of their hybrids in different agri horticultural crops. Accordingly the following crops were taken for DUS characterization, hybridisation and rejuvenation during the kharif and rabi season, 2018 and summer 2019.

Kharif and rabi 2018			Summer season 2019		
Sl.No	Crops	No of entries/parents /inbreeds/tested received	Sl.No	Crops	No of entries/parents/ inbreeds /tested received
1	Maize	38	1	Watermelon	12
2	Paddy	05	2	Musk melon	02
3	Cotton	08	3	Cucumber	08
4	Chilly	19	4	Pumpkin	03
5	Tomato	12	5	Bottle gourd	07
			6	Ridge gourd	01
			7	Jute	17

The results/data after DUS characterization and Hybridization have been submitted timely to concerned officer in PPV&FR Authority.

9.8.1.1 Joining of Staff

Dr. Dharmendra Singh Pilania, Technical Assistant, have been transferred from PPV&FRA, New Delhi to PPV&FRA, Branch Office, Shivamogga who joined Branch office, Shivamogga on 29.01.2019.

9.8.1.2 Expert visit

Dr. Manoj Khanna, Principle Scientist from IARI, New Delhi has visited on 15.02.2019 Shivamogga, Branch to look into the possibilities to create irrigation facility.



9.8.2 Visits and participation of Deputy Registrar and staff of Branch office

Date	Event	Details
12 th and 13 th April, 2018	Annual Research and Extension Meet of Zone 8 at UAHS, Shivamogga	Participated in Annual Research and Extension Meet of Zone 8 held at UAHS Shivamogga on 12 th & 13 th April 2018 as an invitee Expert Member and taken note of new varieties proposals and pursued for their registration
12 th October, 2018	Regional Workshop on PPV&FRA at UAHS, Shivamogga	There was an exclusive programme on PPV & FRA on first day of Krishi mela, Dr. K V Pravhu, Chairperson, PPV&FRA inaugurated the workshop and gave inaugural address. Dr. Ravi Praksh, Registrar, Dr. K G Parameswarappa, Deputy Registrar and Shr. R S Sengar, Deputy Registrar also interacted with the farmers and Scientists.
12 th -13 th October, 2018	PPV&FRA, Exhibition	 <p>A stall of PPV&FRA, had been put up during the Krishimela 2018 by PPV&FRA Branch Office at Shivamogga,. Hands on information about the functioning of PPV&FRA was given the farmers and stakeholders visiting the stall</p>

Date	Event	Details
27 th November, 2018	Radio talk	Dr. K.G. Parameshwarappa, Deputy Registrar, delivered a radio talk on "Protection of Plant Varieties and Farmers' Rights Act, 2001" All India Radio, Bhadravathi
18 th December, 2018	Visit to Varashri farm and nursery, Gajaur, Shivamogga	Dr. Nagarathna T.K, Registrar, PPV&FRA and Dr. Parameshwarappa, K.G., Deputy Registrar, PPV&FRA, Shivamogga visited Varashri farm and nursery located at Gajanur, search of conserved and preserved of genetic resources of economic plants
15 th to 16 th March, 2019	National conference	Participated in "National conference on Biodiversity and Plant genetic resource conservation for future" held at UAHS, Shivamogga

9.8.3 Applications received for Registration under PPV&FR Act, 2001

Total thirteen (13) applications along with seed/planting material were received for Rice, Maize, Bread wheat and Black pepper crops under various categories and after preliminary examination same have been forwarded to the Head Office for further necessary action.

Crop species	No of applications
Rice	08
Maize	02
Bread wheat	02
Black pepper	01

9.9 Standing Committee

A meeting of the reconstituted Standing Committee, under the Chairmanship of Dr A K Malhotra, Agricultural Commissioner, DAC&FW, were held on Nov 09, 2018 at PPV&FRA. Important issues were discussed and deliberated. Salient points are given below:

9.9.1 Stability Analysis of Varieties and Hybrids: Dr S A Desai, Registrar, gave a detailed presentation on the proposal of "Stability Analysis/ Hybrid Seed Production/ DUS characterization of Parental lines for Rice, oil seeds and Fiber crops". The need to initiate production of hybrid seeds, maintenance of parents and subsequent planting of hybrid seeds in the 2ndyr at DUS centres were deliberated, methods adopted etc. discussed and a proposed outlay of Rs 217.11 lakhs were projected for a 3 year programme that includes field requirement for crop species like, Rice, Castor, Diploid Cotton, Mustard etc; technical and field workers, equipment and facilities required for security. Requirements for DNA fingerprinting were also discussed.

9.9.2 Regeneration and Multiplication of Registered Varieties:

Sh Dipal Roy Choudhury, JR, gave a brief presentation on regeneration and multiplication of seeds of registered varieties kept in the National Gene Bank a total projected expenditure of Rs 72.48 lakhs for 3 years; explained the principle behind the need for regeneration of seeds stored under medium term storage. Committee noted that even though there is a provision as per Sec 27 wherein breeders can be asked to deposit seeds/propagating material of registered varieties, it shall be necessary that Authority shall regenerate and multiply seeds



(orthodox) seeds of registered varieties and generate DUS data of these varieties.

9.9.3 Database Development for Varieties of Common Knowledge: Dr Sudip Marwaha, Principal Scientist, IASRI, gave a presentation on Knowledge Management System for DUS Characteristics

of Crops: on line platform for database of notified, varieties of common knowledge & registered varieties with the projected requirement of Rs 18.25 lakhs for the implementation and the following objectives:

- Design and Development of Web Based Knowledge Management System for DUS Characteristics of Crops
- Implementation of System in PPVFRA and DUS Centers.
- Maintenance and support of DUS Portal.

The committee reviewed the present status of the databases and advised that the development of database shall be taken up and implemented in next 6-9 months and afterwards it shall be put for user acceptance testing at PPV&FRA and DUS centre level with the onset of Kharif season in 2019.

The committee noted that a template is already available which was developed at IASRI in-house (ICAR) in consultation with IIMR, Ludhiana regarding DUS characterization and database of Maize and hence customization will only be required for incorporation of forms and other details of notified crop species.

9.9.4 List of Prioristed crop species: A comparison of Seednet notified varieties and crop species notified by PPV&FRA were examined by the Committee and few species were recommended. PPV&FR Authority, in its meeting held on Nov 13, 2018, recommended that if no new projects are recieved in these crop species under PAC, these may be advertised and projects may be invited from ICAR/SAUS/CSIR /MoEF Institute to develop DUS test guidelines. It was recommended that in case minimal descriptors are available, only one season validation and next six months for finalisation of the DUS guideline may be given with some financial support.

Chapter 10: International Cooperations

10.1 International DUS Testing Workshop on Potato" held on 11th& 12th June, 2018 at ICAR-Central Potato Research Institute, Shimla

Two days workshop on "DUS tests in Potato" at ICAR-CPRI, Shimla was conducted on 11th& 12th June, 2018 by Protection of Plant Varieties and Farmers Right Authority in collaboration with ICAR- Central Potato Research Institute, Shimla under Indo-German Bilateral Co-operation in Seed Sector Development. More than forty participants participated including representatives from seed development sectors viz., Pepsico, ITC, Rasi Seeds and Mahindra HZPC Pvt Ltd. and also scientists from DUS centres.



The training was inaugurated by Dr. V. K. Dua, I/c. Director, CPRI, Shimla and welcomed all the scientists and participants. The Inaugural remarks were given by Dr. R. C. Agrawal, Registrar General, PPV&FRA followed by briefing of programme by Dr. T. K. Nagarathna, Registrar, PPV&FRA. The Director, CPRI, Shimla explained about the current scenario in Potato Research and Development in India. He also informed about quality seed production through involvement of KVKs, progressive farmers and establishment of aeroponics. A detailed presentation on plant variety protection System in India, infrastructure and harmonization was given by Dr. T K Nagarathna, Registrar, PPV&FRA and explained about the registration procedure of plant varieties and farmers rights of PPV&FR Act.

Video conferencing was arranged with German expert Dr. Stefan Haffke, who explained about "Principles of DUS testing of potato according to the UPOV system". He also interacted with participants and clarified many questions raised by the participants.

Dr. Dalamu, Scientist, ICAR-CPRI, Shimla explained in detail



about the procedure for DUS testing in potato. Participants also suggested revision of few descriptors in the DUS guidelines of potato. Authority shall amend the characters only after the detailed inspection and discussion.

On the second day of the training programme a field visit was arranged to field gene bank in Kufri, where participants visited DUS experimental plot of potato and later to farmers' field in Talai village. Participants interacted with the progressive farmers and discussed about different varieties in potato grown by farmers. The training programme was concluded by distributing certificates to all the participants.

10.2 Indo-German International workshop on DNA based system & Techniques for consolidated DUS

The Indo-German International work shop on DNA based system & Techniques for consolidated DUS was held on 20th & 21st of November 2018 at NASC committee room II. The welcome address was given by Dr R.C. Agrawal, Registrar General, PPV&FRA. He welcomed all the delegates from German Embassy and reputed scientists from different National Institutes. In the opening remarks Dr K.V. Prabhu, Chairperson, PPV&FRA talked about the objectives of PPV&FRA and recent developments initiated in the Authority. He also talked about the importance of the DNA based technologies for genotypic characterization to be adopted during registration process of the candidate varieties.

