सत्यमेव जयते

PPVFRA

ANNUAL REPORT

2022-23

Protection of Plant Varieties and Farmers' Rights Authority

(A Statutory Authority Created by an Act of Parliament)

Department of Agriculture & Farmers welfare

Ministry of Agriculture& Farmers Welfare, Government of India

NASC Complex, DPS Marg, New Delhi- 110012

www.plantauthority.gov.in

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Preface

"A flower is an educated weed"

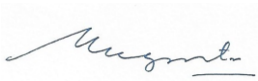
-Luther Burbanks

The above quote of noted horticulturalist explains that still there is a lot to be understood about the benefits that can be derived from plant kingdom. The wide diversity of plant kingdom coupled with creativity of human beings provide immense scope for developing new plant types, which can serve the ecology, environment and needs of the whole living world much better. Lorraine Johnson states that even wild flowers and native plants have an important job to do. That useful plant once identified has to be put to extensive use. The Global Food System to remain sustainable needs discovery and utilisation of such plants with trait of relevance. Once identified and value added, a native or derived plant type should be protected in the form of intellectual property so that its benefit is appropriately shared. In this context, the PPVFR Act, 2001 provides protection for traditional and wild varieties in the form of farmers varieties. This is the unique legislation when compared with other IPR laws. Apart from database examination, field examination is also done unlike in other IPR laws. The PPVFR Act, 2001 is the youngest IPR legislation in the country and administering the same comes with several challenges. IPR in plant varieties is a tool to secure food and nutrition security of this country.

Having had the rear mirror view of the performance of the Authority in the previous financial year, it is required to steer the Authority with the objective to excel which is quite challenging. Consultation with stakeholders and critical analysis of the past suggest that reforms are required to make the Authority as one of the premier IPR Registries of the country. Apart from adopting best registry practices, procedures have to be aligned both technically and legally and at the same time, the time taken for registration of plant varieties is to be reduced significantly. Further, I feel a big boost is required in the filing of applications more particularly of extant varieties and that too in millets given the global importance due to the international year of millets.

I profoundly express my sincere thanks to the Hon'ble Minister of Agriculture and Farmers' Welfare for his valuable guidance. I also thank Sh. Manoj Ahuja, Secretary, Ministry of Agriculture & Farmers Welfare for his continuous support in many possible ways without which the smooth functioning of the Authority would not have been possible. I also thank Sh. Ashwini Kumar, Joint Secretary (Seeds) and the Seed Division of the nodal department for regular support in administrative and financial matters.

I am thankful to Dr. D.K. Agarwal, Registrar-General and other officers of the Authority in preparation of this Annual Report. I acknowledge the co-operation, support and active involvement of all officers and staff of PPVFR Authority who were all instrumental in carrying out the mandated activities of the Authority.



(**T. Mohapatra**)
Chairperson
Protection of Plant Varieties & Farmers' Rights Authority,
New Delhi

Acknowledgements

It is with the deep sense of obligation and privilege that I place on record my boundless gratitude to Dr. T. Mohapatra, Chairperson, PPVFR Authority and Dr. K.V. Prabhu, immediate past Chairperson, PPVFR Authority for their dynamic and vibrate leadership, and for playing a pivotal role in guiding and supporting the Authority to accomplish its assigned duties and tasks and surpassing many milestones in the process. I thank all the members of the Authority who were instrumental in deciding several important decisions of the Authority. I also thank officials of ICAR Institutes and SAUs in discharging the statutory duties as DUS test centres of Authority. I thank all Principal Investigators of DUS test centres without their timely output the publication of this report would not have been possible. I also thank UPRNN who are involved in the construction of Plant Authority Bhawan. I also acknowledge the role played by our Nodal Ministry and Seed Division. I also thank Dr. T.K. Nagarathna, Registrar and Dr. Ravi Prakash, Registrar (on deputation) for key role played by them during the reporting period. I also acknowledge the efforts and inputs of officers of the Authority namely, Shri. Vipin Tyagi, Financial Advisor, Shri. Dipal Roy Choudhury, Joint Registrar, Sh. U.K. Dubey, Deputy Registrar and Sh. R.S. Sengar, Deputy Registrar. I also acknowledge the efforts of Dr. A.K. Singh, Plant Variety Examiner and Dr. D.S. Pilania, Technical Assistant, PPVFRA. I also thank Sh. Raj Ganesh, Legal Advisor and his team Shri. Arun Kumar, Legal Advisor and Legal Cell for coordinating in compiling and publishing this report. I am also thankful to all the project staff and other contractual persons engaged at Authority Hqs. and its Branch Offices for performing their assigned job with utter dedication and sincerity. I thank one and all involved in the publication of this report.

(D.K. Agarwal)
Registrar-General

Executive Summary

The "Protection of Plant Varieties and Farmers' Rights Act" (53 of 2001) is a unique Act which fulfills the spirit of International Treaty on Plant Genetic Resources for Food & Agriculture. It also strikes a balance between the rights to breeders and the farmers as per the national requirement. The Authority, since its establishment in the year 2005, has been consistently improvising the system of registering the plant varieties, connecting the stakeholders, encourage innovation in seed sector, acknowledge 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.

Till the time of going for printing, the Government of India has notified 182 crop species on the recommendations of PPVFR Authority for plant variety registration. During the reporting period, the Authority notified *Horse gram, Gerbera, Arabica and Robusta Coffee species, Flue Cured Virginia and Bidi Tobaccos, Moth bean, Cluster bean, Carrot, Radish, Cocoa, Teak, Kalazeera, Saffron, Dolichos bean, Ash gourd, Snake gourd and Ivy gourd*. During 2022-23, total of 251 applications were received for registration from both public and private as well as farmers' variety sectors under different categories.

In the annual year of 2022-23, a total of 216 certificates of registration were issued. In the Farmers' varieties (95), New Varieties (55), Extant Notified Varieties (38) and Varieties of Common Knowledge (28) plant varieties were registered. Similarly, highest numbers of certificates were issued for cereals (149) followed by vegetables (21), Fruits (20), fibre crops (10), legumes (10), Oilseeds (5) and Flowers (1).

The Legal Cell of the Authority pursued the cases filed in different Courts. During the reporting period, 33 cases were pending against the Authority. The Notifications published in the Gazette of India were Gazette Notification **S.O. 2023 (E)** dated **28th April, 2022** regarding appointment of Non-Official Member representing Agricultural University, Notification **S.O. 5402 (E)** dated **18th November, 2022** regarding notification of 6 Crops species Horse gram, Gerbera, Coffee, Flue-Cured Virginia (FCV) and bidi tobaccos, Moth bean, Cluster bean", Notification **S.O. 5571 (E)** dated **29th November, 2022** regarding notification of Centres U/s 41 of PPV&FR Act, 2001 and Gazette Notification **S.O. 683 (E)** dated 14th February, 2023 regarding 3 Crop species Cocoa, Radish and Carrot.

During the reporting period, the Authority received 26 applications either directly from the applicant or transferred from other departments seeking information under RTI Act, 2005. The information sought was made available within the stipulated period. There are no appeals pending before the first Appellate Authority.

The Authority received 4459.77 lakhs as grants in aid from DAC&FW, Ministry of Agriculture and Farmers Welfare during the year and utilized Rs. 4220.62 lakhs after adjustment of unspent balance of 18.00 lakhs of previous year leaving a balance of Rs. 257.15 lakhs. The Annual Account of the Authority has been audited and submitted to CAG within prescribed time schedule.

The annual accounts of the Authority for the year 2022-23 was finalized and audited within the prescribed time schedule and placed before both the houses of the Parliament within statutory time limit. The Annual Report of Authority is being forwarded in time to the Department of Agriculture & Farmers Welfare for placing before both the Houses of Parliament.

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Chapter 1: Introduction

Plant varieties are vital for the survival of human beings and livestock as they serve as source of food, fibre, fodder, forest and raw materials for domestic households and industries in any society. Even before the science of genetics was discovered in late 19th Century, the scientific foundation of plant breeding science and techniques, since human beings began cultivating plants for a purpose of harvesting its product for survival, the farmers have practiced plant breeding improving the crop generation after generation by evaluating the performance and expression of the plant population they are growing. The farming community and forest dwellers, nurtured existing diversity as is how is to select for better plant type and yield from within the available adapted naturalized plant varieties such as land races to produce plants of use since millennia. As the science of genetics and plant breeding evolved, formally trained plant breeders collected genetic diversity through exploration in biodiversity rich zones, use different tool to increase values for cultivation. It is these plant breeders whose ingenious skill to detect variability, work out the genetics behind such variability and accordingly strategise the breeding methods enable development of new plant varieties, different and better than the previously existing ones. Therefore, the Plant Breeders' Right is one of the most crucial intellectual property rights in any society as food is basic requirement for both developed and developing societies. These rights granted to the plant breeders are therefore a means to recognise their contributions that results in the creation of an ecosystem that sustains innovation continuum. Such a system can establish a mechanism to exert responsible stewardship over germplasm, support long term research and development that would be crucial to enhance agricultural productivity in the form to incentivisation of plant breeding in public and private sectors while promoting the industry to competitively provide high quality seeds as well as planting materials to farmers.

Although ancient Indian history reveals records of naming of a plant variety by either the individual or commune or village native to the variety, in legal terms, the first formal enforcement of Intellectual Property Rights (IPRs) in plants used in agriculture came about in the form of the "*Plant Patent Act*, 1930" in USA which was followed in Europe by the 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 78 member states as part of the UPOV convention including regional associations like EU, OAPI. India has not acceded to the UPOV Convention but is listed in the category of observer in 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 (PPVFR) 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.

PPVFR 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 PPVFR 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 PPVFR Act is based on the option under TRIPS Agreement for a member country to protect the rights of plant breeders *sui generis* system by enactment by legislation if they would not opt for UPOV (International Union for Protection of New Varieties of Plants, Geneva) Convention, and is also unique in the sense that it concurrently recognizes the rights of plant breeders, farmers (including their right as plant breeders), farming communities and researchers who breed new varieties as well as those already bred and existing prior to protection (extant). 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 PPVFR AUTHORITY

The PPVFR Authority is a Statutory Body established by the Parliament of India through the PPVFR Act of 2001. 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 a Chairperson and fifteen members as on 31st March, 2022 (Annexure-I) along with a Registry appointed by the Authority.

1.4 PLANT VARIETIES REGISTRATION

The PPVFR Authority has finalized the Distinctiveness, Uniformity and Stability (DUS) test guidelines for registration of 182 crop species (Annexure-VII). The Authority has issued 216 (Annexure-VIII) certificates of registration for plant varieties (under new, extant and farmers' variety category) during the reporting year 2022-23. To facilitate more applications seeking plant varieties protection from different stakeholders, the Authority regularly organizes/supports awareness and capacity building programmes.

The PPVFR Authority has also established network of DUS test centres across the country under the Central Sector Scheme for the implementation of PPVFR 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 CATEGORIES OF PROTECTION OF PLANT VARIETIES

The process of granting protection to a plant variety through plant breeders' rights as enshrined in the Act is based on 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** (To a limited period after the species is notified (in the case of new and VCK varieties) as announced time to time by the Authority)
  - Notified under section 5 of Seeds Act, 1966,
  - Variety of common knowledge (VCK),
  - Farmers' variety
  - Traditionally cultivated and evolved by the farmers in their fields,
  - Wild relative or landrace of a variety about which the farmers possess common knowledge.
- **Essentially derived variety (EDV)**
  A variety predominantly derived from an initial variety, or from a variety that itself is predominantly derived from such initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety

1.6 FARMERS' RIGHTS

The Act, also provides following rights to the farmers that is unique only to India among all signatories to TRIPS and WTO and the sole reason for India not acceding to UPOV Act 1991:

- *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, infringed according to section 65 of PPVFR 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 PPVFRA; 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 varieties 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 Registry of the Authority facilitates the IPR registration of farmers' varieties by equating the farmers to plant breeders as empowered by the Act, 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 PLANT BREEDERS' RIGHTS

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.

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.

1.8 REGISTRATION OF PLANT 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 (VCK):** 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.

1.9 EXTENT AND NATURE OF FIELD-TESTING (DUS TESTING) OF VARIETIES

The application is processed depending on the category of the variety claimed for registration, according to which 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 a satisfactory examination of the application at the Plant Varieties Registry, the Registrar shall send the variety to crop specific centres for conducting DUS test. The period of DUS testing is as follows:

- **New Varieties:** Two similar crop seasons 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**:**

1.9.1 Protection Period in Different Types of Crops

A total of 182 crop species are presently eligible for protection (Annexure VII). The total period of protection for field crops is of 15 years with 6 years of protection at the time of registration renewable to next 9 years, whereas that of trees and vines is for 18 years with 9 years of protection at the time of registration renewable to next 9 years. The extant varieties notified are given a protection for 15 or 18 years for field crops or trees and vines respectively, from date of notification under Seeds Act, 1966.

1.10 AWARD/REWARDS TO FARMERS'/FARMING COMMUNITIES

Section 45(2) of the Act reads with Rules 70 (2) (a) of PPVFR 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 twenty 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 1.1: 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 lakhs.	Advertisement for these awards is published in the National dailies and on the Authority website: (*http://www.plantauthority.gov.in/forms.htm*) The applications should be forwarded by Chairperson/Secretary of the concerned Panchayat Biodiversity Management
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.	Committee or Concerned District Agricultural Officer or Director of Research of Concerned State Agriculture University or Concerned 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: Plant Varieties Registry

2.1 PUBLICATION OF DUS TEST GUIDELINES FOR CROP SPECIES

During 2022-23, DUS guidelines have been developed for Sixteen crop species and published in *Plant Variety Journal of India* as mentioned in Table 2 totalling to 189 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. The proposal advising the Government of India for their notification in the Gazette of India is under consideration to facilitate registration of varieties of these crop species in future.

Table 2: DUS test guidelines developed for different crop species during 2022-23.

Sl. No.	Crop & Species	PVJ Publications Details
1.	Horse gram [*Macrotyloma uniflorum* (Lam.) Verdc.]	May 02, 2022 (Vol. 16 No.-5)
2.	Gerbera (*Gerbera jamesonii* Adlem ex. Hooker f.)	
3.	Arabica and Robusta Coffee species (*Coffea arabica* L. & *Coffea canephora* Pierre ex A. Froehner)	
4.	Flue Cured Virginia and Bidi Tobaccos (*Nicotiana tabacum* (L.))	
5.	Moth bean [*Vigna aconitifolia* (Jacq.) Marechal.]	
6.	Cluster bean (*Cyamopsis tetragonoloba* L.Taub.)	
7.	Carrot (*Daucus carota* L.)	December 01, 2022 (Vol. 16 No.-12)
8.	Radish (*Raphanus sativus* L.)	
9.	Cocoa (*Theobroma cacao* L.)	
10.	Teak (*Tectona grandis* L. f.)	February 01, 2023 (Vol. 17 No.-02)
11.	Kalazeera [*Bunium persicum* (Bioss.) Fedts.]	
12.	Saffron (*Crocus sativus* L.)	
13.	Dolichos bean (*Lablab purpureus* (L.) Sweet)	
14.	Ash gourd (*Benincasa hispida* (Thunb.) Cogn.)	
15.	Snake gourd (*Trichosanthes anguina* L.)	
16.	Ivy gourd (*Coccinia grandis* (L.)	

2.2 NUMBER OF APPLICATIONS RECEIVED DURING 2022-23

During 2022-23, total of 251 applications were received for registration from both public and private as well as farmers' variety sectors under different categories. Majority of applications belonged to cereals, vegetables and oilseeds crops (Table 3).

Table 3a: Total number of applications received during 2022-23 (Sector-wise) crop group-wise)

Category	Public Sector	Private Sector	Farmers
New	50	115	-
Extant Notified	-	-	-
Extant VCK	-	8	-

Extant Farmers	-	-	75
EDV	3	-	-

Table 3b: Total number of applications received during 2022-23 (crop group-wise)

Crop Group	Total	Crop Group	Total
Cereals	100	Oilseeds	23
Fibre Crops	8	Spices	7
Fruits	19	Sugar Crops	3
Legumes	11	Vegetables	80
Grand Total			**251**

Highest number of applications is received for Rice (50), Chilli (29), Maize (17), Dicoccum wheat (12), Jackfruit (11), Okra (10), Bitter gourd (9), etc. (Table 4)

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

S.No.	Common Name	Total	S.No.	Common Name	Total
1	Apple	2	**23**	Maize	17
2	Banana	1	**24**	Mango	1
3	Bitter Gourd	9	**25**	Muskmelon	3
4	Black gram	3	**26**	Nutmeg	1
5	Black Pepper	4	**27**	Okra/Lady's Finger	10
6	Brinjal	6	**28**	Onion	3
7	Castor	3	**29**	Pearl Millet	8
8	Cauliflower	3	**30**	Pigeon pea	5
9	Chickpea	3	**31**	Potato	4
10	Chilli	29	**32**	Rice	50
11	Coriander	1	**33**	Safflower	2
12	Cucumber	4	**34**	Sesame	1
13	Dicoccum Wheat	12	**35**	Sorghum	7
14	Diploid Cotton	1	**36**	Soybean	5
15	Durum Wheat	1	**37**	Sugarcane	3
16	Finger Millet	1	**38**	Sunflower	4
17	Grapes	3	**39**	Tetraploid Cotton	5
18	Groundnut	2	**40**	Tomato	6
19	Guava	1	**41**	Turmeric	1
20	Indian mustard (Sarso)	6	**42**	Watermelon	3
21	Jackfruit	11	**43**	Wheat	4
22	Jute	2	**Grand Total**		**251**

Out of 251 applications, 123 applications were filed by private sector, 53 applications were filed by public sector and 75 by farmers. Under extant VCK category, 8 applications were received, 165 under New, and 75 under farmer's variety category were also filed for registration. During 2022-23, 251 applications were received in respect of 43 crop species.

2.3 REGISTRATION OF PLANT VARIETIES

During 2022-23, registration process is completed and certificates were issued for 216 varieties under different crop species (Fig) with maximum number of certificates issued under Farmer Variety 95 followed by New category (55), Extant Notified (38) and VCK (28). Similarly, highest number of certificates were issued for cereals (149) followed by vegetables (21), fruits (20), Fiber crops (10), Legumes (10), Oilseeds (5) and Flowers (1).

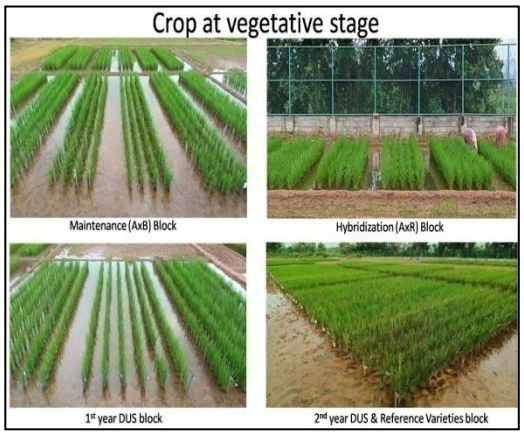
Table 2.5: No. of certificates issued crop group-wise (2022-23)

Crop group	No. of certificate issued	Crop group	No. of certificate issued
Cereals	149	Legumes	10
Vegetables	21	Flowers	01
Fibre crops	10	**Total**	**216**
Fruits	20		
Oilseeds	05		

2.4 REPORTS OF BRANCH OFFICES OF THE REGISTRY

2.4.1 Branch Office, Shivamogga

2.4.1.1 Site description & climatic condition:



DUS testing centre of PPVFRA, Shivamogga lies in the southern transition zone (Zone-7) and located at 13o27' to 14o39' N latitude and 74o 37' to 75o 52' E longitude with an altitude of 650 m above the MSL. During the cropping season, total rainfall received was 1037 mm.; distributed from June 2022 to December 2022; max rainfall was recorded in July (374.9 mm) followed by August (364.1 mm). The mean monthly maximum temperature was highest during June (31°C) while, it was least in the month of August (28°C). The mean minimum temperature was highest in the month of June (21.9°C) and lowest in the month of December (17°C). The maximum relative humidity was observed in the month of August (100%) and minimum during December (47%).

2.4.1.2 Project report on "Stability Analysis, Hybrid Seed Production, DUS Characterization of Parental Lines of Rice" during *Kharif* 2022:

2.4.1.2.1 Soil Testing and amendments

The soil of the experimental location was tested and the results depicted that the soil was acidic (pH-4.32 and 4.93) in nature and has low per cent of organic carbon status. Thereafter lime and organic during *Kharif* 2022; 6 entries in rice (A, B & R lines)

for hybridization and 1st year DUS characterization along with 18 reference varieties (A, B & R lines), 19 entries (A, B & R lines) for 2nd year DUS characterization and 6 entries (A & R lines) for F_1 Seed Production were tested.

2.4.1.2.2 Nursery raising & Transplantation

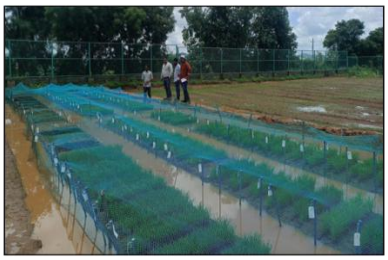
Nursery sowing was taken up on 14th July 2022 after conducting germination test. The recommended NPK fertilizers, FYM, red soil, compost along with *Trichoderma* were applied for the nursery beds.

• Staggered nursery sowing of R lines was done for three times with one week interval to get the synchronization between A and R lines in 1st year hybridization

• Normal sowing was done for A, B and R lines for 1st year DUS & (AxB) program, 2nd year DUS and Reference varieties.

- The field was irrigated, well puddled and levelled prior to transplantation. 17-25 days old seedlings were transplanted on 4th August of 2022 with recommended spacing for each program. According to test plot design, the crop was transplanted in to three different blocks namely: DUS Observation block, Hybridization block and Maintenance block.


Sowing


Nursery


Transplantation

2.4.1.2.3 Cultural practices:

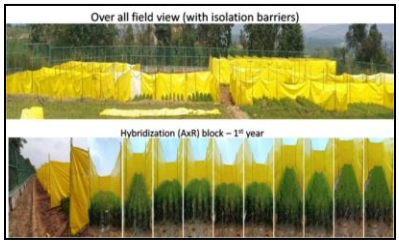
- Urea, DAP, MOP and other micronutrient fertilizers like Zn based on the soil testing report and field recommendation were applied. 0.3% zinc spray was given at the time of Zn deficiency symptoms.
- During the crop growth stage, incidents of the leaf folder, thrips, stem borer and ear head bugs were observed and recommended pest control measures were taken

2.4.1.2.4 Hybridisation

In order to avoid contamination and to maintain purity of hybrid seed, artificial barrier isolation technique was adopted. In the hybridization (AxR) and maintenance (AxB) blocks, poles and tarpaulins covered for 8 meter length for the entries combo was arranged in the field and maintained till harvesting. Supplementary pollination method through rope pulling was adopted.

2.4.1.2.5 DUS Observations & Harvesting

All the DUS observations were recorded on 10 randomly selected plants as per DUS guideline at appropriate stage of plants in the field record book. After attaining complete physiological maturity



selective / block wise harvesting of A, B & R lines were done. After threshing and cleaning, healthy seeds with appropriate moisture content were packed and sent to PPVFRA. Parental seed materials were submitted to ICAR-Indian Institute of Rice Research, Hyderabad for quality analysis. Parental seeds of 1st year DUS, 2nd year DUS and reference varieties trial were submitted to Authority.

2.4.1.2.6 Training of Project Staff:

➢ Project staff attended two days training session in rice DUS characterization and hybridisation techniques in Indian Institute of Rice Research (IIRR), Hyderabad, Telangana on 20th and 21st of May 2022.

➢ Dr. A. K. Singh, Co-PI and project staff visited Zonal Agricultural Research Station (ZARS), Mandya, Karnataka during 20 to 22.10.2022 to acquire adequate knowledge and experience in identifying off types, roughing, hybridization methods and other crop management practices in rice.

2.4.1.3 "Stability Analysis, Hybrid Seed Production and DUS characterization of parental lines of Cotton"

2.4.1.3.1 Site description, Soil test, Weather parameters and Plan of work: Soil of the experimental location was tested and the results depicted that the soil was acidic (pH-4.21 and 4.65) in nature and has low per cent of organic carbon status. Soil amendment measures like lime application for acidic soil and organic manure application for increasing organic carbon status of soil were taken up. Total entries were accommodated in an area about 2.2 acre. All the parental lines were sown in two replications with each hybrid combination consisting eight rows, four rows of female parents and four rows of each male parent with five plants in each row of 2.4 m length with a spacing of 90 x 60 cm in Hybrid and Selfing block. These entries were sown as per the approved plan and in each entry ten plants were selected and DUS observations were recorded. Sowing of all the entries received was done on 17.08.2022 and 18.08.2022.

2.4.1.3.2 Seed material

In *Kharif* 2022, Branch office Shivamogga centre received 180 entries (90 male + 90 female) for hybridization and 12 of first year trial, 43 entries for second year DUS trial and 16 reference varieties of Cotton from PPVFRA, New Delhi for DUS characterization.

2.4.1.3.3 Crop management: Recommended dose of fertilizers were applied at timely interval based on crop requirement. Nitrogen applied in two splits during sowing and 45 days after sowing and full dose Phosphorous and Potassium applied as basal dose during sowing. Water soluble fertilizers and micronutrients were applied through foliar application during the critical crop growth period. Inter-cultivation and operations were carried out for ridges and furrows formation and earthing up was also carried out for better crop stand and growth. Nipping was done by removing the terminal portion of the main stem beyond the 15th to 16thnode to facilitate more sympodial branches to increase boll count during the cropping period. All prescribed crop management practices and pest control measures were taken up timely and also as and when required for raising the healthy crop.

2.4.1.3.4 DUS Characterization: Totally 37 DUS observations were recorded in tetraploid cotton. DUS observations were recorded in 12 entries taken up in first year trial and 43 entries of second year trial along with 16 reference varieties. Ten plants in each entry were selected at random for recording DUS observations according to DUS guidelines at specified stages. DUS readings recorded in the field has been transferred to field record book and the same has been entered in to the prescribed standard excel sheet format. Cotton lint of 60 gm per entry was sent to ICAR-Central Institute for Research on Cotton Technology, CICR Campus, Coimbatore for fibre quality analysis and subsequently the data was received by them and has been transferred to both register and standard excel sheets.

2.4.1.3.5 Hybridization

Selfing, emasculation and crossing was initiated after square formation from 04.11.2022 to 30.12.2022. Manual emasculation was done by choosing healthy flower buds of female between 3.00 to 5.00 pm one day before anthesis. Pollination was carried out next day morning between 9.00 to 11.00 am by dusting ripen anthers from the selected healthy male flowers. Selfing of parental lines and reference varieties was performed by placing butter paper bags on un-opened flowers. More than 200 crosses were attempted in each hybrid combinations in order to get sufficient F_1 hybrid seeds, which will be used for next year DUS trial. Sufficient selfing were also done in each entry including reference varieties and II year DUS trial.

2.4.1.3.6 Harvest and Post-harvest operations

Entry wise harvested cotton was ginned using Cotton Lilliput Ginner to separate cotton lint and seeds. Seed cleaning was carried out simultaneously. Harvesting and ginning of all entries was carried out from 05.01.2023 to 24.03.2023.Hybrid seeds for North Zone produced have been submitted to National Gene Bank on 27.02.2023 and for Central Zone on 09.03.2023 and for South Zone and parental line material submitted on 08.05.2023.

2.4.1.3.7 Visits

Dr. Dinesh Kumar Agarwal, Registrar General, PPVFRA, New Delhi and Sh. RS Sengar, Deputy Registrar and Admin (In-Charge), PPVFRA, New Delhi visited trial fields at Branch Office, Shivamogga during *Kharif* 2022.

2.4.1.3.8 Issues faced

Due to unfavorable weather and climatic conditions like uneven rainfall and long dry spell/water scarcity during flowering and hybridization program, it led to significant flower and boll drop in cotton. Issues like leaf reddening due to Mg deficiency, sucking pests and boll worm were faced during crop growth period. Remedial measures were taken immediately to control them. Pink boll worm infestation was observed after picking of cotton. So, simultaneous picking and ginning were carried out to control further seed damage and subsequent control measures were taken.

2.4.1.4: "Hybrid seed production/ DUS characterization and testing of parental lines of Indian mustard"

The project entitled "*Hybrid seed production/DUS characterization and testing of parental lines of Maize and Oilseeds*"

2.4.1.4.1 Oilseeds:

- **Seed material, plan of work, site description, soil test and weather parameters**

The experimental material comprised of A, B and R lines of three entries (2ABR for I year DUS test and hybrid seed production, and 1ABR for II year DUS test) and seven reference varieties of Indian mustard each of which raised in 4 lines of 4 m row length with the spacing of 45 x 15 cm of inter and intra row spacing in three replications in a RCBD experimental design as per the guidelines of PPVFRA for DUS characterization and hybrid seed production at DUS Testing Centre, Branch Office, PPVFRA, Shivamogga The sowing of all the entries received was done on 07.11.2022. Soil was treated with lime to minimize the acidic nature. Temperature range was recorded from 15.12°C to 33.98°C with an average of 24.55°C at the experimental site. Rainfall totalled 36.4 mm on average. The highest and lowest temperatures were in March 2023 (33.7°C) and Jan 2023 (15.1°C), respectively observed during the crop-growing season *Rabi*-2022-23.

2.4.1.4.2 Crop management

The recommended dose of NPK fertilizers was 60:40:40 kg. One tonne of compost at the time of field preparation was applied. For better efficiency, half of the nitrogen and full doses of phosphorous and potash, and the rest of nitrogen were applied as basal and split applications at the time of sowing and at the first irrigation were done. Intercultural operations like earthing up combined with hand hoeing (weeding) and mulching with rice straw were followed which helps in soil moisture conservation, weed control, maintenance of soil temperature, thorough mixing of applied manure with soil. Irrigations at weekly interval were provided to crop until maturity stage. Zinc Sulphate, Wettable sulphur, Boron, Gypsum, Magnesium Sulphate were applied as foliar application to meet the requirements of micronutrients in mustard. Foliar Spray of Humic Acid (2.5gm/lit) & Soil application of Humic Acid mixed with FYM resulted increased vegetative growth in mustard. Crop protection measures like foliar application of Chloropyriphos and Acephate to control mustard sawfly and aphids respectively, and drenching of COC (3gm/lit) combined with soil application of lime to control club root of mustard are performed.

2.4.1.4.3 Hybrid and selfed seed production

The hybridization and selfing activity in mustard during *Rabi*-2022-23 trial was started at 56 DAS (i.e. on 02.01.2023) and continued for a period of 26 days, i.e. till 27.01.2023 to generate F_1 seeds from the 2 A x R hybrid combinations, maintenance seeds (AxB) and selfed seeds of 2B and 2R lines.

2.4.1.4.4 Post-harvest processes

After attaining physiological maturity, entry-wise selective harvesting

of siliquae of R line, B line, A line (AXB), AXR hybrids and reference lines of mustard were done separately from 02.03.2023 onwards. After harvest, the sun and shade dried hybrid and self-seeds were weighed and packed.

2.4.4.5 DUS test and DUS data

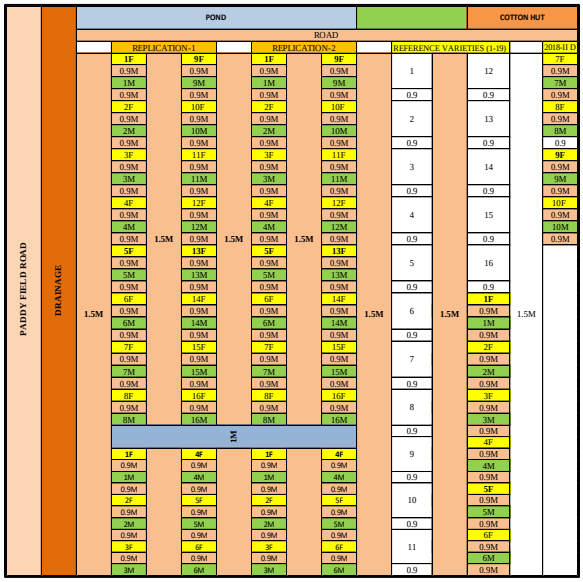
A total of 24 DUS characters were observed and recorded during eight growth stages on randomly tagged ten plants of each of ABR lines and reference varieties in each replication according to the DUS guidelines of PPVFRA for mustard.

2.4.1.5 "Hybrid seed production/ DUS characterization and testing of parental lines of Maize"

2.4.1.5.1 Seed material and Plan of work

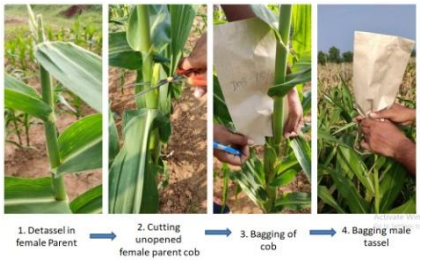
During *Kharif* 2022, the Branch Office, Shivamogga received 80 parental entries of maize, out of which 16 hybrid combinations for hybrid seed production and I year DUS evaluation, 16 hybrid pairs for second year DUS evaluation along with 16 reference varieties. Out of 80, a total 9 entries expressed zero germination.

Each of the individual entries were sown on 16/08/2022 in Randomized Complete Block Design in 2 rows of 4 m row length with inter and intra row spacing of 90 cm x 20cm with two replications



2.4.1.5.2 Crop management

The maize crop was maintained with recommended package of practices of KSNUAHS, Shivamogga including thinning, weeding to control weeds, bullock operated intercultural operation, irrigation to achieve optimum moisture for crop growth, earthing up to provide support to crop and control weeds, application of recommended dose of fertilizers as basal and top dressing at two splits to provide the essential macro nutrients to the crop. Furthermore, plant protection measures including timely foliar application of insecticides to control stem borer & fall army worm were practiced and also to overcome Zn deficiency in maize, Zinc Sulphate was applied to soil as well as foliar Zn application.



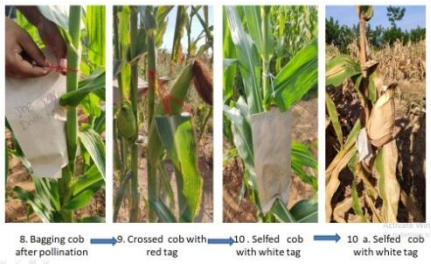
2.4.1.5.3 Hybrid and selfed seed production

The hybridization and selfing activity in maize during *Kharif* 2022 trial was started at 57 DAS (i.e. on 12-10-2022) and performed for a period of 23 days (i.e. till 04.11..2022) to generate F_1 seeds from the 10 hybrid combinations and selfed seeds of 25 entries of first year DUS trial and 16 reference

varieties.

2.4.1.5.4 Post-harvest processes

Selective entry-wise separate harvesting of the maize entries was performed from 01.12.2022 onwards after attaining physiological maturity. The cobs were threshed and kernels were winnowed, cleaned and sundried for another 2 to 3 days till the seed moisture content attained 8 per cent.



2.4.1.5.5 Issues faced during maize *Kharif* 2022 trial

Issues like severe damage caused to germinated seedlings by attack of natural enemies (birds, rats and squirrels), leaching of macro and micro nutrients due to the nutrient deficiency like Zn & Mg deficiency occurred, and incidences of insect pests (fall army worm & cob borer) and diseases (Stalk rot and leaf blight) were faced for which a timely remedial measures were followed during the entire crop cycle.

2.4.1.5.6 DUS test and DUS data

Overall crop stand and expression of DUS trial was ideal. A total of 31 DUS characters were observed and recorded during eight growth stages on randomly tagged ten plants of each of parental lines and reference varieties in each replication according to the DUS guidelines of PPVFRA for maize. All the readings recorded in the field (DATA record sheets) was reciprocated from DATA register into standard excel sheets.

2.4.1.5.7 Visits

Dr. A K Singh, PVE, PPVFRA, Branch Office, Shivamogga and Mr. Chandrashekhara, G. SRF visited IISS, GKVK Bengaluru and Post-Harvest Division, IIHR, Bengaluru to participate in training on "*Seed Health and Quality*".

Mr. Chandrashekhara, G. SRF and Ms. Pallavi, Young Professional-II visited SRTC, Hyderabad to participate in training program on maize DUS monitoring program on 14.10.2022.

2.4.2 Branch Office, Guwahati

The Branch Office, Guwahati of Protection of Plant Varieties and Farmers' Rights Authority started functioning from the campus of Assam Agricultural University, Khanapara, Guwahati from 20 May, 2011. Branch office Guwahati is functioning in its jurisdiction in Assam, Sikkim, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Arunachal Pradesh.

The mandate of Branch Office, Ranchi to participate in Training-cum-Awareness programme/ DUS monitoring/ Meetings/ Seminars/ Workshop etc. convened by various research Institutions/ Agricultural Universities/ KVKs/ Departments/ Organizations/ Agencies in the jurisdiction for dissemination of knowledge concerning to PPVFR Act 2001. Including different awards/rewards & Recognitions, popularization & motivation of registration of Farmers & others varieties.

Progress of Work at Guwahati Branch Office:

During the reporting year the progress of branch office Guwahati is as follows-

(1) During the reporting year coordinated with concerned Krishi Vigyan Kendra Assam, Meghalaya, Mizoram, Nagaland, Manipur, Sikkim, Arunachal Pradesh & Tripura on 01st April, 2022 for inviting application of Plant Genome Saviour Community Awards and Plant Genome Saviour Farmer Reward & Recognition for 2020-21 & 2021-2022 up to last date of sending/receiving of the application i.e. 31.08.2022.

(2) Collecting Agronomic & Commercial (A&C) information /Attributes: During reporting period Branch Office Guwahati collected Agronomic & Commercial (A&C) Attributes from the concern KVKs/Farmers and forwarded to the Head Office for further processing.

(3) Seed Sample: Seed samples collected from different organizations and submitted to Headquarter for DUS testing.

Participation/Visit of Deputy Registrar, PPVFR Authority Branch Office, Guwahati:

1. During the reporting year Deputy Registrar participated in Awareness Programme on Protection of Plant Varieties & Farmers Rights Authority at "Donsuri Agriculture Farming Cooperative Society Langsanti" Karbianglong, Assam & Deputy Registrar of Guwahati Branch Office also visited Karbianglong on 06th April, 2022.
2. Branch office Guwahati participated in Training cum Awareness programme on different provisions of PPVFR Act, 2001 and Exhibition at Krishi Vigyan Kendra, Tirap, Arunachal Pradesh organized by PPVFR Authority, Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi on February 14, 2023.

2.4.3 Branch Office, Ranchi

Introduction:

PPVFRA Branch Office Ranchi is situated in the premise of Computer Centre Building of the Birsa Agricultural University, Kanke, Ranchi Jharkhand functional since May 11, 2011 with territorial jurisdiction of Jharkhand, Bihar, West Bengal, Chhattisgarh, Odisha and Andaman & Nicabar Island.

The mandate of Branch Office, Ranchi to participate in Training-cum-Awareness programme/ DUS monitoring/ Meetings/ Seminars/ Workshop etc. convened by various research Institutions/ Agricultural Universities/ KVKs/ Departments/ Organizations/ Agencies in the jurisdiction for dissemination of knowledge concerning to PPVFR Act 2001. Including different awards/rewards & Recognitions, popularization & motivation of registration of Farmers & others varieties.

Progress of work Branch Office Ranchi:

- During the reporting period Branch Office Ranchi has received various applications of New, Extent and Farmers varieties. 01 (One), Extant variety application of Swarna Mukut of Cowpea received at branch office Ranchi and forwarded headquarter after examination for acceptance and 01 (One) Farmer variety (FV) application of rice crop, having denomination Kalojira was forwarded by Bidhan Chandra Krishi Vishwavidyalaya (BCKV), Nadia, W.B for registration under PPVFRA Act 2001.

- Seed Samples: Brach office submitted 04 (Four) seed samples of different crops received for DUS test and forwarded to Headquarter, New Delhi for further necessary action.
- Collecting Agronomic & Commercial (A&C) information /Attributes: During reporting period Branch Office Ranchi collected Agronomic & Commercial (A&C) Attributes from the concern KVKs/Farmers & submitting to the head office for further processing.
- Inviting Plant Genome Saviour Farmer Reward applications: During the reporting period Branch office Ranchi has communicated in their jurisdiction to all Institutions/KVKs/Organizations/Farmers for different Plant Genome Savior Awards for the year 2020-21& 2021-22 up to last date of sending/receiving of the application i.e. 31.08.2022. During the reporting period 06 applications of different Award, Reward & Recognition were received and forwarded to Headquarter, New Delhi for processing.
- Co-ordination for submitting fee & others: Branch office Ranchi contacted different institutes for timely submission of different fees i.e. Annual fee, Renewal fee & DUS fee etc. from Institutes/Organizations.
- Deputy Registrar, branch office, Ranchi participated in the Seminar of "Kisan Bhagidari, Prathimikta Hamari" in Azadi ka Amrit Mahotsav at Indian Institute of Natural Resins &Gums ICAR, Namkum, Ranchi Jharkhand from 24.04.2022 to 30.04.2022.

2.4.4 Branch Office, Pune

Details of varieties submitted by Branch office, Pune

Category	Public Sector	Private Sector	Farmers
New	12	--	--
Extant Notified	--	--	--
Extant VCK	--	--	--
Extant Farmers	--	--	10

24.05.22

Dr. S. B. Chaudhary & Dr. K. A. Gaikwad attended the one day international webinar on "Prospects of Varieties/Crops Developed through Genome Editing (regulatory framework, technologies and experience)"

03.06.22

Dr. S. B. Chaudhary delivered online presentation on Role of PPV & FRA in protection of farmers rights in one day workshop on "Awareness for protection of farmer's rights in areas of farm innovations, breeding and protection of varieties" organized by ICAR-NRCP, Solapur

21.06.22

Dr. S. B. Chaudhary delivered online presentation on 'Importance of farmers' variety to register under PPV&FR Act, 2001' (Regional language-Marathi) in training programme for Agriculture

Assistant & Agriculture Supervisor organized by Department of Agriculture, RAMETI, Khopoli, Dist. Raigad, MS.

14.07.22

Dr. S. B. Chaudhary participated as a member in on-site DUS testing of farmer's variety of pomegranate at Aurangabad.

15.08.22

Azadi Ka Amrit Mahotsav - Independence Day was celebrated with great enthusiasm and patriotic fervor on 15th August 2022 at PPV&FRA, Branch office, Pune. Staff members had gathered to celebrate the country's 76th Independence Day at 7.30 a.m.

On this special occasion, tricolour was displayed on the wall, and with due solemnity, the national anthem was sung. The office was decorated with tricolour balloons to commemorate the event. All were soberly dressed for the occasion. The Deputy Registrar shared his thoughts that we all should be proud of being a part of a country which is known for unity in diversity. The program concluded on a high crescendo with sweets and snacks distribution.

25.11.22

Dr. D. K. Agarwal & Dr. S. B. Chaudhary did the monitoring of DUS test centers in Pune.

26.11.22

Dr. D. K. Agarwal & Dr. S. B. Chaudhary did the monitoring of DUS test centers in Rahuri

31.03.23

Marathi script on PPV&FR Act, 2001 submitted to Registrar General and Deputy Registrar, PPV&FRA, New Delhi for preparation of folder.

2.4.5 Branch Office, Palampur

1. Following Farmers varieties of **Black Gram** (*vigna mungo* L.) alongwith seeds were submitted to the PPV & FRA, New Delhi for registration as per details given below:

Sr. No.	Name & Address	PVP PL No.
1	Sh. Prem Lal Thakur S/o Sh. Bando Ram , V.P.O Bandla, Teh. Sadar, Distt. Bilaspur. H.P	0101220001
2	Sh. Kuldeep Singh, S/o Sh. Lacchu Ram V.P.O Bandla, Teh. Sadar, Distt. Bilaspur. H.P	0104220002
3	Smt. Reena Devi w/o Sh. Vikram Kumar Vill. Chanalg,eh. Sadar, Distt. Bilaspur. H.P	0104220003

2. Talk held with Dr. T.K Nagarathana, Registrar, PPV & FRA, New Delhi regarding Sanction of project amounting Rs. 4.00 Lakh being submitted by Dr. Anita Singh regarding DUS characterization of *Buck Wheat, Kidney Bean, Black Gram* etc. The Registrar of the Authority showed inability to sanction the project due to funding of a concerned DUS centres in the Country.

3. Talk held with Dr. Nimit to attend observations in the application variety Bayla Dhan alongwith seed at the name of Sh. Shiva Yuwal Mandal, V.P.O Bayla, Tehsil Sundernagar, Distt. Mandi. (H.P) with registration No. 1904220001 was submitted to the PPV & FR Authority, New Delhi.

4. Zoom meeting on prospectus of varieties/ crops developed through Genome editing was attended on 24-05-2022 regarding framework technology and experiences. The webinar was being jointly organized in collaboration with Dept. of Agriculture and farmers welfare, Ministry of Agriculture and farmers welfare Government of India and Federal Ministry of food, Agriculture and consumer protection (BMEL) Germany. Technical programme was great importance for development of new varieties of plants with desirable characteristics such as salt tolerance, development of thermo insesitire plant, resistant to biotic and abiotic factors. After registration of such varieties, rights will be conferred to the breeders by PPV & FRA and will go a long way to improve the economy of farming communities.

5. Application form along with seed of farmer's variety of cucumber (*Cucumis sativus*) at the name of Sh. Garib Dass, Vill. Buhli Kothi, P.O Paprola, Teh. Baijnath, Distt. Kangra (H.P) was submitted with the registration No. PVP PL 2906220001.

6. Talk held with Dr. Jaidev Sharma, Head Department of Tea Husbandry, CSKHPKV, Palampur regarding registration of Tea varieties. He assured to submit the varieties shortly.

7. With the intervention of PPV & FRA, Branch Office, Palampur an application form for community Plant Genome Saviour Award for *Kala Zera* crop has been submitted by KVK Sangla, Distt. Kinnaur (H.P) under CSKHPKV, Palampur

8. Dr. R.K Kapila, Head Department of Seed Science & Technology, CSKHPKV, Palampur was apprised of the observation raised regarding farmers varieties of *Talaw Makki* and *full patash* of Paddy submitted to the PPV & FRA, New Delhi. He attended the observations and registration of these varieties is in progress.

9. Incharge Regional Agricultural Research Station, Rajouri (Jammu & Kashmir) was approached for registration of farmers' variety of *bitter gourd,* all kinds of information was provided to him. He was requested telephonically during the month of September 2022 regarding submission of the farmer variety of *bitter gourd.* He informed that the crop is in the field and when the seed is made available by the farmer, the variety will be submitted along with the seed. He was requested to submit the application alongwith seeds, certificate of Purity, Uniformity and Stability through Director of Research, S.K. University of Agricultural Sciences and Technology, Jammu.

10. Dr. Dipal Roy Chowdhury, Joint registrar, PPV & FRA, New Delhi was approached to intimate the dealer regarding Tri-layered paper for packaging of the seed material to be submitted to the PPV & FRA, New Delhi. The requisite information was forwarded to all concerned scientists of CSKHPKV, Palampur and Union Territory of Jammu.

11. Sh. Hariman Sharma and other progressive growers of H.P were approached to submit their application forms for plant Genome Saviour Reward and Recognition.

12. Dr. R.K Salgotra, Professor and Coordinator, School of Biotechnology, Sher-e-Kashmir University of Agricultural Sciences, Jammu was approached telephonically to submit the *bhaderwah Rajmash* variety which was returned back down from PPV & FRA, New Delhi. He assured that trials have been laid out in the fields for genetic purity and study of agronomic and commercial traits and will be submitted shortly. He was also requested to submit application forms with regard Plant Genome Saviour Reward and Recognition.

13. A Telephonic talk was held with Rakesh Kumar Chahota, Department of Agricultural Biotechnology, CSK HPKV Palampur for submission of farmers' varieties of *Maize.*

14. Dr. Rakesh Kumar Kaplia, Head Department of Seed Science & Technology, CSKHPKV, Palampur requested to submit an application form for registration of *Chamba Rajmash*. He assured to submit the same shortly.

15. Dr. Vijay Rana, Professor of Plant Breeding, CSKHPKV, Palampur was requested to submit a new variety of *Jau* for registration. She assured that the variety along with seed will be submitted as and when the funds were made available by the University.

16. The 75th Anniversary of Indian Independence or "**Azadi Ka Amrit Mahotsav**" was celebrated on 15th of August 2022 as per guidelines issued by the PPV & FRA, New Delhi.

17. Attended PPV & FRA Foundation Day Celebration virtual means on 11th Nov. 2022 organized byPPV&FRAuthority,NewDelhi.

18. The incharge KVK Rajouri was contacted telephonically regarding submission of farmer variety of *Bitter Gourd* immediately.

Dr. Swaran Lata has joined the PPV FRA B.O Palampur as deputy registrar vide letter no. DR-PPV-FRA/469/2023 dated 10-02-2023.

Progress of Various activities upto 31-03-2023

- **Office Developments**

1. Renovation of two office rooms has been done (Distemper, White washing and minor repair work)
2. As per the directions of the Registrar General finally meeting hall has been vacated but the adjoining room is still pending for vacation.

(Vide letter no. DR-PPv-FRA-481/2023 dt. 17-3-23.)

3. Letter to Estate officer has been sent vide which drawing and estimate of the above said hall has been taken by the architect of the University.

- **Registration of Varieties**

1. Letters have been sent to all Directors of Research of different states and Head of the Departments of CSKHPKV, Palampur
2. Response was received from the Head of the Department of SKAUST, Jammu and PAU, Ludhiana, Genetics and Plant Breeding, Vegetable and SST deptt of CSKHPKV, Palampur.
3. Acted as a committee member of Kala Zera Utpadan Sangh, Sangla.

- **Training cum Awareness programme**

1. Training cum Awareness programme was conducted on 15th March 2023, in which 23 farmers of Sirmour District were participants. The lead lecture was delivered and report along with photographs has been sent to the HQ vide letter No. DR-PPV-FRA-480/2023.

2. Letter to DEE regarding organizing of Training cum Awareness programme in collaboration with KVKs for the year 2023-24. (Vide letter no. DR-PPV-FRA-487/2023 dt. 05-04-2023)

- **Land Development**

1. Visited Banuri Khas area (10 acres area has been allotted by GOHP
2. Survey was planned by the contractor
   a) Through Total Station Imaging, survey will be made
   b) In order to develop the experimental area requirements are Tender notice, land cleaning by bush cuttings, tree cutting, stone uprooting, etc.
3. An estimate will be provided by the contractor regarding the amount of land to be cleaned.

- **Regional Fair**

Rs. 1,30,000 (one lac thirty thousand only) were sanctioned for the participation in Regional Agriculture Fair- Parvatiya Krishak Maha Sangam.

Various assignments were given to the Senior Data Entry operator Mr. Akhil Bhardwaj in the office who is executing his duty of assigned work viz; typing all official letters, collecting quotations for the purchase of various articles, keeping all the records, responsibilities of stakeholders list etc. and Mr. Vinay Kumar MTS hold the responsibilities of cleaning, post and diary & dispatch.

In addition to above activities, order from higher authorities relating to PPV & FR Act were complied with letter & Spirits.

Performed all the duties assigned from time to time by the worthy Registrar General and Honourable Chairpersion as Deputy Registrar of the branch office.

Chapter 3: DUS Test Centers

3.1 DUS TESTING CENTERS ESTABLISHED UNDER SECTION 19 OF PPVFR ACT 2001 AND RULE 29 (7) of PPVFR RULES, 2003 IN GOVERNMENT OWNED NATIONAL AGRICUTLURAL RESEARCH SYSTEM.

During the period under report 369 double coded candidate varieties representing 37 crop species were tested for DUS characterization and evaluation at 47 centres in the country. These centres are established at locations most suitable either under Central Government or State Government owned agricultural research systems comprising the ICAR, CSIR, SAU or CAU. Dedicated research staff and support were provided as required, to maintain under the control of a designated Principal Investigator nominated by the Head of the Institution at each centre to operate for the testing and evaluation procedures required under the Act, in project mode with the approval of the Authority.

3.1.1. DUS TESTING CENTRES FOR RICE:

ICAR-INDIAN INSTITUTE OF RICE RESEARCH, HYDERABAD

Brief about conduct of the Trial: 30 typical varieties (17 new and 13 Farmer's) were evaluated in the first year during Kharif 2022 at IIRR, Hyderabad. A total of 57 entries (36 hybrids, 17 typical and 4 EDV's) were in the second year of testing during Kharif 2022. Variations were observed with respect to plant height, duration, panicle type, plant type, grain type and grain tip purple coloration. Entry 2122H12 hybrid had high number of mixtures in the candidate hybrid compared to F_1 SMG.

Items	**Information to be recorded**
Date of receipt of seeds+ list	**07/06/2022**
Date of transplanting	**3/08/2022:** 20 IInd Yr entries along with 20 Shivamoga F_1s **05/08/2022:** 40 entries (Ist & IInd Yr entries) **26/08/2022:** 23 entries (Ist & IInd Yr entries) and 26 entries from 2021
List of Zonal checks used in trial List of Regional checks used in trial	**Regional Check:** BPT 5204, PA6129 **Zonal Checks:** Jaya, MTU 1075, MTU 1153

Details of DUS testing of candidate varieties in 2022-23:

Crops	New		VCK	FV
	1st year entries	2nd year entries		
Rice	**30**	**57**	**4**	**13**

Monitoring of DUS experiments (Kharif 2022) was conducted by a team consisting of Dr BC Patra, Principal Scientist, NRRI, Cuttack and Dr T Srinivas, Principal Scientist, RARS, Maruteru, Guntur. The team felt that overall crop condition was good and conduct of experiments was good.The team suggested to harvest the crop on time as per their maturity and complete the data recording of post-harvest observations thereafter. The team felt that details of the entries, with respect to duration, plant height and grain characters should be shared with the center for planning and planting of suitable reference varieties.

Based on 1st year trial, the centre should include another reference variety along with the original reference varieties during 2nd year trial: in consultation with PPVFRA. Variations observed with respect to mainly of plant height, duration, panicle type, plant type, grain type, grain tip purple colouration etc., should be documented.

ICAR-NATIONAL RICE RESEARCH INSTITUTE, CUTTACK

A set of 56 (23 Candidates for 1st year testing, 33 Candidates for 2nd year testing) rice variety received from PPV & FRA, New Delhi on 6th June, 2022. Germination test results were taken after one week (13.06.2022) of receiving of seed packets. All entries along with references and checks (Local and Regional) were sown in the nursery on 11th June 2022 and transplanted in mid july with randomized block design in three replications as per the standard recommended DUS test guideline. Coleoptile colour was recorded after 5 days of sowing. The crop started attaining flowering in the month of August - October. All the data (Quantitative and qualitative) from morphological to biochemical analysis were recorded in the appropriate growth stage of crop. Selfing was done in all typical candidates' 1st year and selfed seed was collected and stored for the next year of testing. A total of 80 reference varieties, 20 local checks and 32 regional checks were used against the candidates and 2nd year FVs having fulfilled the demanded characters. All the data were recorded in the proper format provided by the authority and send to PPV & FRA, New Delhi on 13th April, 2023.

Out of 54 entries, only Eight entries **(22RE3, 22RV4, 22RV9, 2122H14(CAN+SMG), 2122H18(CAN+SMG), 2122H19(CAN+SMG), 2122H20(CAN+SMG), 2122H13)** were found to have purple coleoptile. Varieties **22RE10, 22RV8, 22RV9** were found to have very strong pubescence. All the entries were having erect culm attitude except **22RV11** (semi erect) and **2880/3491** (semi erect). **22RV12, 2122H14(CAN+SMG), 2122H8(CAN+SMG), 2122H12CAN+SMG)** were having shortest stem length. Out of 54 entries, 32 entries were having very short stem length. Only FV **2880/3494** was found to have very strong Lemma anthocyanin colouration of keel and Lemma anthocyanin colouration below apex. Only FV **2880/3490** was found to have droopy flag leaf attitude of blade in early observation. Only entries **22RE1, 20RII-H21 (CAN+SMG), 2122H26(CAN+SMG), 2122H11** were showing maximum panicle length of main axis. **22RE6, 22RE10, 22RV1** were having maximum panicle number per plant. Among candidate 1st year, only **22RV10, 22RV13** were found to have horizontal flag leaf attitude of blade in late observation. Varieties **22RE3** & **2880/3480**, **22RE9** & **2880/3490** were having dark purple and light red decorticated grain colour respectively. Only **222RE3** was found to have purple lemma palea colour. Varieties **2122-28**, and **2880/3488** were found to have gold and gold furrow lemma and palea colour. Among the entries only **22RV2** was found to have erect to semi erect panicle attitude of branches. Among Candidates 2nd year only **20RII-H12** were found to have semi erect attitude of secondary branches. Among all the entries FV **2880/3490**(35g)**, 22RV13**(35g)**,** Candidate **22RE9**(33g) were found to have maximum 1000 grain

weight and FV **2880/3491** was having very low 1000 GW (11g). Grain phenol reaction was present in all entries except **22RE1, 22RE8, 22RE10, 2122H7, 2122H11, 2122H25, 2122H21**.Maximum and minimum grain length was found in **22RE6** (11.79mm), **20RI-H21CAN)** (11.88mm) and **2880/3491**(6.08mm) respectively. Maximum and minimum grain width was found in **22RV13** (3.34) and **22RE1** (2.13) respectively. Entries **22RE5** (8.12mm) and **20RII-H21**(7.97mm) was found to have very long decorticated grain. Entries **2122-26**(2.56mm), **2880/3490**(2.65mm) were found to have broad decorticated grain. Only entries **22RE8, 2122H21** were having short slender decorticated grain. Only entries **22RE5** and **2880/3490, 20RII-H21 (CAN+SMG)** were found to have extra long slender decorticated grain. Among all the entries **2122-26**, **2880/3490** and **2880/3480** were found to have light red and dark purple decorticated grain respectively. Entry **2122H16(CAN)(31.575**) and **22RV5(10.5)** were found to have maximum and minimum content of amylase respectively. Aroma was present in all FVs 2nd year, **22RE3, 22RE6, 2122H2 and 2122H13**. Most of the varieties were showing variation in stem length, panicle length, panicle number/plant, leaf width, leaf length, grain length, decorticated grain length, de-corticated grain width. Maximum numbers of off types were seen in **22RE6, 22RV2, 22RV10, 2122H8(SMG)**, **2122H4, 2122H10, 2122-28, 2122-26** in all three replications. Many entries were found to be non-uniform with respect to two or three quantitative characters. All the candidate hybrids were found to be similar with their F1 Shimoga with respect to all the DUS characters. Difference in days to 50 % flowering was found in both candidate and Shimoga hybrids of **2122H15, 2122H20, 20RII-H21**. Difference in alkali spreading value was observed in case of both Shimoga and candidate hybrids of **2122H26, 20RII-H24, 2880/3911/H, 20RII-H46**. Maximum no. of off types was found in **2122H8(SMG)** in all three replications as compare to their candidate hybrid. According to the Monitoring team: -

- All entries are looking uniform in their proper stage of growth.
- Candidate hybrids are morphologically similar with their hybrid generated at Shimoga during standing crop stage.
- Some of the off types are looking similar in all the plots and those should be considered as admixture and ignored in the evaluation.

Training cum Awareness programme on PPV & FRA conducted: An Awareness Program was conducted on "*Protection of Plant Varieties and Farmers' Rights* Act, 2001, *Biological Diversity* Act, 2002 and Conservation and Cultivation of Indigenous and Aromatic Rice Varieties" on 16th June, 2022.

ICAR-INDIAN AGRICULTURAL RESEARCH INSTITUTE (REGIONAL STATION), KARNAL

DUS testing of ten candidate varieties (CVs) were undertaken during Kharif 2022 at IARI RS, Karnal. Three CVs(2223-5, 2223-6, 2223-7)were under first year testing and another seven CVs(2122-1,2122-2,2122-3,2122-4,2122-6,2122-7,2122-8)were under 2nd year testing. Nine Farmers varieties (FVs) were under testing during Kharif 2022 at IARI RS, Karnal. Four FVs (2223-2, 2223-3, 2223-8,2223-9) were under first year testing and another five FVs (2886/2402, 2887/2021, 2887/2020, 2887/2054 and 2881/3945) were under 2nd year testing. The CVs andFVs were raised along with twenty-two reference varieties and seven zonal and national checks. In addition, 10 reference varieties (RVs) were also maintained during *Kharif* 2022.

Another trial on "EDVs vs. Initial Variety Trial" of seven candidate varieties was conducted for second year as per prescribed protocol under transplanted conditions at IARI, RS, Karnal during Kharif 2022. Virtual online monitoring of DUS Trials was conducted by PPVFRA, New Delhi on 18.10.2022. DUS Data and Test Report of candidate Varieties, Farmers Varieties, Reference Varieties and data of maintenance of reference varieties along with the EDV vs Initial Variety trial report had already been submitted to Nodal Officer (DUS), IIRR, Hyderabadand to Joint Registrar, PPVFRA, New Delhi.

Trial was conducted at IARI RS, Karnal, for 3 entries in 1st year, 07 entries in 2nd year and 09 entries in farmers' varieties. Sowing was done on June 13th and transplanted on July 12, 2022. NPK doses given as 40:16:12 ratio per acre and a basal dose of 6kg Zinc sulphate was given; DUS monitoring was done on 18.10.2022 and harvesting was done on Nov 11, 2022. Seven zonal checks were also used in the trial and 10 reference varieties are maintained as per the following list:

Crops	New		FV	Date of monitoring
	1st year entries	2nd year entries		
Rice	03	07	09	18.10.2022

S. No.	Reference Variety	S. No.	Reference Variety
	Basmati 386	6.	Ranbir Basmati
	Basmati 370	7.	Basmati CSR 30
	Type 3	8.	Pant Basmati 1
	Vasumati	9.	Super Basmati
	Taraori Basmati	10.	Haryana Basmati 2

TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE

In rice, seeds of eight new entries (22RF1, 22RF2, 22RF3, 22RF4, 22RF5, 22RF6, 22RF7 & 22RF8) and twenty two second year entries were received from the PPV & FRA, New Delhi. Among the second year entries, four candidate hybrids along with SMG F_1 hybrids (2122 H27, 2122 H27 SMG, 2122 H28, 2122 H28 SMG, 2122 H29, 2122 H29 SMG, 2122 H30& 2122 H30 SMG) and fourteen other entries were received for testing. The characterization was carried out as per DUS test guidelines. The expression of candidate hybrids and Shimoga F_1 hybrids were uniform. The rice varieties CO 51, CO 53, CO 43 Sub 1, MDU 6, TKM 13 & VGD 1 were used as zonal checks in the trial. The results were submitted on 10.03.2023. In addition, maintenance breeding was carried out for 10 rice varieties *viz.*, ADT 53, CO 51, CO 52, CO 53, CO 43 sub 1, CR-1009 sub1, MDU 6, TKM 13, ADT 54, VGD 1 as per the DUS guidelines.

INDIRA GANDHI KRISHI VISHWAVIDYALAYA, RAIPUR

- Total 05 farmers' varieties were evaluated for DUS performance during the season of *Kharif* 2022-23. Overall trial condition was very good. The date of sowing of seed materials was 02/07/2022 and the materials were transplanted on dated 30/07/2022, date of monitoring on 19 Oct and harvesting was started from 25th Oct, 2022.
- All the five farmer varieties namely, 2880/3480, 2880/3488, 2880/3490, 2880/3491 and 2880/3494 were uniform for all the traits.

- The variety 2880/3494 and 2880/3491 was observed to be unique for good grain quality with short slender grain and the spikelet colour of lemma and palea has higher pigmentation of anthocyanin.
- The variety 2880/3490 was observed to be unique for strong stem strength, light purple basal leaf sheath colour, broad leaf, longer panicle size with long bold grain.
- The variety 2880/3488 was observed to be unique for good grain quality with long slender red colour grain.
- The variety 2880/3480 was observed to be unique for dark purple grain colour with good quality.

List of zonal/regional checks used in the trial

List of Zonal/Regional check used in trial	TCSM, TCVM, Vikram TCR, CG. Barhasal, Anjali, Indira Barani Dhan-1. Poornima, Indira Arobic-1, Karma Mahsuri, IGKV R-1, Mahamaya, MTU-1010, Indira Sugandhit Dhan-1, Swarna, Badshah Bhog Sel-1 and Bamleshwari

Testing of farmers varieties:

- Total 50 farmers' varieties, received from farmers' community at Bastar Jagdalpur, Chhattisgarh, were tested/characterized during the season of *Kharif 2022*. The date of sowing of seed materials was 02/07/2022 and the materials were transplanted on dated 30/07/2022. All the varieties showed stable performance and uniformity for all the traits.

List of Farmers' varieties

Sr.	Farmers' variety	Sr.	Farmers' variety	Sr.	Farmers' variety	Sr.	Farmers' variety	Sr.	Farmers' variety
1.	Lankesh	11	Kawagodi	21	Makhan Bhog	31	Kaliya	41	KedarBhog
2.	Chinimani Dhan	12	Pahadi Jeera	22	Mayur	32	Ramsundari	42	Shyamal Dhan
3.	Bada Khadwan Dhan	13	Bhutiya	23	Haldi Mori	33	Shyamraj-2	43	Krishna Dhan

4.	Mahuwa Dhan	14	Garment Chudi	24	Golmirch	34	Kalamali Phool	44	Chandni Dhan
5.	Ranichudidhan	15	DarbhaChudi	25	Chinninmoni	35	Krishnabhog	45	Sita Bhog
6.	Bansgota Dhan	16	Kajari Kesar	26	Kusumbhog	36	Ram Datun	46	BoroBhog
7.	JhumaChudi Dhan	17	Samudra Balli	27	Kala Tulsi	37	Kala Champa	47	Shital Bhog
8.	Madhumati Dhan	18	Mandeyadhan	28	Gol Dhan	38	Badami	48	Govind Challi
9.	Sabri Dhan	19	Rukmani Kanth	29	Bheema	39	Ganga Bhog	49	Panchratna
10.	Jamvant Dhan	20	Shyamraj-1	30	Hari Bhog	40	Shankar Bhog	50	Navihari

Workshop cum exhibition:

Indira Gandhi Krishi Vishwavidyalaya (IGKV), Krishak Nagar, Raipur, Chhattisgarh, INDIA conducted international event "Agri Carnival 2022" and invited national and international agriculture fraternity, scientists, researchers, academician, policy makers, stake holders and farmers to this mega event. Several farmers' and farming communities of Chhattisgarh are engaged in conservation and commercialization of agro-biodiversity of various crops.

In this occasion of Agri-carnival, one day workshop-cum-exhibition on *'Agro-biodiversity conservation and commercialization of local varieties/land races for increasing livelihood of rural farmers*' was organized at College of Agriculture, Raipur on 17th October, 2022 where awardees farmer and farming communities were brought under the same roof to showcase their hard and inspiring work to the State and Country. Following lectures were delivered:

- Role of PPV&FRA for conservation, registration and protection of farmers varieties of various crops (Sh Dipal Roy Choudhury, Joint Registrar, PPVFRA)
- Role of GEF – Bioversity international in promotion of the agrobiodiversity and its commercialization (Dr J.C. Rana, National coordinator, GEF Biodiversity International Project, New Delhi)

Agro-biodiversity Exhibition:

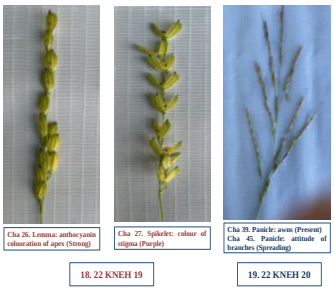
Farmers / farming communities of the Chhattisgarh state were exhibited in crop biodiversity conserved by them since past times and where the unique traits and commercialization values of the agro-biodiversity were displayed. All participants visited the exhibition and interacted with farmers / farming communities with emphasis to the commercialization of conserved materials.

ICAR-NEH RESEARCH STATION, LAMPHELPET, MANIPUR

During 2022, first year DUS characterization was carried out for 30 farmer varieties of rice along with 28 reference varieties including 8 maintenance lines from Manipur centre and 24 farmer varieties from the last year 2021. The experiment was carried out in randomized complete block design with three replications under rainfed lowland transplanted condition. Observations were recorded for 48 morphological characters and 14 post harvest characters for both the farmer varieties from last year and newly received this year. In comparison to reference varieties, farmers variety entry(s), e.g., 22 ref 1, 22 ref 2 & 22 ref 6 were found distinct for few character/traits viz., presence of highest leaf pubescence of blade surface, stem length (117-149 cm), few panicle number per plant, strong secondary branching, higher 1000 grain weight(≥28g), grain shape being short bold, white decorticated grain color and presence of decorticated grain aroma. And from last year, entry 2886/2203 was distinct for seven traits namely leaf coloration of auricles (light purple & purple), leaf colouration of collar (present), yellow & purple spikelet colour of stigma, high secondary branching, absence and present of grain phenol reaction of lemma, short grains with short bold grain shape. Both the varieties were uniform in their characteristics across three replications. Entry 2886/2239 was found distinct for 7 unique traits namely, presence of basal leaf sheath colour, leaf coloration of auricles (purple), leaf colouration of collar (present), presence of anthocyanin coloration of internodes, strong secondary branching, grain shape being short bold, white decorticated grain color compared with reference variety Nidhi and Mahamaya. One entry 22 Ref 6 was found some distinct character in seed colour, seed shape, stem length, panicle length & 1000 grain weight etc.

ICAR NEH REGIONAL STATION, NAGALAND

During 2022-23, ICAR NEH, Nagaland Centre received a total of 40 entries for trial. These 40 entries were evaluated along with 7 regional/zonalchecks, RCM-9, Pusa Sughand, Ranjit, Sikkim Dhan 1, Sikkim Dhan 2, Sikkim Dhan 3 and Sikkim Dhan 4, during *kharif* season in lowland ecology. Observations were recorded for the 62 DUS characters on 10 randomly selected plants. All the entries were found to be distinct from the check varieties. However there is quite a high incidence of bird damage.



Date of planting	21-07-2022
Details of fertilizers given (dose/per acre wise)	N:P:K (120:60:60) kg per acre; N in three equal split doses, first as basal dose, second at tillering stage and remaining third at panicle initiation stage.
Details of pesticides/fungicides/others applied	Butachlor @2.5 l/ha within 2-5 days after transplanting.

Date of DUS Monitoring	07-11-2022
Date of Harvesting	15-12-2022
List of Zonal checks used in trial	RCM 9, Pusa Sughand, Ranjit
List of Regional checks used in trial	Sikkim Dhan 1, Sikkim Dhan 2, Sikkim Dhan 3, Sikkim Dhan 4,

Varieties under maintenance/characterized: RCM-9, Pusa Sughand, Ranjit, Sikkim Dhan-1, Sikkim Dhan-2, Sikkim Dhan-3, Sikkim Dhan-4

ASSAM AGRICULTURAL UNIVERSITY, JORHAT

A set of 59 rice entries comprised of 56 varieties for 1st year trial and 3 varieties for 2nd year trial were received from PPV & FR, New Delhi on 12th of July, 2022. Sowing was done for all the entries along with regional and zonal checks (19 varieties) on 18th July 2022. All the varieties were germinated except 22 KNEH 1, 22 KNEH 31 and 22 KNEH 33. Transplanting was done on 16th of August 2022 based on standard recommended DUS guideline and Package of practice for *kharif* rice in Assam. Transplanting was done in a randomized block design in three replications. All the qualitative and quantitative data for morphological and biochemical were recorded at appropriate growth stages.

Out of 56 entries, only one entry (22RE3) possessed purple basal leaf sheath colour. Five entries (22RE3, 22KNEH6, 22KNEH7, 22KNEH24, 22KNEH32 and 22KNEH35) were found to have dark leaf intensity of green colour and 18 entries were with medium leaf intensity of green colour. Eight entries (22RE3, 22RE9, 22RE10, 22REF3, 22KNEH20, 22KNEH32, 22KNEH34 and 22KNEH39) were found to have strong leaf pubescence in blade surface. Purple anthocyanin colouration in auricles was present in 4 entries (22RE3, 22KNEH18, 22KNEH24 and 22KNEH35). Light purple anthocyanin colouration in auricles was present in 22KNEH5, 22KNEH7, 22KNEH22, 22KNEH23 and 22KNEH28. Early 50% flowering was recorded for the entry *viz.*, 22KNEH7, 22KNEH10, 22KNEH12, 22KNEH24, 22KNEH36, 22KNEH39 and 22KNEH40. And late 50% flowering were recorded in 5 entries (22RE3, 22KNEH3, 22KNEH13, 2122-26 and 2122-28). Very short stem length was recorded for 30 entries. 13 entries were recorded for short stem length and 5 entries (22KNEH19, 22KNEH27, 2122-26, 2122-27 and 2122-28) were found to have long stem length. Other entries were recorded for having medium stem length. Very high 1000 grain weight was present in 22KNEH15(34.37g) followed by 22KNEH12(32.73g), 22REF6(32.24g), 22KNEH11(31.12g), 22RE9(31.07g), 22KNEH8, 22KNEH18 and 22KNEH24. High 1000 grain weight was present in 22REF2, 22REF4, 22REF5, 22KNEH6, 22KNEH7, 22KNEH9, 22KNEH21, 22KNEH22, 22KNEH25, 22KNEH27, 22KNEH29, 22KNEH32 and 22KNEH35. Lowest grain weight was present in 22KNEH3(16.1g) and 22KNEH13(18.13g). Entries recorded for extra-long decorticated grain length were *viz.*, 22RE1, 22RE5, 22RE6, 22RE9, 22KNEH6, 22KNEH15, 22KNEH20, 22KNEH28 and 22KNEH40. 6 entries were recorded for having long decorticated grain length and other entries were recorded for short and medium decorticated grain length. 22KNEH21 was found to have short slender grain shape. Other entries 22REF1, 22KNEH4, 22KNEH13, 22KNEH14, 22KNEH16, 22KNEH19, 22KNEH29, 22KNEH32 and 2122-26 were recorded for short bold grain. Medium slender grain shape was present in 22RE7, 22KNEH3, 22KNEH37 and 2122-28. 6 entries (22RE1, 22RE5, 22RE6, 22KNEH20, 22KNEH28 and 22KNEH40) were found to have extra-long slender grain. One entry 22RE3 was found to have purple decorticated grain colour. Four entries (22RE9, 22KNEH16, 22KNEH25 and 22KNEH 36) were possessed red decorticated grain colour, 3 entries (22REF6,

22KNEH4 and 22KNEH8) were found to have light red decorticated grain colour, 3 entries (22RE10, 22KNEH18 and 22KNEH22) for having dark brown decorticated grain colour and 2 entries (22KNEH9 and 22KNEH11) for variegated brown decorticated grain colour. Other entries were recorded for having light brown and white decorticated grain colour. 11 entries were recorded for having low (10-19%) amylose in endosperm; *viz.*, 22RE9, 22KNEH3, 22KNEH4, 22KNEH7, 22KNEH8, 22KNEH17, 22KNEH25, 22KNEH28, 22KNEH32, 22KNEH35 and 2122-27. 19 entries were recorded for high (26-30%) amylose content and other entries were found to have medium (20-25%) amylose content in endosperm. 22RE3 was recorded for containing strong aroma. Other aroma containing entries were *viz.*, 22RE4, 22RE5, 22RE6, 22REF2, 22REF3, 22REF5, 22REF6, 22KNEH6, 22KNEH7,22KNEH8, 22KNEH9, 22KNEH12, 22KNEH17, 22KNEH19, 2KNEH20, 22KNEH21, 22KNEH23, 22KNEH28, 22KNEH29, 22KNEH36, 22KNEH39 and 22KNEH40. Number of off types present in the population was very less. Light purple basal leaf sheath colour was recorded in 22KNEH24 and purple lines were present in the basal leaf sheath colour of 22KNEH35. Monitoring of tests was conducted online on 25.11.2022.

3.1.2. DUS TESTING CENTRES FOR COTTON:

MAHATMA PHULE KRISHI VISWA VIDYALAYA (COTTON), RAHURI

A set of 29 (7 Candidates for 1st year testing, 22 Candidates with there F1 SMG for 2nd year testing) cotton varieties were received from PPV & FRA, New Delhi; sowing of all entries were completed on the date 26th June 2022 and the germination results were taken after one week of sowing. All entries along with 72 references and 13 commercial hybrids, checks (Local and Regional) were sown on 26th and 27th June 2022 with randomized block design in three replications as per the standard recommended DUS test guideline. Hypocotyl pigmentation for all entries was recorded after 5-10 days of sowing. The crop started attaining flowering in the month of August - October. All the data (quantitative and qualitative) from morphological to fibre qulity analysis were recorded in the appropriate growth stage of crop. Selfing was done in all reference varieties. 13 local checks, commercial hybrids and regional checks were used against the candidates.

Out of 7 entries, tested in 1st year, only one entry **(22CORCII04 H),** were found to have deep yellow petal and pollen colour as well as elliptical shape of the boll. All the entries were having cup shape of leaf appearance except **22CORCII07H** having flat shape. Out of 22 entries of 2nd year testing, 13 entries were having cup shape leaf appearnce. In 2nd year testing 19 entries out of 22, both candidates and F1 SMG found to have normal shape of leaf except only three entries having semi okra type of leaf shape *viz.*, **2873/2479/H, 2873/2487/H and 2873/2488/H**. Only entries **2874/2211/H, 2873/2507/H, 2873/2479/H and 2873/2487/H** were showing elliptic shape of boll, whereas remaining all entrirs having ovate shape of boll.

List Varieties under maintenance/characterized:

Sr. No.	Name of Reference Varieties	Sr. No.	Name of Reference Varieties	Sr. No.	Name of Reference Varieties
1	MCU-10	31	KHANDWA-3	61	JLH-168
2	H-1098	32	NH-452	62	G.COT.16
3	MCU-3	33	GSHV-112	63	PRS-74
4	SUMAN	34	G.COT.18	64	MCU-4
5	MCU-11	35	MCU-7	65	SUJATHA
6	REBA-B-50	36	DEVIRAJ	66	H-974
7	HLS-329	37	ABADHITA	67	H-1220
8	LH-900	38	MCU-9	68	LRA-5166
9	MCU-13	39	LAKSHMI	69	SUMANGALA
10	SUPRIYA	40	G. COT.12	70	L-604
11	AKH-07R	41	KANCHANA	71	NARASIMHA
12	JK-4	42	BADNAWAR-1	72	F-846
13	AH-107	43	SUMAN GALA	73	BIKANERI NERMA
14	NH-545	44	GUJRAT-67	74	SUMAN
15	MCU-5	45	J-34	75	ANJALI
16	RMPBS-155	46	DHY-286-1	76	BANDAWAR
17	PH-93	47	LH-1556	77	VIKRAM
18	RCH-001	48	BUNNY-FEMALE	78	Phule- 688 (National Check)
19	F-1378	49	NCH-11	79	Phule -717 (Zonal Check)
20	VC-21	50	T-7	80	Phule -388 (Zonal Check)
21	SUVIN	51	MCU-8	81	Phule-492 (Zonal Check)
22	ACP-71	52	MCU-5VT	82	Phule Suman (National Check)
23	PRATIMA	53	SURABHI	83	Ajeet-155 (Regional Check)
24	JCC-1	54	PKV RAJAT	84	Ajeet-199 Commercial Hybrid
25	NCH-419	55	VC-32	85	Dhandev Commercial Hybrid
26	TCB-209	56	RSP-4	86	Rasi-659 Commercial Hybrid
27	MDH-89	57	KHANDWA-2	87	Rasi-Magic Commercial Hybrid
28	SH-2379	58	F-846	88	NCS-954 (Regional Check)
29	AKH-081	59	G.C0T.16	89	MRC-7351 (Regional Check)
30	SAHANA	60	MCU-12		

ICAR- CENTRAL INSTITUTE FOR COTTON RESEARCH, REGIONAL STATION, NAGPUR

During Kharif 2022-23, seven entries in 1st year trial and twenty five entries in 2nd year trial were tested for DUS.