Few details about different lectures are as follows:

- **Dr. A. K. Singh**, Head, Division of Genetics, IARI, New Delhi presented "DUS characterization and molecular approaches for registration of EDVs: Deciding the threshold".
- **Dr Alex Reid**, Head of Genotyping, Science and Advice for Scottish Agriculture (SASA) Scotland, gave a presentation on "How can plant variety offices use BMT data in DUS examinations? A European example for potato" mentioned about the limitations and risks of DUS system in potato.
- **Dr. K V Bhat**, Principal Scientist (Rtd) & Emeritus Scientist, National Bureau of Plant Genetic Resources gave a detailed presentation on DNA fingerprinting for variety identification approaches & strategies and introduced about DNA fingerprinting technology and basics of DNA fingerprinting. He recommended
- **Dr. Stephan Haffke**, Officer of section National and international variety and seed affairs of German plant variety office, gave a detailed presentation on general developments in biochemical and molecular techniques in EU Member States, Plant breeding techniques in Germany and tasks and responsibilities of German plant variety office.
- **Dr. Darshna Vyas**, Senior Scientist of LGC Genomics Ltd, Specialist for Plant Breeding gave a detailed presentation on different technologies used in DUS testing by involving SNPs and molecular markers and informed that Competitive allele specific PCR (KASP) technique is alternate to DUS test in crop barley.
- **Dr. Jens Wegner**, Technical expert ornamental crops presented "Bio-molecular Techniques at the CPVO and its Examination Offices".
- **Dr. Stephan Haffke**, Officer of section National and international variety and seed affairs of German plant variety office, gave a detailed presentation on –"Can new breeding technologies create new (Essentially Derived) Varieties"? He briefed about the overview of New Breeding Technologies (NBT), definition of Essentially Derived Variety (EDV) and discussed the situation in Germany.
- **Dr. Rakesh Singh**, Principle Scientist, NBPGR, New Delhi talked about "Prospects for applications of genomic tools in registration, testing and seed certification of varieties".

- **Dr. Darshna Vyas**, Senior Scientist of LGC Genomics Ltd, Specialist for Plant Breeding presented “Advantages and Disadvantages of BMT use in the examination of DUS from the technical prospect”.
- **Dr. Manoj Prasad**, National Institute of Plant Genome Research, New Delhi gave a detailed presentation on DNA sequence based approaches and their applicability in resolving IPR infringement and recommended for use of DNA sequence in DUS examination
- **Dr. J.L. Karihaloo**, Former Director, ICAR, New Delhi gave a detailed presentation on clonal variation and its implications on cultivar registration and identification in mango

10.2.1 Recommendations:

- Use of DNA based techniques for consolidation of DUS testing of plant varieties of PPV&FRA.
- Need to utilize the molecular technology and modern techniques to resolve the legal issues of DUS testing.
- Use of complementary information of DNA based tools and gene specific markers to distinguish the variety.
- Database of DNA markers can be utilized for identification of variety.
- Special test can be made compulsory for DUS testing of horticultural crops.
- Use of molecular markers as a tool for DUS characterization of horticultural crops for more confirmative DUS procedure.
- A project proposal may be submitted by NBPGR to PPV&FRA regarding the use of the DNA markers related to rice QTLs and develop a trait specific SNP marker chip for the rice which can be used for the varietal fingerprinting purpose.
- Sequence based genotype system based on listed number of DUS criteria may be used for DUS characterization
- Use of SSR markers in DUS testing is more appropriate
- As PPVFRA is exploring the possibility of use of DNA based technique for consolidation of DUS testing of plant varieties on outsource basis, the specialized agencies may be approached in this regard.

10.3 Foreign visit(s) under Indo German Bilateral Cooperation in Seed Sector Development:

- Dr. Ravi Prakash, Registrar, PPV&FRA; Dr. Chikkappa G. Karjagi, Scientist (Plant Breeding), ICAR-Indian Institute of Maize Research and Dr. Dharavath Bhadraru, Senior Scientist (Plant Breeding), Maize Research Centre, Professor Jayashankar Telangana State Agricultural University, visited Germany during 12-18 August, 2018 as part of study visit and practical training on DUS testing on maize in the frame of the Indo-German Cooperation on Seed Sector Development. During 12-13 August, 2018, the group visited Federal Plant Variety Office (Bundessortenamt or BSA) at Hannover, Germany and meet Mr Udo von Kröcher, President, BSA and Dr Stefan Haffke. During 14-18 Aug visit to Haßloch, Germany, they interacted with Dr. Rudolf Becher, Head of the Testing Station and Ms Sabine Lauer, In-charge,



Maize DUS Testing at the station on DUS testing guidelines being followed in Germany. At Augustenberg, the group interacted with Dr. Andrea Jonitz, Head of Official Seed Testing Station, Center for Agricultural Technology, Augustenberg and Dr. Rainer Bechtold, Seed Certification Authority, Seed Certification and Testing from Ministry of Rural Area and Consumer Protection Baden-Württemberg, on seed quality testing and seed certification respectively. At Gondelsheim, they discussed with Mr Hans-Gerd Seifert and his colleague regarding overall profile and its corn products of the KWS, one of the oldest plant breeding companies in Germany or for that matter European Union. They visited DUS Testing field of Grape, Haßloch and interacted with In-Charge of DUS testing of grapes and appraised of various issues.

- Dr. S.A. Desai, Registrar, PPV&FRA; Dr Tejaswini, Principal Scientist, ICAR-IIHR and Mr M Gunasekaran, AC(Seeds), DAC&FW attended study visit and practical training on DUS testing on Rose in Germany during 9th July to 13th July, 2018. At BSA, Hannover, the group had a meeting with Mr Burkhard Spellerberg; Ms Susanne Haslage and Ms Andrea Menne who have a brief over view on Introduction to the activities and infrastructure of BSA including Gene Bank DUS testing activities with focus on ornamentals. They also visited W. Kordes' Söhne in Klein Offenseth-Sparrieshoop and Rose Tantau in Uetersen, two large Rose Breeding companies at Germany on July 10, 2018. Further training was given on DUS Testing Training Rose; Use of UPOV guidelines; Maintaining of reference collection; Screening for similar varieties; Recording in field; Use of database; Variety description and report; Introduction in Cost-Performance-Calculation Procedures etc by Mr Jörg Beck at BSA, Hannover on July 11, 2018. They also visited Europa-Rosarium Sangerhausen, Visit of Rose Gene bank; Faculty of Natural Sciences, Institute for Plant Genetics Molecular Plant Breeding at University of Hannover for DNA Analysis of Roses and interacted with Scientists.



Chapter 11: Financial Statements of the Authority as on 31.03.2019

Table: Balance Sheet as at 31st March, 2019

Corpus / Capital Fund and Liabilities	Schedule	Current Year	Previous Year
Corpus / capital fund	1	505,617,861.00	483737227
Reserves and surplus	2	-	-
Earmarked/endowment funds	3	-	-
Secured loans and borrowings	4	-	-
Unsecured loans and borrowings	5	-	-
Deferred credit liabilities	6	-	-
Current liabilities and provisions	7	103,433,964.00	125765631
TOTAL		609,051,825.00	609,502,858
ASSETS			
Fixed assets	8(A)	32,813,942.00	30326059
Less: accumulated depreciation		26,150,609.00	25648117
Net fixed assets		6,663,333.00	4,677,942
Capital work in progress	8(B)	18,147,519.00	18147519
Investments-from earmarked/endowment funds	9	-	-
Investments-others	10	-	-
Current assets, loans advances etc.	11	584,240,973.00	586677398
Miscellaneous expenditure (To the extent not written off or adjusted)			
TOTAL		609,051,825.00	609,502,858

Table: Income and Expenditure Account for the Year 31st March, 2019

INCOME	Authority Fund		Gene Fund	
	2018-19	2017-18	2018-19	2017-18
Income from Sales/ Services	-	-	-	-
Grants/Subsidies	167,390,734	151,409,656	-	-
Fees/Subscriptions	19,896,009	45,146,200	20,837,231.00	5,370,206
Income from Investments	-	-	-	-
Income from Royalty, Publication etc.	-	-	-	-
Interest Earned	14,519,413	11,278,340	5,988,663.00	8,641,716
Other Income	575,980	123,572	-	132,304
Increase/(Decrease) in stock of Finished goods and works in progress	-	-	-	-
Deferred Income(Depreciation on fixed asset)	901,521	664,923	-	-
Prior period Adjustment A/c (Annexure-A)		-	-	-
TOTAL (A)	203,283,657	208,622,691	26,825,894	14,144,226
EXPENDITURE				
Establishment Expenses	59,840,986	42,221,089	-	-
Other Administrative Expenses etc.	28,324,143	37,957,634	-	9,224,985
Expenditure on Grants, Subsidies etc.	87,550,609	47,348,646	-	-
Interest	17,673	5,250	649.00	649
Depreciation including Impairment Loss (Net Total at the year-end-corresponding to Schedule 8)	901,521	664,923	-	-
Prior period Adjustment A/c (Annexure-A)	31,343,988	3,316,181	2,279,093.00	-
TOTAL(B)	207,978,920	131,513,723	2,279,742	9,225,634
Balance being excess of Income Over Expenditure (A-B)	(4,695,263)	77,108,968	24,546,152	4,918,592
Transfer to special Reserve(Specify each)	-	-	-	-
Transfer to /from General Reserve	-	-	-	-
BALANCE BEING SURPLUS (DEFICIT) CARRIED TO CORPUS/ CAPITAL FUND	(4,695,263)	77,108,968	24,546,152	4,918,592