Date of planting	23.06.2022
Details of fertilizers given (dose/per acre wise)	Recommended dose of NPK (60: 35: 35)
Date of DUS Monitoring	18. 11. 2022
Date of Harvesting	December last week in 2022
Zonal checks used in trial Regional checks used in trial	Zonal check variety: Suraj; Suraj Bt Regional check: NH 615, AKH 8828

1st year trial

The entry, 22COR 1104 showed high seed index (13.0 g) and green seed fuzz colour. The entry, 2876/2248 showed cup shaped leaf and elliptic shaped bolls in candidate. The entry showed flat leaf and ovate boll shape in SMG hybrid.

Second year trial

Under Second year trial, the entry, 2880/2728 F_1 SMG plot showed high number of off-types (8 out of 60 total plants) but candidate plot was uniform with very small number of off-types. For entry, 2873/2507, candidate hybrid seed did not germinate in third replication and no seed was left over for re-sowing. The entry, 2871/2030 was unique with complete boll bursting within 130-140 days and was observed in all three replications. The entry, 2871/2210 showed bigger leaves than others.

The entry, 2873/2488 showed sparse leaf and stem hairiness and semi-digitate leaf and was similar to *G. barbadense*. The entry, 2876/2248 showed deeper and prominent boll tip.The entry was unique 2873/2488 (both F1 candidate and SMG hybrid) showing very high fibre length (35.1 mm) and very high fibre strength (37.7.g/tex) .The entries, 2876/2479 and 2873/2487, (both F1 candidate and SMG hybrid) showed fibre length of 34 mm and fiber strength 33 /tex.

The monitoring team suggested including those entries in advance trials of AICRP as reference hybrids for DUS testing. The data of central zone centres (Rahuri and Nagpur) need to be checked thoroughly for any discripancies before finalizing and sending to PPV&FRA

List Varieties under maintenance/characterized:

List of varieties under maintenance breeding in 2022-23	Source, Release / commercial release date, if any	Maintenance Breeding data
G. hirsutum NBt (60 nos) *G. arboreum* (25 nos) *G. herbaceum* (1 no) *G. hirsutum* Bt (4 nos)	State Universities, ICAR-CICR	The data of previous seasons have already been sent

ICAR- CENTRAL INSTITUTE FOR COTTON RESEARCH, REGIONAL STATION, COIMBATORE

Ten number of tetraploid typical candidate varieties received from PPV&FRA were sown on 17.9.2022 in the first year trial in a randomized design with three replications. Seeds were sown on ridges and furrows under irrigated condition. In a plot 10 rows were maintained with 10 dibbles at a spacing of 90 cm x 60 cm. After 10 days of sowing of germination count was taken and after 20 days seedlings were thinned leaving one normal seedling in a hill. Normal package of practices were followed throughout the crop growth. Observations on morphological traits were recorded as per the test guidelines. Along with candidate varieties, the following reference varieties were grown and observations recorded: Puli BGII (6188-2BGII), Yuva BGII (7215-2), Bindass BGII (7213-2), Junglee (MRC7017BGII, Dhandev+ (MRC7373 BGII), MRC7351 BGII, Bahubali (MRC 7918 BG II), RCH 386 BGII, RASI MAGNA BGII, RASI NEO BGII, RCH 659BGII, SURPASS First Class (SP 7149, Surpass Minerva (SP911 BGII), Surpass Superb (SP 7517 BGII), Malini NCS 9015 Bt.2.

In another trial for second year testing, a set of 25 tetraploid hybrid entries along with F1s produced at Shivamoga were grown side by side adopting the above procedure. The observations recorded for 37 characters (22 essential +15 optional) revealed that the hybrid. Another set of twelve candidate hybrid namely 22CORCII01, 22CORCII02, 22CO RII03, 22CORCII04, 22CORCII05, 22CORCII06, 22CORCII07, 22COSUII08, 2122 SH2, 2122 SH3, 2122 SH4, 2122 SH5, and three typical variety namely 2122 SI1, 2122 SI6, 2122 SI7 formed a trial for second year of testing. These varieties and hybrids were tested adopting the procedure furnished above. They are uniform in respect of morphological traits recorded during the season.

The performance of DUS trials were monitored on 27.1.2023 by Dr. D. K. Agarwal, Registrar General PPVFRA, Dr. K.Rathinavel, Nodal Officer, Dr. A.Manivannan, Dr. K.Raja, Dr. Chandrasekar, Scientist and Dr.V.Bakialakshmi, Scientist(s) of ICAR-CICR Regional Station, Coimbatore.

CCS HISAR AGRICULTURAL UNIVERSITY, HISAR

A set of 19 candidate hybrids along with 15 F1 SMGs and 18 reference varieties were received from PPV & FRA, New Delhi on 20th April, 2022. All entries along with references and checks (RCH 773, RCH 926 and H-1098i) were sown on 8th May, 2022 in randomized block design in two replications as per the standard recommended DUS test guidelines. Hypocotyl colour was recorded after seven days of sowing. The crop started attaining flowering in the month of June-July. All the data (Quantitative and qualitative) were recorded at appropriate growth stage of crop.

Out of 34 entries (19 candidate hybrids and 15 F1 SMGs), 21 had hypocotyl pigmentation. It was present in all the 18 reference varieties and three local checks. All the entries had palmate (normal) leaves.

Among candidate hybrids, local checks and reference varieties, only seven entries (L-604, LAXMI, H-1157, SUMANGALA, F-2228, F-1861, ACP-71) were semi-spreading type and rest were spreading types.

Only two candidate hybrids and their F1 SMGs (2876/2117/H, 2876/2117/H-F1, 2873/2494/H, 2873/2494/H-F1) had yellow petal colour, whereas among 18 reference varieties, six [KANCHNA, L-604, PKV-RAJAT, LAXMI, H-1157, BADNAWAR-1 (H)] were having yellow petal colour namely. Rest of the entries had cream petal colour.

Only one candidate hybrid *i.e.* 2873/2477/H had yellow pollen colour. Among 18 reference varieties, two varieties (LAXMI and MCU-10) had yellow pollen colour and rest were having cream pollen colour.

Out of 19 candidate hybrids and their F1 SMGs, six entries (2870/2199/H, 2870/2199/H-F1, 2876/2192/H, 2876/2192/H-F1, 2873/2463/H, 2873/2463/H-F1) had round bolls. Among the reference varieties and local checks, only two entries namely JCC-1 and LAXMI were having round shaped bolls, whereas F-1861 had elliptic bolls.

Among 19 candidate hybrids, their F1 SMGs and three local checks, 13 entries (2870/2199/H, 2870/2199/H-F1, 2870/2062/H, 2870/2039/H, 2870/2039/H-F1, 2876/2192/H-F1, 2873/2463/H-F1, 2874/2279/H, 2874/2279/H-F1, 2876/2125/H-F1, 2871/2037/H, 2871/2037/H-F1, 22 CORCII04) were having long fibre length, whereas among the reference varieties, only MCU-5 and MCU-10 had long fibre length.

PAU REGIONAL STATION, BHATINDA

Cotton DUS testing centre, PAU, Regional Research Station, Bathinda received 4 typical entries and 15 candidate hybrids along with their F_1 SMGs from PPV & FRA, New Delhi. Field was prepared after pre-sowing irrigation followed by ploughing and planking, all the entries were sowing on 17-05-2023 along with references and zonal/local checks in randomized block design as per the standard DUS test guidelines for tetraploid cotton crop. Germination was recorded on 27-05-2022 and all the entries have minimum

standard germination except one candidate hybrids i.e. 2876/2192/H where the germination was only 50%. Data for different DUS characteristics has been recorded as per DUS testing guidelines. In most of entries, squaring and flowering was started in the month of July. DUS Data on flowers and bolls were recorded at time of peak flowering and boll development in the month of August and September. All other quantitative and qualitative traits were also recorded in the appropriate stage of crop growth as per DUS test guidelines for tetraploid cotton crop. Total of 22 reference varieties including local/zonal check (F 2228) and 6 hybrids including popular hybrids (RCH 776 BGII & ACH 177 BGII) of the region were also included this DUS testing experiment as reference entries.

All the data were recorded in the proper format provided by the authority and send to PPV & FRA, New Delhi. As per PAU recommendations, 105 kg N and 30 kg P_2O_5 were applied in on per ha basis. Four insecticide sprays against sucking pest (whitefly, jassid, trip etc.) and 2 against pink bollworm were applied to experimental cotton crop. Crop was given two seed cotton pickings were done in last week of October and 2nd week of November and cotton stack harvesting/crop termination was done on 25-11-2023.

Among the typical entries, two entries i.e. 22CORCII01 and 22COJEII04 has flower petal and pollen colour yellow. Entries, viz., 22CORCII02 and 22CORCII03 have flower petal and pollen colour cream, whereas boll shape was ovate among all the typical entries.

Out of 15 candidate hybrids, seven candidate hybrids (2871/2034H, 2871/2117H, 2871/2037H, 2873/2477H, 2870/2039H, 2871/2131H, 2874/2279H) and their F_1 SMG has flower petal and pollen colour yellow and; other candidate hybrids and their F_1 SMG has flower petal and pollen colour cream. There was variation between candidate hybrid **2876/2125/H** then its F_1 SMG; candidate hybrid 2876/2125/H has green colour leaf throughout crop growth period but its F_1 SMG has green colour leaf at flower stage and turned to light green colour at late boll development stage. Moreover, candidate hybrid is semi-spreading and F1 SMG was spreading in nature. Duration of candidate hybrids 2876/2125/H was lesser than its F_1 SMG. Online monitoring was done on 14-10-2022, and following points points observed/discussed during monitoring:

- Physical monitoring may be planned with AICRP on cotton monitoring in north zone.

- Trial maintenance, data recording and expression of morphological characters are good in all the plots
- Candidate hybrids are morphologically similar with their hybrid generated at Shimoga
- Some of the off types are looking similar in all the plots and those should be considered as admixture and ignored in the evaluation.

Following are the list of reference varieties and varieties under maintenance:

Reference varieties	JCC 1, F 1861, MCU 10, RS 810, H 1157, Laxmi, Pratima J 34, ACP 71, NH 452, Sumangala, NH 545, Kanchana, F 2228 (ZC), JK 4, Badnawar, LH 2298, Abadhita, GSHV 112
Maintenance breeding	LH 2298, F 2228, H 1157, Sumangala, J 34, Pratima NH 452, NH 545, GSHV112, MCU 5, JK 4, Badnawar, Abadhita, JCC 1, CU 10, Laxmi, ACP 71, Kanchana

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Brief about conduct of the Trial :

Items	**Information to be recorded**
Date of planting	18-19 July 2022
Details of fertilizers given NPK	40:20:20 kg/acre
Date of DUS Monitoring	28-01-2023
Date of Harvesting	06-02-2023 to 12-02-2023
List of Zonal checks used in trial List of Regional checks used in trial	Jadoo, MRC-7373, Suraj Bt, Sahana, Neelam, Supercot, ARBH-813

Details of DUS testing of candidate varieties in 2022-23:

Crop	New		Date of monitoring
	1st year entries	2nd year entries	
Cotton	9	63	28-01-2023

3.1.3. DUS TESTING CENTRES FOR JUTE:

ICAR-CENTRAL RESEARCH INSTITUTE FOR JUTE AND ALLIED FIBERS, BARRACKPORE & CSRSJAF, BUD BUD BURDWAN, WB

Three varieties each of two species of *Corchorus* i.e. *olitorius* (, J2122-5 and J2122-6) and *capsularis* (J2122-1, J2122-3 and J2122-4) were tested in DUS trial during 2022-23. Sowing was done on 15.03.2022 at ICAR-

CRIJAF, Barrackpore (Nodal centre) and on 25.03.2022 at ICAR-CSRSJAF, Bud Bud, West Bengal (Co-nodal centre). During entire crop growth period 17 DUS characteristics were recorded following DUS test guideline. In case of *capsularis* varieties all three (J2122-1, J2122-3 and J2122-4) were uniform in expressions of DUS characteristics. Stem colour was green (RHS:144 B), leaf shape was ovate-lanceolate and time of flowering was late (>100days) in all *capsularis* varieties. Pod pigmentation was green, seed size was large(3.1-3.5 g) and seed colour was chocolate brown in all these varieties. However, these three varieties were distinct from each other on the basis of fibre strength at both the centres.

In case of *olitorius* varieties, stem colour was green (RHS:144 B) and leaf shape was ovate-lanceolate in all varieties. Plant height was medium (301-400cm) in J2122-2, and tall (>400cm) in both J2122-5 and J2122-6. Fibre fineness (characteristic-9) was fine (2.8-3.2 tex) in J2122-2 and very fine (<2.8tex) in both J2122-5 and J2122-6 whereas fibre strength was fairlygood (23.5-26.4g/tex)in J2122-6 and fairlyaverage (20.5-23.4g/tex) in both J2122-2 and J2122-5 in both the centres. However, all these varieties were distinct from each other with respect to seed color (characteristic-17) (J2122-2: black; J2122-5: black with red ridge and apex; J2122-6: steel grey).

During 2022-23, maintenance breeding was done in *Corchorus olitorius*(30 varieties) and *Corchorus capsularis*(21 varieties) and observations on DUS characteristics were recorded.

Particulars	**Information**
Date of receipt of seeds+ list	14.02.2022
Date of planting	15.03.2022
No of candidate varieties	6
Maintenance Breeding	*Corchorus olitorius* (30 varieties) and *Corchorus capsularis* (21 varieties)
Details of fertilizers given (dose/per acre wise)	N:P:K @24.3:12.14:12.14 kg
Details of pesticides/fungicides/others applied	Carbendazim for seed treatment and spraying in stem rot disease, Profenofos for caterpillars, Spiromesifen for yellow mite
Date of Harvesting	18.07.22 (for fibre), 5.12.22 (seed)
List of Zonal checks used in trial List of Regional checks used in trial	JRO 204, JRC 517

DUS TESTING CENTRES FOR MAIZE:

ICAR-INDIAN INSTITUTE OF MAIZE RESEARCH (ICAR-IIMR), NEW DELHI

Details of DUS testing of candidate varieties in 2022-23:

Crop [Maize]	**New**		**Total**	**Date of Monitoring**
	1st-year	**2nd-year**		
Hybrid	15	29 [19 (candidate) + 10 hybrids + F_1 SMG	44	18.09.2022
Inbred	-	6	6	18.09.2022
Total	15	35	50	

The sowing of the DUS trial was conducted on 14th July 2022. The DUS testing was carried out successfully on a total of 50 entries which include 44 hybrids, and 6 inbred lines. The candidate hybrids of 2nd-season testing were tested along with their parental crosses (F_1 hybrid SMG). The candidate hybrids of 2nd season testing were sown side-by-side along with their parental crosses for easy comparison. The six inbred lines include only of 2nd season of DUS testing. The DUS testing trial also includes 26 references comprising 20 hybrids and six inbred lines

The overall plant stand, growth and expression of the DUS testing trial were excellent in all three replications. However, the plant stands of a few candidate entries *viz*., 2122 H7 (45%), 2122 H10 (74%), and 2122 H11 (62%) were < 80% and the same was reported to PPV&FRA after sowing. Data on various DUS descriptors have been recorded for all the entries as per the DUS guidelines.

Except for a few entries, the entries in 2nd season of testing showed uniformity, the details of discrepancies/ mismatches observed for one or two traits in a few entries were mentioned in the monitoring report and the same was submitted to PPVFRA. For example, the candidate inbred 22MABM703, candidate hybrids 2122H7 and 2122H11 showed variability in tassel structure, whereas candidate hybrids 2122H16 and 22KMH6 showed variation in plant height trait. In the candidate hybrid 2122H16, around 30 % of plants were short-height (exhibiting an inbred line plant type) in the plot with delayed anthesis and prior silking, whereas in candidate entry 22KMH6, around 20 % of plants were short-height in the plot across all 3 replications. The candidate hybrids 2122H2 and 2122H8 showed variability in both tassel structure and plant height.

Except for a few entries, the entries in 2nd season of testing showed stability, the details of differences /mismatches observed between candidate entry and its parental cross (F_1 SMG) for one or two traits in a few entries were recorded and mentioned in the monitoring report and the same was submitted to PPV&FRA. For example, two candidate hybrids in the 2nd season *viz*., 2122H2 and 2122H8 and their parental cross seeds produced by PPVFRA at Shivamoga, Karnataka showed variation in tassel characters. In the candidate, hybrid 2122H2, both narrow and wide tassel angles with straight and curved tassel attitudes, respectively were observed whereas the parental cross of the hybrid 2122H2 (F_1SMG) was uniform in tassel structure with a straight tassel with narrow angles, which is similar to that of observations recorded in the first year of testing in the candidate hybrid. In another candidate hybrid, 2122H8, the days to 50% anthesis and days to 50% silking were delayed by approximately 4-5 days in comparison to its parental cross (F_1SMG). In addition, the heights of the parental cross (F_1SMG) were shorter than the candidate entry 2122H8.

Except in a few entries for one or two traits, the observations recorded in the parental crosses of candidate hybrids (F_1SMG) on DUS descriptors matched with observations recorded on various DUS descriptors in the respective candidate hybrids. The DUS testing trial has been conducted and managed as per the DUS

Guidelines. Except few entries for one or two DUS descriptors (leaf angle, leaf attitude, tassel angle, tassel attitude, anthocyanin colouration of glume, anthocyanin colouration of glume excluding base, silk pigmentation, anther colour, etc.), most of the candidate entries (hybrids and inbred lines) in second-season matched with observations recorded on various DUS descriptors in the first-year. Similarly, except few entries for one or two DUS descriptors (2122H2 and 2122H8 with respect to tassel characters and plant height), the observations recorded on candidate entries in the second season matched with their parental crosses (F_1SMG) produced by PPV&FRA at Shivamogga, Karnataka.

3.1.4. SRTC, PROF. JAYASHANKAR TELANGANA STATE AGRICULTURAL UNIVERSITY (PJTSAU), HYDERABAD

DUS evaluation trials in maize have been taken up at Seed Research & Technology Centre, Rajendranagar, PJTSAU during 2022-23. DUS testing was done as per the DUS test guidelines for all the entries received *ie*., 34 hybrids, 10 parental crosses and 6 typical comprising a total of 50 candidate entries besides 21 reference hybrids and 6 reference inbreds. The second year hybrids received along with the parental crosses produced by PPV&FRA at Shivamogga, Karnataka were sown along with their parental crosses side-by-side for comparative DUS testing. Growth and expression of all the entries was satisfactory and data was recorded precisely and accurately.

Brief about trial data:

Items	Information to be recorded
Date of receipt of seeds+ list	11.7.2022
Date of planting	Hybrids: 28.7.2022 Inbreds: 29.7.2022
Candidate varieties	1st year entries- 15 entries 2nd year entries- 35 entries
Details of fertilizers given (dose/per acre wise)	Urea 175 kg/acre, SSP 150 kg/acre, MOP 35 kg/acre
Date of DUS Monitoring	6.10.2022
Date of Harvesting	15.11.2022
List of Zonal/Regional check used in trial	Zonal check: DHM 117 Local check: DHM 121

Sowing of all the hybrids was taken up on 28.7.2022 after receipt of sufficient rainfall while that of typical entries and inbred references was completed on 29.7.2022. The seedling stage of the crop was exposed to continuous heavy rains during August 2022 due to which initial plant stand was affected in some entries. Sufficient rainfall was received during the entire crop season and irrigations were given whenever necessary. Timely plant protection and weed control measures were taken up to raise a healthy crop. Expression of all DUS traits was good in all the entries and data was recorded timely as per the DUS guidelines.

Most of the entries exhibited uniform and clear expression of traits. Within the entry variation for some traits was observed in 2122 H2 (2nd year candidate hybrid), 2122 H8 (2nd year candidate hybrid), 2122 H11 (2nd year candidate hybrid), 2122 H16 (2nd year candidate hybrid), 22 KMH 6 (1st year candidate hybrid) and 22 MABM 703 (2nd year typical entry).

- The characters of 2122 H2 (2nd year candidate hybrid) varied from its SMG hybrid for plant height, tassel characters and anther colour.

- The 2nd tear candidate hybrid 2122 H8 showed variation from its SMG hybrid for plant height.
- The entry 2122 H11 (2nd year candidate hybrid) showed within the entry variation for the trait tassel attitude.
- DUS testing trials of hybrids and inbred lines were conducted as per the DUS test guidelines. DUS evaluation of 21 hybrids references and 6 inbred references was also taken up along with 50 candidate entries.

3.1.5. ICAR-VIVEKANANDA PARVATIYA KRISHI ANUSANDHAN SANSTHAN, ALMORA

ICAR-VPKAS, Almora is mandated for 3 crops: Rajma/Kidney bean, Maize and Soybean. Following is the brief about the trial:

Items	Information
Date of receipt of seeds+ list	Kidney bean-4 June 2022 2879/3769 + 3 references (PDR 14, IPR 98-5 & VL Rajma 63) Soybean-13 June 2022 22SB1, 22SB2, 22SB3, 22SB4, 22SB5, 22SB6, 22SB7 & 22SB8 +2 references (VL Soya 63 and VL Soya 89)
Date of planting	Kidney bean-28 June 2022 Soybean-20 June 2022
Details of fertilizers given (dose/per acre wise)	Kidney bean-100:80:40 Soybean-20:80:20
Details of pesticides/fungicides/others applied	Kidney bean- Application of Indoxacarb for blister beetle during pod formation stage Soybean-Imidachlorprid for aphids during flowering stage
Issues faced in trial	**Kidney bean-** Blister beetle and pod borer damage **Soybean**- aphid infestation and hilum bleeding
Observation	**Kidney bean**: Trial code 2879/3769-Black seeded, dark purple pods at maturity **Soybean:** Except Trial code 22SB 1& 22SB2, all candidate varieties were uniform
Date of Harvesting	Kidney bean- Picking started from 08/09/2022 up to 20/10/2022 Soybean was harvested during 12-25 October 2022
List of Zonal checks used in trial List of Regional checks used in trial	**Kidney bean-** 3 references (PDR 14, IPR 98-5 & VL Rajma 63) **Soybean**-2 references (VL Soya 63 and VL Soya 89)



Applications filed with PPV&FRA for plant variety protection by ICAR-VPKAS:

Crops	No of Var notified by the center Since 1966	No of Var notified by the center Since 1999	No of applications filed			Certificates issued
			ENV	New	VCK	
Finger millet	16	11	-	-	-	-
Barnyard millet	06	03	-	-	-	-
Grain amaranth	02	02	-	-	-	-
Buck wheat	01	-	-	-	-	-
Rice bean	01	01	-	-	-	-
Wheat	20	14	-	-	11	11
Barley	06	05	-	-	03	03
Rice	27	20	-	-	06	06
Pulses	25	19	-	-	04	04
Oilseeds	15	11	-	-	03	03
Maize	36	28	-	09	14	23
Vegetables	25	15	-	-	06	06

3.1.6. DUS TESTING CENTRES FOR BREAD WHEAT, DURUM AND OTHER TRITICUM SP.:

ICAR-INDIAN INSTITUTE OF WHEAT AND BARLEY RESEARCH, KARNAL, HARYANA

In crop season 2022-23, four DUS trials were conducted in wheat, in which 63 coded entries (49 entries in bread wheat, 3 in durum and 11 in dicoccum) along with national check (DBW 187, HD 2967 in bread wheat, HI8737 and MACS 3949 in durum wheat and DDK1029 in dicoccum wheat) were tested as per the DUS test guidelines of wheat published by PPV&FRA.

Details of varieties in DUS trial at IIWBR, Karnal

Crops	**2nd year entries**	**1st year entries**
Bread wheat	**11 entries** (code: 21 N1, 21 N2, 21 N3, 21 N4, 21 N5, 21 N6, 21 N7, 21 N8, 21 N9, 21 N10, 21 N11)	22 BW 1, 22 BW 2, 22 BW 3, 22 BW 4, 22 BW 5, 22 BW 6, 22 BW 7, 22 BW 8, 22 BW 9, 22 BW 10, 22 BW 11, 22 BW 12, 22 BW 13, 22 BW 14, 22 BW 15, 22 BW 16, 22 BW 17, 22 BW 18, 22 BW 19, 22 BW 20, 22 BW 21, 22 BW 22, 22 BW 23, 22 BW 24, 22 BW 25, 22 BW 26, 22 BW 27, 22 BW 28, 22 BW 29, 22 BW 30, 22 BRHI 4407, 22 BRHI 0006, 22 BRHI 3405,

		22 BRHI 3304, 22 BRDB 1003, 22 BRWH 2402, 22 BRDP 5001, 2889/2139, DBW 187, HD 2967
Dicoccum wheat		22 DiW 1, 22 DiW 2, 22 DiW 3, 22 DiW 4, 22 DiW 5, 22 DiW 6, 22 DiW 7, 22 DiW 8, 22 DiW 9, 22 DiW 10, 22 DiW 11, DDK 1029
Durum		22 DuW 1, 22 DuW 2, 22 DuW 3, HI 8737, MACS 3949

Maintenance of reference and example varieties of wheat

In wheat, one kg seed of 133 example varieties beside 55 reference collection of released varieties are being maintained at IIWBR, Karnal during 2022-23.

Monitoring of DUS wheat trial

The monitoring of DUS Wheat and Barley trials was carried out under the Chairmanship of Dr. Rajbir Yadav , Principal Scientist, IARI, New Delhi along with Dr Arun Gupta, Nodal officer (DUS Wheat), Dr. Charan Singh (Nodal officer DUS Barley) on dated 28.03.2023.

Registration of wheat varieties

Two wheat varieties namely DBW93 and MP3382 were registered under extant category by the PPV&FRA, New Delhi vide registration number REG/2016/421 and REG/2016/1387, respectively.

ICAR-INSTITUTE OF AGRICULTURAL RESEARCH INSTITUTE, REGIONAL STATION, INDORE, MADHYA PRADESH

In crop season 2022-23, 38 Typical Varieties including reference Varieties for 1st year and 11 Typical Varieties including reference Varieties for 2nd year DUS testing are being tested under New/VCK Category in DUS Testing.

Monitoring of DUS wheat trial

Monitoring was carried out by a committee duly constituted by PPV&FRA, New Delhi under the Chairmanship of Dr. R. S. Shukla, JNKVV and other member from PPVFRA itself Shri Dipal Roy Chaudhary, Joint Registrar, PPVFRA, Delhi and Dr. D.K. Verma, PI at ICAR-IARI, RS Indore. The critical comments here as mentioned below;

a) Reference variety maintenance trial should be grouped as per zone
b) Monitoring should have been in post flowering stage
c) In one variety, there are mixtures of barley and aestivum. If these are FVs, care must be taken at forwarding centres to identify species were and mixture.

Varieties under Maintenance/Characterization: 150 Reference

collection of wheat varieties are being maintained at Referral Library of ICAR-IARI, Regional Station, Indore

Crops	Name or No of varieties under maintenance breeding in 2022-23
Wheat	Released varieties aestivum - 100 Released varieties durum – 45 Released varieties dicoccum - 05
Total	**150**

UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD, KARNATAKA

In crop season 2022-23, 3 Durum and 11 Dicoccum candidate varieties for 1st year DUS testing are being tested under New Category in DUS Testing and total number of 64 example varieties are maintained at DUS testing centre. Majority of the dicoccum wheat cultivating farmers and this region have maintained local

types and cultivating for consumption purpose. In this regard, 15 Farmers' Varieties including *T. dicoccum* and *T. aestivum* species collected from three different districts and sown during 2020-21. Mixtures were roughed out, single ear head progenies were made to purify those farmer's varieties. During rabi 2021-22, these purified farmer's varieties were evaluated and multiplied as per DUS guidelines involving 45 characters representing growth habit characters, ear head characters, grain characters, etc and distinguishing photographs of farmer variety along with check varieties were documented. Further more, these farmer's varieties were characterized for grain micronutrient content.

These 15 purified, micronutrient rich farmers' varieties of Triticum dicoccum species were submitted for registration under PPV and FRA, New Delhi during 2022-23 and received acknowledgement for the submission.

DUS monitoring team visited on 10.03.2023 the DUS durum plot at near maturity stage and certified that, 'The experiment was conducted properly and systematically'.

3.1.7. DUS TESTING CENTRES FOR SORGHUM:

ICAR- INDIAN INSTITUTE OF MILLETS RESEARCH, RAJENDRANAGAR, HYDERABAD, TELANGANA

During the reporting period 2022-23, total 166 Sorghum varieties (including parental lines- male sterile/maintainer/restorer, hybrids and OPVs) maintained at DUS testing centre.

List of varieties under DUS test

Crops- Sorghum	New		FV
	1st year entries	2nd year entries	
Kharif 2022	2	3	3
Rabi 2022-23	-	-	-

Kharif 2022 and *rabi* 2022-23:

Examining DUS traits in candidate varieties and reference varieties of sorghum as per PPVFRA DUS test guidelines. Two candidate varieties were tested during kharif season under 1st year testing and three candidate varieties were tested under 2nd year testing along with national checks. Due to continuous and excess rains, the expression in all the candidate varieties got affected. Data were enumerated as per revised DUS test guidelines and submitted to PPVFRA. All the kharif adapted example varieties were planted in a replicated trial for characterization. During *rabi* 2022-23 maintenance breeding/characterization was undertaken for 166 reference varieties including parental lines of hybrids and open-pollinated varieties under enforced selfing/controlled pollination.

MAHATMA PHULE KRISHI VIDYAPEETH, RAHURI, AHMEDNAGAR, MAHARASHTRA

To conduct DUS testing of Sorghum varieties as per DUS Test guidelines during *Kharif* 2022-23, 05 candidate varieties was tested along with reference varieties for 1st year and 03 candidate varieties for 2nd year in New category. In *Kharif* 2022, total 53 Sorghum reference varieties and *rabi* 2022-23, total 114 Sorghum reference varieties was tested at DUS centre.

DUS centre has maintained total 114 sorghum reference varieties for DUS testing purpose.

3.1.8. DUS TESTING CENTRES FOR PEARL MILLET

AGRICULTURE RESEARCH STATION, MANDORE, JODHPUR

During 2022-23, total 56 reference varieties (22 hybrids and 34 parental lines) of pearl millet has maintained at DUS testing centre for testing of candidate varieties as per DUS testing guidelines, PPV&FRA.

DUS testing of candidate varieties in 2022-23, 04 candidate varieties was tested for 1st year and 39 candidate varieties for 2nd year along with reference varieties in New category

BAJRA RESEARCH SCHEME, COLLAGE OF AGRICULTURE, DHULE, MAHARASHTRA

To conduct DUS testing of Pearl Millet varieties as per DUS Test guidelines during *Kharif* 2023-24, In new category 04 candidate hybrids for first year and and 32 hybrids (14 candidate hybrids + 14 F1 hybrids SMG + 4 hybrid variety) and 07 typical varieties for second year along with reference varieties were tested at DUS center.

The stage wise photographs and recorded observation DUS datasheet and is submitted to the Nodal center: ARS, Mandor, Jodhapur.

3.1.9. DUS TESTING CENTRES FOR FINGER MILLET, FOXTAIL MILLET, BARNYARD MILLET, PROSO MILLET, LITTLE MILLET, KODO MILLET

AICRIP ON SMALL MILLETS, UNIVERSITY OF AGRICULTURAL SCIENCES, GANDHI KRISHI VIGYAN KENDRA, BANGALORE

During 2022-23, DUS center has been maintained following reference varieties in millet crops:

Crops	No. of varieties under maintenance breeding
Finger millet	77
Foxtail millet	28
Kodo millet	26
Little millet	17
Proso millet	12
Barnyard millet	12

To conduct DUS testing of small millet varieties as per DUS Test guidelines during FY 2022-23, 09 finger millet and 02 foxtail millet candidate varieties along with reference varieties in 1st year was tested at DUS centre in new category.

The testing entries in finger millet, foxtail millet and Kodo millet were characterized in replicated trails for DUS traits along with reference varietal sets as per the DUS guidelines prescribed for each crop by PPVFRA.

Salient Achievements

- ✓ In finger millet test entries 22KhRaF4 and 22KhRaF5 were not germinated
- ✓ 22Kh Ragi 1 (53 days), 22Kh Ragi 2 (55 days), 22KhRaF1 (58 days), 22KhRaF7 (55 days), and 22KhRaF6 (60 days) were early flowering entries
- ✓ 22KhRaF2 was late flowering entry.
- ✓ Two foxtail millet entries were not germinated.
- ✓ All the test entries in each crop were evaluated along with references sets as per the DUS guidelines prescribed for each crop by PPV & FRA.

Barnyard, Proso, Kodo and Little Millet

CENTRE OF EXCELLENCE IN SMALL MILLETS, TAMIL NADU AGRICULTURAL UNIVERSITY, ATHIYANDAL, TAMIL NADU

During the period 2022-23, DUS testing centre at TNAU, Athiyandal following reference varieties maintained crop-wise. DUS characterization recorded and data base completed for reference varieties of foxtail millet, kodo millet, little millet, barnyard millet and proso millet.

S. No.	Crops	No. of reference varieties
1.	Finger millet	77
2.	Foxtail millet	28
3.	Kodo millet	26
4.	Little millet	17
5.	Barnyard millet	12
6.	Proso millet	12

DUS testing of Finger Millet and Foxtail Millet

- ✓ The new first year entries of finger millet, two test entry viz., 22kRagi 1 and 22kRagi 2 and seven number in FVs viz., FV22KhRaF1, FV22KhRaF2, FV22KhRaF3, FV22 KhRaF4, FV22KhRaF5, FV22KhRaF6 and FV22KhRaF7 were evaluated during kharif, 2022 at CEM, Athiyandal. DUS characterization has been done for finger millet and they 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. There is no morphological difference between the test entries as per DUS traits.
- ✓ Among the FVs entries FV22KhRaF3, FV22KhRaF4 and FV22KhRaF5 were not germinated.
- ✓ Among the seven number of second year test entries in finger millet, only one entry 2883/2074 was germinated. 2883/2074 (66 days) medium flowering type, light green in glume colour and copper brown in seed colour.
- ✓ Two foxtail millet first year new entries were evaluated during kharif, 2022 at CEM, Athiyandal. There is no morphological difference observed between both the entries. Also 22KhFF2 (46 days) and 22KhFF1 (49 days) were medium flowering.
- ✓ DUS test entries of finger millet and foxtail millet DUS characterization recorded and data base completed.

3.1.10. DUS TESTING CENTRES FOR CHICKPEA

ICAR- INDIAN INSTITUTE OF PULSES RESEARCH, KANPUR, UTTAR PRADESH

During the year 2022-23, DUS testing centre has maintained 185 reference varieties of chickpea.

Candidate varieties tested for 1st year: 06 New varieties and one farmer's variety for 2nd year.
Name of varieties: First year testing

S. No.	Candidate Variety (New)		Candidate Variety (Farmer)
1.	Desi 22 1	1.	2881/4278

2.	Desi 22 2		
3.	Desi 22 3		
4.	Desi 22 4		
5.	Desi 22 5		
6.	Desi 22 6		

On the basis of 20 characters, data were recorded on characteristics as given in National guidelines of DUS testing for chickpea.

MAHATMA PHULE KRISHI VIDYAPEETH, RAHURI, AHMEDNAGAR, MAHARASHTRA

The DUS testing of 06 New and 02 farmers varieties along with 20 reference varieties of chickpea was tested during Rabi 2022-23.

Salient Achievements:

- DUS testing of 28 chickpea varieties in which 20 are maintenance varieties, 02 Farmers and 06 typical varieties respectively.
- Published two popular articles on "PPV & FRA Act and Procedure of DUS Testing of Crop" in leading agricultural magazine SAKAL AGROWAN on 12 Oct. 2022 and 13 Oct. 2022.
- Dr. D.K. Agarwal Registrar-General PPV & FRA authority visited and take review of DUS centre on 26.11.2022 at Pulses Improvement Project MPKV Rahuri Chickpea.

3.1.11. DUS TESTING CENTRES FOR PIGEONPEA

ICAR- INDIAN INSTITUTE OF PULSES RESEARCH, KANPUR, UTTAR PRADESH

During Kharif 2022-23, a set of 14 farmers' varieties (six in second year DUS Testing & eight in first year DUS Testing) were sown on 7th July 2022 for DUS characterization along with the reference varieties at ICAR-IIPR, Kanpur using RCBD design with four replications. Each entry was planted in six rows of 5 meter row length following 75x25 cm of row-to-row and plant to plant spacing. Observations were recorded on 21 DUS traits as per the National Guidelines of DUS testing for pigeonpea. Results of the above mentioned candidate varieties were sent in excel format on June 2022. Besides this 88 reference varieties were maintained. A detailed list of candidate varieties and reference variety maintained under the DUS test pigeonpea project is given below.

Farmers Varieties under DUS Test during Kharif 2022-23		
S. No.	First year testing Farmer Varieties	Second year testing farmers varieties
1	22 Kh A1	2877/2679
2	22 Kh A2	2886/2139
3	22 Kh Af1	2879/3143

4	22 Kh Af2	2881/4249	
5	22 Kh Af3	2881/4250	
6	22 Kh Af4	2881/4277	
7	22 Kh Af5		
8	22 Kh Af6		

Reference Varieties Under Maintenance (2022-23)

1.	Early Duration Reference varieties: 25	ICP 84031, AL 15, GT 100, ICPL 151, ICPL 87, PUSA ARHAR-16, PUSA 855, PUSA 2001, PUSA84, PUSA 33, PUSA 991, PUSA 992, PARAS, PA 291, AL 2091, AL 1992, AL 201, MANAK, GT 101, CORG 9701, TAT 10, VLA 1, PAU 881, UPAS 120, IPA 15-06
2.	Medium Duration Reference varieties: 40	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, TJT 501, C11, ICPL 332, TTV 7, CO 6, VBN 3, PRG 176, AASHA, MARUTHI, BSMR 853, BSMR 736, BDN 2, GNP 2, AGT-2
3.	Long Duration Reference varieties: 27	IPA 15-2, IPA 206, IPA 203, NDA 1, BAHAR, NDA 2, MAL 13, PUSA 9, AMAR, MA 6, AZAD, T7, DA11, MA 3, IPA 8F, IPA 9 F, IPA 15F, IPA 16F, KPL 43, KPL 44, IPA 2012-1, KUDRAT-3, Errama Chachakamti, DHOLI, RAJENDRA ARHAR-1,

Pigeon Pea and Safflower

DR. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA, MAHARASHTRA

During the period 2022-23, eight typical, farmer's varieties of pigeonpea received for testing were characterized as per guideline and 101 reference varieties were grown under maintenance program. Six typical varieties of safflower received for 1st year DUS Testing (Rabi 2022-23) were characterized as per guideline and 23 reference varieties were grown under maintenance program.

The center has participated as a member of Technical Advisory committee for the revision of "DUS Test Guidelines of Pigeonpea (*Cajanus cajan* L.)". The revised draft of DUS Test guideline is submitted by the center for further needful action at your end.

During the reporting period 04 farmers varieties of Soybean (1) and Sorghum (3) were completed in Kharif 2022-23 and applications are forwarded for registration to PPV & FR Authority for further necessary action.

3.1.12. DUS TESTING CENTRES FOR LENTIL, MUNG BEAN, URD BEAN, FIELD PEA (PULSE TYPE), KIDNEY BEAN

ICAR- INDIAN INSTITUTE OF PULSES RESEARCH, KANPUR, UTTAR PRADESH

During Kharif season (2022) the 70 varieties of Mungbean and 41 varieties Urdbean were maintained. In Rabi season (2022-23) 61 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 (2022) 1 new farmer's variety of urdbean was received while 4 farmers' varieties were tested in the second year along with reference varieties and data were recorded as per DUS guideline. Likewise, 4 farmers' varieties of mungbean and 10 farmers' varieties and 3 new varieties of urdbean (13 varieties) were tested for the first year along with reference varieties and data were recorded as per DUS guidelines. In urdbean, the farmers' varieties 22khuf-2, 22khu-1, 22khu-4, 22khu-5, 22khu-8, 22khu-9 were found susceptible to MYMV. The candidate variety 22khmf-4 in mungbean was found having resemblance with urdbean type plant.

In Rabi 2022-23 4 farmers' varieties of fieldpea were grown alongwith the reference varieties and data were recorded as per DUS guideline. In rajmash, 4 farmers' varieties were tested in second year alongwith the reference varieties & data were recorded as per DUS guideline.

In lentil, 3 farmers' varieties were tested in the first year alongwith reference varieties and data were recorded as per DUS guideline.

In rabi 2022-23, the farmer's variety in Rajmash 2887/2076 was observed to be of spreading type.

Varieties under maintenance breeding for the year 2022-23

S.No.	Crop Species	Name of the reference varieties
1.	Green gram [*Vigna radiata (L.) Wilczek*]	70

2.	Black gram [*Vigna mungo (L.) Hepper*]	41
3.	Lentil (*Lens culinaris*)	39
4.	Pea (*Pisum sativum*)	61
5.	Rajmash (*phaseolus vulgaris*)	14

Black Gram

NATIONAL PULSES RESEARCH CENTRE, TAMIL NADU AGRICULTURAL UNIVERSITY, VAMBAN, TAMIL NADU

National Pulses Research Centre, Vamban, Pudukkottai Distirct, Tamil Nadu during the reporting period, 2022-23, 13 test entries including 03 typical varieties viz., 22khU 1, 22khU 2 and 22khU 3 and 10 Farmer varieties viz., 22khUF 1, 22khUF 2, 22khUF 3, 22khUF 4, 22khUF 5, 22khUF 6, 22khUF 7, 22khUF 8, 22khUF 9, 22khUF 10 received from IIPR, Kanpur during the year 2022 All the 13 varieties were raised along with the reference varieties maintained at DUS center.

All the plant and seed morphological characteristics (21) were recorded as per the DUS testing guidelines and observed data were documented. Based on the characters recorded all the typical, farmer and reference varieties were recorded the anthocyanin pigmentation on hypocotyl region. Both the typical and farmer varieties comes under early duration group. The data revealed that all the test entries (13 nos) and reference varieties (nos) were erect on nature except the VBN1 which is semi erect with cuneate leaflet shape. In variably all varieties tested were recorded determinate plant habits. The reference variety Sekhar 2 observed with green colour seeds whereas for other entries it was black to brown. All typical, farmers and reference varieties have seed lusture are dull and drum seed shape.

3.1.14 DUS TESTING CENTRES FOR OKRA, BRINJAL, TOMATO, PEA (VEGETABLE), KIDNEY BEAN, BITTER GOURD, BOTTLE GOURD, CUCUMBER, PUMPKIN

ICAR- INDIAN INSTITUTE OF VEGETABLE RESEARCH, VARANASI, UTTAR PRADESH

Tomato:

During reporting period 2022-23, total 92 reference varieties of tomato has been maintained and seed pockets of 27 tomato entries i.e, 13 (8 Candidate + 5 SMG) of 2nd year and 14of 1st year (6 Hybrid + 4 FV, Typical + 4 Typical) were received for DUS testing at ICAR-IIVR, Varanasi.

Among the 27 entries received, there was no germination in 22 TH 7 Hybrid and very poor germination observed in 22 TFV4.Related germination report was submitted on 13.10.2022.Monitoringof remaining 25 entries was done on 23.02.2023 under the chairmanship of Dr. T K Behera, Director, ICAR-IIVR.DUS characterization for all the entries were recorded as per DUS test guidelines. Among all the entries off types were observed in 22TFV2 and 22TFV3. Monitoring report was submitted on 02.03.2023.

Okra:

During the year DUS testing of candidate varieties in 2022-23, 42 reference varieties of okra has maintained and 16 candidate varieties for 1st year, 18 candidate varieties for 2nd year under new category and 09 farmers candidate were tested along with reference varieties. Two entries of FV, Typical (2886/2333 & 2887/2052) were in the flowering stage at the time of monitoring 17.10.2022.

Cucumber and Pumpkin

During the year, 8 cucumber entries were evaluated under DUS testing, which includes 4 candidate hybrids and 4 farmer varieties along with reference varieties of cucumber.

No variation was observed among any of the eight candidate varieties. One farmer variety, 22 Cu FV 3 has very less fruiting in all the replications (2-3 fruits). The DUS center has been maintained 24 Cucumber and 25 Pumpkin reference varieties.

Bottle gourd and Bitter gourd:

During the year DUS testing of candidate varieties in 2022-23, The reference varieties of Bottle gourd and Bitter gourd were hand-overed to the current PI from nodal officer at IIVR, Varanasi. Twenty-five Bottle gourd and twenty-five Bitter gourd reference varieties were maintained at ICAR-IIVR, Varanasi

Okra, Brinjal, Tomato, Bitter gourd, Bottle gourd, Cucumber, Pumpkin:

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

During the period 2022-23, DUS testing centre at ICAR-IIHR, Bengaluru following reference varieties maintained crop-wise.

S. No.	Crops	No. of reference varieties
1.	Tomato	19
2.	Brinjal	40
3.	Okra	20
4.	Cucumber	16
5.	Bitter gourd	15

6.	Bottle gourd	25
7.	Pumpkin	06

Tomato:

A total of 33 tomato new/candidate varieties along with reference varieties and have been raised for conduct of DUS test for 47 morphological characters as per DUS test guidelines for the year 2022-23. All the entries were characterized for DUS traits and monitoring of the DUS entries was conducted under the chairmanship of Dr. A.T Sadashiva, Former Head, Division of Vegetable Crops, and IIHR Bangalore on 07.03.2023. All the committee members visited the tomato and brinjal plots.

Brinjal:

A total of 7 brinjal farmers varieties along with reference varieties and have been raised for conduct of DUS Test for 47 morphological characters as per DUS test guidelines for the year 2022-23.

Okra:

16 Reference varieties of Okra maintained at DUS center. Under DUS testing of candidate varieties (4) Farmer varieties, Five (5) typical varieties for 1st year and (8) Candidate Varietal Hybrids, (4) F1 Hybrid SMG for 2nd year were tested along with reference varieties during the year 2022. Experiment was laid out as per the DUS test guide lines envisaged by PPV&FRA, New Delhi. Varieties have been characterized for 31 morphological characters as per the DUS test guidelines and DUS monitoring conducted on 31.10.2022 under the Chairmanship of Dr. O. P. Dutta , Former Head , Division of Vegetable Crops , ICAR-IIHR , Bengaluru. All the committee members visited the Okra DUS plot and thoroughly discussed and monitored.

Cucumber: we have not received any varieties during 2022-23 and 12 reference varieties of Cucumber were raised and selfed seeds were collected for further utilization.

Bitter gourd:

Maintenance of Bitter gourd Reference varieties: Fifteen Bitter gourd reference varieties namely, Pusa Vishesh, Pusa Do-Mausami, Sel.5, MC-84, Arka Harit, Hirkani, Phule Green Gold, Phule Ujwala, Meghana-2, Preethi, NDBT-9, NDBT-7, HABG-1, Kashi Urvahsi, Pant Karela were maintained.

Bottle gourd:

25 bottle gourd reference varieties were raised for DUS testing during the year 2022-23 and characterized for 31 morphological traits as per the crop specific DUS test guidelines. No candidate varieties are being received for testing during the year of report. Hence, 25 reference varieties are being maintained.

Pumpkin:

Four reference varieties (Arka Chandan, Kashi Harit, CO-2 and Pusa Vishwas) have been raised for conduct of DUS Test for 32 morphological characters as per DUS test guidelines for the year 2022-23. No

candidate varieties are being received for testing during the year of report. Hence, 8 reference varieties are being maintained.

Bitter gourd, Bottle gourd, Cucumber, Pumpkin

ICAR- INDIAN AGRICULTURAL RESEARCH INSTITUTE, PUSA, NEW DELHI

During 2022-23 under DUS testing of Cucurbits, the following vegetable crops are tested and monitoring done on 20.05.2022.

A. Bottle gourd - 13
B. Bitter gourd - 11
C. Pumpkin - 2
D. Cucumber – 6

Summary of the DUS result

Thirteen varieties of bottle gourd (5 Candidate Hybrid, 3 F1 SMG Hybrid and 5 FV, Typical), eleven varieties of bitter gourd (6 Candidate Hybrid, 3 F1 SMG Hybrid and 2 FV, Typical), six varieties of cucumber (1 Candidate Hybrid, 1 F1 SMG Hybrid and 4 FV, Typical) and two varieties of pumpkin (2 FV, Typical) were evaluated and data recorded during 2022.

Number of reference and example varieties maintained at the centre;

A. Bottle gourd – 18 (Punjab Long, KBGR-12, Arka Bahar, Kashi Ganga, Pant Lauki-1, Kalyanpur Long Green, Narendra Jyoti, Narendra Rashmi, ABG-1, NDBG-619, Pant Lauki-3, NDBG-132, VRBG-136, Narendra Dharidar, Pusa Samridhi, Pusa Santusthi, Pusa Naveen and Pusa Sandesh)
B. Bitter gourd – 17 (Pant Karela-1, Kashi Urvashi, Punjab-14, CO-1, Phule Ujwala, Preethi, NDBT-7, Hirkani, Kalyanpur Baramasi, NDBT-9, Phule Green Gold, Meghana-2, HABG-21, HABG-22, Pusa Do Mausami, Pusa Vishesh and Arka Harit).
C. Cucumber – 10 (Kalyanpur Green, Swarna Ageti, Punjab Naveen, Swarna Sheetal, Phule Shubhangi, Japanese Long Green, Himangi, Swarna Poorna, Pant Khira-1 and VR-101(genotype)

3.1.13. DUS TESTING CENTRES FOR AMARANTHUS, PALAK, RIDGE GOURD

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

Details of DUS testing of candidate varieties in 2022-23

Crops	New		VCK	FV	Reference varieties	Date of monitoring
	1st year entries	2nd year entries				
Ridge gourd	-	5+3 (SMG)	-	1	9	06.05.2022

DUS Testing of Ridge gourd new entries:

Nine entries of Ridge gourd viz., 5 candidate hybrids, 3 SMG hybrids and one Farmers variety received from PPV&FRA were sownon 5.3.2022 for DUS testing along with 9 reference varieties. These entries have been characterized for 35 morphological characters as per the crop specific DUS test guidelines. DUS monitoring was done on 6.5.2022 under the chairmanship of Dr.O.P.Dutta, Ex-Head, Division of Vegetable Crops, ICAR-IIHR, Bengaluru. The DUS Test reports of nine entries along with Co-nodal centre IARI result have been submitted to the PPV&FRA, New Delhi.

DUS test entries and reference varieties used for DUS testing

DUS centre has maintained 09 reference varieties of ridge gourd, 19 varieties of amaranth and 05 varieties of palak were maintained. Monitoring team observed that DUS testing plot of Ridge gourd with 09 entries and reference varieties was raised and recorded.

ICAR- INDIAN AGRICULTURAL RESEARCH INSTITUTE, PUSA, NEW DELHI

During the year 2022-23, the following four cucurbit crops were tested

a) Bottle gourd - 13 (5 Candidate Hybrid, 3 F1 SMG Hybrid and 5 FV, Typical)

b) Bitter gourd - 11 (6 Candidate Hybrid, 3 F1 SMG Hybrid and 2 FV, Typical)

c) Pumpkin - 2 (2 FV, Typical)

d) Cucumber – 6 (1 Candidate Hybrid, 1 F1 SMG Hybrid and 4 FV, Typical)

Reference and example varieties maintained at the centre

Bottle gourd – 18

(Punjab Long, KBGR-12, Arka Bahar, Kashi Ganga, Pant Lauki-1, Kalyanpur Long Green, Narendra Jyoti, Narendra Rashmi, ABG-1, NDBG-619, Pant Lauki-3, NDBG-132, VRBG-136, Narendra Dharidar, Pusa Samridhi, Pusa Santusthi, Pusa Naveen and Pusa Sandesh).

Bitter gourd – 17

(Pant Karela-1, Kashi Urvashi, Punjab-14, CO-1, Phule Ujwala, Preethi, NDBT-7, Hirkani, Kalyanpur Baramasi, NDBT-9, Phule Green Gold, Meghana-2, HABG-21, HABG-22, Pusa Do Mausami, Pusa Vishesh and Arka Harit)

Cucumber – 10
(Kalyanpur Green, Swarna Ageti, Punjab Naveen, Swarna Sheetal, Phule Shubhangi, Japanese Long Green, Himangi, Swarna Poorna, Pant Khira-1 and VR-101(genotype)

DUS monitoring was done on 20.05.2022 with chairmanship of and Head, Division of Vegetable Science, IARI and Dr. T. K. Nagarathna, Registrar, Representative to PPV&FRA.

3.1.15 DUS TESTING CENTRES FOR BARLEY:

ICAR-INDIAN INSTITUTE OF WHEAT AND BARLEY RESEARCH, KARNAL, Haryana

During the reporting period 2022-23, one farmer's variety (2881/3965) of barley was tested against 02 reference varieties as per DUS trial during 2022-23.

Reference and example varieties maintained at IIWBR: A set of 105 barley reference/release/example varieties were maintained for validation of 32 DUS characters.

Summary of DUS Result: One barley farmer's varieties were tested under DUS trial during 2022-23. A set of 105 released/reference varieties were also grown for validation of 32 DUS characteristics. All the data of the trial was recorded for morphological and metric traits as per DUS barley guidelines. Data was compiled, analyzed and ready for submission to the PPV&FR Authority.

RAJASTHAN AGRICULTURAL RESEARCH INSTITUTE, DURGAPUR (SRI KARAN NARENDRA AGRICULTURE UNIVERSITY, JOBNER)

In crop season 2022-23, one candidate farmer's varieties were tested at DUS testing centre. The centre has maintained 105 reference varieties of barley. The crop growth and expression of morphological characters were good in all the entries. Observation on DUS characteristics on all the characters were recorded as the prescribed guidelines. Farmer's variety was showing uniformity. Apart from this, stability in the DUS traits was also observed and all the traits in varieties were stable.

3.1.14. DUS TESTING CENTRES FOR CABBAGE AND CAULIFLOWER

ICAR- INDIAN AGRICULTURAL RESEARCH INSTITUTE, PUSA, NEW DELHI

DUS testing of candidate varieties in 2022-2023

Crops	New		VCK	FV	Date of monitoring
	1st year entries	2nd year entries			
Cauliflower (Mid-Early)	08	-	-	-	29/11/2022
Cauliflower (Mid-Late)	03	-	-	-	13/02/2023

Cauliflower (Late)	03	-	-	-	Trial discontinued due to 'no germination' of one entry.

Varieties under maintenance/characterized:

Mandated Crop Species	No. of varieties under maintenance breeding in 2020-2021	Data Submission (Maintenance Breeding) Yes/No	
Cauliflower (Early)	Varieties: Pusa Meghna, Pusa Ashiwni, Pusa	04	
	Hybrids: Parental lines of Pusa Kartik	02	
Cauliflower (Mid-Early)	Varieties: Pusa Sharad, Pant Shubhra	02	
	Hybrids: Parental lines of Pusa Cauliflower Hybrid-2 and Pusa Cauliflower Hybrid 3	04	
Cauliflower (Mid-Late)	Pusa Paushja, Pusa Shukti	02	
Cabbage	Pusa Ageti	01	

A two-day Indo-German "International workshop on DUS testing of Cauliflower and Cabbage in India" was organized by the Protection of Plant Varieties and Farmer's Rights Authority (PPV&FRA) and Division of Vegetable Science, ICAR-Indian Agricultural Research Institute, New Delhi on 28th-29th November, 2022 at NASC Complex, New Delhi.

ICAR- INDIAN AGRICULTURAL RESEARCH INSTITUTE, KATRAIN, KULLU, HIMACHAL PRADESH

DUS testing of candidate varieties in 2022-2023, 03 mid-late group candidate varieties of cauliflower viz., MLC 2022 H1, MLC 2022 H2 and MLC 2022 H3 and 03 late group candidate varieties viz., LCF 2022-1, LCF 2022-2 and LCF 2022-3 (not germinated) in first year has been done. However, no candidate variety/entry of cabbage was received for DUS testing.

Varieties under maintenance/characterized:

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2020-2021	Data Submission (Maintenance

		Breeding) Yes/No
Cabbage Total No. = 16 varieties	Golden Acre, Pusa Mukta, Pusa Drum Head, 83-1, 6A, C-121, Pride of India, Pride of Asia, Pusa Ageti,, 208A, 208 B, C-122, Kinner Red, KTCB-R3A, KTCB-R3B, KTCB-R5, and 4 hybrids viz., Pusa Cabbage-1 (KGMR-1), Pusa Red Cabbage Hybrid-1, Pusa Hybrid-81 and Pusa Hybrid-82	Yes
Cauliflower Total No. = 11 varieties	Pusa Snowball-1, Pusa Snowball K-1, Pusa Himjyoti, Snowball-16, Pusa Snowball K-25, SK-1, Sel-27, KTDH-53-1, 33A-1, Kt-22 and Pusa Purple Cauliflower-1 along with 3 hybrids of snowball cauliflower namely Pusa Snowball Hybrid-1, Pusa Snowball Hybrid-2 and Pusa Hybrid-301	Yes

3.1.15. DUS TESTING CENTRES FOR POTATO

ICAR-CENTRAL POTATO RESEARCH INSTITUTE, SHIMLA, HIMACHAL PRADESH

In the reporting period of 2022-23, three varieties viz., King Russet, Alibaba, Marverick of firms Technico Agri Sciences Ltd and Utkal tuber India Pvt Ltd and two farmers varie ties Badami alu and Pakri were characterized for vegetative and tuber traits at CPRI RS Modipuram and Jalandhar. In summer crop season at Kufri hills variety Caribou Russet of Technico and Alibaba, Marverick of Utkal were raised for floral traits and accordingly data were recorded. DUS test results of two years (2020-21 and 2021-22) and three locations of candidate variety Caribou Russet was submitted for grant of registration.

Maintenance of DUS reference varieties: Two hundred and sixty-two reference varieties were maintained in in vitro conditions at CPRI, Shimla while 259 each were maintained under field condition at CPRI, Kufri-Fagu Unit, Kufri and CPRI, RS, Modipuram, resp ectively.

The monitoring of potato DUS trials at Jalandhar and Modipuram were done on 27.12.2022 and 04.01.2023 respectively. The monitoring was done at vegetative crop stage at both centers. The crop stand was uniform with no mixture and respective reference varieties were grown along with the candidate varieties The committee recommends leaflet character ie Pubescence of blade at apical rosette, floral characters ie anthocyanin colouration on outer side of white flower, flower anther colour and distribution of secondary colour of flesh needs modifications.

3.1.16. DUS CENTRES FOR ONION AND GARLIC

ICAR-DIRECTORATE OF ONION AND GARLIC RESEARCH, PUNE, MAHARASHTRA

During the FY 2022-23, ICAR-DOGR is working as Nodal Centre for conduct of DUS test of onion and garlic and maintaining 55 onion and 29 garlic varieties under this project. These varieties of onion and garlic are treated as reference varieties. In onion, 45rabi season varieties and 10kharif season varieties and in garlic 29 varieties are being maintained at ICAR-DOGR, Rajgurunagar, Pune. Long day onion and garlic varieties are being maintained at ICAR-CITH, Srinagar and multiplier onion varieties at TNAU, Coimbatore. All the data have been recorded as per DUS test guideline in all the maintained varieties of onion and garlic under DUS project.

During 2022-23 received for DUS testing four onion Denomination 22 AROF1, 22 AROF2, 22 AROF3 and22 AROF4 were received on 18.6.2022 which is under multiplication and maintenance breeding due to receipt of limited quantity of seed as well as poor plant establishment.

Nine onion varieties (Bhima Kiran, Bhima Shakti, Bhima Light Red, Bhima Super, Bhima Red, Bhima Raj, Bhima Dark Red, Bhima Shubhra and Bhima Safed) as well as one garlic variety Bhima Omkar have been registered with PPV&FRA. One onion variety Bhima Shweta and one garlic variety Bhima Purple are under registration with PPV&FRA.

ICAR- INDIAN AGRICULTURAL RESEARCH INSTITUTE, PUSA, NEW DELHI

No. of varieties for DUS testing: One variety in case of Garlic

ICAR-IARI is working as co-Nodal Centre for conduct of DUS test of onion and garlic. This DUS center maintaining 47 onion and 14 garlic reference varieties under this project. All the data is being recorded as per DUS test guidelines in all the maintained varieties of onion and garlic under DUS project. All four entries were sown in the nursery during rabi season 2022. FV-22-AR-OF1and FV-22-OF3 did not germinate during the rabi season. Hence two entries, FV-22-AR-OF2 and FV-22-AR-OF4 were transplanted along with candidate variety Pusa Red and Bhima Kiran.

3.1.17. DUS CENTRES FOR CHILLI, BELL PEPPER AND PAPRIKA

HORTICULTURAL RESEARCH & EXTENSION CENTER, DEVIHOSUR (UHS, BAGALKOT)

During 2022-23, Total 106 candidate entries were received and along with them ten open pollinated varieties and a hybrid were included as reference varieties/hybrid from HREC, Devihosur. The seedlings were raised in portray (DOS-26th & 27th August 2022). Among the 106 entries sown in portrays, one

enty (2021 IV-19) was not germinated and 15 entries were recorded less than 50% germination. On 29th & 30th September 2022 the raised seedlings were transplanted to experimental block for evaluation. At the grand growth and peak flowering stage, the crop was infested with the new invasive pest (Black thrips) and crop was taken care and maintained with regular sprays (bio-agents and chemicals)

Details of DUS testing of candidate varieties in 2022-23

Crop	Candidate/New Varieties						VCK	Reference Varieties	Date of monitoring
	1st year entries			2nd year entries					
	Hybrid	Typical	FV	Candidate Hybrid	F1 Hybrid SMG	Typical			
Chilli	12	21	04	34 (29+5)	29	06	-	5	17th & 18th January 202

Varieties under maintenance/characterised:

Mandated Crop Species	No of varieties under maintenance breeding in 2022-23	Data Submission (Maintenance Breeding) Yes/No
Chilli	25	No

- DUS plot was well maintained and all DUS traits were systematically recorded
- Two entries were infected with the wilt and shows susceptible reaction.

DR. YSR HORTICULTURAL UNIVERSITY, LAM FARM, GUNTUR, ANDHRA PRADESH

During 2022-23,the following candidate varieties under DUS testing

Crops	Candidate/New Varieties							Date of monitoring
	1st year entries			2nd year entries				
	Hybrid	Typical	FV	Candidate Hybrid	F1 Hybrid SMG	Hybrid	FV	28th and 29th of April 2023
Chilli	12	21	4	29	29	5	6	
Total entries	37			69				
Total entries for 2022-23 year :106								

A total of 37 chilli new/candidate varieties and reference varieties of first year trialand 69 chilli new/candidate varietiesand reference varieties of second year trial have been raised for conduct of DUS

Test for 54 morphological characters as per DUS test guidelines for the year 2022-23. All the entries were characterized for DUS traits and monitoring of the DUS entries was conducted successfully under the chairmanship of Dr. T.H Singh, Principal Scientist, Division of Vegetable Crops, and IIHR Bengaluru on 28th and 29th of April 2023.

3.1.18. DUS TESTING CENTRES FOR WATERMELON AND MUSKMELON

ICAR-CENTRAL INSTITUTE OF ARID HORTICULTURE, BIKANER, RAJASTHAN

Conducted the DUS testing of watermelon entries (WM 20-1 F1 SMG Hybrid, WM 20-1 Candidate Hybrid, WM 20-2 F1 SMG Hybrid, WM 20-2 Candidate Hybrid) during summer season of 2022 at ICAR-CIAH, Bikaner and recorded the data on 27 characteristics as per DUS descriptors.

DUS testing of muskmelon

In muskmelon, the DUS testing of four entries namely MM 22 H1 Hybrid, MM 22 H2 Hybrid, MM 22 H3 Hybrid, MM 22 H4 Hybrid was carried out at ICAR-CIAH, Bikaner during summer season of 2022. The data on all entries has been recorded as per DUS descriptors on 34 characteristics. Under typical category, the seed of 22 MM-1, 22 MM-2, 22 MM-3 of muskmelon was also received PPV&FRA, New Delhi for DUS testing however; the trial could not be conducted due to late receiving of seed.

The monitoring of the watermelon and muskmelon DUS testing trials were conducted on 26th April, 2022 in under the chairmanship of Dr. Dhurendra Singh.

Varieties under maintenance/ characterized

During the summer season of 2022, maintained the seed of reference varieties of watermelon (Sugar Baby, Durgapura Kesar, Arka Manik, AHW-19, AHW-65 and Thar Manak) and muskmelon (Arka Jeet, Durgapura Madhu, Kashi Madhu, Pusa Madhuras, Punjab Sunehri, Hara Madhu MHY-3, MHY-5, RM-43, RM-50 and GMM-3) for further utilization in DUS testing. Also supplied the seed of two reference varieties of muskmelon namely Pusa Madhuras and Kashi Madhu to the PPV&FRA, New Delhi.

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

Maintenance and regeneration of reference varieties

A total of ten reference varieties in watermelon (Arka Manik, Sugar Baby, Asayi Yamato, Crimson sweet, AHW-65, Durgapur Lal, Durgapur Kesar, Thar manak, Arka Shyama, Arka Muttu) and eight reference varieties in muskmelon (Arka Jeeth, Durgapur madhu, Pusa Sarbati, Punjab Sunheri, RM-50, RM-43, MHY-3, MHY-5) have been maintained and regenerated during summer, 2022-23.

Watermelon

Two candidate hybrids 22WMH1, 22WMH2 for 1st year DUS test, Candidate hybrids namely WM22H1-CH, WM22H2-CH, WM22H3-CH and Shimoga hybrid WM22H3- SMG for 2nd year DUS test, with six reference varieties (Arka Manik, Sugar Baby, AHW-65, Durgapur Lal, Durgapur Kesar, BIL-53, Thar manak) was sown on 10th March 2023 and germination percentage was noted and entries were evaluated for vegetative and flowering traits and observations for fruit traits need to be recorded.

Muskmelon

DUS testing of muskmelon with two typical varieties 22 MuFV1 and 22 MuFV2 for 1st year DUS test. Three hybrids MM22H4, MM22H2, and MM22H2-SMG, three typical varieties 22MM-1, 22MM-2 and 22MM-3 for 2st year DUS test were raised along with five reference varieties (Arka Jeeth, Punjab Sunheri, RM-43, MHY-3, MHY-5) was sown on 21th March 2023 and germination percentage was noted and entries were evaluated for vegetative traits and flowering traits, data has been recorded for 14 characters, and fruit and seed traits characters need to be recorded.

3.1.19. DUS TESTING CENTRES FOR POINTED GOURD

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA, KALYANI, WEST BENGAL

DUS testing of candidate varieties in 2022-23

Crop	New		VCK	FV
	1st year entries	2nd year entries		
Pointed Gourd	35 (2021-22)	36 (2022-23)	Seven (BCPG-3, BCPG-4, BCPG-5; Swarna Rekha; Swarna Alaukik, Kashi Alankar, Kashi Suphal)	Twenty nine genotypes were collected and clonally selected

Varieties under maintenance/characterized:

Crop	Name or No of varieties under maintenance breeding in 2022-23	
Pointed gourd	BCPG-1*, BCPG-3*, BCPG-4*, BCPG-5*, BCPG-6*, BCPG-16* ,BCPG-17*, BCPG-22, BCPG-23, BCPG-24, BCPG-25*,	

	BCPG-26*, BCPG-27*, BCPG-29, BCPG-30*, BCPG-31, BCPG-32, BCPG-33, BCPG-34, BCPG- 35, BCPG-36*, BCPG-37*, BCPG-38, BCPG- 39, Swarna Rekha*, Swarna Alaukik*, BAUPG-I, BAUPG-II, BAUPG-III, BAUPG-IV, NP-260*, NP-520, Tripura Local, Rajendra Parwal-1, Kashi Alankar*, Kashi Suphal*	

Farmers across the state of West Bengal visited our field. Scientists attached with this project imparted training to the farmers regarding planting system, crop management, pollination management and insect-pests and disease management.

ICAR-INDIAN INSTITUTE OF VEGETABLE RESEARCH, VARANASI, UTTAR PRADESH

During the reporting period of FY 2022-23 no candidate variety under DUS testing and following 16 reference varieties maintained at DUS center.

S.No.	Varieties	S.No.	Varieties	S.No.	Varieties
1	Kashi Alankar	7	VRPG-126	13	Swarna Alaukik
2	Kashi Suphal	8	VRPG-173	14	Swarna Rekha
3	Kashi Amulya	9	VRPG-219	15	BCPG-1
4	VRPG-220	10	VRPG-141	16	BCPG-3
5	VRPG-221	11	VRPG-176-1		
6	VRPG-103	12	VRPG-105		

3.1.20. DUS TESTING CENTRE FOR DRUMSTICK :

UNIVERSITY OF HORTICULTURAL SCIENCES, BAGALKOT, KARNATAKA

During the period 2022-23, DUS testing centre 21 reference varieties maintained.

Salient Achievements

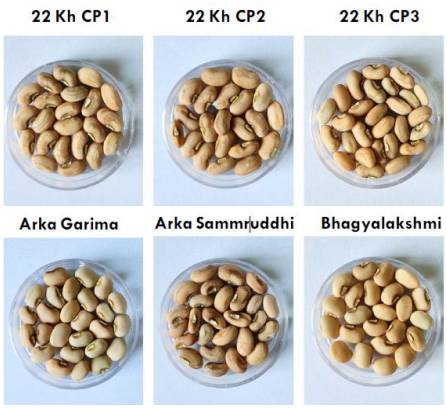
- ❖ DUS guidelines were developed
- ❖ All the reference genotypes (21) were characterized as per the DUS guideline
- ❖ Reference genotypes were maintained well in the field at good condition in three replications
- ❖ Process of adding new genotypes to reference collection is in progress
- ❖ Three awareness progremmes were conducted for farmers and faculty members of UHS Bagalkot

3.1.21. DUS TESTING CENTRES FOR COWPEA:

UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD, KARNATAKA

The project during 2022-2023: Evaluation/ DUS testing for Vegetable type Cowpea 06 for new category and 03 under VCK category with reference varieties and program for seed multiplication, purification, Maintenance for Grain type, was carried out during Kharif 2022, Further, same Experiment repeated during Rabi-Summer 2022-23. Both experiments viz., Evaluation/ DUS testing of vegetable type and maintenance of grain type Cowpea, was carried out during ensuing Rabi-Summer 2022-23. The centre has maintained 32 reference varieties (13) released and 19 (germplasm accessions).

At DUS centre 3 test vegetable Cowpea varieties and 3 reference vegetable Cowpea varieties were evaluated for the DUS traits. The test vegetable Cowpea varieties were comprehensively observed and recorded by comparing with reference vegetable Cowpea varieties. The above mentioned varieties were maintained with utmost purity by ensuring strict self-pollination of 5 randomly selected plants using selfing nets followed by individual plant selection during harvest based on Cowpea DUS guidelines developed by PPV&FRA, New Delhi. DUS traits were recorded at appropriate crop growth stages as per the guidelines. Some of the important DUS traits recorded are Days to 50% flowering, Climbing tendency, Plant type, Plant Growth habit, Pod shape, Seed shape and Seed color etc. Some important photographs depicting unique DUS traits are included.



3.1.22. DUS TESTING CENTRES FOR FABA BEAN:

ICAR-NATIONAL BUREAU OF PLANT GENETIC RESOURCES, NEW DELHI

During the period under report, sixteen varieties were sown at ICAR-NBPGR, Issapur, and Delhi farm for multiplication / recording of observations during Rabi 2022-23 at DUS centre. The genotypes were protected by insect-proof nets during the flowering period to avoid cross-pollination and to maintain the genetic purity. Data of 27 traits were collected on the 16 varieties/ reference genotypes and after harvesting, the seeds were stored in Medium Term Storage at Division of Germplasm Evaluation, ICAR-NBPGR, New Delhi for growing during Rabi 2023-24. For faba bean crop second DUS centre established at Department of Plant Breeding & Genetics, PAU, Ludhiana.

3.1.23. DUS TESTING CENTRES FOR BETELVINE

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

To conduct DUS testing of Betelvine varieties as per DUS Test guidelines during 2022-23, 01 candidate varieties was tested for 2nd year in New category. Total 40 Betelvine reference varieties (4 released , 36 FV/VCK/germplasm) has maintained at DUS centre.

DUS traits were recorded on eleven reference clones of betelvine grown under sesbania grandiflora L. (Sesbania) at ICAR-IIHR experimental farm. Observations were recorded on six quantitative traits viz. orthotropic stem internodal length(cm), number of Plagiotropic shoots/unit length(no/m), Plagiotropic leaf l/b ratio, Female inflorescence length(cm), Male inflorescence length(cm), Number of inflorescence /Plagiotropic shoots.

The data on 11 qualitative characteristics i.e. Orthotropic leaf lamina colour, Orthotropic leaf apex shape, Orthotropic leaf texture, Plagiotropic stem colour, Plagiotropic leaf lamina shape, Plagiotropic leaf apex shape, Plagiotropic leaf texture, sex of the plant, Flowering habit, Female inflorescence colour, Number of inflorescence/Plagiotropic branch, as these traits were recorded.

A training cum awareness programme on " Protection of Plant Varieties and Farmers Right Act, 2001" to the farmers and different Stakeholders on 08-03-2023 at ICAR- KVK, to create awareness on the PPV & FRA among the farmers and stakeholders sponsored the programme orgainsed at KVK Gonigoppal. More than 100 participants including Planters/growers, State Govt. officials, media people Subject Matter Specialists of KVK, Gonikoppal participated in the programme. Planters / growers showed enthusiastic response shown keen interest in the proceedings of the programme.

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA, KALYANI, WEST BENGAL

The varieties of betelvine collected from different parts of the country are being maintained under boraja structure in two places at Bidhan Chandra Krishi Viswavidyalaya (BCKV), Kalyani, Nadia, West Bengal. In total 39 lines/varieties are maintained at this collaborating DUS center of the project. This includes all the example varieties mentioned in the DUS testing guidelines. Besides this 20 hybrid lines are being maintained at this center.

3.1.24. DUS TESTING CENTRES FOR AONLA

ICAR-CENTRAL INSTITUTE OF SUBTROPICAL HORTICULTURE, LUCKNOW, UTTAR PRADESH

During reporting period 2022-23, 08 Aonla varieties planted in the field gene bank were characterized. There reference varieties

(8) are being maintained in the field genebank. DUS testing was performed on 1 candidate varieties including five new varieties submitted for registration to the authority. UP orchardists were sensitized about benefits of registering their varieties with PPVFRA, New Delhi.

ICAR-CENTRAL INSTITUTE OF ARID HORTICULTURE, GODHRA, GUJARAT

During the reporting period 2022-23, the centre has maintained in field gene bank at DUS testing centre. All the varieties exhibited more or less similar in their tree form. Mostly varieties like Banarasi, Anand-1, Aanad-2 and Krishna have upright spreading growth habit, Kanchan and Chakaiya have upright, Francis has drooping tree form, NA-7 has upright semi spreading with narrow angled branching and NA-10 has spreading type of tree form. Leaf size was recorded maximum (1.709 x 0.26 cm) in NA-10 followed by Chakaiya, Goma Aishwarya and NA-7 whereas it was recorded minimum (1.22 x 0.38cm) in Krishna. The leaf shape and apex of Banarasi, Krishna, NA-9, Anand-2 were oblong obtuse, Chakaiya and Anand-1 were oblong acute, Kanchan was oval acute, Francis was oval obtuse whereas Goma Aishwarya, NA-7 and NA-10 were elliptical obtuse in shape.

3.1.25. DUS TESTING CENTRES FOR BAEL

ICAR-CENTRAL INSTITUTE OF ARID HORTICULTURE, GODHRA, GUJARAT

During 2022-23, Nineteen reference varieties (Goma Yashi, Thar Divya, Thar Neelkanth, Thar Srishti, Thar Prakriti, Thar Shivangi, CISH-B-1, CISH-B-2, NB-16, NB-17, NB-5, NB-7, NB-8, NB-9, NB-10, Pant Aparna, Pant Shivani, Pant Sujata and Pant Urvashi) were maintained in field repository at the Station, CHES, Godhra. During current financial year, three farmers contacted me for their genotypes testing under DUS guidelines.

ICAR-CENTRAL INSTITUTE OF SUBTROPICAL HORTICULTURE, LUCKNOW, UTTAR PRADESH

This center has maintained 15 bael reference varieties are. 12 bael varieties planted in the field gene bank were characterized. DUS testing was performed on 03 candidate varieties including three varieties submitted for registration to the Authority. UP orchardists were sensitized about benefits of registering their varieties with PPVFRA, New Delhi.

3.1.26. DUS TESTING CENTRES FOR JAMUN

ICAR-CENTRAL INSTITUTE OF SUBTROPICAL HORTICULTURE, LUCKNOW, UTTAR PRADESH

During the reporting period 2022-23 at Central institute for Subtropical Horticulture, Lucknow, the DUS characterization of jamun accessions (18) being maintained in the field gene bank was continued as per guidelines for the conduct of test for distinctiveness, uniformity and stability in jamun. Reference varieties of jamun (7) are being maintained under recommended cultural practices. The farmers in Lucknow, Ayodhya and Siddharthnagar districts of Uttar Pradesh were sensitized for conserving the jamun genetic resources, and for registering their promising varieties under PPV & FRA.

ICAR-CENTRAL INSTITUTE OF ARID HORTICULTURE, GODHRA, GUJARAT

During the reporting period 2022-23, Six reference varieties (Goma Priyanka, Konkan Bahadoli, CISHJ-42, Thar Kranti, Jamwant, Gokak-1) were maintained in field repository at the Station, CHES, Godhra. No candidate variety received for DUS testing this year.

3.1.27. DUS TESTING CENTRE FOR GUAVA

ICAR-CENTRAL INSTITUTE OF SUBTROPICAL HORTICULTURE, LUCKNOW, UTTAR PRADESH

During the reporting period 2022-23, 40 Guava varieties planted in the field gene bank for characterization. Total 40 reference varieties are being maintained in the field gene bank. DUS testing was performed on 5 candidate varieties including two varieties submitted for registration and another one submitted to the Authority. The guava growers of Budaun district, UP were sensitized about benefits of registering their varieties with PPV& FRA.

3.1.28. DUS TESTING CENTRE FOR LITCHI

ICAR-NATIONAL RESEARCH CENTRE ON LITCHI, MUZAFFARPUR, BIHAR

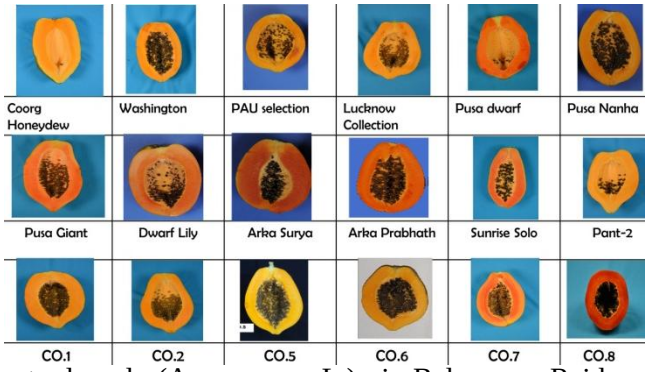
During the year 2022-23, Twenty litchi genotypes viz., Shahi, China, Bombai-II, Dehrarose, Gandaki Yogita, Purbi, CHL-5, CHES-II, Ajholi, Bombai-I, Bedana, Gandaki Lalima, Gandaki Sampada, Mandaraji, Calcuttia, Rose scented, Trikolia, Longia, Green, Dehradun were morphologically characterized at Field Genebank of ICAR-National Research Centre on Litchi, Muzaffarpur, Bihar.

Twenty-five traits comprising leaf, flower, fruiting, fruit and seed characters were evaluated as per DUS proforma. Out of 20 genotypes, observation on flowering were recorded in all genotypes.

3.1.29. DUS TESTING CENTRES FOR CUSTARD APPLE AND PAPAYA

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

Papaya : During the reported period I0 reference varieties (Coorg Honey Dew, Washington, PAU selection, Lucknow Collection, Pusa Dwarf, Pusa Nanha, Pusa Giant, Dwarf lily, Arka Surya, Arka Prabhath) of papaya were raised in the field. Selfing and sibmating was carried out for maintenance of the varieties. No entry of papaya was received for DUS testing.