Table: Receipts and payments for the Year ended 31st March, 2019

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
1. Opening Balances			1. Expenses		
a) Imprest (Cash In hand)			a) Establishment Expenses	44,055,110	29,327,769
Authority	25,000	25,819	b) Administrative Expenses	20,499,501	25,760,344
Ranchi Branch	3,186				
Guwahati Branch	(6,262)		2. Payments made against funds		
b) Bank Balances			a) Existing DUS Centres (Annexure-B)	57,946,469	48,678,826
State Bank of India	20,066,070	25,340,939	b) New DUS Centres (Annexure-C)	28,224,113	15,029,404
Syndicate Bank	32,415,441	40,484,983	c) Referral Labs (Annexure-D)	-	-
Remittance in Transit	-	-	d) Field Gene Bank (Annexure-E)	3,663,078	2,405,515
SBI (Gene Fund)	3,106,549	65,009,845			
Guwahati Bank	8,015	32,433	3. Expenditure on fixed Assets and Capital Work in Progress		
Ranchi Bank	16,056	26,087	a) Purchase of Fixed Assets(Authority)	2,454,170	269,414
	-	-	b) Expenditure on Capital Work-in-Progress	-	-
2. Grants received from Government of India	170,322,000	151,710,000			
			4. Grant release to Training Centres (Annexure-F)	5,010,000	23,050,738
3. Interest Received On Bank deposits					
Gene Fund	-	-	5. Advance to outside Deptt. (Annexure-G)	2,203,164	417,705
Authority Fund (Incl. Branches)	14,954,007	5,791,575			
Interest on SB (Syndicate Bank) 878361.11			6. Refilling of Franking Machine	200,000	150,000
Interest on Sweep(flexi deposit) (Syndicate) 2190736.73					
Interest on FD (Syndicate Bank) 423809			7. Contribution to Gene Fund	20,524,450	-
Interest on Flexi (Gene Fund) 2275243					
Interest on FD (SBI) 9185857			8. Advance to Employee of PPVFRA (Annexure-J)	2,928,890	4,018,048
4. Refund of Grant from Field Gene Bank (Annexure-E)	-		9. Finance Charges	17,424	5,464

5. Refund of Grant from maintenance of Reference Varieties (Annexure- B)	385,249	108,772	10. TDS Deducted by bank	-	950
6. Refund of Grant from Training Centers (Annexure-F)	246,954	300,744	11. Fixed Deposit- Gene Fund	187,514,407	-
7. Refund of Grant for Development of DUS Guidelines (New DUS Centre) (Annexure- C)	-	72,358	12. Fixed Deposit-Authority		
			SBI	45,355,857	147,076,000
8. Refund of Advance from Employee of PPVFRA(Annexure-J)	834,917	1,065,703			
			Syndicate Bank- A/c No.- 91534050003894	54,335,034	
9. Refund of Grant from Referral Laboratories (Annexure D)	758,304		A/C No. 91535030000206	54,000,000	
10. Fees / Subscriptions/ Other Income			12. Recurring Deposit-(CPF)	-	-
Application/Registration Fees	7,481,700	6,664,800			
PVJ Subscription Fees	152,000	101,800	14. Statutory Liabilities Paid (Annexure-H)	8,812,937	7,372,419
Fees for Notice of Opposition	-	-			
Annual Fees (Including Share from sale of Seeds)- Gene Fund	20,601,230	5,370,206	15. Other Remittances (Annexure-I)	45,257	30,658
DUS Test Fees	5,793,500	4,829,500			
Inspection Fees	-	186,500	16. Creation of Auto Sweep(flexi deposit)		
Annual Return Form	-	132,304	Creation of Sweep(flexi deposit)-SBI	11,983,000	62,838,000
Other Income (including prior period)	174,000	-	Creation of Sweep(flexi deposit)-SBI-GENE	1,060,000	90,460,000
Sale of Publications	-	27,000	Creation of Sweep(flexi deposit)-Syndicate	32,928,000	34,887,000
Annual Renewal Fees	5,855,009	2,072,100			
Sale of Old Newspapers, Scrap	53,282	3,370	17. Contribution to ITPGFRA	3,799,774	-
Recovery of used car	3,060	-			
Recoupment of Imprest / Transferred to Bank	222,634	-	18. Closing Balances		
Amount of Refund/ Reversal (Creditors)	-	-			
Contribution from Authority Fund	21,059,050	-	a) Imprest (Cash In hand)		
Reversal of TDS deducted	-	248,058.00	Authority	2,601.00	25,000.00
			Ranchi Branch	1,137.00	3,186.00

11. Encashment of Sweep (flexi deposit)-SBI	19,395,643	174,484,996	Guwahati Branch	1,121.00	(6,262)
			Shivamoga Branch	661.00	-
12. Encashment of Sweep(flexi deposit)-SBI-GENE	122,830,859	31,689,954	Pune Branch	9,766.00	-
			b) Bank Balances		
13. Encashment of Sweep(flexi deposit)-Syndicate	112,368,091	30,508,354	State Bank of India	14,053,733	20,066,070
			Syndicate Bank		32,415,441
14. Interest from Sweep (flexi deposit).	-	221,083	A/C No. 91532140000064	52,388	
			A/C No. 91532010008572	14,469,683	
15. Encashment of FD			A/C No. 91532140008630	1,365,857	
SBI		-	Remittance in Transit	-	-
A/C No. 34753570743	130,162		SBI (Gene Fund)	2,496,562	3,106,549
A/C No. 37371154750	2,147,370		Guwahati Branch	34,405.00	8,015
A/C No. 37437532695	79,555		Ranchi Branch	24,009.00	16,056
Syndicate Bank- A/c No.- 91534050003894	36,335,034	690,574	Palampur Branch	24,338.21	-
SBI-Gene Fund	21,401,451		Shivamogga Branch	12,717.00	-
16. CPF Recurring Deposit	838,671	93,000			
17. LS & PC	-	119,453			
18. Security Deposit	30,000	-			
19. Refund from outside Department (Annexure-G)	21,825	-			
Total	620,109,613	547,412,310	TOTAL	620,109,613	547,412,310

Chapter 12: Citizen's Charter

Vision of the Authority

To 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.

Objectives of the Authority

- 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 of the Authority:=-

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 seeds and field gene banks for perennial crops
- Registration of new and extant varieties of plants
- Developing documentation of registered plant varieties
- Documentation, indexing and cataloguing of farmers' varieties
- Compulsory cataloguing facility for all varieties of plants
- Ensuring seeds of varieties registered under the Act are available to farmers and providing for compulsory license, if needs arise
- Ensuring maintenance of National Register of plant varieties
- Utilization of Gene Fund for supporting the conservation and sustainable use of plant genetic resources and capacity building of the panchayats in carryings out such conservation and sustainable use and meeting the expenditure of the schemes relating to benefits sharing and compensations to the stakeholders 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 by the Authority

- 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 documented

- Providing compensation to the farmers in case a registered variety does not perform as per the claim made by the breeders
- Facilitating benefit sharing to the communities/ farmers for the contribution/ sharing of plant genetic resources
- Creating awareness and capacity building for the rights of plant breeders and farmers towards implementation of PPV&FR Act, 2001
- Developing plant varieties database for the stakeholders
- Supporting and rewarding farmers and communities of farmers, particularly the tribal and rural communities, engaged in conservation, improvement and preservation of genetic resources

Grievances Redressal Mechanism

Registrar General, PPV&FRA is the designated officer for redressal of public grievances and can be contacted at:

Registrar General

Appellate Authority

Protection of Plant Varieties and Farmers' Rights Authority

S-2, A Block, NASC Complex, DPS Marg,

New Delhi -110012

Ph: 011-25843316. Fax: 011-25840478.

E mail: rg-ppvfra@nic.in; www.plantauthority.gov.in

Earlier, Dr S A Desai, Registrar, has served as Central Public Information Officer, PPV&FRA during 01.04.2018 to 05.12.2018.

Deputy Registrar, PPV&FRA, is designated as the Central Public information Officer to address the RTI matters and can be contacted at:

Sh Uma Kant Dubey, Central Public Information Officer wef 06.12.2018

Protection of Plant Varieties and Farmers' Rights Authority,

S-2, A Block, NASC Complex, DPS Marg,

New Delhi -110012

Tel: +91-11-25842846

Email: dr-ranchi-ppvfra@nic.in; www.plantauthority.gov.in

Registrar General, PPV&FRA is designated as 1st Appellate Authority for RTI matters and can be contacted at:

Dr, R C Agrawal, Registrar General

1st Appellate Authority

Protection of Plant Varieties and Farmers' Rights Authority

S-2, A Block, NASC Complex, DPS Marg,

New Delhi -110012

Ph: 011-25843316. Fax: 011-25840478

E mail: rg-ppvfra@nic.in; www.plantauthority.gov.in

Annexure I: Members of PPV & FR Authority (As on 31 March, 2019)

List of Authority Members

S.No	Name	Designation	Address
1	Dr. S.K. Malhotra	Agriculture Commissioner	Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Govt. of India, Krishi Bhavan, New Delhi-110 001
2	Dr. A.K. Singh	Deputy Director General (Crop Science)	Division of Crop Science, Ministry of Agriculture, Govt. of India Indian Council for Agricultural Science Krishi Bhavan, New Delhi-110 001
3	Shri Ashwani Kumar	Joint Secretary (Seeds)	Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Govt. of India Krishi Bhawan, New Delhi-110 001
4	Dr. B.N.S. Murthy	Horticultural Commissioner	Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture, Govt. of India, Room No 238, Krishi Bhawan, New Delhi-110 001
5	Dr. Kuldeep Singh	Director	National Bureau of Plant Genetic Resources, Pusa, DPS Marg, New Delhi-110 012
6	Dr. Mohd. Aslam	Adviser/Scientist 'G'	Department of Biotechnology, Ministry of Science & Technology, Govt. of India, Room No. 809, 8th Floor, Block-2, CGO Complex, Lodhi Road, New Delhi-110003
7	Dr. Sujata Arora	Adviser	Ministry of Environment & Forests & Climate Change, Room No. V-235, Indira Paryavaran Bhawan, New Delhi-110003
8	Shri Bihari Lal Sharma	Executive Director	Youth for Sustainable Development, B-2, M.C. Car Parking-cum-Commercial Complex, Near H.P. High Court, Shimla-171001

9	Shri Aruna Kumara V.K.	Director	Krishi Prayoga Pariwara Krishi Nivas, Kuruvalli, Thirthahalli, Shimoga Dist. Karnataka-577432
10	Shri M Prabhakar Rao	Chairman & Managing Director	Nuziveedu Seeds Private Limited NSL Icon, 4th Floor, Opp. ICICI Bank, Road No. 12, Banjara Hills, Hyderabad, Telangana-500 034
11	Dr. R.C. Srivastava	Vice Chancellor	Dr. Rajendra Prasad Central Agricultural University Pusa, Samastipur-848 125
12	Dr. Nikki Kumari (Hembrom)	--	MIG 52, Hanuman Nagar Kankarbagh, Patna-800 020
13	Principal Secretary(Agriculture)	Principal Secretary (Agriculture)	Government of Maharashtra Mantralaya, Mumbai-462004
14	Dr. Rajesh Rajora. IAS	Principal Secretary (Agriculture)	Government of Madhya Pradesh, Mantralaya, Room No. 83, Ballabh Bhavan, Bhopal-462004
15	Shri. R.S. Verma	Joint Secretary & Legal Adviser	Ministry of Law & Justice Room no. 309, Department of Telecommunications, Sanchar Bhawan New Delhi -110001

Annexure II: Details of Human Resources of the Authority as on 31.03.2019

S. No	Name	Designation	Pay Level as per 7 th CPC
1	Dr. K. V. Prabhu	Chairperson	Level 17(Rs 225000/-)
2	Dr. R.C. Agrawal	Registrar -General	Level 15(Rs 182200-224100)
3	Dr. Ravi Prakash	Registrar	Level 13(Rs 123100-215900)
4	Dr. T. K. Nagarathna	Registrar	
5	Vacant(w.e.f. 05.12.2018)	Registrar	
6	Sh J P Singh	Financial Advisor	
7	Sh. D. R. Choudhury	Joint Registrar	Level 12(Rs 78800-209200)
8	Vacant	Joint Registrar	
9	Sh. U.K. Dubey	Deputy Registrar	Level 11(Rs 67700-208700)
10	Sh. R. S. Segar	Deputy Registrar	
11	Sh. D. S. Raj Ganesh	Legal Advisor	
12	Vacant	Legal Advisor	
13	Dr. A. K. Singh	PVE	Level 7(44900-142400)
14	Dr. D. S. Plania	Technical Assistant	Level 6(35400-112400)
15	Sh. Arvind Kumar Rai	Computer Assistant	
16	Sh. Sanjay Kr. Gupta	Computer Assistant	
17	Smt. Shipra Mathur	Computer Assistant	
18	Sh. Nitesh Kumar Verma	Computer Assistant	
19	Sh. Shyam Narayan Prasad	Computer Assistant	

Annexure III: Statement Showing Funds Released to New DUS Centres/Projects During 2018-19

Sr. No.	Name of the New DUS Centre	Crop	Release During 2018-19(INR)
1	IIHR,ICAR-Unit, Bangalore	Papaya and Custard Apple	550,000
2	BAU Sabour, Bhagalpur (Seed Bank)	Cereal, Pulses & Vegetables	418,806
3	TNAU, Coimbatore	Papaya and Custard Apple	321,701
4	UHS, Bagalkot	Moringa	150,000
5	IFGTB Coimbatore	Teak	586,765
6	CIAH,ICAR-Unit, Bikaner	Anola	366,046
7	CIAH,ICAR-Unit, Bikaner	Chironji and Tamarind	374,385
8	CISH, ICAR-Unit, Lucknow (Bael)	Bael	231,570
9	CIAH,ICAR-Unit, Bikaner	Bael	481,685
10	NRC ICAR-Unit, Cashew	Cashew	272,383
11	TNAU, Coimbatore	Neem Karanj Jatrapha	200,000
12	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	Willow (Salix Species)	380,188
13	IIHR,ICAR-Unit, Bangalore	Marigold	474,500
14	CPCRI ICAR-Unit,	Cocoa	586,853
15	CCARI-ICAR, Goa	Kokum	588,252
16	NRCSS Ajmer	Ajwain, Dill, Nigella, Celery, Anise	361,277
17	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	Lillum Sp, Oriental, Asiatic, LA & OT Hybrids	282,889
18	IFGTB Coimbatore	Ailanthus	40,399
19	IFGTB Coimbatore	Red Sanders & Indian Sandal wood	887,066
20	IIHR-ICAR-Unit, Bangalore	Gerbera	305,000
21	SHUATS Allahabad	-	900,000
22	CTRL,ICAR-Unit, Rajahmundry	Flue Cured Virginia and Bidi	1,072,000
23	SKUAST-K Srinagar	Maize and Land Races	450,000
24	Central Coffee Research Institute, Karnataka	Coffee	711,338
25	UAS Dharwad	Cowpea	479,840
26	CPCRI Karnataka DUS Center	Arecanut	242,961
27	CIAH, ICAR-Unit, Bikaner DUS Center	Datepalm	336,984
28	CIAH,(Central Ins for Arid Horticulture), ICAR-Unit, Bikaner	Jamun	321,734

Sr. No.	Name of the New DUS Centre	Crop	Release During 2018-19(INR)
29	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	Seabuckthorn	264,042
30	CISH, (Central Ins for Subtropical Horticulture), ICAR-Unit, Lucknow	Anola	308,510
31	CISH,(Central Ins for Subtropical Horticulture),ICAR-Unit Lucknow	Jamun	423,497
32	Dr B S Konkan Krishi Viswadidyalaya, Dapoli	Nutmeg	163,419
33	IARI, Division of vegetable, ICAR-Unit, New Delhi	Radish and Carrot	957,855
34	IARI, Division of Fruit & Horticulture, ICAR-Unit, New Delhi	Lemon & Pummelo	815,800
35	ICAR Research Complex NEH Region, Umian	Jackfruit	735,561
36	SASRD, Nagaland University	Chow- Chow	587,366
37	NDAU&T, Faizabad	Minoe Seed Spices	450,000
38	UAS GKVK Bangalore	Jackfruit	531,577
39	UAHS Shivmonga	-	800,000
40	NRC on Litchi, ICAR-Unit, Muzaffarpur	Litchi & Guava	550,000
41	IARI, New Delhi (Broccoli) (Project)	Broccoli	875,140
42	BSKKV Dapoli	Kokum	670,497
43	UAS Dharwad	Germplasm-Roselle of Mesta	900,000
44	CITH, Srinagar (Olive)	Olive	450,000
45	NEIST, JORHAT	Lemon Grass	900,000
46	IARI (Regional Station, Katrain Kullu Valley)	Radish & Carrot	675,000
47	ICAR- NEH Region, Umiam, Meghalaya	Lemon & Pummelo	774,760
48	IIPR, Kanpur (Linseed)	Linseed	529,706
49	SKAUST- K, Srinagar (Saffron)	Saffron	900,000
50	Y. S. Parmar University of Horticulture and Forestry, Solan (Regional station Sirmour)	Dahlia	900,000
51	UAS, DHARWAD	(New Establishment of Seed Bank)	750,000
52	College of Agriculture, Vijayapur, UASD Karnataka	(New Establishment of Seed Bank) (Rabi Sorghum, wheat & Red gram)	302,437
53	BSKKV, Dapoli, Maharashtra	New Establishment of Seed Bank (Pulses, Vegetables and cereals of Farmers' varieties)	843,727
TOTAL			28,433,516

Annexure IV: Statement Showing Funds Released to Existing DUS Centres/Projects During 2018-19

Sr. No.	Name of DUS Centre	Crop	Release During 2018-19 (₹)
1	DTR & DCTB, Kurseong	Tea	100,000
2	IIHR,ICAR-Unit, Bangalore	Carnation	4,988
3	BCKV (Bidhan Chandra Krishi Visavidyalaya), Kalyani	Yam and Taro	819,879
4	IIHR,ICAR-Unit, Bangalore	Tuberose	190,000
5	Central Tuber Crops Res Institute, Trivandrum	Sweet Potato and Cassava	106,854
6	NBRI ICAR-Unit, Lucknow	Gladiolus, Bougainvillea & Canna	489,369
7	BCKV (Bidhan Chandra Krishi Visavidyalaya), Kalyani	Pointed Gourd	359,500
8	CITH,(Central Institute for Tropical Horticulture), ICAR-Unit, Srinagar	Peach, Plum, Apple, Almond, Pear, Apricot & walnut	764,175
9	CISH,(Central Ins for Subtropical Horticulture), ICAR-Unit,	Mango	447,678
10	RARI, Durgapur, Jaipur	Barley	448,481
11	IARI, Division of Floriculture, New Delhi	Bougainvillea	543,194
12	CIAH,ICAR-Unit, Bikaner	Water and Muskmelon	552,217
13	JNKVV, Jabalpur	Field Pea, Linseed	569,342
14	CSAUA&T, Kanpur	Linseed	441,398
15	CIMAP,(Central Inst. for Medicinal and Aromatic Plants), Lucknow	Medicinal Plants	650,000
16	CIAH,(Central Ins for Arid Horticulture), ICAR-Unit, Bikaner	Ber	396,998
17	IARI, Division of Vegetable Sc., New Delhi	Bottle Gourd	
18	IARI, Regional Station, Katrain	Cabbage and Cauliflower	565,427
19	IIHR,ICAR-Unit, Bangalore	Mango	452,644
20	NRC Banana, ICAR-Unit, Trichy	Banana	450,000
21	TRA, Tocklai	Tea	252,000
22	CARI,ICAR-Unit, Port Blair	Noni	282,353
23	NBPGR,ICAR-Unit, New Delhi	Grain Amaranth	229,357
24	DGR,(Directorate of Groundnut Research), ICAR-Unit, Junagarh	Groundnut	492,578
25	IARI, Division of Veg. Sc., New Delhi	Chilli	477,186
26	JNKVV, Jabalpur	Sesame and Niger	471,489