Custard apple : Thirteen reference varieties of custard apple (A.squamosa L.) viz Balanagar, Raidurg, APK-1, Red Sitaphal, Mammoth, Barbados, Washington 07005, Washington 98797, Taiwan, NMK-1, Arka Neelachal Vikram, Phule Janki and Arka Sahan are being maintained in the Field Gene Bank by following the standard production practices. Onsite DUS testing of custard apple in Maharashtra has been carried out at KVK, Baramati. Morphological, flower and fruit traits have been recorded in Bhimthadi (Baramati) selection.

Onsite DUS testing of custard apple - Onsite DUS testing of custard apple in Maharashtra has been carried out at Bhimthadi (Baramati) selection and Balanagar in place of KVK, Baramati, Pune district. Morphological, flower and fruit traits have been recorded in both Bhimthadi (Baramati) selection and Balanagar.

*So far 10 on- site DUS testing of custard apple has been received. One certificate for NMK-1 Golden has been issued to Sh. Navnath Malhari Kaspate. On-site DUS testing has been conducted with the following - Desi Cheta TKH, Desi Cheta LKH, Gudadar, Bara Aakar and Dular- I in Chattisgarh , Purty-Ca in Jharkhand and Prasad Sitafal in Madhya Pradesh. It has been noticed that single plant was maintained and was advised to plant more plants to conduct DUS testing during 2019.

Papaya

TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE, TAMIL NADU

During the reporting period 2022-23, maintenance of 18 reference varieties in the

field. Observations were made on 15 varieties as listed below,
Dioecious:CO1,CO2,CO4,CO5,CO 6, TNAU Papaya CO 8, Pusa Dwarf, Pusa Nanha, Pusa Giant Washington,Pant Papaya 2, PAU selection

Gynodioecious: CO 3, CO 7, Sunrise Solo.

Characterization of Arka Prabhath, Arka Surya and Coorg Honey Dew could not be done due to severe papaya ringspot virus (PRSV) Incidence.

3.1.30. DUS testing Centre for Nutmeg

DR. BALASAHEB SAWANT KONKAN KRISHI VIDYAPEETH, DAPOLI, RATANAGIRI, MAHARASHTRA

The 13 Farmers variety (5 plants of each types) and 32 types of reference varieties are planted in the year 2018 at DUS centre, Mulde. Three farmers budded grafts (11 grafts of each types) received from Kerala for registration is being tasted and under observation at Tetwali block, CES Wakawali. During the reporting period 2022-23, 23 farmers varieties are under DUS testing.

3.1.31. DUS TESTING CENTRE FOR ARECANUT

ICAR- CENTRAL PLANTATION CROPS RESEARCH INSTITUTE, VITTAL, KARNATAKA

During the reporting period 2022-23, DUS centre has maintaining 16 reference varieties and recorded morphological traits like plant height, stem height, crown length, crown shape, girth, internodal length, no. of leaves, Leaf length, Leaf breadth, Leaf sheath length, Leaf sheath breadthetc. and fresh nut and dry nut characteristics viz., fresh fruit weight, fruit length, fruit breadth, dry nut weight, dry kernel weight etc. from example/reference varieties at ICAR-CPCRI, Regional Station, Vittal.After studying seedlings of arecanut example/reference varieties for vegetative growth characters under Assam condition at ICAR-CPCRI, Research Center, Kahikuchi, Guwahati, planted the seedlings in the field for recording observations. Recorded morphological traits of arecanut example/reference varieties at our ICAR-CPCRI, Research Center, Mohitnagar, West Bengal.

3.1.32. DUS TESTING CENTRE FOR CASHEW

ICAR-DIRECTORATE OF CASHEW RESEARCH, PUTTUR, KARNATAKA

During the reporting period 2022-23, DUS centre has maintaining 30 reference varieties (Ullal-2, VRI-1, VTH 30/4, Taliparamba, NRC 492, K-22-1, NRCC Selection-1, VRI-2, Purple mutant, Vengurla-1, NRC-116, Vengurla-2, VTH 174, Madakkathara-1, Vengurla-3, NRC-140, BPP-4, NRC-190, NRC-183, NRC-

406, Ullal-1, Vengurla-4, Ullal-3, Bhaskara, VTH 30/2, Vengurla-7, NRCC Sel-2, Madakkathara-2, Priyanka, VRI-3)

Planting of the hybrids/varieties for DUS testing

Cashew Varieties such as H-130, H-126, Nethra Vaaman and Vengurla-9 are planted adjacent to reference block for DUS testing.

H-130 (Nethra Ganga): It's a hybrid variety developed by ICAR- DCR, Puttur by crossingNRCC Sel-2 x Bhedasi. It is a high yielder and nut size is also more than the earlier released varieties Bhaskara and NRCC Sel. 2 from Directorate.

H-126 (Nethra Jumbo -1) : This is also a hybrid variety developed by ICAR- DCR by crossing NRCC Sel-2 x Bhedasi. This is recommended on account of jumbo nuts (12g nut weight), with premium grade kernel(W130),higher yield over the standard variety Bhaskara and NRCC Selection-2. The nut size of this variety is uniform.

Nethra Vaaman: This is a variety bred out of selection from seedling progenies is slow in growth, precocious in bearing, and moderate yielder. The nut size is small and apples are attractive with less fiber content and crispy nature. The growth rate is even less than 2.5m in 10 years and moderate pruning is required for its maintenance. Hence, this can be recommended for ultra-high-density planting. It also has prolonged bearing period (4-5 months).

Vengurla-9: The variety is recommended on account of bold nut over and cluster bearing nature with 4-6 fruits per panicle and less susceptible to TMB as compared to Vengurla-4 and Vengurla-8.

3.1.33. DUS TESTING CENTRE FOR CHIRONJI AND TAMARIND

CENTRAL HORTICULTURAL EXPERIMENT STATION, ICAR- CENTRAL INSTITUTE OF ARID HORTICULTURE, GODHRA, GUJARAT

During the year 2022-23, DUS testing centre has maintained 11 varieties of Tamarind namely *Goma Prateek, Pratisthan, T-263, PKM-1, Ajanta, DTS-1, Red Type, Sweet Type, Bantoor, Urigum & CHEST-10* and 10 genotypes of chironji namely *Thar Priya, CHESC-1, CHESC-2 CHESC-3, CHESC-4 CHESC-5, CHESC-6 CHESC-8, CHESC-9, CHESC-10*, no candidate variety under DUS testing.

3.1.34. DUS TESTING CENTRE FOR MULBERRY

CENTRAL SERICULTURAL RESEARCH AND TRAINING INSTITUTE, MYSURU, KARNATAKA

During the reporting period for the year2022-23, the following progress are as under:

- Maintained mulberry DUS plot with 31 example genotypes and 13 reference and 6 candidate varieties.
- Characterized example genotypes and reference varieties using 35 DUS descriptors for two independent growing cycles.
- DUS testing was conducted for six candidate varieties (G-4, G-2, RC-1, AR-12, Sahana and MSG- 2) for two independent growing cycles (in July to September and November to January) (Fig. 1-8).

- Characterized reference and candidate varieties using 20 SSR markers and generated cultivar identification diagram using 6 SSR markers viz., MulSSR26, MoSo288, MulSSR96B, M2SSR87, M2SSR68 and MoSo340-2 for easy and rapid identification of reference and candidate varieties during any conflict.
- Mulberry varieties viz., G-2, RC-1, AR-12, Sahana and MSG-2 were registered under PPV&FR Act 2001 and PPV&FRA issued the certificate of registration with registration number for these five mulberry varieties [G-2 (REG/2021/0048), RC-1 (REG/2021/0051), AR-12 (REG/2021/0052), Sahana (REG/2021/0049) and MSG-2 (REG/2021/0050)]. Registration of G-4 is under progress (pre-grant opposition invited).

3.1.35. DUS TESTING CENTRE FOR POPLAR

DEPARTMENT OF TREE IMPROVEMENT AND GENETIC RESOURCES, UNIVERSITY OF HORTICULTURE AND FORESTRY, NAUNI, SOLAN, HIMACHAL PRADESH

During the year 2022-23, The morphological data on qualitative and quantitative characteristics of 15 poplar varieties under maintenance was recorded and compared as well as the unique characters for each variety were recorded. The leaf data was recorded in the month of August, 2022 and growth data in the month of December. The data was analyzed in the month of February 2023. The DUS character for each clone of Poplar (Populus spp.) under maintenance testing were validated according to the guidelines which have already been published by Protection of Plant Varieties and Farmer's Right Authority. Data on 450 plants were recorded in which one site/one variety consist of 03 replications with 10 plants in each replication and the range and mean of data are as under:

Name of the species	No of varieties	Source(own released/ICAR/SAU)
Populus deltoides	15 L6105, L30/06, L621/84, G-48 (Uttrakhand Forest Department) S_7 C_{15}, S_7 C_8,WSL 22, WSL 39(Wimco Seedlings Ruderpur, UK) 6503, 5503, 1007, L200/86 (Department of TIGR, UHF, Nauni) PL-3, PL-6, PL-7 (Department of Forestry PAU, Ludhiana)	SAU, Forest Deptt, WIMCO

3.1.36. DUS TESTING CENTRE FOR WILLOW

DEPARTMENT OF TREE IMPROVEMENT AND GENETIC RESOURCES, UNIVERSITY OF HORTICULTURE AND FORESTRY, NAUNI, SOLAN, HIMACHAL PRADESH

During the reporting period 2022-23, 17 reference varieties/clones were maintained in the experimental area of the department. The four farmer's varieties were evaluated with example varieties FLS, Ghasas and DEVMATA. The leaf data was recorded in the month of August, growth data in the month of December and sprouting in the month of January – February 2023. The data was analyzed in the month of March 2023. The DUS characters for each variety of willow (Salix spp.) under maintenance testing were validated which have already been published by the Protection of Plant Varieties and Farmers' Rights Authority.

The four farmer varieties (REG/2021/0128 denomination DOODER-1; REG/2021/0129 denomination Narag-1; REG/2021/0130 denomination SHOTTI-1; REG/2021/031 denomination Sanog-1) were observed similar in distinguishing characters with example variety FLS and none can be considered distinct, however, these will be maintained in nursery alongwith other reference varieties and characters will be again observed in the year 2023-24.

3.1.37. DUS TESTING CENTRE FOR EUCALYPTUS AND CASUARINA

INSTITUTE OF FOREST GENETICS AND TREE BREEDING (ICFRE), COIMBATORE, TAMIL NADU

Eucalyptus

Eucalyptus camaldulensis clonal varieties planted in different places including IFGTB Germplasm, Karunya nagar, Kallakurichi, Salem and Marakkanam were assessed for DUS characterization. The reference

varieties were subjected to DUS characterization as described in PPV&FRA guidelines, evaluation was made according to the 33 morphological parameters including both quantitative (MG) and qualitative traits (VG) in all replications. Thus, 33 morphological characters were observed for the above mentioned EC Clones involving both Visual assessment and Measurable traits. The Flowering was observed and recorded for all the five replications. Both qualitative and quantitative traits were analysed and noted. The samples of Mature Leaves, Buds and Fruits were also collected, analysed with Leica Qwin Image Analyser. Visual documentation of all reference clones were recorded for future references.

Around 28 reference varieties were assessed for DUS Characterization at Clonal evaluation trial (RBD) at Karunya nagar, Coimbatore. Inflorescences, flowering were observed and digitally documented. Totally 12 Reference varieties were subjected to observation to assess the morphological parameters notified by PPV&FRA at Eucalyptus camaldulensis CSO, Kurumbapatti Research station, Salem.

Casuarina

Casuarina is an important short-rotation tree crop cultivated in around five lakh hectares in the Peninsular region. Two species of Casuarina (C. equisetifolia and C. junghuhniana) and their hybrids are grown in India. The main use of casuarina wood is as pulpwood for papermaking. It is also widely used as poles for scaffolding, props for horticultural crops and constructing temporary shelters. Its wood is a renowned fuelwood owing to the high calorific value. Being a nitrogen-fixing tree, casuarina is adapted to a range of soil conditions including those with low fertility. The ease of its cultivation and the existence of a stable market has made casuarina a cash crop for smallholding farmers in south India.

The ICFRE-Institute of Forest Genetics and Tree Breeding, Coimbatore has been functioning as the DUS Centre for Casuarina since 2013. Six varieties have been registered with the Authority so far. These varieties and 87 other varieties used as example and reference varieties have been maintained in the DUS Centre at Coimbatore. These varieties are in the form of vegetatively propagated clones and each clone is represented by 6-12 trees in the DUS collection. Since mortality occurs in the collection of varieties due to disease and damage by insects and wind, they are regularly propagated and replaced in the collection. All DUS characters are recorded from the assembled varieties twice a year during the flowering season. The paper industries that have been involved in varietal development research were contacted and encouraged to register their casuarina varieties.

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI, GUJARAT

During reporting period 2022-23 the following progress on Eucalyptus varieties observation for three species development of DUS testing guidelines.

- Reference variety trial was established with the germplasm collected from HPF, Harihar, Karnatakaduring March 2022.

- The leaf samples collected from Mysore Paper Mill (MPM), Shivamogga(GoG, Karnataka) were scanned and digitized and all the characters were recorded.
- For studying the reproductive characters tour was undertaken to Mysore paper Mill, Shivamoga during December 2022. There was extremely poor flowering recorded, hence, flower data could not be recorded.
- Institute of Forest Genetics and Tree breeding, Coimbatore was visited during December 2022 to appraise the progress made to Nodal Officer. Additionally data on juvenile leaf characters of *E. urophylla* germplasmwas recorded.

- JK paper Mill, Songadh, Gujaratwas visited during February 2023 and flowers of E. urophyllaCPM U-283-T were studied and data was recorded on various floral characters.
- Tour was again undertaken to MPM, Shivamoga, Karnataka and Harihar Poly Fiber, Harihar, Karnataka during March 2023 for studying reproductive traits of *E. urophylla*. Additional germplasmsof *E. urophylla*, *E. grandisand* their hybrids were collected from HPF, Harihar. New germplasm was also explored at MPM, Shivamogga with the help of local field staff of Hosanagara and Tirthahallirange. Request for clonal propagation of the germplasm was made to the MD, Plantation, MPM, Shivamogga.
- Till date morphological data of 25 clones and reproductive characters of 1 clone have been studied.

3.1.38. DUS TESTING CENTRE FOR BER

ICAR-CENTRAL INSTITUTE FOR ARID HORTICULTURE, BIKANER, RAJASTHAN

During the reporting period 2022-23, 25 reference and 85 example varieties and 21 new characterized ber genotypes have been maintained in the field gene bank of ICAR-CIAH, Bikaner. Flowering and fruiting (fruit set, fruit growth) data observed all reference and example varieties. An exceptional temperature dip and cold waves (16th Jan, 2023) a massive damage occurred on crop load and all the reference varieties observed chilling injury except Tikadi. Field conditions stability of DUS characters were recorded. Molecular characterization of reference varieties are in process.
During 2022-23, one training programme organised at ICAR-CIAH, Bikaner 12th September to 11th

October, 2022 on "Rural Agriculture Work Experience Programme (RAWE)" and six lecture and TV talk for awareness.

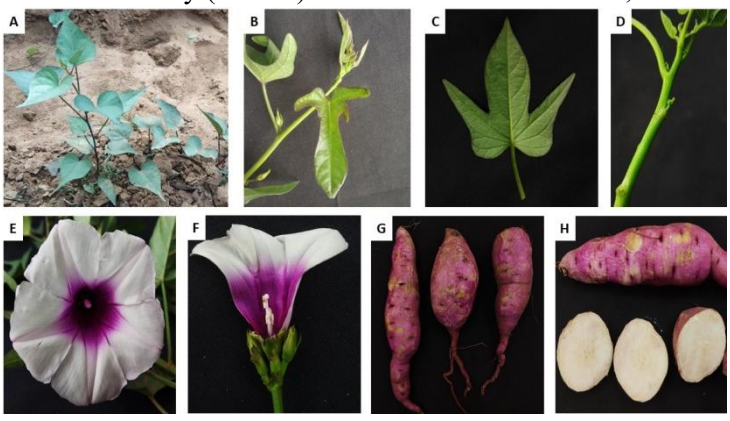
3.1.39. DUS TESTING CENTRES FOR SWEET POTATO AND CASSAVA

ICAR- CENTRAL TUBER CROPS RESEARCH INSTITUTE, THIRUVANANTHAPURAM, KERALA

During 2022-23, DUS testing center has maintained the gene bank of reference varieties of cassava (55) and sweet potato (52) are being conserved in the field. The database of the reference/released varieties of cassava was prepared based on DUS test guidelines. The application for registration of two cassava varieties viz., Pachikizhangu and Manna were prepared after conducting evaluation trials. The database of the reference/released varieties of sweet potato was prepared based on DUS test guidelines. Farmers were sensitized to start registration of cassava and sweet potato varieties.

ICAR- CENTRAL TUBER CROPS RESEARCH INSTITUTE, BHUBANESWAR, ODISHA

During the period 2022-23, 43 of sweet potato and 12 of cassava reference varieties has maintained in the field gene bank. Maintained the field gene bank with 17 cassava lines including 12 reference lines and 5 new reference lines from ICAR-CTCRI. One farmer's variety (Manna) was received from CTCRI, Kerala for maintaining at the field gene bank. Characterization for the same has been done for the first year. The unique characteristics of each reference line for Sweet Potato and Cassava have been identified and documented for 25 characters for sweet potato and 30 characters for cassava. For sweet potato characters like vine pigmentation, vine length of internode, leaf shape, leaf colour, tuber shape, tuber skin colour, tuber flesh colour, etc. is considered for updating the DUS data. For cassava characters like leaf colour, plant height, plant type, plant canopy, tuber shape, tuber skin colour, tuber flesh colour, etc is considered for updating the DUS data. All lines of sweet potato vines were harvested and planted in individual pots for planting in fields in next season. Maintained CTCRI released varieties in in vitro as Bhubaneswar is cyclone prone area.



Conservation measures taken:

The sweet potato vines of the above-listed lines are transferred to pots for planting in next season.

To prevent the loss of released varieties due to cyclones and other natural disasters, in vitro conservation is used to preserve the distinctive varieties of sweet potato.

3.1.40. DUS TESTING CENTRE FOR ELEPHANT FOOT YAM AND TARO

ICAR- CENTRAL TUBER CROPS RESEARCH INSTITUTE, BHUBANESWAR, ODISHA

During the period 2022-23, the field gene bank was mainttained with 21 taro reference lines and 18 Elephant Foot Yam reference lines. Taro and yams were harvested and maintained in storage room for next season planting. Characterization of two candidate lines (Guchedar and Narendra Ghuiya) received from PPV&FRA has been completed.

Two new candidate lines Giddi Mudli and Phoola Mudli were received from Uttar Kannada, Karnataka. Both the lines were planted at field gene bank for multiplication. Characterization will be done for first year in next season. The unique characteristics of each reference line for Taro and Elephant Foot Yamhave been identified and documented for 50 characters for Taro and 38 characters for EFY.

3.1.41. DUS TESTING CENTRE FOR MANDARIN, SWEET ORANGE, ACID LIME

ICAR-CENTRAL CITRUS RESEARCH INSTITUTE, NAGPUR, MAHARASHTRA

This DUS testing center for citrus (mandarin, sweet orange and acid lime), the following reference/example varieties of citrus crops under maintenance/characterized during 2022-23.

Mandarin	Sweet orange	Acid lime
NRCC Nagpur Mandarin Seedless – 4 (N - 4), Mudkhed seedless, Sikkim mandarin, Darjeeling mandarin, N-28, N-34, N-38	M3, M4, M8, Mosambi, Sathgudi	Vikram, Pramalini, Sai Sharbati, NRCC Niboo – 2, NRCC Niboo – 3, NRCC Niboo – 4, NRCC Niboo – 5, NRCC Acid Lime – 7 and NRCC Acid Lime – 8
		

3.1.42. DUS TESTING CENTRE FOR TEA

TOCKLAI TEA RESEARCH INSTITUTE, TOCKLAI EXPERIMENTAL STATION, JORHAT, ASSAM

Tocklai Tea Research Institute, Assam, Jorhat is credited to be the oldest tea germplasm collection centre of India and maintain around more than 1800 tea germplasm and work as a Tea DUS nodal centre under the supervision of PPVFRA, New Delhi. Major component of the centre is the collection of DUS characterization data which are available at the different centre of Tocklai, TRA and provide the valuable information on the tea conservation practices to the planter's and small tea growers through various meeting and seminars. Morphological variation in the lea arc generally affected by the following reason as perennial nature of plant, slow vegetative and reproductive growth, available no. of mature bushes for taking DUS data, available population size, environmental condition of the tea growing area, bush infestation status, accessibility of tea germplasm, difficult terrain for tea plantation and technical resources.

During the FY 2022- 2023, DUS data collected from the 20 Garden series, 03 estate clones, 09 diverse tea planting materials of Stock 811 and Stock 480 series. About 32 tea planting materials were successfully included for charucterization and data base generation as per suggested format. Overall 260 diverse tea planting materials DUS data have been collected and compiled in DUS data base. For the DUS testing of diverse tea germplasm, some germplasm have been collected and multiply at the centre from the 02 tea estates of Assam and Dooars during financial year 2022- 23. On the basis of preliminary diversity data, few promising materials have been marked and incorporated in the future studies. Work is in progress.

TRA has also submitted the application for the registration of four varieties as TV31, TV 32, TV33 and one seed stocks TSS 1. Collect the DUS data from three different locations and submitted for registration process. These new clones were sent to i7 tea estates for propagation in different region. Under the FY 2022-2023, TRA has created 10,000 plant capacity tea nurseries for proper growth, development and multiplication of tea planting materials. During 2018 to 2023, TRA has tested 26A no. of entries through DUS characteization. TRA has also prepared the fresh photographs of DUS test characters for better comparison study.

As a newly released seed planting materials, progeny of TSS 1 were initially sent to Khoomtai tea estate and Socklatinga tea estate for propagation in different climatic condition region for DUS test.

3.1.43. DUS TESTING CENTRE FOR TEMPERATE FRUITS AND NUTS VIZ. APPLE, PEAR, PEACH, PLUM , APRICOT , CHERRY, ALMOND, WALNUT AND STRAWBERRY

ICAR- CENTRAL INSTITUTE OF TEMPERATE HORTICULTURE, SRINAGAR, JAMMU AND KASHMIR

During the reporting period 2022-23, Characterization of apple, walnut, almond, peach, plum and cherry was performed as per the DUS descriptor developed PPV&FRA, New Delhi. The characterized data was converted into different notes which can act as data base for comparing candidate varieties with reference varieties at any time. Maintenance of reference varieties is being done and all traits/characters are being tested at nodal centre ICAR-CITH, Srinagar for their uniformity and stability. The new germplasm block of apple has been successfully developed by ICAR-CITH, Srinagar. The germplasm block consists of 238 varieties/hybrids of apple, making it Asia's first repository having such a huge number of varieties/hybrids of single fruit specie at one place.

Reference varieties maintained at ICAR-CITH, Srinagar		Reference varieties characterized	
Crops	No. of varieties under maintenance during 2022-23	Crops	No. of varieties under characterized during 2022-23
Apple	130	Apple	35
Pear	21	Walnut	27
Walnut	27	Almond	13
Almond	13	Peach	15
Peach	31	Plum	8
Plum	25	Cherry	8
Apricot	18		
Cherry	10		
Strawberry	107		





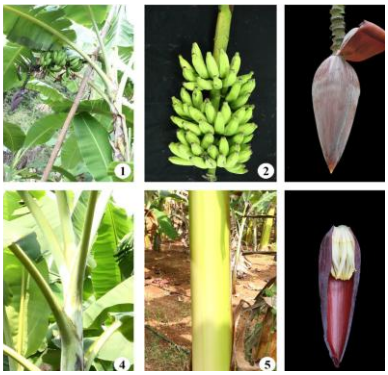
ICAR-Central Institute of Temperate Horticulture, Srinagar and PPV&FRA, New Delhi jointly organized two days International workshop on "DUS testing of apple and pear" from 7th to 8th September 2022 at ICAR-Central Institute of Temperate Horticulture, Srinagar, Kashmir (Hybrid Mode) under Indo-German Cooperation on Seed Sector Development. During the deliberations thorough discussions resolved many issues related to DUS testing of apple and pear under Indian conditions. Fine tuning of On-site DUS testing was planned after relevant and desired feedback obtained from German scientists. Field visit was also organized to provide on spot training on DUS testing to the participants. Farmers were made aware about protection of their varieties through PPV&FRA and the benefits of protection thereof.

Study visit, consultation meeting and training of Dr Javid Iqbal Mir (PI, DUS Centre) and Dr Wasim Hassan Raja (Co-PI, Dus Centre) in Germany on DUS testing on Apple & Pear was convened from 25.09.2022 – 01.10.2022 (7 days). During the visit and discussion with German experts on DUS testing of apple & pear, breeding of fruit crops, germplasm management and protection etc, key areas having practical utility to be focussed on were identified which include use of molecular and biochemical

markers in DUS testing for only those varieties which have specific gene for specific traits, DUS testing of apple rootstocks which need separate guidelines to be developed at the earliest, for speeding up breeding programmes in apple transgenic line PPMads-4 (source: Silver Birch) need to be used for inducing precocity, for maintaining scab resistance genes like Rvi-5, Rvi-11, Rvi-12 & Rvi-15 need to be introgressed in commercial cultivars etc. Also suitable genotypes of apple (SQ-159/Natula/Magic Star for scab resistance), Areko (Cherry for quality), PPMads-4 (Transgenic apple for speed breeding programme) etc were identified.

3.1.44. DUS TESTING CENTRE FOR BANANA

ICAR- NATIONAL RESEARCH CENTER FOR BANANA, TRICHY, TAMIL NADU



During the year 2022-23, This centre has been maintained 38 banana varieties at ICAR-NRC for Banana, Trichy. DUS characterization has been completed for two farmer's varieties viz. Kudhiraival chingan and Thottu chingan and the results are being submitted now. ICAR-NRCB has filed the application for registration of farmer's variety Ney Kadali and planting material of the same has been received for DUS testing. Two farmers varieties namely Chingan & Semmatti and one institute variety Kaveri Sugantham have been successfully registered with PPVFRA, New Delhi and certificates have been received.

3.1.45. DUS TESTING CENTRE FOR NONI

ICAR- CENTRAL ISLAND AGRICULTURAL RESEARCH INSTITUTE, PORT BLAIR, ANDMAN AND NICOBAR ISLANDS

***Morinda citrifolia* reference varieties**

Noni mother blocks viz., CIARI - Samapada, CIARI- Sanjivini, CIARI- Rakshak and CIARI-Samridhi were maintained at Garacharma and Sipighat farm with implementing timely silvicultural activities like, weeding, earthingup, fertilizer application and pruning. Timely implementation of the silvicultural operations improved the growth and fruit yield of the noni plantation.

Noni collection and conservation

Extensive germplasm collection survey was carried out from unexplored Islands from Nicobar Districts. Collected three new noni accessions, seeds were extracted and sown in the nursery for production of seedlings and further growth and performance study at Garacharma Research farm.

Yield performance of Morinda citrifolia reference varieties

Month-wise fruit yield and fruit characters of 11 year old noni trees were recorded for all the four reference varieties to assess the their yield potential under the influence of weather. In general, the fruit yield was higher than that of previous year. The mean values of fruit yield per tree have the significant difference among the varieties. The highest fruit yield of 27 kg/tree was recorded in CIARI Sampada on par with CIARI Samridhi (26.5kg/tree) followed by CIARI Sanjivini (25.10 kg/tree). Minimum fruit yield of 21.35 kg/tree was recorded in CIARI Rakshak. In all the four varieties the highest fruit yield per plant was recorded in April like previous year and CIARI Sampada variety recorded the highest fruit yield of 3.20 kg/tree in November.

3.1.46. DUS TESTING CENTRES FOR CORIANDER, FENUGREEK, FENNEL AND CUMIN

ICAR-NATIONAL RESEARCH CENTRE ON SEED SPICES TABIJI, AJMER, RAJASTHAN

List/ No. of varieties (crop wise) under maintenance breeding

S. No.	Crop species	Source of varieties	Name of the varieties
1.	Coriander (*Coriandrum sativum*L.)	ICAR and SAU'S	23
2.	Fenugreek (*Trigonella foenumgraecum*L.),	ICAR and SAU'S	22
3.	Fennel (*Foeniculum vulgare MILL.)*	ICAR and SAU'S	20
4.	Cumin (*Cuminum cyminum*)	ICAR and SAU'S	09

List of varieties under DUS test (category wise New/VCK/FV; 1ST/ 2nd year) Nodal and co-nodal center under

Year	List of new Varieties	Farmer's Varieties
2022-23	First year of testing: Candidate variety: New variety:	Farmers Varieties of coriander:**15** 2889/2155, 2881/4150, 2880/3652, 2881/4146, 2880/3310, 22COHIDH01, 22CORC2002, 22COJD-103, 22CORC4604, 22CORC3505, 22CORC4106, 22COHIHI07, 22COGC-108, 22COCO-409, 22COAC-110 Farmers Varieties of fenugreek : **4** 2883/2416 (Second year of testing) 2881/4297, 22FERM0101, 22FEAZHI02

DUS experiment of major seed spices (coriander, fenugreek, fennel and cumin) was laid out at NRCSS, Ajmer (Rajasthan) during 2022-23. In this experiment 38 varieties of coriander, (23 references and 15 candidates), 22 varieties of fenugreek (4 candidate), 20 varieties of

fennel, 09 varieties of cumin were included for maintenance breeding.

Seed Spices, Isabgol and Kalmegh

ICAR- DIRECTORATE OF MEDICINAL AND AROMATIC PLANTS RESEARCH, ANAND, GUJARAT

Maintenance of reference/example varieties of kalmegh (Andrographis paniculata) during the kharif season of 2022-23 a total of 24 reference/example varieties of kalmegh were maintained and characterized data for each of these reference varieties has been provided separately

Maintenance of example/reference varieties of isabgol (*Plantago ovata)*

During the year 2022-23, eleven example varieties of isabgol (*Plantago ovata) i.e.* DMAPR PO1, DMAPR PO2, DMAPR PO3, DMAPR PO4, DMAPR PO5, DMAPR PO6, DMAPR PO7, DMAPR PO8, DMAPR PO9, DMAPR PO10 and DMAPR PO11 were maintained.

This center testing also candidate varieties of seed spices i.e. coriander and fenugreek under DUS. During 2022-23, 15 typical verities of Coriander and 03 typical varieties of Fenugreem including reference verities were tested which were received from the nodal centre i.e., ICAR-NRCSS, Ajmer.

3.1.47. DUS TESTING CENTRES FOR MANGO

ICAR-CENTRAL INSTITUTE OF SUBTROPICAL HORTICULTURE, LUCKNOW, UTTAR PRADESH

DUS testing was performed and data submitted for 23 farmer's mango varieties. The PPV&FRA Registration Certificate has been issued for 08 Farmers mango varieties viz. AUGUST (REG/2014/775); TUKHMI HEERA (REG/2014/776); SAFEDA AMIN (REG/2014/777); JAMUN (REG/2014/779); MATKA GOLA (REG/2014/780); AAMIN (REG/2014/783); MUNJJAR AAMIN (REG/2014/784); DESHI GOLA (REG/2014/807). PPV&FRA Registration Certificate has also been issued for 01 public sector variety i.e. ARUNIKA (REG/2019/101). DUS characterization of mango varieties (91) available in the field gene bank. The reference and farmer varieties (415) were maintained. One awareness campaign for registration of mango farmers varieties was held in the area where farmer's varieties of mango exist. Training and

awareness programs were held to educate farmers about the existing varieties and the benefits of registering their varieties with PPV&FRA.

ICAR-CENTRAL INSTITUTE OF SUBTROPICAL HORTICULTURE, RRS, MALDA, WB

Registration of varieties farmer developed by farmers DUS testing of 48 farmer's varieties for registration is going on DUS conservation and maintenance of farmer, institute or public sector varieties. Organizing the awareness program in the areas where farmer's varieties of mango exist.

ICAR-INDIAN INSTITUTE OF HORTICULTURE RESEARCH, HESARRAGHATTA, BENGALURU, KARNATAKA

DUS testing of candidate varieties in 2022-23

Crops	New			VCK	Ref. Var.
	1st year entries	2nd year entries	3nd year entries		
Mango	15	10	5		10

Varieties under maintenance/characterized:

Crops	Name (or) No of varieties under maintenance breeding in 2022-23
Mango	30

During the reporting period 2022-23, six mango varieties from the DUS plot were analyzed for the morphological traits (Leaf characteristics). Inflorescence characteristics *viz.*, time of flowering, inflorescence length, inflorescence diameter, inflorescence ratio, and anthocyanin coloration of axis and branches of 6 varieties were recorded as per the DUS guidelines. The inflorescence length was maximum in Rayeval (28.00 cm) whereas the minimum inflorescence length recorded in the variety SRA6 (22.3 cm). The inflorescence width ranged from 14.4 cm in Irewin to 16.8cm in Rayeval. The inflorescence anthocyanin coloration of axis and branches was medium in most of the accessions. It was found to be weak in Farhan and strong in Dadabhai pasand.

A total of 30 farmers varieties and 10 reference varieties and have been raised for conduct of DUS Test for 33 morphological characters as per DUS test guidelines.Two mango hybrids (Arka Udaya and Arka Suprabhath) and fourteen mango varieties were registered.

On site evaluation on 21.12.2022 of farmer's variety (Neil Mango) submitted by farmer, Mr Chinta Haran Das, Bharatpur Village, Shaheed Dweep (Neil Island) was carried out by a team comprising of Dr. M. Sankaran along with scientists from CARI, Port Blair Dr. P. K. Singh, Head, Division of Crop Sciences and Dr. K. Abirami, Senior Scientist (Horticulture). This variety was found to be similar to Totapuri variety but possesses the characteristics of shoulder colour, early maturing very good pulp quality and polyembryony in nature.

3.1.48. DUS TESTING CENTRES FOR SUGARCANE (TROPICAL)

ICAR-SUGARCANE BREEDING INSTITUTE, COIMBATORE, TAMIL NADU AND AGALI, KERALA

During 2022-23, the Centres received seed canes of 3new varieties (NV) namely, Phule-11082 (CoM 11082) andPhule Sugarcane 15012 (MS 17082) received from CSRS, Padegaonfor conduct of DUS testatboththe Centres (CoimbatoreandAgali Centres). The seed canes of these varieties were multiplied during the reported period.

Conduct of DUS test: During 2022-23 season, both the Centres conducted DUS test of 5 varieties namely, CoA 14321, CoA 14323, CoM 0265, Co 11015 and Co 10026.
The details are given below:

First year DUS test for two NVs namely, (i) CoA 14321 along withclosely resembling RVs namely, CoG 93076, Co 97009, (ii) CoA 14323 (NV) along with closely resembling RVs such as CoC 773, Co 7527and one extant variety CoM 0265 along with closely resembling RV Co 87044, CoN 07072 and zonal standards (CoA 92081, CoV 92102) was conducted at both Centres.

Second year DUS test for two new varieties namely, Co 11015 and Co 10026 along with closely resembling RVs namely, Co85002,Co85019 for Co11015 and CoN95132,Co7508 for Co10026 and zonal standards (Co 86032, CoC 671) was conducted at both Centres.

For the conduct of DUS trials, about 150 settling of each candidate variety + RVs + zonal standards were raised in polybags during 1st week of January 2022 both at Lead and Co-operatingCentres. After a month, about 80 settlings from each variety were taken and transplanted in the main fields. At Coimbatore Centre the settlings was transplanted in main fields during 1st week of March 2022 and at Agali Centre this was done onsecond week of February 2022.
The recommended PoP was followed and disease free good crop was raised. Morphometric traits (27 DUS traits) were recorded at different growth stages as per the guidelines at Lead and Co-operating Centres.

3.1.49. DUS TESTING CENTRES FOR SUGARCANE (SUB-TROPICAL)

ICAR-SUGARCANE BREEDING INSTITUTE, LUCKNOW, UTTAR PRADESH

Maintenance of reference collection of sugarcane varieties: One hundred and eighty Sugarcane clone (reference varieties,earlier candidate varieties) were planted in DUS field for maintenance during spring season of 2023-24 for maintainance. This reference collection

includes all the identified, released and notified varieties from CVRC, varieties released from states and clones from Advanced Varietal Trials of AICRP(S) available with different research organization working on sugarcane. Four new sugarcane clones released for cultivationin UP (CoS 17231, CoS 16233, UP 14234, CoS 14233) and one clone Rajendra Ganna-1 released and notified for Bihar included in maintenance block for characterization. DUS characters were recorded on more than 140 varieties in reference collection as per the DUS Testing guidelines.
DUS Testing Trial: The status of DUS Testing during 2022-23 was as below:

New Variety:
Three newly released sugarcane varieties viz. CoLk 11203, CoLk 11206 and Co 12029 were planted for DUS Testing for recording of second year DUS data. Two year data were recorded as per schedule and the compiled data will be submitted separately.

The DUS testing Trial (1st year) has been planted in the month of Feb,2022 for newly released sugarcan varieties viz. Co 13035, CoLk 12207 and CoLk 12209. The observations have been recorded as per guidelines and replanted during 2023-24 for recording observation for second year. After completion of second year observation data will be compiled and submitted.

ICAR –SUGARCANE BREEDING INSTITUTE, REGIONAL CENTRE, KARNAL, HARYANA

Maintenance of reference varieties (RV) of sugarcane: A total of 167 sub-tropical sugarcane reference varieties were maintained in field under the disease free conditions in a plot of size 6m L x 0.9 m spacing between rows x 2 R per RV at ICAR-Sugarcane Breeding Institute-Regional Centre, Karnal. Verification of DUS descriptors of reference varieties were undertaken as part of DUS characterization of the reference varieties.

The following category DUS reference varieties are being maintained at the centre:
BO series-17 varieties; CoP series-7; CoB series-1; CoBln series 8; CoH series 12; CoJ series 5; CoPb series4; CoLk series 9; CoPant series 9; CoS series 50; CoSe series 14; CoPk 1; UP series 6 varieties, Co varieties 23.
Re-characterization of Reference Varieties: DUS traits of 167 RV maintained at ICAR-SBIRC, Karnal were verified /re-characterized during 2022-23 and the database of all the verified DUS reference varieties is being submitted to the PPV&FR Authority in tabulation format (Annexure-1).
DUS testing for New Sugarcane Variety:First year DUS test of Co 13035 along with its reference varieties (CoPant 97222 and CoS 90269) and second year DUS test for two new sugarcane varietyviz., CoLk 11203 and CoLk 11206 was conducted at ICAR-SBI Regional Centre, Karnal along with reference varieties (CoS 8436, CoSe 0235, CoPant 84212 and UP 9530). A total of one hundred and sixty settlings derived from single bud setts of each varieties, were transplanted into RBD design with two replications in the DUS testing field. The plot size of 4 Rows x 6 m length x 0.9 m row to row spacing was maintained. Observations on twenty seven morphological traits were recorded from the candidate as well as reference varieties. The result of 2nd year trial shows that the candidate variety CoLk 11203 and CoLk 11206was distinct from each other as well as from the

reference varieties and the population of these varieties was uniform in both the years. The claimed /essential characters recorded from these entries had shown stable performance in second year as well.
First year DUS testing of Co13035 was completed as per the DUS testing guidelines of PPV&FR authority. DUS results indicate that the population of Co13035 was uniform during the first year trial.

3.1.50. DUS TESTING CENTRE FOR COCONUT

ICAR-CENTRAL PLANTATION CROPS RESEARCH INSTITUTE, KASARAGOD, KERALA

During the year 2022-23, 14 reference varieties of coconut has maintained and charaterised at DUS centre. One candidate new variety was under DUS testing for fourth year.