Sr. No.	Name of DUS Centre	Crop	Release During 2018-19 (‘)
27	IIHR,ICAR-Unit, Bangalore	Watermelon and Muskmelon	314,333
28	Central Sericultural Research and Training Institute, Mysore	Mulberry	500,000
29	JAU (Junagadh Agril University), Jamnagar	Castor	350,001
30	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan	Poplar Germplasm	323,908
31	IFGTB (Institute of Forest Genetics and Tree Breeding), Coimbatore	Eucalyptus and Casuarina	725,293
32	IIHR,ICAR-Unit, Bangalore	Amaranth, Palak, Ridge Gourd	348,847
33	NRCSS,(National Research Centre for Seed Spices),ICAR-Unit, Ajmer	Seed Spices	181,541
34	AAU (Assam Agril. University), Jorhat	Rice	586,347
35	IARI, Division of Floriculture, ICAR-Unit, New Delhi	Marigold	533,283
36	VPKAS (Vivekananda Parvatiya Krishi Anusandhan Shala), ICAR-Unit, Almora	Rajma, Soybean, Maize	600,745
37	DOGR (Directorate of Onion and Garlic Research), ICAR-Unit, Rajgurunagar	Onion and Garlic	531,217
38	NRC(National Res Centre for Orchids),ICAR-Unit, Sikkim	Orchids	623,000
39	NRCP,ICAR-Unit, Sholapur	Pomegranate	437,718
40	IARI Division Of Veg. Science, ICAR-Unit,	Onion and Garlic	550,000
41	IISR,(Indian Inst. of Sugarcane Res.), ICAR-Unit, Lucknow	Sugarcane	680,315
42	IIHR,ICAR-Unit, Bangalore	Betel Vine	543,000
43	CSAUA&T,(Chandra Sekhar Azad University of Agril. and Technology), Kanpur	Mustard, Wheat	75,000
44	IISR,(Indian Ins of Spices Research), ICAR-Unit, Calicut	Spices	725,000
45	DSR,(Directorate of Soybean Research), ICAR-Unit, Indore	Soybean	612,093
46	IIPR,(Indian Ins of Pulses Research), ICAR-Unit, Kanpur	Mungbean, Urdbean, lentil, Rajma, Vegetable Pea	607,065
47	NRC,(National Res Centre of Grapes),ICAR-Unit,	Grapes	341,661
48	IARI, ICAR-Unit, Regional Station, Karnal	Rice	449,686
49	Sugarcane Breeding Inst, ICAR-Unit, Coimbatore	Sugarcane	1,220,460
50	IGKV, Raipur	Grow out Test (Rice)	675,000
51	Sugarcane Breeding Inst., ICAR-Unit, Karnal	Sugarcane	386,735

Sr. No.	Name of DUS Centre	Crop	Release During 2018-19 (‘)
52	IIWBR,ICAR-Unit, Karnal	Barley & Wheat	1,572,385
53	DRMR,(Directorate of Rapeseed and Mustard Research),ICAR-Unit, Bharatpur	Rapeseed and Mustard	503,167
54	IIHR,ICAR-Unit, Bangalore	Chilli	1,083,366
55	RAU Bikaner-Mandore AICPMIP Jodhpur	Pearl Millet	1,107,248
56	PAU,(Punjab Agril. University), Ludhiana	Oat, cowpea & guinea grass, cotton	719,591
57	Central Tuber Crops Research Institute, ICAR-Unit, Trivandrum	Elephant Footyam, Taro, Yam Bean & Greater Yam	125,000
58	CRRI,(Central Rice Res. Instt.),ICAR-Unit, Cuttack	Rice	1,125,000
59	PDKV(Panjab Rao Deshmukh Krishi Viswavidyalaya), Akola	Chickpea, Red Gram	1,250,000
60	IARI, Division of Vegetable Science, New Delhi	Amaranth, Palak, Ridge Gourd, Bottle Gourd	851,420
61	DMAPR (Dir. Medicinal & Aromatic Plant Res.), Anand	M&A plants	752,557
62	CCSHAU (Choudhary Charan Singh, Hisar Agril University), Hisar	Cotton, Chickpea	844,794
63	IARI,ICAR-Unit, Regional Station, Indore	Wheat	842,400
64	CPRI,(Central Potato Res. Institute), ICAR-Unit, Shimla	Potato	469,429
65	NEH,ICAR-Unit, Region Barapani, Manipur	Rice	1,033,500
66	IARI, Division of Vegetable Sc., New Delhi	Cabbage and Cauliflower	389,743
67	PJTSAU (Prof. Jayashankar Telengana State Agricultural University), Hyderabad	Maize	1,175,000
68	TNAU (Tamil Nadu Agricultural University), Coimbatore	Rice, Sunflower, Groundnut	611,633
69	IIMR ICAR-Unit Hyderabad (Millets)	Sorghum	873,337
70	CRIJAFR (Central Res Ins for Jute and Allied Fibres Research), Barrackpore & CSRS, Budbud	Jute	1,292,190
71	MPKV, Rahuri	Cotton	850,000
72	IIOR,ICAR-Unit, Hyderabad	Sunflower, Castor & safflower	780,729
73	CPCRI,ICAR-Unit, Kerala	Coconut	618,421
74	UAS, GKVK, Bangalore	Small Millet	641,380
75	CISH,(Central Ins For Subtropical Horticulture), ICAR-Unit, Lucknow	Guava & Litchi	443,484
76	IIPR,(Indian Ins of Pulses Research), ICAR-Unit, Kanpur	Chickpea, Pigeon pea	1,669,800
77	MPKV, Rahuri	Sorghum, Pearl Millet	1,056,676

Sr. No.	Name of DUS Centre	Crop	Release During 2018-19 (‘)
78	IIHR, ICAR-Unit, Hessarghatta, Bangalore	Vegetables	1,899,274
79	UAS (University of Agril. Sciences), Dharwad	Cotton, Soybean, Groundnut and Sesame	1,447,886
80	IIHR, ICAR-Unit, (Indian Ins for Horticultural Research), Bangalore	Rose & Chrysanthemum	2,005,556
81	IIRR ICAR-Unit, Hyderabad(Rice)	Rice	1,239,187
82	IIMR, ICAR-Unit, New Delhi	Maize	1,900,000
83	CICR, Coimbatore	Cotton	1,528,796
84	CICR, ICAR-Unit, (Central Ins. For Cotton Research), Nagpur	Cotton	872,149
85	IIVR, ICAR-Unit, (Indian Ins of Veg. Research), Varanasi	Okra, Brinjal, Tomato, Cabbage, Cauliflower	2,196,811
86	NRCC, ICAR-Unit, Nagpur	Citrus	425,000
87	TOTAL		59,676,264

Annexure V: Statement Showing Funds Released to Field Gene Banks During 2018-19

Statement showing funds released to Field Gene Banks during 2018-19

S. No	Name of Centers	Release During 2018-19(INR)
1	BAU, Ranchi	565,720
2	Dr. Balasaheb Konkan Krishi Vidyapeeth, Dapoli	823,239
3	CAZRI, Jodhpur	-
4	Dr. Y. S. Parmar University of Horticulture & Forestry, Solan	586,423
5	NBPGR, New Delhi	1,687,696
	Total	3,663,078

Annexure VI: Financial Support to Different Organizations During the Year 2018-19

Financial support to different organizations during the year 2018-19

Sl. No.	Name of Beneficiary	Release During 2018-19 (₹)
1	CSAU&T Kanpur	160,000
2	CPRI Shimla (Modipuram centre)	80,000
3	NBPGR New Delhi (136/15)	800,000
4	MSSRF Chennai	80,000
5	Indian Society of seed Technology Imphal Chapter	160,000
6	PD, DWR Karnal 136/15	80,000
7	UA&HS, Shimoga, Karnataka(136/15)	500,000
8	Zonal Projects Directorate, ICAR Zone -II, Kolkata, W.B	500,000
9	Zonal Projects Directorate, ICAR Zone -VII, Jabalpur	500,000
10	U.P. Research Association, Allahabad	80,000
11	Comptroller Agricultural University Jodhpur	80,000
12	Directorate of Education of BAU Sabour, Bhagalpur	1,550,000
13	Indian Society of Genetics & Plant Breeding	80,000
14	IASWC, Dehradun	160,000
15	Siksha O Anusandhan University	200,000
Total		5,010,000