DUS characteristics (fourth year observations) were recorded in candidate variety (REG/2015/415) planted in DUS field along with three reference varieties. Inflorescence characteristics were recorded during September-November. Higher inflorescence length, medium stalk girth, medium number of spikelets and absence of intra spadix overlapping was observed under DUS testing of candidate variety. Volume of tender nut was medium.
As instructed from PPV&FRA, on site observations were under taken on adult palms of the candidate variety Konkan Bhatye Coconut Hybrid-1, Reg 12015/415 at RCRS, Bhatye. Inflorescence characters were recorded during November 2022 while tender nut and fruit characteristics were observed during May 2023. Inflorescence length ranged from 90-130cm, stalk girth from 9-11cm, number of spikelet varied from 30-48 and female flowers from 12-26. Volume of tender nut water varied from 210-490 ml.
On site recording of data of the farmer's variety (Reg/2014/1949) was continued in the variety Edava long fibre coconut from Thiruvanthapuram. DUS table of characteristics was recorded from a total of ten adult palms from ten farmers at Kappil, Edava, Trivandrum. Seedling, Inflorescence and leaf characters were recorded from the adult palms of the farmer's variety. Inflorescence length ranged from 80-120cm, stalk girth grouped in thick category, number of spikelet recorded was 30-58 and female flower varied from 11-30. Seven month old tender nuts were harvested from the mother palms and tender nut parameters were recorded. The volume of tender water recorded varied from high to very high. Mature fruits was harvested and studied for recording fruit characters.

3.1.51. DUS TESTING CENTRE FOR DATEPALM

ICAR- CENTRAL INSTITUTE FOR ARID HORTICULTURE, BIKANER, RAJASTHAN

During the period 2022-23, under DUS centre on date palm, data on morphological and fruit characters in reference varieties were recorded as per DUS guidelines. The spathe emergence/flowering/fruiting were recorded in 38 varieties out of 42 varieties during 2022. Early emergence of spathe/opening in male palms in comparison to female was also observed. Early

flowering/fruiting and maturity were noted in cv. Dhamas Nagal and Surya. Variation in fruit weight, size, shape, and stone weight were observed. Fruit yield varied from 5.0 to 60 kg/plant at doka stage. Medjool, Sabiah, Dayari and Siwi cultivars were harvested late at the end of July and beginning of August. The reference varieties were maintained at the centre.

Evaluation of male palm for pollen production

Date palm is a dioecious plant and hand pollination is essential because of non-synchronous conditions of flowering. Therefore, the present study was performed to characterize the 9 male date palm genotypes at various morphological, biochemical parameters. The morphological parameters pertain to leaf, spathe and inflorescence showed significant variation among the genotypes which suggested the substantial level of genetic variability. The CIAH-DP-M1 found superior in all the parameters related to the inflorescence among the genotype studied. Similarly, the biochemical parameters like total phenolics content, total antioxidant capacity, flavonoids and total sugar content were also exhibited at significant level which shows the potential of pollen grains as good source of pollination in date palm. The characterized promising male date palm genotypes in the present study could be a good pollen source under hot arid condition of western India.

3.1.52. DUS TESTING CENTRE FOR POMEGRANATE

ICAR-NATIONAL RESEARCH CENTRE ON POMEGRANATE, SOLAPUR, MAHARASHTRA

During 2022-23, 27 pomegranate reference varieties were maintained and characterized for 36 DUS characters as per PPV&FRA guidelines. On-Site DUS testing of farmer variety "SHARAD KING" was carried out at farmer field Aurangabad, Maharashtra along with the DUS monitoring team constituted by PPV&FRA, New Delhi on July 14, 2022. The tested candidate variety (SHARD KING) found distinct for the traits like petal length (large), petal width (large), fruit shape (round), aril length (short), fruit maturity (medium) in comparison to reference variety 'BHAGAWA' (medium, medium, ovate, medium, late). The monitoring also team observed the uniform fruit maturity in farmer variety "SHARAD KING'. The on-site DUS test report of farmer variety "SHARAD KING" submitted to Authority. An online meeting attended for International Webinar on "Prospects of Varieties/Crops Developed through Genome Editing (regulatory framework, technologies and experience)" under Indo-German Cooperation on Seed Sector Development on 24th May, 2022.

3.1.53. DUS TESTING CENTRE FOR NEEM, KARANJ AND JATROPHA

FOREST COLLEGE AND RESEARCH INSTITUTE TAMIL NADU AGRICULTURAL UNIVERSITY, METTUPALAYAM, TAMIL NADU

During reporting period 2022-23, the centre has maintained 32 Neem reference varieties and 33 Karanj reference varieties. Validation of 19 DUS descriptors out of 21 descriptors for the 32 neem reference collection was completed and documented. Validation of 14 DUS descriptors out of 23 descriptors for the 33 Pungam reference collections was completed and documented. The biometric observation in terms of height, girth and number of branches in the 32 neem reference collection and 33 Karanj reference collections are recorded periodically.

Conduct training on DUS testing and varietal registration to farmers (total 50 numbers) for the period of 17-09-2022. Sensitized scientists on DUS testing of neem and Karanj in the scientist meet tiled "32nd Forestry Scientist Meet" on 02-9-2022 and conducted by TNAU, Coimbatore.

3.1.54. DUS TESTING CENTRE FOR JASMINE

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

During the year 2022-23, jasmine varieties under maintenance breeding were characterized *J.sambac* (24 nos.), *J. auriculatum* (6 nos.), *J.multiflorum* (3 nos.) and *J.grandiflorum* (4 nos.) and six other lesser-known species (*Jasminum rigidum, Jasminum nitidum, Jasminum flexile, Jasminum malabaricum, Jasminum humile and Jasminum primulinum*) are being maintained in the field gene bank and characterized. The data has been submitted for *Jasminum sambac, Jasminum auriculatum, Jasminum multiflorum, Jasminum grandiflorum* genotypes and other lesser-known species (*Jasminum rigidum, Jasminum nitidum, Jasminum flexile, Jasminum malabaricum*, were evaluated based on the morphological characteristics and their corresponding states.

The draft of DUS test guidelines for *Jasminum spp.* was discussed online in the first Task Force meeting convened on 10.2.2023. The suggestions for modification of the draft have been incorporated and submitted to the Authority.

TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE, TAMIL NADU

Varieties under maintenance:
65 genotypes belonging to following 12 species are maintained in the germplasm.

(1) *J. sambac*
(2) *J. auriculatum*
(3) *J. grandiflorum*
(4) *J. multiflorum* (Syn: *J. pubescens)*
(7) *J. rigidum*
(8) *J. humile* (Syn: *J. bignoneaceum)*
(9). *J. primulinum*
(10) *J. flexile*

(5) *J. nitidum* (11) *J. arborescens*
(6) *J. calophyllum*

S.No.	Achievement	Authentication
1.	Assembled germplasm of jasmine	Germplasm with 65 collections maintained at Dept. of Floriculture, Coimbatore
2.	Formulated DUS testing guidelines for *Jasminum auriculatum*	Published in the Plant Variety Journal of India, Vol. 08, No. 12 (December, 2014)
3.	Formulated DUS testing guidelines for *Jasminum sambac*	Published in the Plant Variety Journal of India, Vol. 10, No. 01 (January, 2016)
4.	Formulated DUS testing guidelines for *Jasminum multiflorum*	Submitted to PPV&FRA, New Delhi in December, 2015
5.	Formulated DUS testing guidelines for *Jasminum grandiflorum*	Submitted to PPV&FRA, New Delhi in December, 2016.
6.	Formulated common DUS testing guidelines for *Jasminum* spp.	Submitted to PPV&FRA; awaiting approval.

3.1.55. DUS TESTING CENTRE FOR CANNA, BOUGAINVILLEA AND GLADIOLUS

CSIR-NATIONAL BOTANICAL RESEARCH INSTITUTE, LUCKNOW, UTTAR PRADESH

BOUGAINVILLEA

Total 202 varieties are conserved and maintained in the center as Reference Varieties. No candidate varieties were received during 2022-2023. Measurements of morphological characters were done based on DUS Test guidelines and characters such as stem colour, thorn size, shape, leaf shape, size, bract colour, flower size and colour etc., of selected varieties were recorded, analyzed and photographed for identifying character and variations occurred within the varieties. Characterization of the following references varieties viz., Red Triangle, Suvarna, Mrs. Butt, Enid Walker, Thimma, Filoman, Spring Festival, Vishakha, Camarillo Fiesta, Cherry Blossom were done along with their photographs of vegetative and reproductive parts.

CANNA

The germplasm (52 Canna varieties and five Canna species) was conserved in field beds (Area 3000 m2) designated for the DUS Test Centre by providing regular cultural practices round the year. Measurements of morphological characters were done based on DUS Test guidelines. The characters such as stem diameter, shape, length, leaf size, number, shape, colour, rhizome colour, diameter, number of eyes, inflorescence

length, number of flowers, flower size, calyx size, corolla size shape, colour, staminode size, shape, colour, labellum size, shape, colour, fertile stamen size, colour, were recorded, analysed and photographed at DUS Test germplasm collection facility. Characterization of the following varieties viz., Red President, Assault, Aloha, Black Knight, Canna indica were done, along with their photographs of vegetative and reproductive plant parts.

GLADIOLUS

Total 73 exotic cultivars and 48 Indian bred cultivars are conserved and maintained as reference varieties while no candidate varieties were received. Measurements of morphological characters were done based on DUS Test guidelines. The characters such as height, leaf length, width, colour, curvature, spike, rachis length, number of flowers / spike, arrangement of flowers, shape, size, attitude, colour, etc., of 70 gladiolus varieties were recorded, analyzed and photographed to collect the information about distinct features of these varieties and use it as reference varieties for protection of other new varieties under PPV&FR Act, 2001. Characterization of the following varieties viz., Sunayna, Punjab Delight, Apollo, Fortuna, American Beauty Pink, Palampur Pride, Jwala, Fidelio, Zeus, Punjab Don were documented along with photographs of vegetative and reproductive plant parts.

3.1.56. DUS TESTING CENTRE FOR BOUGAINVILLEA

ICAR-INDIAN AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI

Number of varieties Bougainvillea Cultivars under maintainance: 100

Bougainvillea demonstration and interaction programme from 15-17 March, 2023 organized by Division of Floriculture & Landscaping, ICAR-IARI, New Delhi. It was very helpful for creating awareness among amateurs, nurserymen, gardeners, students, flower growers including marginal farmers about new technologies in the field of horticulture for their progress.

Dr. K. V. Prabhu (Ex. Chairman, PPV&FRA) and Ms. Alka Nangia Arora, Additional Secretary(DARE) & ***Financial Advisor*** (***ICAR***) visited our centre time to time and provided expert advice for the improvement of DUS Centre. We have multiplied bougainvillea planting material through hard wood cutting in both the seasons (summer and rainy) and sold to various departments like PWD, CPWD, SAU(s), Delhi based Landscapist etc. Large number of bougainvillea lovers and garden amateurs visited the garden.

3.1.57. DUS TESTING CENTRE FOR GLADIOLUS

ICAR-INDIAN AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI

158 numbers of germplasm/varieties of Gladiolus are being maintained and last year's gladiolus species received through NBPGR from South Africa are also being maintained throught tissue culture. Except this, more than 25 number of reference/example varieties are maintained. This year DUS data for 5 example/reference varieties are recorded and maintained.

During the year 2022-23, one new cultivar i.e Pusa Rajat is added to the existing germplasm. The monitoring team had visited in the field of DUS centre for gladiolus on 14.02.2023. The monitoring team observed and seen that DUS centre has maintained 158 numbers of germplasm/varieties/hybrids including more than 25 reference varieties. Last years' nine species of gladiolus received form South Africa through NBPGR, such as *Carneus, Crassifolius, Dalenii, Hirsutus, Virescens, Two Carinatus* and two, *Tristis* are also maintained in tissue culture laboratory. Other activities such as harvesting/digging, cleaning, curing of corms for all reference and other varieties are under progress before sending to cold storage.

3.1.58. DUS TESTING CENTRE FOR CHRYSANTHEMUM

ICAR-INDIAN AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI

The centre has maintained 170 varieties of Chrysanthemum were maintained among which 50 (reference variety and 20 other varieties) were evaluated based on DUS guidelines of PPVFRA during the reporting period 2022-23. Two candidate varieties were under DUS testing for 1st year under new variety category. The reference varieties were grouped as per DUS guidelines characteristics i.e. Plant type, variety class, flower head type, Ray floret, Disc type, flower type and economic use.

3.1.59. DUS TESTING CENTRE FOR MARIGOLD

ICAR-INDIAN AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI

During the year under report, 67 genotypes (including 23 reference varieties/ lines) of marigold were maintained well following standard package of practives necessary for marigold crop. These varieties/lines were propagated in the nursery and transplanted in the main fieldat the Research Farm of Nodal/Lead centrei.e. Division of Floriculture and Landscaping, ICAR-Indian Agricultural Research Institute**,** New Delhi. The sexually propagated reference varieties / lines were subjected for selfing after flowering after roughing out undesired plants to maintain purity of genotypes. In addition, candidate

varieties (New variety) i.e. trial code – MG22H1 & Trial code-MG22 H22 was also grown along with reference varieties for DUS testing.

No. of varieties	Sources (own released/ ICAR/SAU)	
67	34 IARI, New Delhi (released varieties/selections) 09 IIHR , Bengaluru(released varieties/selections) 02 CCS HAU, Hisar(released varieties) 02 BCKV, Kalyani (released varieties) 18 other(released varieties)	

The monitoring team had visited in the field of DUS centre for marigol on 03.01.2023. The monitoring team observed and seen that DUS centre has testing two candidate varieties and maintained 67 numbers of example/reference varieties.

ICAR INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA, BENGALURU, KARNATAKA

During the period 2022-23, 15 varieties of marigold were maintained at DUS centre for maintenance breeding and characterisation. DUS data recording was done for a total of 15 varieties of which 09 are example varieties and remaining 06 were reference varieties.

The centre has maintained following reference and exampled varieties from Public Sector.

		Total No.	Example No. and Name	Reference No. and Name
i)	IARI	**7**		
	African	5	4 (IARI/AP/W-4, PUSA NARANGI, PUSA BASANTI, IARI/AP/W-8	1 (Pusa Bahar)
	French Marigold	2	1 (Pusa Arpitta)	1 (Pusa Deep)
ii)	IIHR	**10**		
	African	3	6 (IIHRMYs-3, Arka Bangara-2 (Arka Alankara as published in	-

			Guideline), IIHRMO-3)	
	French Marigold	1	1 (IIHRMO-4)	-
iii)	Other than public sector (Private Sector)			
	French Marigold	4	-	4 (Orange Winner , Gulzafri Yellow, Valencia Yellow, Dainty Marietta)

3.1.60. DUS TESTING CENTRE FOR SOYBEAN

ICAR-INDIAN INSTITUTE OF SOYBEAN RESEARCH, INDORE, MADHYA PRADESH

DUS Testing of Soybean Candidate Variety:
8 candidate varieties were tested for 1st year for 19 morphological and 3 biochemical parameters.

Maintenance of reference varieties:
140 released and notified soybean varieties were maintained during Kharif 2022 and characterized for morphological characteristics. These characteristics were critically observed for fine tuning of DUS Testing guidelines of soybean. The hypocotyl anthocyanin pigmentation was observed and found that in case of absence category some varieties are having hypoctyl completely green without any anthocyanin and some varieties are having some degree of anthocyanin present in hypocotyls. Anthocyanin pigmentation is linked character to flower character. Pigmentation presence is linked to purple flower and absence is linked to white flower. Light pigmentation on hypotyl was found to have white flowers. This character is further under observation to check environmental impact on this character.

3.1.61. DUS TESTING CENTRES FOR ORCHIDS

ICAR-NATIONAL RESEARCH CENTRE FOR ORCHIDS, PAKYONG, EAST SIKKIM

During FY 2022-23, as per follows the varieties of orchids maintained at DUS centre.

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2022-23	Data Submission (Maintenance Breeding) Yes/No
Cymbidium	30	Yes
Dendrobium	12	Yes
Vanda	10	Yes
Phalaenopsis	10	Yes

Cattleya	8	Yes	
Oncidium	7	Yes	
Mokara	7	Yes	
Paphiopedilum	10	Yes	

Salient Achievements: Identified four traits in Farmers varieties Dendrobium aphyllum (TIEW LYNGSKAW) viz. Internode diameter, Inflorescence number /plant and flower number/inflorescence, nature of shoot, Dorsal sepal shape and lateral sepal shape, Lip lobation & Lip predominant colour and lip colour pattern for registration purposes.

Orchids and Carnation

DR. Y.S. PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY, NAUNI, SOLAN

During reporting period 2022-23, The example varieties of 30 cultivar of Carnation namely ; Kleos, Turbo Red, Pink Dover, White Dona, Goudina, Reggio-de sole, Baltico, Bizet, Cindrella, Madam Colette, Aicardi, Bright Rendezvous, White Wedding, Kiro, Don Pedro, Rendezvous, Madras, Liberty, Cool, Dark rendezvous, master, hermes, Snow storm, Diana yellow, Nordika, Happy Golem, Domingo, Tempo, Tamrind, Marathon are being maintained at the experimental farm of the Department of Floriculture and Landscape Architecture at DUS testing centre through vegetative propagation method using shoot tips which is a regular activity & required to be repeated different times of the year. The fresh trials on other varieties available in the collection will be laid out during its planting season in winters.

3.1.62. DUS TESTING CENTRES FOR ROSE

ICAR INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA, BENGALURU, KARNATAKA

During the year 2022-23, the centre has maintained and characterized 19 example and 128 reference varieties of rose. Total 25 varieties of Rose from public Sector and 128 varieties of rose from private sector varieties for utilize DUS testing of candidate varieties as per DUS guidelines. No candidate varieties received during reporting period.

ICAR-DIRECTORATE OF FLORICULTURAL RESEARCH, PUNE, MAHARASHTRA

A germplasm of 200 varieties consisting of both Exotic and Indigenous varieties are being maintained at the centre. During the year 45 new and 5 wild species were collected from different sources. The selected varieties were screened for various traits. DUS characterization under Pune

condition was carried out for 14varieties in 2022-23 growing season and data submitted. Other germplasm is maintained under field condition. The inputs (fertilizers and agro chemicals) required for project were procured.

Monitoring team has visited to the centreduring the year(2022-23). The team was satisfied with work undertaken in the project and suggested to enrich the germplasm.

Mandated Crop Species	Name or No of varieties under maintenance breeding in 2022-23	Replicated data of reference varieties
Rose	200 Varieties	Yes (data submitted of 14 reference varieties)

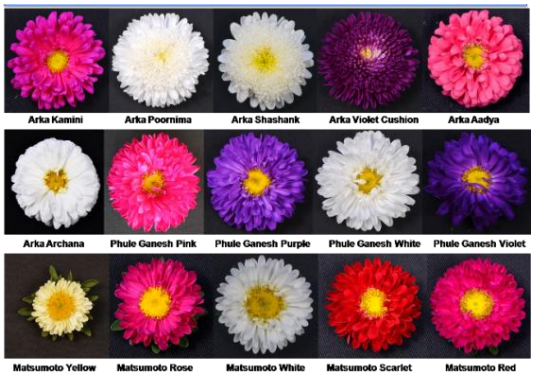
3.1.63. DUS TESTING CENTRES FOR CHINA ASTER AND CHRYSANTHEMUM

ICAR INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA, BENGALURU, KARNATAKA

DUS China aster

During the period 2022-23, A total of 31 genotypes were characterized as per DUS test guidelines (10 vegetative traits and 11 flower traits).

All 31 genotypes were multiplied and seeds were maintainedin refrigerator).



DUS Chrysanthemum

A total of 90 genotypes were characterized for 77 traits as per DUS test guidelines.

Two Chrysanthemum candidate varieties namely NBRI-Pukhaj and NBRI-Himjyoti received for DUS testing. These varieties were multiplied through terminal cuttings and planted in main plot. The observations are under progress.

DUS testing centres for China Aster

NATIONAL AGRICULTURE RESEARCH PROJECT, GANESHKHIND, PUNE, MAHARASHTRA

During the period 2022-23, the centre has maintained eight varieties of China Aster Arka Pournima, Arka Kamini, Arka Shashank, Arka Archana, Phule Ganesh White, Phule Ganesh Purple, Phule Ganesh

Violet and Phule Ganesh Pink at AICRP on Floriculture, Zonal Agricultural Research Station, Ganeshkhind, Pune.

3.1.64. DUS TESTING CENTRE FOR CASTOR, SUNFLOWER, SAFFLOWER

ICAR- INDIAN INSTITUTE OF OILSEEDS RESEARCH, HYDERABAD, TELANGANA

The ICAR - Indian Institute of Oilseeds Research, Hyderabad is the coordinating centre for testing of three oilseed crops *viz.*, castor, sunflower and safflower. The work done during April 2022 to March 2023 is presented below.

DUS TESTING

Safflower

During *rabi* 2022-23, six coded entries including new candidate varieties and reference entries of safflower *viz.*, 22Sf 1, 22Sf 2, 22Sf 3, 22Sf 4, 22Sf 5 and 22Sf 6 were sown (DOS 26.11.2022) for 1st year DUS testing as per test plot design defined in the guidelines. Data has been recorded for 22 DUS traits in accordance with the DUS test guidelines and four post-harvest observations are in progress.

CHARACTERIZATION AND SEED MULTIPLICATION

Castor

During *kharif* 2022-23, initial characterization of tworeference hybrids (ICH-66 and GCH-8) was taken up in replicated trial with 6 rows of 6 m for each replication. Data was recorded for 30 DUS traits in accordance with the DUS test guidelines. Multiplication of eight reference varieties (AKC-1, DCS-78, JI-35, Kiran, Kranthi, M-574, SKI-215, TMV-5and DPC-9) was also undertaken during *kharif* 2022.

Sunflower

During *rabi* 2022-23, 27 parental lines of sunflower (CMS-10A/B, CMS-11A/B, CMS-17A/B, CMS-38A/B, CMS-67A/B, CMS-104A/B, CMS-234A/B, CMS-7-1B, CMS-17B, CMS-91B, 6D-1,859-R, AK-1R, P61R, R-630, R-64NB, RHA-1-1, RHA-95C-1, RHA-271 and RHA-272) were maintained and multiplied.

SUBMISSION OF DUS TESTING REPORTS

Castor

Consolidated DUS testing report for Farmer's variety CDBA-345 (REG/2018/449) along with reference varieties Aruna, DCS-9 and Ritesh Redi tested during 2021-22 at 2 centres, ICAR-IIOR, Hyderabad and MORS, JAU, Junagadh were submitted on 26.04.2022.

Sunflower

Consolidated DUS testing report for new candidate 2886/2076/H and 2886/2076/H/F_1SMG along with reference entries 1/2086/H, 1/2087/H and KBSH-44 tested for the 2nd year during 2021-22 at 2 centres, ICAR-IIOR, Hyderabad and TNAU, Coimbatore were submitted on 04.07.2022.

SUPPLY OF REFERENCE COLLECTION FOR DUS TRIALS

Castor

Seed material of six reference entries of castor including two hybrids and four parental lines were submitted to PPV&FRA along with the germination report for DUS trials.

Sunflower

Seed material of eight reference entries of sunflower including two hybrids and six parental lines were submitted to PPV&FRA along with the germination report for DUS trials.

Safflower

Seed material of four reference entries of safflower were submitted to PPV&FRA for DUS trials.

3.1.65. DUS TESTING CENTRE FOR LINSEED, LENTIL AND FIELD PEA

ICAR- JAWAHARLAL NEHRU KRISHI VISHWA VIDYALAYA, JABALPUR, MADHYA PRADESH

During the year 2022-23, 28 reference varieties of Linseed, 16 reference varieties of Lentil and 28 reference varieties of Field pea were maintain as per National Test Guidelines in three replications. The germination and plant population were optimum with proper expression of distinguishing traits. The environmental condition was favorable for normal growth. The expression of distinguishing traits of all the reference and other varieties were observed as National Test Guidelines.



Three lentil candidate varieties under farmer category were tested as per guidelines and instructions of the PPV&FR Authority were followed while conducting the GOT and also follow crop specific DUS test guidelines, as applicable. All the precautions were taken to safeguard the interests of the PPV&FRA while conducting the tests and allow time to time inspection/monitoring by PPV&FRA officials/Monitoring team/applicants, as and when advised by the PPV&FRA. The field data duly recorded in field record note book; photos of claimed distinct characters, number of off types observed along with specific comments on the distinctiveness and uniformity are included in the report.

During this period 2022-23, Tribal Farm Women Ms. Lahari Bai was honored by the dignitaries for her remarkable contribution in collection and conservation of local landraces of millets and other seeds. On this occasion, 14 farmers from different part of the state were also felicitated for their unparallel contribution in seed preservation and its protection under PPV&FRA, New Deihi under training-cum- awareness programme.

Linseed

CHANDRA SHEKHAR AZAD UNIVERSITY OF AGRICULTURE AND TECHNNOLOGY, KANPUR, UTTAR PRADESH

Candidate varieties under DUS testing during 2022-23

New		RV/VCK	Total
1st year entries	2nd year entries		
5	12	70	**87**

The proposed DUS trial was sown on 14.02.2022 adopting all recommended agronomical practices time to time. The data were recorded on 10 tagged plants of each entry in three replications. Most of the entries were found homogeneous with optimum germination percentage.

Seventy RV were undertaken in varietal maintenance, the data have recorded as per guidelines. Harvesting was done as on maturity in three phases (Early, Medium and late). Harvested seed has been stored in optimum condition for further use.

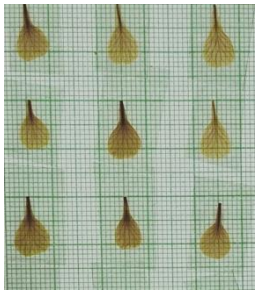
3.1.66. DUS TESTING CENTRE FOR SESAME AND NIGER

ICAR- JAWAHARLAL NEHRU KRISHI VISHWA VIDYALAYA, JABALPUR, MADHYA PRADESH

Seasame 91 and Niger 23 reference varieties were maintained during *Kharif 2022-23* Cluster type capsule arrangement with more than one flower/leaf axil was observed in 14 varieties i.e. *SOMA, SURYA, GT-2, GT-4, RT-351, N-32, PURVA-1, GJT-5 and GT-6, BRIJESHWARI (LTK-4), GT-1, VRI-2, PKV-NT-11 and T-85*. Variety *Prachi* was found to be susceptible to insect Antigastra. Varieties *VRI 3, Uma, RT 103, RT125* were found to be early maturing and *TMV 3, Prachi, GT 10, RT 346, Smarak, PKDS-8, TC-289, JLT-408, PRATAP, E-8, PURVA-1, SURYA, DSS-9, DS-5, DS-1, CO-1, VRI-1, TMV-6, HIMA* and *RT-46* were found to be late maturing. The expression of distinguishing traits of all the reference and other varieties were observed.

3.1.67. DUS TESTING CENTRES FOR RAPESEED AND MUSTARAD

ICAR-DIRECTORATE OF RAPESEED AND MUSTARAD RESEARCH, SEWAR FARM, BHARATPUR, RAJASTHAN



The DUS trial conducted during year 2022-23, A total of 12 candidate varieties/hybrids of Indian mustard were characterized using DUS characters. Out of these, 06 hybrids were characterized for 1st year while 04 varieties and 02 hybrids were characterized for 2nd year. Apart from this, total 142 varieties of rapeseed-mustard were maintained through proper pollination techniques. 07 new varieties of Indian mustard were characterized for DUS characters.

CHANDRA SHEKHAR AZAD UNIVERSITY OF AGRICULTURE AND TECHNNOLOGY, KANPUR, UTTAR PRADESH

Candidate varieties under DUS testing during 2022-23

New	RV/VCK	Total

1st year entries	2nd year entries		
6	6	5	**17**

The proposed DUS trial was sown on 22.10.2022 adopting all recommended agronomical practices time to time. The data were recorded on 10 tagged plants of each entry in three replications. Most of the entries were found homogeneous with optimum germination percentage.

Seventy RV were undertaken in varietal maintenance, the data have recorded as per guideliens. Harvesting was done as on maturity in three phases (Early, Medium and late). Harvested seed has been stored in optimum condition for further use.

3.1.68. DUS TESTING CENTRE FOR GROUNDNUT

ICAR-DIRECTORATE OF GROUNDNUT RESEARCH, JUNAGADH, GUJARAT

During the year 2022-23, DUS testing centre has maintained 30 reference varieties of Groundnut for testing of candidate varieties at ICAR- DoGR, Junagadh. during *Kharif* 2022. No candidate variety for DUS characterization was received during 2022-23.

3.1.69. DUS TESTING CENTRES FOR TUBEROSE AND CARNATION

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

During the year 2022-23, DUS testing centre has maintained 30 reference varieties of Tuberose and 50 reference varieties of Carnation at ICAR-IIHR, Bengaluru

Tuberose

A reference collection of 30 genotypes of tuberose along with 15 breeding lines were being maintained under field gene bank for maintenance breeding. Observations were recorded for some of the important grouping characteristics such as leaf variegation, pigmentation on leaf base, bud colour, flower type, flower shape, spike length, stigma type, stigmatic lobes, pigmentation on peduncle, days taken for flowering and number of locules in fruit. 30 accessions of tuberose were characterized. Arka Prajwal tuberose variety (Reg/2018/71) was registered with PPV and FRA as extant variety during July 2022.

Carnation

A reference collection of 50 accessions of carnation were multiplied and being maintained under field gene bank for maintenance breeding. Observations were recorded for the important grouping characteristics such as plant type, flower type,

petal (main colour) and petal (secondary colour), qualitative and quantitative characters. IIHRP 1 (Arka Flame/ Reg.No.284/2020) was registered with PPV and FRA as extant variety during 2020.

Tuberose

ICAR- DIRECTORATE OF FLORICULTURAL RESEARCH, PUNE, MAHARASHTRA

The DUS testing for the candidate variety 'Arka Sugandhi' has been completed during 2022-23 at collaborating DUS testing centre, ICAR-Directorate of Floricultural Research, Pune. The planting material of candidate variety, Arka Sugandhi, supplied by ICAR-IIHR, Bengaluru was uniform with 100% purity, and were planted along with reference varieties during June 2022. About 35 reference/example varieties which included 21 single types and 14 double types were planted freshly during June 2022. The data pertaining to DUS testing recorded for the candidate variety along with the reference varieties (For the given characteristics as per the guidelines given for tuberose) has been submitted through email (dated 03.02.2023 and 11.03.2023).

The candidate variety denomination Arka Sugandhi is distinct from the reference varieties for the characteristics such as pigmentation on leaf base on abaxial side (Strong), bud colour (Green), flower shape (Tubular), inflorescence length (Short), stigma type (Pin), stigmatic lobes (Trifid), pigmentation on peduncle (Weak), days taken for flowering (Late). The average bud length (4.64 cm) was grouped as Medium, while average flower length (5.35 cm), inflorescence axis (17.20 cm) and inflorescence length (44.84 cm) were categorized as Short. All the distinct characters were noticed stable throughout the study period.

3.1.70. DUS CENTRE FOR MENTHOL MINT, PERWINKLE, DAMASK ROSE AND BRAHMI

CSIR- CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS, LUCKNOW, UTTAR Pradesh

Varieties under maintenance/Characterized:

S. No.	Crops	Name or Number of varieties under maintenance breeding in 2022-23		
		Number	Names	
1	Menthol mint *(Mentha arvensis)*	11	Kosi, MAS-1, Kalka, Shivalik, Gomti, Himalaya, Sakashm, Kushal, CIMAP Saryu,	

			CIM-Kranti, CIM-Unnati and Damroo	
2	Periwinkle *(Catharanthus roseus)*	4	Dhawal, Nirmal, Prabal and CIM-Sushil	
3	Damask rose *(Rosa damascena)*	4	Ranisahiba, Noorjahan, Aligarh, Kanouj	
4	Brahmi *(Bacopa monnieri)*	2	CIM-Jagriti, Subodhak	

Variety CIM- Kranti of menthol mint has been registered with PPVFRA. The morphological data on all 12 reference varieties of mint was collected afresh. Maintenance of all reference varieties of 04 mandated crops as mentioned in above table was carried out.

3.1.71. DUS TESTING CENTRE FOR BLACK PEPPER, SMALL CARDAMOM, GINGER AND TURMERIC

ICAR-INDIAN INSTITUTE OF SPICES RESEARCH, KOZHIKODE, KERALA

ICAR-Indian Institute of Spices Researchis the nodal DUS testing centrefor spices and also the co-nodal centre for nutmeg.Major programscarried out during the year by the DUS centre was the maintenance of example varieties of black pepper, small cardamom, ginger and turmeric; multiplication of ginger and turmeric provided by farmers for DUS testing. DUS testing completed for 19 turmeric varieties which include 14 farmers' varieties and 4 varieties of common knowledge and onenew variety. DUS testing completed for 7 ginger varieties which include 4 farmers' varieties and 3 varieties of common knowledge. On site preliminary observation of 4black pepper and 6small cardamom varieties were undertakenand corresponding reference verities were identified based on essential characteristics. Ongoing 4 ginger and 3turmeric farmer varieties are under DUS testing.

At presently the authority issued certificate for:

9 black pepper varieties (5 Farmer &4 VCK)
9 small cardamom varieties (6 Farmer, 2 VCK & 1 Extant)
5 Turmeric varieties (1 New &4 Extant)

Other Events:-

- ✓ Characterization of candidate varieties of black pepper, ginger, cardamom and turmeric were carried out and submitted the reports
- ✓ In order to undertake DUS testing for ginger planted 23 reference varieties and 9 farmers varieties at ICAR-IISR, Kozhikode
- ✓ In turmeric, planted 39 reference varieties, 13 farmers varieties and 17 test completed varieties at ICAR-IISR, Kozhikode.
- ✓ One set of these varieties were send to alternative testing centre for DUS at ICAR Research complex for NEH Region, Barapani
- ✓ Onsite evaluation of black pepper candidate varieties MDBP-16 and submitted report to PPVFRA

3.1.72. DUS TESTING CENTRE FOR CROSSANDRA

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

During the period 2022-23, DUS testing centre has maintained 13 reference/example varieties namely Arka chenna, Arka Shreeya, Arka Shravya, Arka Ambara, Arka Kanaka, IIHR -1, IIHR -2, IIHR -3, IIHR -4, Bangalore Local, Mangalore Local, Green Crossandra and Crossnadranilotica. These 13 crossandra genotypes were characterized for 17 traits as per DUS testing guidelines for the conduct of test for Distinctiveness, Uniformity and Stability. All the reference collections were multiplied vegetatively through terminal cuttings.

Second DUS centre of Crossandra established at Horticultural Research Station, Anantharajupeta under Dr. Y. S. R. Horticultural University, Venkataramannagudem, Andhra Pradesh

3.1.73. DUS TESTING CENTRE FOR GRAPES

ICAR-NATIONAL RESEARCH CENTRE FOR GRAPES, PUNE, MAHARASHTRA

During the reporting period 2022-23, DUS center has maintained total 57 reference varieties of grapes

On-site DUS testing of Grapes

On-site DUS testing was carried out for 9 varieties as per various stages of vine development during the year. These includesSheegene 20, Iniagrape one, Sheegene 21, Blagra Two, Sheegene 13, Sheegene 2, MACS-516, Utkarsha and Santy Seedless). Stage specific observations were recorded as per DUS guidelines of grape. Consolidate report of these varieties submitted to PPV&FR Authority for further processing for registration.

Registration of candidate varieties with PPV&FRA

During the period, total three candidate grape varieties (1: ICAR-NRC for Grapes and 2: farmers variety) were registered with PPV&FR Authority, New Delhi. On-site DUS testing was carried out at various stages of vine development as per grape DUS guideline. Based on the data collected, a consolidated report was submitted to the authority along with the detail package of practices followed during the period of testing. The list of varieties registered as follows.

S.No.	Variety name	Catagory	Applicant	Registration no.
1	Manjari Shyama	New variety	ICAR-NRC for Grapes, Pune	REG/2020/101
2	Siddh Golden	Farmers variety	Shri Shashindra B. Potdar	REG/2020/0134
3	Black Kwin Berry	Farmers variety	Shri Jaykar R. Mane	REG/2020/0135

3.1.74. DUS TESTING CENTRE FOR JACKFRUIT

UNIVERSITY OF AGRICULTURAL SCIENCES, GANDHI KRISHI VIGYAN KENDRA, BANGALORE

During the period 2022-23, DUS testing centre has maintained total 90 example/reference varieties out of which 30 is a yielding varieties and 16 jackfruit candidate varieties along with reference varieties in 1st year was tested by DUS centre under new category. Total The following progress are as under:

1. Onsite DUS testing of two farmers varieties Viz. Siddu and Shankara has been completed in 2022-2023 and the report submitted to PPV& FRA, New Delhi.
2. Twelve farmers jackfruit varieties applications submitted for registration to PPV& FRA, New Delhi
3. Identified eighteen elite Jackfruit genotypes from farmers field in Karnataka and Tamilnadu region and will be characterized further for registration with PPV and FRA.
4. On site DUS testing of sixteen farmers varieties is being carried out during the year 2023-2024
5. New Germplasm block with 20 elite farmers Jackfruit varieties will be planted at GKVK campus.

3.1.75. DUS TESTING CENTRES FOR GREATER YAM AND YAM BEAN

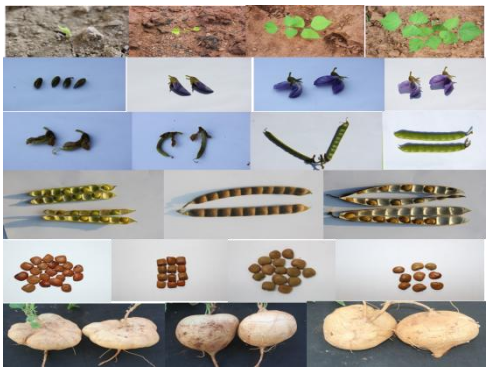
ICAR- CENTRAL TUBER CROPS RESEARCH INSTITUTE, THIRUVANANTHAPURAM, KERALA

During 2022-23, The field gene bank of reference varieties of greater yam (461) and yam bean (24) are being conserved in the field. The DUS testing guidelines have been developed and published in the PPV& FRA website. For the DUS testing of greater yam, 20 characteristics were selected, of which five characteristics viz., petiole colour, leaf shape, tuber shape, tuber cortex colour and tuber flesh colour were identified as grouping traits.

The database of the reference/released varieties of greater yam was prepared based on DUS test guidelines.The photographs of grouping traits 75 accessions were recorded and digital data base prepared. Evaluated five varieties of greater yam received from a farmer Sri Vinod Kumar, Thissur district, Kerala for registration. It included Inchi Kachil, Parisakodan, Kompan Kachil, Vazha Kachil and Pal Vella. The DUS characters of these varieties were recorded. The planting material has been multiplied and the trials were planted for further evaluation.

The registration forms of newly released greater yam varieties notified in gazette viz. Sree Neelima, Sree Swathy, Sree Nidhi and Sree Hima were prepared for registration under extant category.

ICAR- CENTRAL TUBER CROPS RESEARCH INSTITUTE, REGIONAL STATION, BHUBANESWAR, ODISHA



The field gene bank was maintained with 14 greater yam lines and 10 yam bean lines at Regional centre ICARCentral Tuber Crops Research Institute, Bhubaneswar. Planting materials for thelines/clones were multiplied.

The unique characteristics of each reference line for Greater yam and Yam bean have been identified and documented for 20 characters for greater yam and 17 characters for yam bean.

For greater yam characters like stem colour, petiole colour, pigementation, tuber shape and colour, tuber flesh colour, etc is considered for updating the DUS data.

Similarly, for yam bean characters like stem colour, flower density, sepal colour, pod length, seed colour and shape, tuber shape, etc is considered for updating the data.

3.1.76. DUS TESTING CENTRE FOR SEABUCKTHORN

Dr. Y.S. PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY, NAUNI, SOLAN, HIMACHAL PRADESH

The centre has maintained 13 reference varieties of Seabuckthorn

Name of the species	No. of varieties	Source (own released/ ICAR/SAU)
Hippophae rhamnoides L.	13	SAU, DIHAR, Forest Department

During reporting period 2022-23, there are two farmer varieties which are under observation/ Testing and two applications of farmer varieties received in the office has been forwarded to PPV&FRA for further necessary action and if approved by PPV&FRA then will continue for further evaluation and data recording. This year, the farmer varieties were observed 'on site testing' from where the morphological data on Qualitative (QL), Pseudo qualitative (PQ) and quantitative characteristics (QN) of plant, leaf, thorns, fruit and seed were recorded in the experimental field was further compared with the maintenance variety for further evaluation of these varieties by which the similarity between the maintenance variety and farmer variety worked out on the basis of DUS Guidelines on Seabuckthorn.