Annexure VII: List of Farmers' Varieties Received During the Year 2018-19

Crop	Number of applications	Crop	Number of applications
Maize	58	Castor	3
Wheat	55	Kideny Bean	3
Rice	40	Okra/Lady's Finger	3
Rapeseed (Toria)	29	Potato	3
Fieldpea	25	Banana	2
Chickpea	19	Cucumber	2
Rose	17	Papaya	2
Barley	16	Proso Millet	2
Linseed	15	Safflower	2
Garlic	14	Sorghum	2
Black Gram	12	Tomato	2
Coriander	12	Black Pepper	1
Lentil	10	Brahmi	1
Pigeon Pea	10	Cauliflower	1
Bottle Gourd	9	Durum Wheat	1
Fenugreek	8	Elephant Foot Yam	1
Finger Millet	8	Foxtail Millet	1
Turmeric	8	Grapes	1
Chilli	6	Jute	1
Green Gram	6	Karanj	1
Pumpkin	6	Kodo Millet	1
Brinjal	5	Litchi	1
Ginger	5	Menthol mint	1
Groundnut	5	Muskmelon	1
Indian Mustard (Sarso)	5	Sesame	1
Faba bean	4	Soybean	1
Ridge gourd	4	Sugarcane	1
Taro	4	Vegetable Amaranth	1
Bitter Gourd	3	Grand Total	461

Annexure VIII: Crops Under Registration

S.No.	Crop	Botanical name
1.	Rice	<i>Oryza sativa</i> L.
2.	Bread wheat	<i>Triticum aestivum</i> L
3.	Maize	<i>Zea mays</i> L.
4.	Sorghum	<i>Sorghum bicolor</i> (L.) Moench
5.	Pearl millet	<i>Pennisetum glaucum</i> (L.) R.Br.
6.	Chickpea	<i>Cicer arietinum</i> L.
7.	Mungbean	<i>Vigna radiata</i> (L.) Wilczek
8.	Urdbean	<i>Vigna mungo</i> (L.) Hepper
9.	Fieldpea	<i>Pisum sativum</i> L.
10.	kidney bean	<i>Phaseolus vulgaris</i> L.
11.	Lentil	<i>Lens culinaris</i> Medik
12.	Pigeon pea	<i>Cajanus cajan</i> (L.) Millsp.
13.	Indian mustard	<i>Brassica juncea</i> L. Czern & Coss
14.	Karan rai	<i>Brassica carinata</i> A Braun
15.	Rapeseed(toria)	<i>Brassica rapa</i> L.
16.	Gobhi sarson	<i>Brassica napus</i> L.
17.	Groundnut	<i>Arachis hypogaea</i> L.
18.	Soybean	<i>Glycine max</i> (L.) Merrill
19.	Sunflower	<i>Helianthus annuus</i> L.
20.	Safflower	<i>Carthamus tinctorius</i> L.
21.	Castor	<i>Ricinus communis</i> L.
22.	Sesame	<i>Sesamum indicum</i> L.
23.	Linseed	<i>Linum usitatissimum</i> L.
24.	Diploid cotton	<i>Gossypium arboreum</i> L.
25.	Diploid cotton	<i>Gossypium herbaceum</i> L.
26.	Tetraploid cotton	<i>Gossypium hirsutum</i> L.
27.	Tetraploid cotton	<i>Gossypium barbadense</i> L.
28.	Jute	<i>Corchorus olitorius</i> L.
29.	Jute	<i>Corchorus capsularis</i> L.
30.	Sugarcane	<i>Saccharum</i> L.
31.	Black pepper	<i>Piper nigrum</i> L.
32.	Small cardamom	<i>Elettaria cardamomom</i> Maton
33.	Turmeric	<i>Curumma longa</i> L.
34.	Ginger	<i>Zingiber officinale</i> Rosc.

S.No.	Crop	Botanical name
35	Tomato	<i>Lycopersion lycopersicum</i> (L.) Karsten ex. Farw.
36	Brinjal	<i>Solanum melongena</i> L.
37	Okra	<i>Abelmoschus esculentus</i> (L.) Moench.
38	Cauliflower	<i>Brassica oleracea</i> L.var. botrytis
39	Cabbage	<i>Brassica oleracea</i> L. var capitata
40	Potato	<i>Solanum tuberosum</i> L.
41	Onion	<i>Allium cepa</i> L.
42	Garlic	<i>Allium sativum</i> L.
43	Rose	<i>Rosa</i> spp.(other than <i>R.damascena</i>)
44	Chrysanthemum	<i>Chrysanthemum</i> spp.
45	Mango	<i>Mangifera indica</i> L.
46	Duram wheat	<i>Triticum durum</i> Desf.
47	Dicoccum wheat	<i>Triticum dicoccum</i> L.
48	Other Triticum species	
49	Isabgol	<i>Plantago ovata</i> Forsk
50	Menthol mint	<i>Mentha arvensis</i> L.
51	Damask Rose	<i>Rosa damascena</i> Mill
52	Periwinkle	<i>Catharanthus roseus</i> L.
53	Brahmi	<i>Bacopa monnieri</i> L.Pennell
54	Coconut	<i>Cocos nucifera</i> L.
55	Orchids	<i>Vanda</i>
56	Orchids	<i>Dandrobium</i>
57	Orchids	<i>Cymbidium</i>
58	Pomegranate	<i>Punica granatum</i> L
59	Orchid	<i>Cattleya</i> Lindl.
60	Orchid	<i>Phalaenopsis</i> Blume
61	Eucalyptus	<i>Eucalyptus camaldulensis</i> Dehnh.
62	Eucalyptus	<i>Eucalyptus tereticornis</i> Sm.
63	Casurina	<i>Casuarina equisetifolia</i> L
64	Casurina	<i>Casuarina junghuhniana</i> Miq.
65	Bitter Gourd	<i>Momordica charantia</i> L.
66	Bottle Gourd	<i>Lagenaria siceraria</i> (Mol.) Standl.
67	Cucumber	<i>Cucumis sativus</i> L.
68	Pumpkin	<i>Cucurbita moschata</i> Duch. ex Poir.
69	Barley	<i>Hordeum vulgare</i> L.
70	Coriander	<i>Coriandrum sativum</i> L.
71	Fenugreek	<i>Trigonella foenum graecum</i> L.

S.No.	Crop	Botanical name
72	Almond	<i>Prunus dulcis</i> (Mill.) D.A. Webb
73	Apple	<i>Malus domestica</i> Borkh
74	Pear	<i>Pyrus communis</i> L.
75	Apricot	<i>Prunus armeniaca</i> L.
76	Cherry	<i>Prunus avium</i> L.
77	Walnut	<i>Juglans regia</i> L.
78	Grapes	<i>Vitis</i> spp.
79	Indian jujube (Ber)	<i>Ziziphus mauritiana</i> Lamk.
80	Tea	<i>Camellia sinensis</i>
81	Tea	<i>Camellia assamica</i>
82	Tea	<i>C.assamica</i> ssp <i>lasiocalyx</i> .
83	Acid Lime	<i>Citrus aurantifolia</i> Swingle
84	Mandarin	<i>Citrus reticulata</i> Blanco
85	Sweet Orange	<i>Citrus sinensis</i> (L.) Osbeck
86	Bougainvillea	<i>Bougainvillea</i> Comm. Ex Juss.
87	Banana	<i>Musa</i> spp.
88	Orchid	<i>Oncidium</i> Sw.
89	Canna	<i>Canna</i> L.
90	Gladiolus	<i>Gladiolus</i> L.
91	Muskmelon	<i>Cucumis melo</i> L.
92	Watermelon	<i>Citrullus Lanatus</i> (Thunb.) Mansf.
93	Jasmine	<i>Jasminum auriculatum</i> . L.
94	Tuberose	<i>Polianthes tuberosa</i> L.
95	Papaya	<i>Carica papaya</i> L.
96	China Aster	<i>Callistephus chinensis</i> (L.)Nees.
97	Peach	<i>Prunus persica</i> L Batsch.
98	Japanese Plum	<i>Prunus salicina</i> L.
99	Strawberry	<i>Fragaria x ananasan</i> Duch.
100	Chilli, Bell Pepper and Paprika	<i>Capsicum annum</i> L.
101	Finger Millet	<i>Eleusine coracana</i> (L.) Gaertn.
102	Foxtail Millet	<i>Setaria italic</i> (L.) Beauv
103	Vegetable Amaranth	<i>Amaranthus tricolor</i> L.
104	Ridge gourd	<i>Luffa acutangula</i> (L.) Roxb.
105	Spinach beet	<i>Beta vulgaris</i> var. <i>bengalensis</i> Roxb.
106	Carnation	<i>Dianthus caryophyllus</i> L.
107	Orchid	<i>Paphiopedilum</i> Pfitz.