3.1.77. DUS TESTING CENTRE FOR TEAK AND MELIA

INSTITUTE OF FOREST GENETICS AND TREE BREEDING, COIMBATORE

During the reporting period 2022-23, Characterization of *Melia dubia* clones was carried out for reference clones planted at Panampalli research station -Kerala. DUS testing was conducted through Visual assessment by single observation of a group of plants or parts of plants using 25 morphological characters namelyastem scar shape,bark colour, leaf waxiness, stem lenticels appearance, stem lenticels pattern, stem lenticels shape, bark peeling, bark peeled surface, rachis attitude, rachis number of leaflets, leaflet shape, margin, base, apex, anthocyanin presence, branch altitude. Measurement of a group of plants or parts of plantswas carried out for stem scar length, width, lenticels size, rachis length, length of leaflet lamina, breadth, and petiolule length. In addition to this, stomatography of all the clones was conducted. Procedures for registration are going on in a candidate clone.

During FY 2022-23, the development of DUS testing guidelines of Teak (*Tectona grandis* L.) crop has been notified in Gazette of India [S.O. 2221(E)], dated 18.05.2023 and it is open for registration under all categories. PI has maintained 100 teak reference/example varieties at DUS center.

3.1.78. DUS TESTING CENTRE FOR MINOR SEED SPICES (AJWAIN, DILL, NIGELLA, CELERY AND ANISE)

NATIONAL RESEARCH CENTRE ON SEED SPICES, TABIJI, AJMER, RAJASTHAN

During reporting period 2022-23, the following reference varieties has maintained at DUS centre

S. No	Crop species	Source of varieties	Name of the varieties
1.	Ajwain	ICAR & SAU'S	AA-1,AA-2,AA-93,NDAz-20,LS-1,LTa-26,GA-1,GA-2
2.	Dill	ICAR & SAU'S	AD-1,AD-2,GD-1,GD-3,GAVD-1
3.	Nigella	ICAR & SAU'S	AN-1, AN-20, Pant Krishna, Azad Kalongi, NDBC-10
4.	Celery	ICAR-NRCSS	A-Cel-1, A-Cel-5, A-Cel-6,Karnouli-4
5.	Anise	ICAR-NRCSS	AAni-1, AAni-17

DUS experiment of minor seed spices (ajwain, dill, nigella, celery and anise) were laid out at ICAR-NRCSS, Ajmer (Rajasthan) during 2022-2023. In this experiment 8 varieties of ajwain, 5 varieties of dill, 5 varieties of nigella, 4 varieties of celery and 2 varieties of anise were included to maintenance of reference varieties. Observations were recorded on various growth stages of concern crop plants.

3.1.79. DUS TESTING CENTRES FOR GRAIN AMARANTH

ICAR-NBPGR, RS, PHAGLI, SHIMLA, HIMACHAL PRADESH

During the reporting period 2022-23, twelve reference/example varieties of Amaranth namely Gujarat Amaranth 1, Gujarat Amaranth 2, Gujarat Amaranth 3, Gujarat Amaranth 4, Gujarat Amaranth 5, Gujarat Amaranth 6, Suvarna, PRA 1, VL 44, Annapurna, BGA 2 and RMA 7 has maintained at DUS centre and characterized as per DUS guidelines of PPVFRA.

3.1.80. DUS TESTING CENTRE FOR COFFEE

CENTRAL COFFEE RESEARCH INSTITUTE, CHIKMAGALUR, KARNATAKA

During the period 2022-23, the development of DUS testing guidelines of Coffee has been notified in Gazette of India [[S.O. 5402 (E)], dated 18.11.2022 and it is open for registration under all categories. The Project Investigator of DUS project used these 13 *Coffea Arabica* reference varieties namely *Sln.1, Sln.2, Sln.3(S.795), Sln.4 (cioccie Agaro & Tafarikela), Sln.5A & 5B, Sln.6, Sln.7, Sln.8(HDT), Sln.9, Sln.10, Sln.11, Sln.12(Cauvery) and Sln.13(Chandragiri)*and 03 *Coffea Canephora* reference varieties namely *Sln.1R (S.274), Sln.2(Balehonnur robusta) and Sln.3R (CxR)* for development of DUS testing guidelines.

3.1.81. DUS TESTING CENTRE FOR FCV (FLUE CURED VIRGINIA) AND BIDI TOBACCO

CENTRAL TOBACCO RESEARCH INSTITUTE, RAJAHMUNDRY, ANDHRA PRADESH

During the period 2022-23, the development of DUS testing guidelines of FCV (Flue Cured Virginia) and Bidi Tobacco has been notified in Gazette of India [[S.O. 5402 (E)], dated 18.11.2022 and it is open for registration under all categories. The Project Investigator of DUS project used these example/reference varieties of 31 FCV namely (*16/103, Bhavya, CH-1, CH-3, Chatam, CM 12, CTRI Spl, CTRI Spl (MR), CTRI Sulakshana, Delcrest, Dhanadayi, FCV Special, Gauthami, Godavari Spl, Harrison Special, Hema, Hicks, Jayalakshmi, Jayasri (MR), Jayasri, Kanakaprabha, Kanchan, Mac Nair-12, Mammoth Gold, Mc Nair-12, N-98, Rathna, Siri, Swarna, Virginia Gold and VT-1158)* and 16 bidi *(A 119, A 145, A 2, ABD 19, ABD-54, ABT 10, Bhagyasree,*

GABT-11, GT 4, GT 5, GT 6, GT 7, GT 8, GT 9, GTH-1 and NPN 190) for development of DUS testing guidelines.

3.1.82. DUS TESTING CENTRE FOR GERBERA

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

During the period 2022-23, the development of DUS testing guidelines of Gerbera has been notified in Gazette of India [[S.O. 5402 (E)], dated 18.11.2022 and it is open for registration under all categories. The Project Investigator of DUS project used these example/reference varieties of 30 Gerbera namely *Arka Nesara, Arka White, Arka Red, Shimmer, Arka Ashwa, Arka Pink, Arka Krishika, , Intense, Ankur, GJ02, GJ06, GJ04, GJ05, GJ03, Balance, Danallen, Caravagio, Tecla, Alliance, Stanza, Stanza, Goliath, Dune, Caravagio, Samara, Figaro, Orinco, Brilliance* and *Kyllian* for development of DUS testing guidelines.

3.1.83. DUS TESTING CENTRE FOR HORSEGRAM, MOTHBEAN, CLUSTERBEAN

AICRP ON BREEDER SEED PRODUCTION, SEED UNIT, UAS, DHARWAD, KARNATAKA

During the period 2022-23, the development of DUS testing guidelines of Horsegram, Mothbean, Clusterbean has been notified in Gazette of India [[S.O. 5402 (E)], dated 18.11.2022 and it is open for registration under all categories. The Project Investigator developed these three crops DUS guidelines as per example/reference varieties was maintained at DUS centre. Under Clusterbean DUS testing guidelines have three types of table characteristics for testing i.e. Grain type, Vegetable and fodder.

3.1.84. DUS TESTING CENTRE FOR COCOA

ICAR- CENTRAL PLANTATION CROPS RESEARCH INSTITUTE, VITTAL, KARNATAKA

During the period 2022-23, the development of DUS testing guidelines of Cocoa has been notified in Gazette of India [S.O. 683 (E)], dated 14.02.2023 and it is open for registration under all categories. The Project Investigator of DUS project used these example/reference varieties of 69 clones of Cocoa (VTLC- Vittal Cocoa, VTLCC- Vittal Cocoa Clone, VTLCH - Vittal Cocoa Hybrid, VTLCP- Vittal Cocoa Progeny, VTLCS- Vittal Cocoa Selection) for development of DUS testing guidelines.

3.1.85. DUS TESTING CENTRE FOR RADISH AND CARROT

ICAR-INSTITUTE OF AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI AND RS, KATRAIN, KULLU, HP

During the period 2022-23, the development of DUS testing guidelines of Radish and Carrot has been notified in Gazette of India [S.O. 683 (E)], dated 14.02.2023 and it is open for registration under all categories. The Project Investigator of DUS project used these example/reference varieties of 31 Carrot namely *Pusa Asita, Pusa Meghali, Pusa Vrishti, Pusa Kesar, Solan Rachna, Pusa Kulfi, Hissar Gairic, Pusa Rudhira, PC-34, Pusa Vasudha, Pusa Yamdagini, Nantes, Pusa Nayanjyoti (A-line), Pusa Nayanjyoti (C-line), Pusa Nayanjyoti (B-line), Pusa Nayanjyoti, Gulab, Ashwani, HVCR-003, Rasna, SAMSON-196, Desi Red, Super Red, Hybrid No.-404, Rose Red, Kuroda-S-Strain, KSP-135, KSP-5333, Carrot Red Lady, Punjab ki Rani, Kuroda-T-Strain* and 38 Radish namely *Pusa Shweta, Pusa Chetki, Rapid Red White Tipped, Arka Nishant, Kashi Hans, Punjab Pasand, Japanese White, Pusa Himani, White Icicle, Chinese Pink, Pusa Desi, Menu Early, Ivory White, Koren, Twinkle Star, Shigra-34, Hill Queen, Mahy-22, Hybrid Bonus, Palam Hariday, KTX-999, Sparkle White, NS-Radish, Tokita White, Red Angel, Indam Swetha, White Pearl, Pusa Gulabi, Silver Line, Yamini-026, Lal Quila, Pusa Reshmi, Punjab Safed, RD-68, Kashi Sweta, Pusa Mridula, Hisar Sweti, Pusa Jamuni* for development of DUS testing guidelines.

3.1.86. DUS TESTING CENTRE FOR DOLICHOS BEAN

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, HESSARGHATTA LAKE POST, BENGALURU, KARNATAKA

During the period 2022-23, the development of DUS testing guidelines of Dolichos bean has been notified in Gazette of India [S.O. 2221(E)], dated 18.05.2023 and it is open for registration under all categories. The Project Investigator of DUS project used these example/reference varieties of Dolichos bean namely *Arka Adarsh, Arka Supriya, Dasara, RND-1, Swarna Uthkrisht, Arka Swagath, ArkaVistar, Arka Pradhan, Dasara, Indira Sem-1, RND-1, GJIB-11, IC556838, IC556875, GJIB-2, Phule Gauri, Arka Krishna, ArkaPrasidhi, Arka Bhavani, IC556704, IC556791, Indira Sem-1, Swarna Rituvar, Grace, IC556862, IC556786, IC556862, IC556787, IC556703, JDL-53, JDL -37 , JDL-79, IC556876, IC556716 , IC556718, IC556709, IC556711, IC556838, Pusa Sem -3, Pusa Sem -2, RND – 1, Deepali, Arka Pradhan, Pusa Sem - 2, IC556707, Kashi Haritima, Hima, Phule Gauri etc* for development of DUS testing guidelines. Under DUS testing guidelines have three types of table characteristics for testing i.e. Poly type, Bush type and grain or pulse type.

3.1.87. DUS TESTING CENTRE FOR ASH GOURD, SNAKE GOURD & IVY GOURD

ICAR-INDIAN INSTITUTE OF VEGETABLE RESEARCH, VARANASI, UTTAR PRADESH

During the period 2022-23, the development of DUS testing guidelines of Ash Gourd, Snake Gourd & Ivy Gourd has been notified in Gazette of India [S.O. 2221(E)], dated 18.05.2023 and it is open for registration under all categories. The above said three crops DUS guidelines developed by SASRD, Nagaland University, Medziphema, Nagaland as per reference varieties available at DUS centre.

3.1.88. DUS TESTING CENTRE FOR SAFFRON

SAFFRON RESEARCH STATION, SKUAST-K, PAMPORE, JAMMU & KASHMIR

During the period 2022-23, the development of DUS testing guidelines of Saffron has been notified in Gazette of India [S.O. 2221(E)], dated 18.05.2023 and it is open for registration under all categories. The Project Investigator of DUS project used these example/reference varieties of Saffron namely *SRS-Saf-28, SRS-Saf-145, SRS-Saf-156, SRS-Saf-35, SRS-Saf-52, SRS-Saf-32, SRS-Saf-186, SRS-Saf-2, SRS-Saf-12, SRS-Saf-44, SRS-Saf-20, SRS-Saf-197, SRS-Saf-12, SRS-Saf-28, SRS-Saf-180, SRS-Saf-173, SRS-Saf-177, SRS-Saf-83, SRS-Saf-4, SRS-Saf-39, SRS-Saf-181, SRS -Saf-166, SRS -Saf-242 Shalimar Saffron-1* etc for development of DUS testing guidelines.

3.1.89. DUS TESTING CENTRE FOR KALAZEERA

SAFFRON RESEARCH STATION, SKUAST-K, PAMPORE, JAMMU & KASHMIR

During the period 2022-23, the development of DUS testing guidelines of Kalazeera has been notified in Gazette of India [S.O. 2221(E)], dated 18.05.2023 and it is open for registration under all categories. The Project Investigator of DUS project used these example/reference varieties of Kalazeera namely *Shalimar Kalazeera-1, IC-0639590, IC 0639591, IC 0639593, IC 0639597, IC 0639601, IC 0639594, IC 0639601, IC 0639606, IC 0639630, IC 0639633, IC 0639592, IC 0639602, IC 0639621, IC 0639595, IC 0639598, IC 0639616, IC 0639624, IC 0639604, IC 0639605, IC 0639619, IC 0639596, IC 0639610, IC 0639631, IC 0639611, IC 0639604, IC 0639629, SRS-KZ-157* for development of DUS testing guidelines.

3.2 GENE BANKS OF PPVFRA

As per Section 27, of PPV&FR Act, 2001, a breeder has to deposit seeds and propagating material inclduign parental line seeds of registered variety in the National Gene Bank, as may be specified in the regulations for reproduction purpose.

The National Gene Bank of PPV&FRA has been established at ICAR-NBPGR Old Campus for medium term storage of orthodox or true seeds (e.g. rice, wheat, maize, sorghum, tomato, rapeseed-mustard, jute etc) of candidate varieties for plant variety registration purpose at PPV&FRA.

However, for fruit trees (like coconut, mango and citrus), plantation species (like eucalyptus and poplar), spices (black peppers, ginger and turmeric), commercial species, like rubber, that either produces recalcitrant (seed normally do not withstand desiccation or low temperature storage and are not easy to store under conventional storage conditions) seeds having long regeneration cycles or sexually sterile, no seeds at all or species that are normally clonally propagated (sugarcane and potato), planting matrial of these species are conserved at Field Gene Bank under *ex situ* conditions. Since the diversity of the genetic resources is abundant near the places of primary of secondary centres of origin or domestication, the species concerned are also adapted to the local agro-climatic conditions (like soil, water, temperature etc0, field gene bank are also strategically established in these areas.

The Field Gene Banks facility will also be used as a repository of the varieties released (referral collection) from different geographical contexts having sub species/ intra varietal variability and conserved at one place. Field Gene Bank will also maintain specimen plants of the varieties registered under the *PPVFR* Act, 2001. Documentation regarding source, parentage, morphological/ sexual/ value for cultivation characteristics, digitalization and database management will help in resolving techno-legal issues and dispute settlement.

Crop	No. of samples	Moisture range (%)	Germination Range (%)
Barley	3	9.65-13.25	100-100
Bottle gourd	3	8.58-9.37	40-60
Brinjal	7	7.32-9.89	20-100
Cauliflower	1	6.68	0
Chickpea	2	13.37-13.52	0-0
Chilli	9	9.0-10.36	0-96
Cucumber	1	7.0937	96
Diploid Cotton	2	8.68-12.36	92-96
Durum Wheat	1	7.88	100
Finger Millet	3	13.13-15.93	92-100
Maize	5	6.31-11.90	0-100
okra	8	10.47-14.54	0-100
Pearl Millet	13	10.93-14.24	12-100
Rice	232	10.25-14.95	0-100
Ridge gourd	1	9.4034	90
Sorghum	5	11.22-12.87	80-100
Tetraploid Cotton	43	6.92-12.39	20-100
Tomato	13	6.12-10.97	52-100
Vegetable Amaranth	1	8.72	80
Wheat	13	6.13-12.60	88-100
Soybean	3	8.92-10.48	80-100
Sesame	2	5.17-5.92	0-92
Rapeseed (Toria)	1	9.63	96

Sunflower	1	8.2	96
Safflower	1	7.41	84
Indian mustard (Sarso)	1	8.25	100
Groundnut	1	5.24	0

3.2.1 NATIONAL GENE BANK, NBPGR OLD CAMPUS, NEW DELHI

The working of medium-term facility is being monitored under this project, by the technical experts of NBPGR as well as the electrician employed under this project regularly. The temperature of the cold store is maintained at ±4°C and the relative humidity has been adjusted to 35%. The relative humidity and temperature of the medium-term storage (MTS) module and the DUS test repository are recorded everyday by the electrician and major problems if any, are brought to the notice of technical personnel at NBPGR and resolved accordingly. During the period under report servicing and repairing of DG set, repair work in MTS, servicing and repairing of Air-conditioners has been done for uninterrupted and smooth functioning to the PPV& FRA Gene bank.

3.2.1.1 Registered varieties monitored for germination and moisture test:

Seeds samples of 376 registered varieties stored in the Gene-bank (MTS) of PPV&FRA were tested for germination and moisture after 5 years of their storage for cereals, legumes and vegetable seeds and 3 years of the storage for oil seeds.

Additional sample testing: During the period under report 151 seed samples of cotton, paddy and maize were tested for standard germination. Germination tests were conducted using top-of-paper method for rice and between paper method for cotton and maize seeds.

3.2.1.2 Medium term storage condition & DUS Repository (as on 31st March, 2023)

Sl. No.	Crops	DUS Test Repository (STS) (Candidate varieties for DUS test kept at 22˚C) SEED RECEIVED A					Medium Term Storage (4˚C) CERTIFICATE ISSUED B					GRAND TOTAL
		New	VCK + EDV	Farmer	Extant Notified	Total	New	VCK +EDV	Farmer	Extant Notified	Total	(A+B)
						(A)					(B)	
1	Barley	11	5	40	8	64	1	1	7	18	27	91
2	Barnyard Millet			39	2	41				1	1	42
3	Bitter Gourd	31	28	17		76		9	1	1	11	87
4	Black Gram	5	2	115	16	138	1		2	31	34	172
5	Bottle Gourd	11	11	52		74		6	2	4	12	86
6	Brinjal	118	88	97	4	307	26	83	10	13	132	439
7	Cabbage	17	1	1		19	4	1		1	6	25

8	Bread Wheat	48	6	97	27	178	35	10	37	161	243	421
9	Castor	5	2	7		14	3	3		5	11	25
10	Cauliflower	43	12	13	1	69	16	8	3	3	30	99
11	Chickpea	3		76	14	93	2		18	54	74	167
12	Chilli	134	152	24	8	318			1	8	9	327
13	Coriander	1		31		32				1	1	33
14	Cowpea		2		4	6				3	3	9
15	Cucumber	10	21	37		68		2		2	4	72
16	Fennel			1		1						1
17	Durum Wheat	2		4	5	11	4		2	27	33	44
18	Dicoccum Wheat	8				8				5	5	13
19	Diploid Cotton	5	3		4	12	12	9		29	50	62
20	Faba Bean			3	1	4				1	1	5
21	Fenugreek			11		11			1		1	12
22	Finger Millet	2		61	7	70				11	11	81
23	Foxtail Millet			33	2	35				2	2	37
24	Garden Pea				2	2				2	2	4
25	French Bean			4		4						4
26	Grain Amaranth	1		4	3	8						8
27	Green Gram	4	3	53	15	75		1	6	35	42	117
28	Groundnut	8		19	2	29	1		1	38	40	69
29	Jute	14	2	4	1	21	9	1		14	24	45
30	Kidney Bean		2	24	1	27		4	1	9	14	41
31	Kodo Millet			98		98						98
32	Lentil			59	2	61			9	12	21	82
33	Linseed			57	2	59			5	7	12	71
34	Little Millet			77	1	78				3	3	81
35	Maize	341	56	285	69	751	180	61	7	95	343	1094
36	Marigold	4		5		9						9
37	Muskmelon	12		1		13	1		1	2	4	17
38	Mustard	28	9	59	7	103	4	14	11	54	83	186
39	Okra	90	45	28	3	166	17	20	1	16	54	220
40	Onion	4	12	10	2	28	2	1	1	11	15	43
41	Pea	6	3	97	2	108			3	29	32	140
42	Pearl Millet	165	280	21	28	494	73	39	2	58	172	666
43	Pigeon Pea	14	2	176	11	203	16	2	10	25	53	256
44	Pumpkin			31		31			1	3	4	35
45	Rapeseed			21	1	22			9	13	22	44

46	Rice	384	59 + 3	2640	141	3227	201	57	1767	276	2301	5528
47	Ridge Gourd	8	2	20		30		1	1	1	3	33
48	Safflower	5		1	3	9				7	7	16
49	Sesame	1		66	2	69			1	10	11	80
50	Snap Melon			12		12						12
51	Sorghum	67	8	66	23	164	71	38	26	57	192	356
52	Soybean	16		23	2	41	2	1	6	36	45	86
53	Sunflower	67	7			74	39	19		11	69	143
54	Tetraploid Cotton	318	162 + 115	2	30	627	139	212 +14	1	70	436	1063
55	Tomato	141	91+3	22	9	266	40	40	3	16	99	365
56	Velvet Bean			2		2						2
57	Watermelon	5	19			24		4			4	28
	Total	2157	1216	4746	465	8584	899	661	1957	1291	4808	13392

3.2.2 Seed Requirements

S. No	Crop	Date of Notification	Seed Requirement Candidate /Parental line Hybrid (each) in gm unless otherwise mentioned		Germination %	Moisture %	Physical Purity %	Tentative Season – Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
1	Rice (*Oryza sativa* L.)	01/11/2006	3000	1500	80	11-12	98	*Kharif* – March-Apr	230x 300
2	Bread Wheat (*Triticum aestivum* L.)		3000	1500	95	8-9	98	*Rabi*-Aug	230x 300
3	Maize (*Zea mays* L.)		3000	1500	80(inbred/SCH)90(var/DCH)	8-10	98	*Kharif*-Mar-Apr Rabi- Aug	230x 300
4	Sorghum (*Sorghum bicolor* (L.) Moench)		2000	1000	80	10	98	*Kharif*-March Rabi-Aug	230x 300
5	Pearl Millet (*Pennisetum glaucum* (L.)		600	300	80(inbred/ SCH)	10	98	*Kharif*-March	165x 220

	R.Br.)				90(var/ DCH)				
6	Chickpea (*Cicer arietinum* L.)		2000 (desi) 3000 (kabuli)	NA	95	8-9	98	*Rabi*-Aug	230x 300
7	Green Gram (*Vigna radiate* (L.) Wilczek)		1000	NA	95	8-9	98	*Kharif* - March	230x 300
8	Black Gram (*Vigna mungo* (L.) Hepper)		1000	NA	95	8-9	98	*Kharif*- March	165x 220
9	Field Pea (*Pisum sativum* L.)		2000	NA	85	8-9	98	*Rabi*-Aug	230x 300
10	Kidney Bean (*Phaseolus vulgaris* L.)		3000	NA	85	8-9	98	June-July	230x 300
11	Lentil (*Lens culinaris* Medik)		1000	NA	85	8-9	98	*Rabi*-Aug	230x 300
12	Pigonpea (*Cajanus cajan* (L.) Millsp.)		2000	1500	95	8-9	98	*Kharif*- Mar	230x 300
13	Cotton (*Gossypium hirsutum* L.)	31/12/2007	2000	1000	75	10	98	*Kharif*- North-Feb Peninsular - South- May-June	230x 300
14	Cotton (*G. barbadense* L.)		2000	1000	75	10	98		
15	Cotton (*G. arboreum* L.)		1500	750	75	10	98		
16	Cotton (*G. herbaceum* L.)		1500	750	75	10	98		
17	Jute (*Corchorus capsularis* L.)		1000	500	85	9	97	Pre-*Kharif*- early Jan	165x 220
18	Jute (*Corchorus olitorius* L.)		1000	500	85	9	97	Pre-*Kharif*- early Jan	
19	Sugarcane (*Saccharum* L.)	27/07/2009	400 single bud sett						
20	Ginger (*Zingiber officinale* Rosc.)		5000 g (clean and whole sum rhizome of 25-30 g each of 150 pieces)						
21	Turmeric (*Curumma longa* L.)		6 kg (clean and whole sum fresh rhizome with 35-40% moisture content)						

22	Indian Mustard (*Brassica juncea* L. Czern & Coss)		500	250	85	8	98	Jun-Jul	165x 100
23	Karan rai (Brassica carinata A Braun)		500	250	85	8	98	Jun-Jul	165x 100
24	Rapeseed-Mustard (*Brassica rapa* L.)		500	250	85	8	98	June-Jul	165x 100
25	Gobhi sarson (*Brassica napus* L.)		500	250	85	8	98	Jun-Jul	165x 100
26	Groundnut (*Arachis hypogaea* L.)		3000 (Spanish & Valencia) 8000(kernel) for Virginia bunch and runner type	1500 4000	80	9	98	*Kharif*: May-June Rabi:Aug-Sep	300x 450
27	Soybean (*Glycine max* (L.) Merrill)	30/04/2010	3000	NA	70	9	98	Apr-May	230x 300
28	Sunflower (*Helianthus annuus* L.)		3000	2000	70	9	98	July-Aug	230x 300
29	Safflower (*Carthamus tinctorius* L.)		3000	1500	80	9	98	June-July	230x 300
30	Castor (*Ricinus communis* L.)		6000	2500	70	10	98	April-May	300x 450
31	Sesamum (*Sesamum indicum* L.)		500	250	80	9	97	April - May	165x 100
32	Linseed (*Linum usitatissimum* L.)		500	250	85	9	98	May-June	165x 100
33	Black pepper (*Piper nigrum* L.)		40 no of rooted cuttings						
34	Small cardamom (*Elettaria cardamomom* Maton)		50 Suckers						
35	Tomato (*Lycopersion lycopersicum* (L.) Karsten ex. Farw.)	02/12/2010	15(open field) 8 (Greenhouse)	same	85	8	98	April-May	165x 100
36	Brinjal (*Solanum*		15	15	85	8	98	April-	165x

	melongena L.)		(open)	(open)				May	100
37	Okra (*Abelmoschus esculentus* (L.) Moench.)		New: 300 VK&FV: 150 ENV : 60		65	10	99	May-June	230 x 300
38	Cauliflower (*Brassica oleracea* L.var. botrytis)		15	15	As per certified seed in India.			April-May	165x 100
39	Cabbage (*Brassica oleracea* L. var capitata)		15	15	-do-			April-May	165x 100
40	Potato (*Solanum tuberosum* L.)		300 Fully matured tubers (Tuber size should be 3.5-5.0 cm)						
41	Onion (*Allium cepa* L.)		hybrids and parental lines: 100 grams, vegetatively propagated varieties (multiplier onion): 1200 bulblets, male sterile lines : 50 bulbs	NA	70	As per certified seed standard		As per respective sowing seasons	
42	Garlic (*Allium sativum* L.)		2000 viable clove	NA	The planting material shall meet the minimum requirements for sprouting capacity, moisture content and physical purity for marketing planting material in India, and shall meet the minimum seed standards prescribed for certified seed in India.			Aug-Sep	-
43	Rose (*Rosa spp.*(other than *R.damascena*)		9 grafted/budded plants 9 plants in 12 inch or 30 cm pots size						
44	Chrysanthemum (*Chrysanthemum spp.)*		100 two node terminal rooted cutting taken from mother plant						

45	Mango (*Mangifera indica* L.)		7 grafted for each location						
46	Duram wheat (*Triticum durum* Desf.)	18/08/2011	3000	1500	95	8-9	98	Same as wheat	230x 300
47	Dicoccum wheat (*Triticum dicoccum* L.)/ Other *Triticum sp*		3000	1500	95	8-9	98	Same as wheat	230x 300
48	Isabgol (*Plantago ovata* Forsk)		250	NA	95	8-9	98	Rabi: Nov-Dec	230 x 300
49	Menthol mint (*Mentha arvensis* L.)		5 Kg suckers (10-15 cm long)						
50	Damask Rose (*Rosa damascena* Mill)		100 Cutting						
51	Periwinkle (*Catharanthus roseus* L.)		10 gm	NA	85	8	98	Kharif : June-July	230 x 300
52	Brahmi (*Bacopa monnieri* L. Pennell)		500 Cutting (clean and wholesome vegetative parts 10-15 cm long)						
53	Coconut (*Cocos nucifera* L.)		30 number of one year old seedlings raised in polybag containing standard potting mixture						
54	Orchids (*Cymbidium Sw.*)	27/03/2012	20 plants (10 for each centre) with at least two pseudo-bulbs and one back-bulb. Age 3-4 years						
55	Orchids (*Dendrobium Sw.*)		20 plants (10 for each Centre) with at least two shoots. Age 2-3 years						
56	Orchids (*Vanda jones* ex R. Br.)		20 plants, Age 2-3 year						
57	Pomegranate (*Punica granatum* L.)	15/04/2014	10 propagules, one year old propagated through air layering or rooted stem cutting (multiplied from the same tree) or tissue culture raised plants for each location.						
58	Orchid (*Cattleya Lindl.*)		20 plants two or three year old with at least two shoot						
59	Orchid (*Phalaenopsis Blume*)		20 flowering size plants						
60	Casurina (*Casurina equisetifolia* L.)		50 rooted cutting (at least three month old), measuring minimum 20 cm from collar to apical tip with a well developed root system						

61	Casurina (*Casurina junghuhniana* Miq.)							
62	Bitter gourd (*Momordica charantia* L.)		300 gm or 1500 no	NA	80	8	98	Dec-Jan	230x 300
63	Bottle gourd (*Lagenaria siceraria* (Mol.) Standl.)		250 gm or 1500 no	NA	80	8	98		230x 300
64	Cucumber (*Cucumis sativus* L.)		50 gm or 1500 no	NA	80	8	98		230x 300
65	Pumpkin (*Cucurbita moschata* Duch. ex Poir.)		200 gm or 1500 no	NA	80	8	98		230x 300
66	Barley (*Hordeum vulgare* L.)		1500	1000	95	8	98	Aug-Sep	230x 300
67	Coriander (*Coriandrum sativum* L.)		250	NA	80	8-9	98	Jul-Aug	165x 100
68	Fenugreek (*Trigonella foenum graecum* L.)		250	NA	80	8-9	98	Jul-Aug	165x1 00
69	Almond (*Prunus dulcis* (Mill.) D.A. Webb)		10 grafted or budded plants						
70	Apple (*Malus domestica* Borkh)		6 grafted or budded plants						
71	Pear (*Pyrus communis* L.)		6 grafted or budded plants						
72	Apricot (*Prunus armeniaca* L.)		10 grafted or budded plants						
73	Cherry (*Prunus avium* L.)		10 grafted or budded plants						
74	Walnut (*Juglans regia* L.)		10 grafted or budded plants						
75	Grapes (*Vitis spp.*)		12 grafted plants(one yr old) for each location						
76	Indian jujube (Ber) (*Ziziphus mauritiana*Lamk.)		7 plants for each DUS centre(minimum age 3 months)						

77	Eucalyptus (*Eucalyptus camaldulensis* Dehnh.)		60 rooted plant (plant should be in 250 cc root trainer)having minimum age of 6 months						
78	Eucalyptus (*Eucalyptus tereticornis* Sm.)								
79	Tea (*Camellia sinensis* L.)	16/10/2014	75 Plants (15-18 inches height), young plant having pencil thick stem with their own root						
80	Tea (*C. assamica*)								
81	Tea (*C. assamica* ssp lasiocalyx.)								
82	Acid Lime (*Citrus aurantifolia* Swingle)		10 plants for each DUS centre. Age should be above six months						
83	Mandarin (*Citrus reticulata* Blanco)		10 plants for each DUS centre. Age should be above six months						
84	Sweet Orange (*Citrus sinensis* (L.) Osbeck)		10 plants for each DUS centre. Age should be above six months						
85	Bougainvillea (*Bougainvillea Comm.* Ex Juss.)		10 well rooted and established plant						
86	Banana (*Musa spp*.)		40 tissue cultured plant per location						
87	Orchid (*Oncidium sw*.)		20 plants of 2-3 year old with at least two pseudo-bulbs/shoots						
88	Canna (*Canna* L.)	21/01/2015	20 young plants or 20 matured rhizomes						
89	Gladioulus (*Gladioulus* L.)		30 Corms (4 - 4.5 cm in diameter)						
90	Muskmelon (*Cucumis melo* L.)		100 gm seed for open field cultivation	NA	80	8	98	Dec-Jan	230x 300
91	Watermelon (*Citrullus Lanatus* (Thunb.) Mansf.)		150 gm seed for open field cultivation	NA	80	8	98	Dec-Jan	230x 300
92	Jasmine (*Jasminum auriculatum* L.)	02/07/2015	20 rooted plant						
93	Tuberose (*Polianthes tuberosa* L)		75 Bulbs of more than 2 cm (diameter at broadest point) weighing 25-30 gm						

94	Papaya (*Carica papaya* L.)		20 gm for gynodioecious varieties & 40 gm for dioecious varieties in both season	NA	60	7	98% for var & 90% for Hybrid	--	---
95	China Aster (*Callistephus chinensis* (L.) Nees.)		2 gm each in two packets	NA	60	6-9	98	---	---
96	Peach (*Prunus persica* L. Batsch.)		10 grafted or budded plants						
97	Japanese Plum (*Prunus salicina* L.)		10 grafted or budded plants						
98	Strawberry (*Fragaria x ananasan* Duch.)		120 runners or plant propugules or seedling plants (tissue cultured plant hardned at 4-5 leaf Stage)						
99	Chilli, Bell Pepper and Paprika (*Capsicum annuum* L.)		15 gm for OP var & 10 gm for Hybrid and Parental line	NA	85	8	98	Aug-Sep	165x 100
100	Finger Millet (*Eleusine coracana* (L.) Gaertn.)		250 gm & 10 Panicles	NA	80	10-12	97	Apr-May	230x300
101	Foxtail Millet (*Setaria italic* (L.) Beauv)		250 gm & 10 Panicles	NA	80	11-12	97	Apr-May	230x300
102	Vegetable Amaranth (*Amaranthus tricolor* L.)	19/04/2016	150 g	NA	80	<8	98	July-Sep	165x 100
103	Ridge gourd (*Luffa acutangula* (L.) Roxb.)		250g or 1500 seeds	NA	80	<8	98	Dec-Jan	230-x300
104	Spinach beet (*Beta vulgaris* var. bengalensis Roxb.)		250 g	NA	80	<8	98	Aug-Sep	165x 100
105	Carnation		150 rooted cuttings						

	(*Dianthus caryophyllus* L.)								
106	Orchid (*Paphiopedilum* Pfitz.)		10 plants for each centres						
107	Noni (*Morinda citrifolia* L.)	13/07/2016	10 grafted or budded plants for each location						
108	Bael (*Aegle marmelos* (L.) Correa)		5 Plants for each centres						
109	Jamun/Black plum (*Syzygium cuminii* (L.) Skeels.)		07 grafts for each location						
110	Nutmeg (*Myristica fragrans* Houtt.)		10 grafted or budded plants for each location						
111	Jasmine/Mogra (*Jasminum sambac* L.)		20 rooted plants for each location						
112	Custard apple / Sugar apple (*Annona squamosa* L.)		8 grafts						
113	Kalmegh /King of Bitters (*Andrographis paniculata* (Burm.f.) Wall. ex Nees)		30 gm	NA	95	8-9	98	Kharif : May-June	230 x 300
114	Neem (*Azadirachta indica* A. Juss.)	12/05/2017	40 clonally rooted plants with 60cm height						
115	Karanj (*Pongamia pinnata* (L.) Pierre.)		40 clonally rooted plants with 60 cm height						
116	Indian Gooseberry (*Emblica officinalis* Gaertn.)		03-04 months old plants						
117	Betelvine (*Piper betle* L.)		Rooted cutting terminal shoots shall be 3 months old with 25 cm height						

118	Marigold (*Tagetes spp*. L)		10 gm seed or 200 Nos rooted cuttings	NA	80	Not more than 8	98	Apr-May	165x 100
119	Guava (*Psidium guajava* L.)		10 grafts/ air layers for each locations						
120	Litchi (*Litchi chinensis* Sonn.)		7 plants raised through air layering for each location						
121	Deodar (*Cedrus deodara*) (Roxb.) G. Don		5 trees						
122	Chir pine (*Pinus roxburghii*) Sargent		5 trees						
123	Mulberry (*Morus* spp.)		50 stem cuttings of 12-15 cm length & 1.0-1.5 cm diameter						
124	Jasmine (*Jasminum multiflorum* L.)		20 numbers of 6 months old, fully rooted plants						
125	Buckwheat (*Fagopyrum esculentum*)		500 gram	NA	80	≤10%	98	Kharif: May-June	165 x 100
126	Buckwheat (*Fagopyrum tataricum*)		500 gram	NA	80	≤10%	98		
127	Grain Amaranth (*Amaranthus hypocondricus*)		50 gram	NA	80	≤10%	98	Kharif: May-June Rabi: Sept-Oct	165 x 100
128	Grain Amaranth (*A. cruentus*)		50 gram	NA	80	≤10%	98		
129	Grain Amaranth (*A caudatus*)		50 gram	NA	80	≤10%	98		
130	Grain Amaranth (*A. edulis*)		50 gram	NA	80	≤10%	98		
131	Faba bean (*Vicia faba* L. var. major Harz)		150 gram	NA	70	≤9%	98	Rabi: Sept-Oct	230 x300
132	Elephant Foot Yam (*Amorphophallus Paeoniffolius*)		36 tubers 200-400g each						

133	Taro (*Colocasia esculenta* var. esculenta, *Colocasia esculenta* var. antiquorum, *Colocasia esculenta* var. stoloniferum)		36 tubers 30-40g each						
134	Taro (*Cyrtosperma chamissonis*/ *C. merkusii*)		36 tubers 30-40g each						
135	Jatropha (*Jatropha curcas* L.)		60 rooted plants with 60 cm height, to be submitted in June-July						
136	Barnyard millet (*Echinocloa frumentaceae* (Roxb.) Link)		250 grams seed with 10 panicles	NA	80	12	97	Apr-May	230x 300
137	Kodo millet (*Paspalum scorbiculatum* L.)		500 grams seed with 10 panicles	NA	80	12	97	Apr-May	230x 300
138	Little millet (*Panicum sumatrense* Roth. Ex Roemer And Schultes)		150 grams seed with 10 panicles	NA	80	12	97	Apr-May	230x 300
139	Proso millet (*Panicum miliaceum* L.)		200 grams seed with 10 panicles	NA	80	12	97	Apr-May	230x 300
140	Cashew (*Anacardium occidentale* L.)	23/10/2017	8 grafted plants						
141	Arecanut (*Areca catechu* L.)		10 numbers of one year-old seedlings						
142	Chironji (*Buchanania lanzan* Sperng.)	09/01/2018	9 grafts for each location						
143	Tamarind (*Tamarindus indica* L.)		9 grafts for each location						
144	Sweet potato (*Ipomoea batatas*		150 vine cuttings (each one with a length of 30cm with 5 to 8 buds) for both centres						

	(L.) Lam.)							
145	Cassava (*Manihot esculenta* Crantz.)		100 cuttings for each centre, length 20 cm with minimum 5 to 8 viable buds					
146	Poplar (*Populus deltoides* L.)		120 cuttings from 1 year old plants					
147-153	Willow (*Salix* species) *Salix tetrasperma, Salix nigra, Salix jessoensis, Salix x rubens, Salix matsudana, Salix alba, Salix acmophylla*.	11/07/ 2018	120 hardwood cuttings, diameter 1 cm and length 20 cm					
154	Oat (*Avena sativa* L.)		1000	NA	85	10	98	Jul-Aug	230x300
155	Date Palm (*Phoenix dactylifera* L.)		06 Rooted suckers (offshoots), weight 8-10 kg					
156	Moringa (*Moringa oleifera* L.)	18/07/2019	30 plants or 100 pure seeds for each centre					
157	Melia (*Melia dubia* Cav.)	25/02/ 2019	100 rooted plants.					
158	Pointed Gourd (*Trichosanthes dioica* Roxb.)	15/12/2020	50 (fifty) tuberous root/ rooted vine cuttings (having minimum 3 nodes)					
159	Crossandra (*Crossandra infundibuliformis* (L.) Nees.)	15/12/2020	100 terminal rooted cuttings in plugs or pro-trays (50 for each center) of 6 cm to 8 cm					
160	Cowpea (*Vigna unguiculata* (L.) Walp. *ssp. unguiculata* and *Vigna unguiculata* (L.) Walp. *ssp. sesquipedalis* (L.) Verdc.)	15/12/2020	1000	95	9	98	May-June	230x300
161	Jackfruit (*Artocarpus heterophyllus*	23/08/2021	The plant material has to be supplied in the form of grafts / budded plants.					