S.No.	Crop	Botanical name
108	Noni	Morinda citrifolia L.
109	Bael	Aegle marmelos (L.) Correa
110	Jamun/Black plum	Syzygium cumini (L.) Skeels.
111	Nutmeg	Myristica fragrans Houtt.
112	Jasmine/Mogra	Jasminum sambac L.
113	Custard apple / Sugar apple	Annona squamosa L.
114	Kalmegh /King of Bitters	Andrographis paniculata (Burm.f.) Wall. ex Nees
115	Karanj	Pongamia pinnata (L.) Pierre.
116	Neem	Azadirachta indica A. Juss.
117	Indian Gooseberry	Emblica officinalis Gaertn.
118	Guava	Psidium guajava L.
119	Litchi	Litchi chinensis Sonn.
120	Marigold	Tagetes spp. L.
121	Betelvine	Piper betle L.
122	Deodar	Cedrus deodara (Roxb.) G.Don
123	Chir Pine	Pinus roxburghii Sargent
124	Mulberry	Morus spp.
125	Jasmine	Jasminum multiflorum L.
126	Common/ Sweet Buckwheat	Fagopyrum esculentum
127	Tartary/ Bitter Buckwheat	Fagopyrum tataricum
128	Rajgeera (the King's grain) or Ramdana (Lord Rama's grain).	Amaranthus hypocondricus
129		Amaranthus cruentus
130		Amaranthus caudatus
131		Amaranthus edulis
132	Faba bean	Vicia faba L.
133	Jatropha	Jatropha curcas L.
134	Proso Millet	Panicum maliaceum L.
135	Barnyard Millet	Echinochloa frumentaceae (Roxb.) Link
136	Little Millet	Panicum sumatrense Roth. Ex. Roemer And Schultes
137	Kodo Millet	Paspalum scrobiculatum L.
138	Elephant Foot Yam	Amorphophallus paeoniifolius
139	Taro	Colocasia esculenta
140	Giant SwampTaro	Cyrtosperma chamissionis/C.merkusii
141	Cashew	Anacardium occidentale L.
142	Arecanut	Areca catechu L.
143	Chironji	Buchanania lanzan Spreng.

S.No.	Crop	Botanical name
144	Tamarind	Tamarindusindica L.
145	Sweet potato	Ipomoea batatas (L.) Lam
146	Cassava	Manihotesculenta Crantz.
147	Poplar	Populusdeltoides Bartr.
148-154	Willow (7 species)	Salix tetrasperma, Salix nigra, Salix jessoensis, Salix x rubens, Salix matsudana, Salix alba, Salix acmophylla .
155	Oat	Avena sativa L.
156	Date Palm	Phoenix dactylifera L.
157	Moringa	Moringa oleifers L.

Annexure IX: Certificates of Registration Issued During 2018-19

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name	
1.	397 of 2018	New	NSCL-15 (SWEET CORN)	Maize	Nuziveedu Seeds Ltd	
2.	398 of 2018		NM-161	Maize	Nuziveedu Seeds Ltd	
3.	399 of 2018		MIM303	Maize	Monsanto Holdings Pvt. Ltd.	
4.	400 of 2018		TM 61478	Tomato	Maharashtra Hybrid Seeds Company Limited	
5.	401 of 2018	Extant (VCK)	SBJH-801	Brinjal	Sungro Seeds Private Limited	
6.	402 of 2018		SBJH-227	Brinjal		
7.	403 of 2018		SBJH-023	Brinjal		
8.	404 of 2018		MIM501	Maize	Monsanto Holdings Pvt. Ltd.	
9.	405 of 2018	New	PCI001-nm	Maize	DCM Shriram Limited	
10.	406 of 2018	Farmer	Gurusevak Dhan-1	Rice	Mr. Surjeet Singh	
11.	407 of 2018		Lkhuwa	Rice	Sarjana Samajik Sanskritik & Sahityak Manch	
12.	408 of 2018		Murkhi	Rice		
13.	409 of 2018		Sikiya	Rice		
14.	410 of 2018		Soankharcha	Rice		
15.	411 of 2018		Moonagar	Rice		
16.	412 of 2018		Urai Boot	Rice		
17.	413 of 2018		Ageti Luchai	Rice		
18.	414 of 2018		Turai Luchai	Rice		
19.	415 of 2018		Biluri Luchai	Rice		
20.	416 of 2018		Dihula	Rice		
21.	417 of 2018		Chirhul	Rice		
22.	418 of 2018		Biranj	Rice		Sarjana Samajik Sanskritik & Sahityak Manch
23.	419 of 2018		Samliya Bhog	Rice		
24.	420 of 2018		Dengi Churi	Rice		
25.	421 of 2018		Gutru	Rice		
26.	422 of 2018		Rdhuni	Rice		
27.	423 of 2018		Lakshheer	Rice		
28.	424 of 2018		Jalkeshar	Rice		
29.	425 of 2018		Lurka	Rice		
30.	426 of 2018		Lokharpuhi	Rice		

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name
31	427 of 2018	Farmer	Neemphool	Rice	Sarjana Samajik Sanskritik & Sahityak Manch
32	428 of 2018		Rasiya	Rice	
33	429 of 2018		Teetur Pakhi	Rice	
34	430 of 2018		Khera Khamb	Rice	
35	431 of 2018		Pahar	Rice	
36	432 of 2018		Lalbagri	Rice	
37	433 of 2018		Kapuri	Rice	
38	434 of 2018		Pheti Luchai	Rice	
39	435 of 2018		Teendaniya	Rice	
40	436 of 2018	Farmer	Dhoor	Rice	Sarjana Samajik Sanskritik & Sahityak Manch
41	437 of 2018		Galre	Rice	
42	438 of 2018		Jhalri	Rice	
43	439 of 2018		Bohita	Rice	
44	440 of 2018		Gadhauti	Rice	
45	441 of 2018		Lam Sduri	Rice	
46	442 of 2018		Jholar	Rice	
47	443 of 2018		Bhuri Kargi	Rice	
48	444 of 2018		Neel Kamal	Rice	
49	445 of 2018		Gulbiya	Rice	
50	446 of 2018		Bhainspath	Rice	
51	447 of 2018		Lokti	Rice	
52	448 of 2018		Ujar Jaira	Rice	
53	449 of 2018		Dharsal	Rice	
54	450 of 2018		Nanhiya	Rice	
55	451 of 2018		Ravsal	Rice	
56	452 of 2018	Seuta	Rice		
57	453 of 2018	Klidhra	Rice		
58	454 of 2018	Lamhrwan Gehun	Rice	Sh. Kishore Mehta	
59	455 of 2018	Gehun (Desi)	Rice	Smt. Sumitra Devi	
60	456 of 2018	KHILONA-BR	Rice	Sh. Novendra Prasad Sharma	
61	457 of 2018	Gehun Desi-2	Rice	Sh. Kishori Kumar Yadav	
62	458 of 2018	Gehun Lal	Rice	Sh. Satendra Kumar Singh	
63	459 of 2018	Dehati Gehun Lalaka	Rice	Sh. Chandra Sekhar Yadav	
64	460 of 2018	BABA VISHWNATH	Rice	Sh. Chandra Shekhar Singh	
65	461 of 2018		Sonali-Kaw	Bread Wheat	Sh. Nimrod Kujur

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name
66	462 of 2018	Extant	Laxmi 3636 (LTH-22)	Maize	Yaaganti Seeds Private Limited
67	463 of 2018		HM-13 (HKH-317)	Maize	Indian Council of Agricultural Research
68	464 of 2018		PUNJAB SUGANDH	Coriander	Punjab Agricultural University
69	465 of 2018	Extant (VCK)	M 101	Maize	JK Agri Genetics Ltd.
70	263 of 2016	Re-issue	SONAL (NP 3114) (IET 18299)	Rice	Nuziveedu Seeds Pvt. Ltd.
71	466 of 2018	Farmer	JP 151	Bread Wheat	Jai Prakash Singh
72	467 of 2018		JP 209	Bread Wheat	Jai Prakash Singh
73	468 of 2018		JP 197	Bread Wheat	Jai Prakash Singh
74	469 of 2018		Mayurbhanja-AHIRMAN	Rice	Supai Marndi
75	470 of 2018		JP 8661	Bread Wheat	Jai Prakash Singh
76	471 of 2018	New	BISCO 555 (BISCO UJALA)	Maize	Bisco Biosciences Pvt. Ltd.
77	472 of 2018	Extant (VCK)	IISR MALABAR EXCEL	Black pepper	Indian Council of Agricultural Research
78	473 of 2018		IISR THEVAM	Black pepper	
79	474 of 2018		IISR GIRIMUNDA	Black pepper	
80	475 of 2018		IISR VIJETHA 1	Small cardamom	
81	476 of 2018	Extant	CSR 43 (CSR 89 -IR8) (IET 18259)	Rice	Central Soil Salinity Research Institute
82	477 of 2018	Extant	CR Dhan 303 (CR 2649-7) (IET 21589)	Rice	Indian Council of Agricultural Research
83	1 of 2019	New	KING II	Maize	Ganga Kaveri Seeds Pvt. Ltd.
84	2 of 2019	Extant (VCK)	CA 8618	Castor	Maharashtra Hybrid Seeds Company Limited
85	3 of 2019	New	KMH-6681	Maize	Kaveri Seed Company Limited
86	4 of 2019	Extant	Pusa 12 (DS 12-13)	Soybean	Indian Council of Agricultural Research
87	5 of 2019		Palam Soya (P-30-1-1)	Soybean	

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name
88	6 of 2019	Extant	SUBHRA (OSC 207)	Sesame	Orissa University of Agriculture & Technology
89	7 of 2019	Farmer	Tulsi Panji	Rice	Babulal Dahiya
90	8 of 2019		AGIYASAL	Rice	Lukas Dungdung
91	9 of 2019		Gudma Dhan	Rice	Linguram Thakur
92	10 of 2019	New	TMMH 801	Maize	TriMurti Plant Sciences Private Limited
93	11 of 2019		TMMH 802	Maize	TriMurti Plant Sciences Private Limited
94	12 of 2019	Extant	AKT 101	Sesame	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
95	13 of 2019	New	KML 2286	Maize	Kaveri Seed Company Limited
96	14 of 2019		Nirmal-198 (NTCH-198)	Castor	Nirmal Seeds Pvt. Ltd.
97	15 of 2019		P3396	Maize	Pioneer Overseas Corporation
98	16 of 2019		P3580	Maize	
99	17 of 2019		HOT QUEEN	Cauliflower	Nuziveedu Seeds Limited
100	18 of 2019		ANVITHA-1032	Tomato	
101	19 of 2019		NBH-4903	Pearl Millet	
102	20 of 2019		BIO10127I	Maize	DCM Shriram Limited
103	21 of 2019		BIO 719	Maize	DCM Shriram Limited
104	22 of 2019		PH7PH	Maize	Pioneer Overseas Corporation
105	23 of 2019		PH1BFR	Maize	
106	24 of 2019		P 3007	Maize	
107	25 of 2019		P 1855	Maize	
108	26 of 2019		PHY0R	Maize	
109	27 of 2019		PH 1 BFW	Maize	
110	28 of 2019		P 1844	Maize	
111	29 of 2019		PH23F9	Maize	
112	30 of 2019		PH23FC	Maize	Pioneer Overseas Corporation
113	31 of 2019		PH1NOV	Maize	
114	32 of 2019		New	PHM6M	Maize
115	33 of 2019	TMMH 805		Maize	
116	34 of 2019	PHBFE		Maize	Pioneer Overseas Corporation
117	35 of 2019	PH15K0		Maize	
118	36 of 2019	P3542		Maize	
119	37 of 2019	PH1WA2		Maize	

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name
120	38 of 2019	Extant (VCK)	NM-71	Maize	Nuziveedu Seeds Ltd
121	39 of 2019	New	P3401	Maize	Pioneer Overseas Corporation
122	40 of 2019		DKC9142	Maize	Monsanto India Limited
123	41 of 2019		PRCH - 703 Bt 2	Tetraploid Cotton	Pravardhan Seeds Pvt Ltd
124	42 of 2019	Extant (VCK)	PCH-205	Tetraploid Cotton	Prabhat Agri Biotech Ltd
125	43 of 2019	NEW	PCH-887 Bt2	Tetraploid Cotton	
126	44 of 2019	Extant (VCK)	ACG-14-II (Ajeet-14 BG-II)	Tetraploid Cotton	Ajeet Seeds Ltd
127	45 of 2019		C 5705	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
128	46 of 2019		C 5610	Tetraploid Cotton	
129	47 of 2019		ACG-455-4 (AJEET-455-4 NBt)	Tetraploid Cotton	Ajeet Seeds Ltd
130	48 of 2019	New	PC - P8011/1 BG-II	Tetraploid Cotton	Prabhat Agri Biotech Ltd
131	49 of 2019	Extant (VCK)	VICH-309 BG-II	Tetraploid Cotton	Sungro Seeds Private Limited
132	50 of 2019		VICH-313 BG-II	Tetraploid Cotton	
133	51 of 2019		VICH-303 BG-II	Tetraploid Cotton	
134	52 of 2019		GS-560	Tetraploid Cotton	
135	53 of 2019		NP-5151R	Rice	Nuziveedu Seeds Ltd
136	54 of 2019		NC-1126	Tetraploid Cotton	
137	55 of 2019		VICH-310 BG-II	Tetraploid Cotton	
138	56 of 2019	New	PCH-404 Bt	Tetraploid Cotton	Prabhat Agri Biotech Ltd
139	57 of 2019		VC-34	Tetraploid Cotton	Sungro Seeds Private Limited
140	58 of 2019		MRC 7377	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
141	59 of 2019	Extant (VCK)	ACG-1256 (AJEET-1256 NBt)	Tetraploid Cotton	Ajeet Seeds Ltd

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name
142	60 of 2019	New	C 5708	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
143	61 of 2019	Extant (VCK)	NC-216	Tetraploid Cotton	Nuziveedu Seeds Ltd
144	62 of 2019	New	C 5524	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
145	63 of 2019	Extant (VCK)	VICH-314 BG-II	Tetraploid Cotton	Sungro Seeds Private Limited
146	64 of 2019		VICH-304 BG-II	Tetraploid Cotton	
147	65 of 2019	New	C 5626	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
148-154	66 of 2019	Extant (VCK)	NC-1331	Tetraploid Cotton	Nuziveedu Seeds Ltd
155	67 of 2019		SUPER MARUTI (KDCHH 441 BG II)	Tetraploid Cotton	Krishidhan Seeds Pvt. Ltd.
156	68 of 2019		NCS-559	Tetraploid Cotton	Nuziveedu Seeds Ltd
157	69 of 2019		NCS-558	Tetraploid Cotton	
158	70 of 2019		NC-184	Tetraploid Cotton	
159	71 of 2019		C 5622	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
160	72 of 2019		NCS-949	Tetraploid Cotton	Nuziveedu Seeds Ltd
161	73 of 2019		New	NCS - 9011 Bt2	
162	74 of 2019	New	C 5706	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
163	75 of 2019	New	C 5629	Tetraploid Cotton	
164	76 of 2019	Extant (VCK)	NCS-155	Tetraploid Cotton	Nuziveedu Seeds Ltd
165	77 of 2019	Extant (VCK)	PRCH-331 Bt 2	Tetraploid Cotton	Pravardhan Seeds Pvt Ltd
166	78 of 2019	New	NCHB 940 Bt	Tetraploid Cotton	Nuziveedu Seeds Ltd
167	79 of 2019	Extant (VCK)	C 5623	Tetraploid Cotton	Maharashtra Hybrid Seeds Company Limited
168	80 of 2019	Extant (Notified)	SHIATS DHAN-4	Rice	Sam Higginbottom Institute of Agriculture, Technology and Sciences

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name
169	81 of 2019	Extant (Notified)	KETEKI JOHA (IET-18669)	Rice	Assam Agricultural University
170	82 of 2019		ANAND DESHI COTTON-1 (ADC-1)	Diploid Cotton	Anand Agriculture University
171	83 of 2019	New	P3377	Maize	Pioneer Overseas Corporation
172	84 of 2019	Extant (VCK)	D2244	Maize	Dow AgroSciences India Pvt. Ltd.
173	85 of 2019	New	NM-199	Maize	Nuziveedu Seeds Ltd
174	86 of 2019	Farmer	LS-T	Rapeseed	Chandan Das
175	87 of 2019	New	MZYA090069	Maize	Metahelix Life Sciences Limited
176	168 of 2015	Re-issue	Krishna Kranti	Indian mustard	Krishna Research Seeds Pvt. Ltd.
177	192 of 2015	Re-issue	BS-2	Indian mustard	Krishna Seeds Pvt. Ltd.
178	88 of 2019	Extant (VCK)	FCH-789	Tetraploid Cotton	Fortune Hybrid Seeds Ltd.
179	89 of 2019		NCS-175	Tetraploid Cotton	Nuziveedu Seeds Ltd.
180	90 of 2019		DPC 9066 BGII	Tetraploid Cotton	Tierra Agrotech Private Limited
181	91 of 2019	Extant (Notified)	Kunaram Sannalu (KNM 118) (IET No. 23748)	Rice	Professor Jayashankar Telangana State Agricultural University
182	92 of 2019		DRR Dhan 45 (IET 23832)	Rice	Indian Council of Agricultural Research
183	93 of 2019	Farmer	Chamormoni-WB	Rice	Lokamata Rani Rashmoni Mission
184	94 of 2019	Farmer	KAJALSUNDARI	Rice	Amarkan Rural Socio-Environmental Welfare Society (ARSW Society)
185	95 of 2019	New	86M88	Pearl Millet	Pioneer Overseas Corporation
186	96 of 2019	New	86M12	Pearl Millet	
187	97 of 2019	New	Nirmal-539(NTL-539)	Pigeonpea	Nirmal Seeds Pvt. Ltd.
188	98 of 2019	Extant (VCK)	OK-186	Okra/ Lady's finger	Nuziveedu Seeds Ltd.
189	99 of 2019	New	KBR 618	Pearl Millet	Kaveri Seed Company Limited
190	100 of 2019	New	Rx 15672356	Tomato	Monsanto Holdings Pvt. Ltd.

S.No.	Registration No.	Type of variety	Denomination	Crop	Applicant Name
191	101 of 2019	Extant (Notified)	NBH 5061 (MH 1812)	Pearl Millet	Nuziveedu Seeds Ltd.
192	102 of 2019	Extant (VCK)	NCS-104	Tetraploid Cotton	
193	103 of 2019	Extant (Notified)	GH-0727 (Shrushti)	Maize	University of Agricultural Sciences

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	Chairmen-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 Resource Institute (Bioversity International)
ITPGRFA	International Treaty on Plant Genetic Resource for Food and Agriculture
KAU	Kerala Agriculture University
KVK	Krishi Vigyan Kendra
NASC	National Agricultural Science Center
NGO	Non-Governmental Organization
NORV	Notified and Released Varieties of India
NSAI	National Seed Association of India
NRCPB	National Research Center on Plant Biotechnology
NSRTC	National Seed Research and Training Center
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 Common Knowledge
WTO	World Trade Organization

Annual Report for the year 2018-19 was adopted by the Protection of Plant Varieties and Farmers' Rights Authority in its 32nd meeting held on 25 September, 2019 vide Agenda Item No. 6 at New Delhi

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वर्ष 2018-19 के लिए वार्षिक प्रतिवेदन को पौधा किस्म और कृषक अधिकार संरक्षण प्राधिकरण द्वारा 25 सितंबर, 2019 को नई दिल्ली में 32वीं बैठक में एजेंडा आइटम सं. 6 के तहत अपनाया गया।