	Lam.)							
162	Greater Yam (*Dioscorea alata* L.*)*		10 healthy tubers 750-1100g					
163	Yam Bean (*Pachyrhizus erosus* L.*)*		The minimum quantity of planting material (seeds), to be supplied by the applicant, should be 75 - 100g for three replications.					
164	Seabuckthrorn (*Hippophae rhamnoides* L.*)*		The minimum required quantity of planting material, should be at least seven well rooted one-year-old plants in poly bags with at least two shoots.					
165	Ajwain *(Trachyspermum ammi* L.*)*	16/03/2022	New-50g, ENV- 10g, VCK- 25g, FV- 25g	65%	8-9%	98%	Rabi: Oct-Nov	165 x 100
166	Anise (*Pimpenella anisum* L.*)*		New- 100g, ENV-20g, VCK-50g, FV-50g	65%	9-10%	98%	Rabi: Oct	
167	Celery *(Apium graveolens* L.*)*		New-50g, ENV-10g, VCK-25g,, FV-25g	65%	8-9%	98%	Rabi: Oct	
168	Cumin *(Cuminum cyminum* L.*)*		New-100g, ENV-20g, VCK-50g, FV-50g	65%	8-9%	98%	Rabi: Oct	
169	*Dill (Anethum graveolens* L.*)*		New-100g, ENV-20g, VCK-50g, FV-50g	65%	8-9%	98%	Rabi: Oct	
170	*Dill (Anethum sowa Roxb)*							
171	Fennel (*Foeniculum vulgare Mill.)*		New-200g, ENV-40g, VCK-100g, FV-100g	70%	8-9%	98%	Rabi: Oct	
172	Nigella *(Nigella sativa* L.*)*		New-100g, ENV-20g, VCK-50g, FV-50g	65%	8-9%	98%	Rabi: Oct	
173	Horse gram (*Macrotyloma uniflorum* (Lam) Verdc.)	18/11/2022	New-1500g, VCK &FV-750g, ENV-350g	95%	9%	98%	Rabi: Oct	
174	Gerbera (*Gerbera jamesonii* Adlem ex. Hooker f.)		plant height of 15 cm with 8-9 leaves and 4-5 roots of length 4-5 cm					

175	Coffee (*Coffea arabica* L.)		**Arabica:** i) Seedlings (six-months to one-year-old): 50 plants ii) Seed (viable seed prepared from fresh harvest): 100 nos. **Robusta:** i) Clones (six-months to one-year-old) : 50 clones					
176	Coffee (*Coffea canephora* Pierre ex A. Froehner)							
177	Flue-Cured Virginia (FCV) and bidi tobaccos (*Nicotiana tabacum* (L.))		New-20g, VCK & FV-10g, ENV-4g	95%	4%	98%		
178	Moth bean [*Vigna aconitifolia* (Jacq.) Marechal.]		New-1500g, VCK&FV-750g, ENV-300g	95%	9%	98%		
179	Cluster bean (*Cyamopsis tetragonaloba* L. Taub)		New-1500g, VCK&FV-750g, ENV-300g	95%	9%	98%		
180	Cocoa (*Theobroma cacao* L.)	14/02/2023	6 vegetatively propagated, rooted plants in poly bags					
181	Radish (*Raphanus sativus* L.)		New-200g, VCK&FV-100g, ENV-40g	90%	6%	98%		
182	Carrot (*Daucus carota* L.)		New-100g, VCK&FV-50g, ENV-20g	70%	8%	98%		

3.3 REGIONAL HORTICULTURAL RESEARCH AND TRAINING STATION, MASHOBRA; DR Y S PARMAR UNIV. OF HORT. AND FORESTRY, MASHOBRA, SHIMLA

During the year following varieties of apple, pear and cherry were added in the maintenance breeding block of apple.

Apple	September Wonder, Red Cameo, Ginger Gold, Gibson Gold, Royal Red Honey Crisp, Yellow Newton, Premier Honey Crisp, Ambrosia, Crimson Topaz, Crimson Crisp, Day Break Fuji, Crimson Topaz, Kumeu Crimpsion and Rubin Star Jona Gold
Pear	Bronze Beauty, Red Clapp, Bronze Beauty Bosc, Shinko, Yoinashi, Olympic, Shenandoah, Sunrise and Golden Russet Bosc
Cherry	Coral Champagne, Regina, Lapins Chelan and Benton

Characterization of 38 varieties of apple for floral and fruit character; 24 varieties of pear for fruit characters and 51 varieties of cherry for vegetative, floral and fruit characters was done during the year 2022.




Lobo | Brookfield Gala




Vred | Shreen


In apple varieties, leaf length and width was recorded as maximum (95.97 mm & 49.13 mm) in Brookfield Gala, whereas, minimum leaf length (79.82 mm) in Bright-N-Early and leaf width (35.48 mm) in Early Red One. Petiole length ranged between 31.62 mm and 39.66 mm. Tree type was ramified in all the varieties, however, tree habit varied from upright to spreading. Fruit shape was conical in Bright-N-Early and globose in Fuji, Early Red One, Red Delicious, Brookfield Gala. Firmness varied from soft (Bright-N-Early, Early Red One) to medium (Fuji, Red Delicious, Brookfield Gala). Fruit over colour was large in almost all the varieties except in Fuji where it was observed to be small. Russet on cheeks and around stalk attachment was absent in all the varieties. Colour of flesh was creamish in all the varieties. Number of lenticels on fruit surface was observed as few in Fuji, Early Red One, Red Delicious and medium in Bright-N-Early & Brookfield Gala.



Apple Maintenance breeding block covered with anti hail nets

Fruit characterization of apple varieties during the year 2022:

Delicious strain	Ace Spur, Honey Gold, Red Delicious, Schlect Spur, Well Spur, Bright N Early, Jonagold, Red Cap Valtod, Scarlet Spur–II, Crimson Crisp, Early Red One, King Roat, Starking Delicious, Silver Spur, Red Royal Honey Crisp, Gold Rush, Oregon Spur –II, Starkrimson, Valley Spur
Gala strains	Buckeye Gala, Baigent Gala, Dark Baron Gala, Fulford Gala, Gale Gala, Redlum Gala, Brookfield Gala
Fuji Strain	Auvil Early Fuji, Aztec Fuji, Fuji Kiku, Fuji Raku Raku, September Wonder, Sun Fuji
Others	Carrol, Granny Smith, Spartan, Vred, Lobo, Shreen

In pear varieties, tree habit were recorded as upright in Taylor's Gold, Worden Sickle; semiupright in King's Pear, William Pear and spreading in Keiffer. One year old shoot growth varied from straight to zig zag, whereas the apex of vegetative bud was acute in Taylor's Gold and obtuse in remaining varieties. Colour on sunny side of one year old shoot was light brown in William Pear, brown in Worden Sickle , redish brown in Taylor's Gold and grey green in Keiffer and King's Pear. One year old shoot: position of bud in relation to shoot was observed as adpressed in William Pear and Worden Sickle, whereas slightly held out in remaining varieties.

Pear varieties; Bronze Beauty, Red Clapp, Bronze Beauty Bosc Shinko, Yoinashi, Olympic, Shenandoah, Sunrise and Golden Russet Bosc were added to the field gene bank of pear.




Carmen | Chegerjonskiki

Fruit characterization of pear varieties during the year 2022:

1.	Carmen,	2.	Virod Anglis	3.	Doyenne du Bussach
4.	Jarginella,	5.	Keiffer	6.	Coseia, Badshah
7.	Chegerjonshiki	8.	Noveau Poitaeu	9.	Starkrimsom
10.	Leconte	11.	Buerre Bosc	12.	Dr Jules Guyot
13.	Doyenne du comic	14.	Santya Braskaya	15.	Grand Drouard
16.	Monarch	17.	Lupsi	18.	Devoe
19.	Concorde	20.	Worden Seckle	21.	Willaim Pear
22.	Vicar of Winkfield	23.	Kings Pear	24.	Taylors Gold

In cherry varieties, fruit height, width and fruit weight varied from 17.34 -26.49 mm, 18.33 - 27.00 mm and 10.04 -77.92 gms, respectively. Shape of fruit was reniform in CITH-1 but cordate in remaining varieties. Pistil end of fruit was flat in Seneca, Blackheart and Glory; however depressed in CITH-1 and CITH-3. Blackish skin colour was observed in Seneca and Black Heart, Red in CITH-13 and Dark red in CITH-1 & Glory. TSS was recorded to be maximum (18.58 ^{o} B) in Glory and minimum (14.42 ^{o}B) in CITH-13. Harvesting was earliest (20-05-2021) in Seneca whereas Glory was last (17.06.21) to harvest. Cherry varieties viz: Coral Champagne, Regina, Lapins, Chelan and Benton) were added in the maintenance breeding block of cherry.

Black Heart	Bigarrau Napolean	Bredbourne Black

Fruit characterization of cherry varieties during the year 2022:

1.	Seneca	2.	Benton	3.	CITH-13
4.	Durone Nero -I	5.	Chelan	6.	CITH-15
7.	Durone Nero -II	8.	CITH-1	9.	Lapins
10.	Bing	11.	CITH-3	12.	Bedford Prolific
13.	Black Heart	14.	CITH-4	15.	Bigarreau Napolean
16.	Bradbourne Black	17.	CITH-5	18.	CITH-14
19.	Celisor	20.	CITH-8	21.	Bigarreau Noir Grossa
22.	Regina	23.	CITH-12	24.	Germarsdofer
25.	Triumph Domini	26.	Stella	27.	Noir de Guben
28.	Early River	29.	Vega	30.	White Heart
31.	Desna	32.	Gaucher	33.	Merton Glory
34.	Celisor	35.	CITH-16	36.	Mora de Cazzana
37.	Merchant	38.	Sam	39.	Roundel Heart
40.	Black Heart	41.	Van	42.	Guigne Pourpea Precece,
43.	Sunburst	44.	Lambert	45.	Foya Travida,
46.	Rainer	47.	Red Heart	48.	Sweet Heart
49.	Durone Nero-III	50.	Lapins,	51.	Durone de Vignola,

Cherry plants covered with nets to protect plant and fruit from hail and birds.

3.4 DR. B.S. KONKAN KRISHI VIDYAPEETH, DAPOLI, MAHARASHTRA

The project entitled '*Collection, maintenance, evaluvation and development of descriptors of fruit and plantation crops and three spices through live repository'* is being implemented at Dr. B.S. Konkan Krishi Vidhypeeth Dapoli.

Field gene Bank DBSKKV Dapoli has collection of 33 mango varieties in which 20 are commercial varieties and 13 are farmer's varieties. Total 60 ecotypes of different varieties were collected and grafted on uniform Vellai Colomban root stock. The data of 20 ecotypes were collected as per the mango descriptors in which flowering was started and the process of collection of data are in progress.

Sr. No.	Name of the Variety	Sources
1	Alphonso	Cashew Research Station, Vengurla, Sindhudurg
		Mango Research Station, Vengurla, Sindhudurg
		Rukhi Block, CES, Wakawali
		Horticulture Nursery Dapoli
		Daji Parab, Vengurla, Sindhudurg
		Shrikant Joshi, Bharade mhavlinge, Dicholi Goa
		Siddishah Ahmed Khan
		Arif Bagdadi, Girye Sindhudurg
2	Sindhu	Horticulture Nursery Dapoli
		Mango Research Station, Vengurla, Sindhudurg
		Shirodkar, Padel, Sindhudurg
3	Ratna	Rukhi Block, CES, Wakawali
		Horticulture Nursery Dapoli
		Mango Research Station, Vengurla, Sindhudurg
		Satish Vanjari (Malvan) Sindhudurg
4	Pairi	Daji Parab, Vengurla Sindhudurg
		Horticulture Nursery Dapoli
		Rukhi Block, CES, Wakawali
		Dr. Aaher, Thane Sattari Valpoi (M. S.)
		Mango Research Station, Vengurla, Sindhudurg
		Satish Vanjari (Malvan) Sindhudurg
		Santosh Gawade, Vengurla Sindhudurg

		B. K. Gawade, Vengurla Sindhudurg
5	Neelam	Rukhi Block, CES, Wakawali
		ZAO, Kodar Tisk Goa
6	Totapuri Red Small	Horticulture Nursery Dapoli
7	Totapuri	FRT Research Station Medak Sangareddy Andhrapradesh
8	Fernandin	ZRS, Goa
		Horticulture Nursery Dapoli
		Mango Research Station, Vengurla, Sindhudurg
		Shrikant Joshi, Bharade mhavlinge, Dicholi Goa
		B. K. Gawade, Vengurla Sindhudurg
9	Mankurad	ZAO, Fonda Kodar, Goa
10	Goa Mankur	Mango Research Station, Vengurla, Sindhudurg
		Bhushan P. Nabar, Math Vengurla Sindhudurg
		Rukhi Block, CES, Wakawali
		Bandekar Sawantwadi Sindhudurg
		Mandar Ashok Savaikar,Bharade mhavlinge, Dicholi Goa
		B. K. Gawade, Vengurla Sindhudurg
		R. Joshi, Mhavlinge, Bichotim (M.S.)
		Mahendra Gawade, Vengurla Sindhudurg
11	Rajapuri	Rukhi Block, CES, Wakawali
		Mango Research Station, Vengurla, Sindhudurg
12	Kesar	Rukhi Block, CES, Wakawali
		Horticulture Nursery Dapoli
		Bandekar Sawantwadi , Sindhudurg
		Bhagwati Patel, Gujarat
		Naresh Bodhra, Jagdamba Farm and Nursery, Ratang Tal. Gir, Junagadh, Dist.Gujrat
		Mango Research Station, Vengurla, Sindhudurg
13	Jumbo Kesar	Gajanan Sahdeve Sarmalkar Vengurla Sindhudurg
14	Dashehari	Horticulture Nursery and Training Centre , Utnoor, Dist. Aadilabad (A.P.)
		Ganga Nursery, Sangareddy
15	Mallika	Ganga Nursery, Sangareddy
16	Himayat Pasand	
17	Cheruka Resum	
18	Chinnaresum	
19	Pedda Resum	
20	Banganpalli	1. Integrated Trible Development agency Nursery, Utnoor, Dist. Aadilabad (A.P.)
		2. Ganga Nursery, Rajampeth, Sangareddy
		3. Mango Research Station, Vengurla, Sindhudurg
Collected farmers variety		
21	Raiwal – 1 DPL Mo. 94	Ramesh Ganpat Kadam, Mahalunge, Dapoli, Ratnagiri
22-24	Khobri Amba DPL Mo. 107, Patlacha walkya DPL Mo. 108	Rukhi Block, Dapoli (Research Station)

	Wakawali Local DPL Mo. 106	
25	Safedi DPL Mo. 93	Arif Bagdadi, Girye Sindhudurg
26	Ratamba DPL Mo. 95	Anant Bhagoji Kadam, Mahalunge, Dapoli, Ratnagiri
27-28	Konkan Raja DPL Mo. 68, Suvarna DPL Mo. 70	RFRS, Vengurla, Sindhudurg
29-33	Amrut DPL Mo. 100, Raiwal -2 DPL Mo. 96, Raiwal - 3 DPL Mo. 101, Keli amba DPL Mo. 97, Goti amba DPL Mo. 98	Anil Paranjpe, Aurangabad, Maharashtra

In banana, 30 commercial varieties were collected from NRC for Banana, Tiruchirapalli, Tamil Nadu and 11 varieties were collected from farmers' field. The process of characterization is completed as per the banana descriptors. The process of collection of local varieties used for table purpose as well as vegetable purpose is in progress. Four species of citrus were also maintained in field gene bank.

Name of the Variety	**Source**
Dwarf Cavendish AAA); Jwari Bale (AAB), Anai Komban (AA); Kanai Bansi (AA), Grand Naine (AAA); Robusta (AAA), Pacheladan (AAB), Malaikali (AAB) Ladan Pointed (AAB), Nendra Padathi (AAB), Sabri (AAB), Ney Poovan (AB), Red Banana (AAA), Karpuravalli (ABB), Peyan (ABB), Udhayam (ABB), Amrit Sagar (AAA), Kunnan (AB), Nendran (AAB), Poovan (AAB), Ankur II (ABB), Kachkel (AAB), Bangrier (ABB), Kothia (ABB), Saba (ABB), Nute pong (ABB), Pache Bontha Bathesa (ABB), Ashy Bathesa (ABB), Birbutia (ABB), Musa Balbisiana (BB)	NRC for Banana, Tiruchirapalli, Tamil Nadu
Kunnan , Chengali kodan Nendran, Chenkadali, Kadali , Palayamkodan	Sri Vijayan, Kerala
Poovan (FV)	Mr. P. V. Jose
Rasbale (Small), Shan Bale Banana, Flower Banana Ash Moon Banana	Mr. Prasad Hegde, Karnataka

Table Purpose banana varieties		
1-6	Cv. Rose (AA), Saldati (AAA), Sirumalai (AAB), Rasthali (AAB), Namwakhom (ABB) Konkan Safed Velchi (AB)	Collected from Research Station, Avashi
Vegetable Purpose banana varieties		
1-3	Papolou (AAB), Monthan (ABB) Savarbondi (AAB)	Collected from Research Station, Avashi

In turmeric, 37 varieties collected from different source were conserved and data collection as per turmeric descriptors is in progress. 7 new varieties (Roma, Mega Turmeric, Raajendra Sonia, Duggirala Red, Lam Swarna, CO2 and NDH98) were collected this year and will be planted in field gene bank in the next season. Out of 30 plants of Coconut (Konkan Bhatye coconut Hybrid- 1) 7 plants have started flowering and fruiting. Along with this 125 different plant species including 3 in nutmeg, 3 in Cinnamon, 3 in lime and 6 jackfruit varieties, that collected from farmers field are being maintained in field gene bank. The information of PPV & FRA & registration procedure is given to the farmers in the four training programs conducted on Mango Production Technology and Rejuvenation of old orchards. Following Turmeric Varieties, collected from Asond Block, CES, Wakawali, conserved and maintained at Field Gene Bank: Selam- 1, Phule Swarupa, Rajapuri-1, Tekurpetha-1, Selam- 2, Selam- 4, Waigaon Selection, Waigaon, Rajapuri-2, Selam- 5, Kaddapa, Arunachal Local, Alleppy Supreme, Sudarshana, Saguna, Suranjana, S.B – 10735, S.B – 10723, S.B – 10843, S.B – 10746, KPua – 656, S.B – 10757, Kochippi, Suvarna, Kedaram, Tekurpetha-2, S.B-10715, Jalpolgori, Sajapuri GL Poram, Sugan Hari Prabha, Sikandarabad, Punjab Haldi-1, Punjab Haldi-2, Nadan Manjal, FN. Raveendra R., Karimanjal, FN. Raveendra R.

Turmeric Varieties collected during the year 2022-2023 and maintained at Field Gene Bank

Sr. No.	Name of the Variety	Sources	Remarks
1	Roma	Potangi, Odhisa	Collected from Asond Block, CES, Wakawali, Dapoli
2	Mega Turmeric	Meghaliya	
3	Rajendra Soniya	Dholi	
4	Duggirala Red	Karnataka	
5	Lam Swarna	Guntur, Andhra Pradesh	
6	CO2	Tamil Nadu, Coimbatore	
7	NDH-98	Ayundhya, U. P	

6. Citrus Species conserved and maintained at Field Gene Bank:

Sr. No.	Name of the Variety	Sources
1	Santra	NRC Citrus, Nagpur, Maharashtra
2	Mosambi	NRC Citrus, Nagpur, Maharashtra
3	Seedless Lemon	Dr. B. S. K. K. V., Dapoli

7. Kachai Lemon Varieties conserved and maintained at Field Gene Bank:

Sr. No.	Name of the Variety	Sources
1.	Kachai Lemon	Joint Director, ICAR, Manipur Centre

In black pepper, Panniyur 1 to 6, that were collected earlier are being maintained in field as well as 9 new varieties (Vijaya, Arkacoork Excel, PRS 160, PRS 161, SV 11, SV 17, Zionmundi, Pepperthikken and Kumpukkal) are collected and will be planted in next season on support.

8. Black Pepper Varieties maintained at Field Gene Bank:

Sr. No.	Name of the Variety	Sources
1-6	Panniyur- 1, Panniyur- 2 Panniyur- 3, Panniyur- 4 Panniyur- 5, Panniyur- 6	Indian Institute of Spices Research, Kerala

9. New Black Pepper Varieties collected during the year 2022-2023 and maintained at Field Gene Bank:

Sr. No.	Name of the Variety	Sources
1.	Vijaya	IIHR, Banglore
2.	Arkacoork Excel	
3.	PRS-160	Periyakolam
4.	PRS- 161	
5.	SV-11	IISR, Kerala
6.	SV-17	
7.	Zionmundi	
8.	Pepperthikken	
9.	Kumpukkal	

10. Nutmeg Varieties conserved and maintained at Field Gene Bank:

Sr. No.	Name of the Variety	Sources
1	Kochukudy	Received through Innovation officer/Scientist-C, National Innovation Foundation, Gandhinagar
2	Punnathanam Jathy	
3	Cheripurath Nutmeg Variety	

3.5 18TH ANNUAL REVIEW MEETING OF DUS CENTRES HELD ON NOV 10-11, 2022

Recommendations:

Special Lecture: Dr D K Agarwal, Registrar General, PPVFR Authority:

- PI/CCPIs are required to submit DUS test data in time in prescribed format and PIs shall "moderate" data, wherever required, based on crop experience and expressions of descriptors at both centres
- Software being developed in nearly 10 different crop species that shall aid in decision making , QN trait data analysis
- In case where recorded data is not stable, if recorded in any trial, software shall have drop down menu/comments/pop-up window and trait wise observations be recorded by PIs as compared to other CV/Ref var trait expressions and photos be captured
- Like the CVOs are an extension of CVC, DUS Centres are key in implementing the legislations, shall be vigilant over the IP rights of their own varieties and promptly brought any form of infringement to the notices of PPVFRA, if any

Technical Session I:

DUS testing, Maintenance Breeding: Cereals:

- IIMR, Ludhiana may submit revised guidelines and DUS database of newly evaluated ref/example varieties from both the centres in Maize, Clarity required for recording of Spikelet shape(inbred/hybrid)

- AICPMIP, Pearl Millet Centre may explore if forage PM traits are included in revised guideline, funds required for one computer , justification to engage a YP-I on post harvest recording of data on a full year basis be given
- IIMR, Hyderabad reported that fFew of the FVs showed Rabi adaptation and seeds to be sent once PI informed about entries, DUS database of AVT II trials be shared, additional budget required
- IIRR, Hyberabad requested to increase seed quantity for DUS and the centre is asked to submit revised guidelines and DUS database of newly evaluated ref/example varieties from all centres in Rice and centre is also advised that data for AICRP AVT II be sent
- IIWBR, Karnal requested that colouration of phenol characters may be included as grouping traits, seed quantity may be increased, information on grouping traits are reqd, PPVFRA ref set be re-worked, different species entries cant be registered under aestivum, awn colour may be included in Durum wheat guideline
- All centres are required to submit latest maintenance breeding data in prescribed format

Technical Session II:

Horticultural Crops: Vegetables:

- CPRI, Shimla requested that PPVFRA shall notify in PVJ for the seed/tuber submission schedule for Potato separately for CPRI (1st wk May)and CPRS/CPRIC(1st wk Oct) conditions; information should be communicated to CPRI about acceptance of applications/requirement of seed tuber submission , revision of DUS guideline, DUS monitoring to be done at CPRS/CPRIC
- IARI, New Delhi requested that details of off types in FV to be documented and informed, extension upto 31st Mar, 2023 required for Sponge Gourd project
- IIVR, Varanasi infrmed that seed quantity from SMG hybrid aremany a times are inadequate for three replications and off types are higher, PPVFRA shall work out modalities in obtaining seeds of recent hybrids, selection of proper reference varieties and parental lines need to be worked out as these will not be available for pvt hybrid
- IIHR, Bangalore requested to iIncrease ocontingency is requested per crop,
- Awareness programme for breeders to be conducted

Session II: DUS testing:

Vegetables and other crop species:

- IARI, New Delhi: Registry shall inform about correct grouping traits/maturity groups in cabbage/cauliflowers, especially in FVs; revised guidelines can be proposed
- SBI, Coimbatore informed that recording of Internode colour and dewlap colour shall be developed using SBI colour Charts in future, if these are unaffected by ploidy level , these can be included
- CIAH, Bikaner discussed that in case suture is there, colour details be included, submit seeds well in advance to centre
- It was advised to NRCoG, Pune that while endorsing any FV applications, centre shall inform whether they are true landraces or selections from landraces using descriptors/molecular/breeding information and centre shall be vigilant over the PVP rights over Onion/Garlic varieties and ask licensees to register them with PPVFRA

Technical Session III:

Testing for EDVs and on site testing:

- NRCB, Trichy requested that BCKV, Mohanpur be included as DUS centre instead at Lambucherra, Tripura

- CISH Lucknow sugeested that Center shall identify suitable SAUs/Research stations capable of recording descriptors for On site testing in Mango and PPVFRA shall also consider suitable TA grants on a case to case basis; for SCMD Community applications, certificate of community membership, revised PV1 and identification/availability of mother trees are required for FVs; certificate of authenticity of land races can be obtained from local authorities/Panchyat/BMC and can also be verified by the endorsing authority/CISH; requested for revision of one trait photo in revised guideline in mango
- UAS Bangalore was advised that DUS centre shall focus only on testing and not on collection of FV germplasm and characterisation in Jackfruit unless farmers request to register their varieties, include shelf life parameters in DUS guideline
- IARI, Karnal was advised that there will be no further requirement of molecular analysis of herbicide resistant traits except for special traits as requested by the Applicant as these are natural mutants in Rice
- YSUHF Solan was informed that in dioecious crop species like Sea buckthorn, whether male/female specific traits, evaluation, population characteristics are evaluated, centre shall inform

Technical Session IV:

Trial for Uniformity for Hybrids:

- CICR Nagpur informed that differences in boll shape recorded differently at Central zone centres, for few characters like petal colour, stigma etc differ between Candidate F1 and SMG F1. Chairperson, PPVFRA advised that for uniformity/stability test of F1 hybrids, proper plant populations may not required and asked CICR provide AICRP test entries database, use of Bt hybrids as ref var , maintenance breeding is a challenge due inadequeate selfed seeds produced
- YSRHU, Guntur informed that due to severe infestation of black thrips, trials in 2021 were failed, seeds must be supplied latest by 1st week July in each season and requested that Contingency and SRF salary be increased
- NRRI, Cuttack was advised that Centre shall supply DUS characterisation data of all reference varieties maintained at NRRI

Technical Session V:

Hybridisation and Stability Trials:

- IIHR, Bangalore reqesuested that Contingency in DUS project project for cucurbits may be increased
- IIOR, Hyderabad requested that DUS monitoring may be conducted in coordinating centre as well; seed traits (weight, L/B) are affected by environmental variations and this need to be kept in mind during DUS analysis

Tech Session VI:

Testing for Oilseeds, Pulses and Other crops:

- PC Small Millets, UASB was advised that PC Unit can grow a set of reference varieties every year
- DRMR, Bharatpur reported that FVs have a lot of mixtures(Mustard, Toria, Yellow sarsoon etc), request for revision of guidelines may be sent to PPVFRA and TA may be increased

General Recommendations:

- Authority can ask applicant/ICAR/SAU to certify if a variety is disease resistant,

- In case a FV is used for development by ICAR/SAUs for a new variety, a farmer can claim benefit sharing post registration , however, another farmer can't claim same benefit sharing in case a FV is developed from another FV
- In case a farmer developed one variety from otherwise released/notified/commercially sold varieties, that var shall be considered under new category

Chapter 4: Projects on the Development of DUS Test Guidelines and Establishment of Gene Banks

PROJECTS ON DEVELOPMENT OF DUS TEST GUIDELINES

The Authority has identified various institutes and awarded a two/three years projects for development of DUS test guidelines to enlarge the registration basket of the Authority. During the projects such as 1. Lemon, 2. Pummelo, 3. Kokum, 4. Ailanthus, 5. Anthurium, 6. Lilium, 7. Lemon Grass, 8. Olive, 9. Chow- Chow, 10. Dahlia, 11. Lythrus, 12. Hibiscus, 13.Broccoli, 14. Ashwagandha total 14 crops are at various stages.

i. The Task force constituted to finalize the guidelines.
ii. The draft DUS guidelines was developed and submitted by the centre to the Authority for finalization.
iii. Some DUS test guidelines under process for more observations on characteristics.
iv. Some DUS guidelines for approval and notification under Gazette of India.

4.1. ON-GOING PROJECTS

4.1.1. Project on "Development of DUS Test Guidelines for "Sponge Gourd (*Luffa cylindrical* Roem)"

The project for "Development of DUS Test Guidelines for "Sponge Gourd (*Luffa cylindrical Roem*) at ICAR-IARI, Pusa, New Delhi and ICAR-IIVR, Varanasi. During 2022-23, 18 reference genotypes/varieties has been characterize of 35 descriptors and seed extraction, data recording, compilation work to development of DUS testing guidelines on Sponge gourd at both DUS centre.

4.1.2. Project on "Development of DUS test guidelines for Niger [*Guizotia abyssinica (*L.*f.)* Cass.]"

During 2022-23, characterization of twenty-threeniger varieties viz., RCR-18 (D), DNS-4, IGPN-8004, IGPN-2004-1, JNC-1, JNC-6, JNS-9, JNS-28, JNS-30, Utkal Niger-150, Deomali, GN-1, GN-2, GNNIG-3, GN-4, PAIYUR-1, IGP-76, BNS-10 (Pooja 1), BNS-9 (Birsa Niger-2), BNS-11 (Birsa Niger-3), JNS-2015-9, JNS-2016-1115 and JNS-521 was undertaken.The trial was laid out with plot size of

5 rows of 3 m length with three replications.Data has been recorded for 32 DUS traits at different stages viz.,seedling (1), flowering (18), post-flowering (4), maturity (6) and post-harvest (3)for the development of draft table of characteristics along with stages of observation and states for each characteristic.

Activity-2: Characterization of germplasm accessions for development of DUS guidelines
During kharif 2022, 109 germplasm accessions were sown in 2 rows of 3 m length for preliminary characterization and 101 accessions were characterized. In each accession, data has been recorded for 32 DUS traits for assessing the variability.

Activity-3: Decimal code for growth stages
The relevant growth stages corresponding to the decimal code have been recorded for finalization of the decimal code for indicating the optimum stage for observation of each characteristic during the growth and development of the plant.

Objective-II: Maintenance of reference/example varieties of niger
Activity-1: Seed multiplication of Niger varieties and germplasm
Twenty-three varieties and 117 germplasm accessions were sown in kharif2022 for seed multiplication under nylon nets. In each variety and germplasm, off-types were removed from the seed multiplication plot at flowering and sibbing was carried out.

4.1.3. Development of DUS test guidelines for Sapota (*Achras zapota* L.)

About Twenty three varieties are commercially cultivated in different parts of the country. These varieties have minute differences to each other and are difficult to identify. To solve this problem it is necessary to characterize all the varieties and develop a DUS test procedure so that there will be no confusion and every cultivar can be easily distinguished. During FY 2022-23, DUS centre has been charaterise for Morphological characteristics of different reference varieties of Sapota like flowering, fruiting, seed characters etc for development of DUS testing guidelines on Sapota.

For development of DUS testing guidelines on Sapota the second centre is ICAR-IIHR, Bengaluru, formulation of guidelines morphological characters of 53 varieties of sapota were recorded and the varieties were categorized on the basis of leaf shape, length, width, colour, variegation, shape of leaf base and tip, dent at leaf tip, leaf margin, petiole length and leaf blade ratio.

4.1.4. Development of DUS test guidelines for Curry Leaf (*Murraya koenigii Spreng*.)

This project was initiated during August,2021 at ICAR-IIHR, Bengaluru for "Development of DUS test guidelines for Curry Leaf (*Murraya koenigii Spreng*.)".

During this period 2022-23, a total of 173 germplasm and 1 released variety of Curry leaf were collected from different states (viz., Tamil Nadu, Karnataka, Himachal Pradesh and Odisha)

in India and evaluated in augmented design for different qualitative and quantitative characters. The short-listed reference or example germplasm/varieties were evaluated for 35 qualitative characters and 36 quantitative characters in replicated RCBD design. Six stable traits in curry leaf were identified as grouping characters for the purpose of classification of curry leaf genotypes across environments. Besides, several example genotypes were identified for various morphological traits in curry leaf for the purpose development of DUS testing guidelines. The DUS testing guidelines were finalized and report writing is in progress.

4.1.5. Development of DUS test guidelines for chilli, paprika and bell pepper under protected conditions

This project was initiated during financial year 2021-22 at Dept. of Vegetable Science and Floriculture, CSK- Himachal Pradesh Krishi Vishvidayalya, Palampur for "Development of DUS test guidelines for chilli, paprika and bell pepper under protected conditions".

During the reporting period 2022-23, the observations were recorded for 61 characters for 57 example varieties that include 35 varieties of chilli, 14 of bell pepper and 8 of paprika. The DUS guidelines for chilli, paprika and bell pepper for field conditions include 54 characters. The comparative studies indicated variations in state/category for 4 traits (additional category proposed) that include Plant height, leaf length of blade, leaf width of blade and fruit cross sectional corrugation (oval). In addition, observations were recorded for seven new traits namely, stem anthocyanin colouration, stem anthocyanin colour intensity, petiole colour, petiole length, days to 50% flowering after transplanting, stigma colour, and days to 50% ripening after transplanting. Besides, observations for flower and fruit orientation, and number of lobes and number of locules were recorded separately due to variations for these traits. The crop duration was longer under protected conditions so there is need to redefine category of days to ripening in comparison to open field condition. Listing of characters for DUS testing shall be done as per requirement of PPV & FRA for development of DUS testing guidelines.

4.1.6. Development of DUS test guidelines for vegetable Kale (*Brassica oleracea* L. Acephala)

This project was initiated during financial year 2021-22 at Floriculture, ICAR- Central Institute of Temperate Horticulture, Srinagar for "Development of DUS test guidelines for vegetable Kale (*Brassica oleracea* L. Acephala).

During the reporting period 2022-23, The kale germplasm comprising 62 genotypes was sown in July in open field at Vegetable Experimental Area of the institute. The transplanting of seedlings was carried out in August, in a Randomized Complete Block Design in two replications. Row to row and plant to plant distances were maintained at 45 cm and 30cm, respectively, in a plot sized 3 m × 1.25 m, accommodating 30 plants per plot per replication for both the years. Farm yard manure and chemical fertilizers were applied as per recommended package of practices for the region. Intercultural operations were carried out for development of DUS testing guidelines.

4.1.7. Development of DUS test guidelines for Lettuce (*Lactuca sativa* L.)

This project was initiated during financial year 2021-22 at Division of Vegetable Science, Indian Agricultural Research Institute, Pusa, New Delhi for "Development of DUS testing guidelines for Lettuce (*Lactuca sativa* L.)".

During the reporting period 2022-23, 15 varieties/advanced breeding lines were collected from different Institutes/Universities and from the Division of Vegetable Science for DUS characterization.

The trial was laid out as per the DUS testing guidelines. The varieties/lines were evaluated in RBD design with three replications and 60 plants in each replication. The seeds were sown in 26.10.2023 and seedlings were transplanted in 01.12.2022 at a spacing of 45 × 30 cm. 35 agro-morphological characters for DUS testing of lettuce were selected and data was recorded during the seedling stage, harvesting stage and flowering stage. Out of these lines, 3 heading (Great Lakes,Iceberg andAlamo -1), 10 leafy (Chinese Yellow, Phule Padma, Solan Kriti,Tango,Red Salad, Red rose DLS -13, DLS -50, DLS -90,Hara Patedar), one Butter head (Harit Baingani) and onecos/romaine types Red romaine have been identified. As per centre observation on varieties, the development of DUS testing guidelines on lettuce is in progress.

4.1.8. Development of DUS testing guidelines for Brown Top Millet (*Brachaeria ramose* L.)

This project was initiated during financial year 2021-22 at ICAR-AICRP on Small Millets, GKVK, UAS, Bengaluru for "Development of DUS testing guidelines for Brown Top Millet (*Brachaeria ramose* L.). The testing entries in Browntop millet

were characterized in replicated trails for DUS traits in *Kharif* 2022. A total of 108 browntop millet germplasm accessions were sown in three replications. A row length of 3.0 m, with spacing of 45 x10 cm was followed. A total of 20 characters *viz.*, plant growth habit, basal tiller numbers, days to 50% flowering, plant pigmentation at leaf sheath, leaf sheath pubescence, ligule pubescence, panicle pubescence, inflorescence shape, peduncle length, flag leaf blade length, flag leaf blade width, culm branching, panicle length, panicle compactness, lodging, plant height, seed shattering, grain color, grain shape and 1000 grain weight were considered for DUS characterization.

4.1.9. Development of DUS testing guidelines for knol khol (Brassica oleracea)

This project was initiated during financial year 2021-22 at Division of Vegetable Science, SKUAST-K, Shalimar, Srinagar for "Development of descriptors for promoting DUS guidelines for knol khol (*Brassica oleracea*)".

Total of 263 (10 lines failed to germinate) germplasm lines were collected from 196 collection sites of Kashmir region. Germplasm was also collected from other states of India wherever the crop is cultivated and also from other ICAR institutes, SAUs, and NBPGR. Due to presence of duplications in the morphological traits, selections were done and only 60 selections were carried further for seed production.

During 2021-22 autumn, 60 selected genotypes were replanted for flowering & seed production. The genotypes were grown under cages to prevent out-crossing in order to maintain genetic purity of each line. The seed was harvested from each line and maintained under ideal conditions for further use.

During August 2022-23, second year trial was laid out with 60 maintained germplasm lines. Nursery was laid out in open field. Raised beds were prepared with the dimensions of 3m x1mx 0.15 m and seeds of all germplasm lines were sown in lines on 04-08-2022. Adequate care was taken to raise a healthy nursery. Well developed and healthy seedlings were transplanted from 05-09-22 to 10-09-22 in well prepared land with the spacing of 30 x30 cm. All the recommended package of practices were followed to raise a healthy and successful crop. The crop was harvested during the month of November, 2022 and again replanted for second year flowering and seed production. The final DUS guidelines shall be developed after validation of flowering data during second year.

4.1.10. Development of DUS testing guidelines for Pran (*Allium x cornutum Clementi ex Vis*) indigenous to Kashmir Region

This project was initiated during financial year 2022-23 at Saffron Research Station, SKUAST-K, Pampore, Pulwama, Jammu and Kashmir for "Development of DUS testing guidelines for Pran (*Allium x cornutum Clementi ex Vis*) indigenous to Kashmir Region". A survey was conducted by Principal Investigator and Co- Principal Investigator's for identification of hot spots of Pran from different altitudes of Jammu & Kashmir. During the survey, 3 hot spots were identified in district Bandipora, 2 in Budgam, 2 in Anantnag, 1 in Kulgam, and 1 in Srinagar. A total of 41 germplasm lines were collected from these hot spots with a sample size of 2 kg's of bulbs for each germplasm line. Germplasm available at SKUAST-Kashmir (12 germplasm lines) were also included in programme. Tubers collected from hot spots was done with due consideration given to tuber variability and participatory rural appraisal (PRA) regarding inherent production potential of the sample. Subsequently the collected tuber samples were analyzed for various parameters including disease / pest aspects before planting. In order to tap variability in the samples an adequate flexibility was allowed during sampling. The germplasm material collected was planted in Augmented Block Design for evaluation at Advanced Research Station for Saffron and Seed Spices, SKUAST-Kashmir. The data with regard to different parameters as per the technical programme were recorded separately for each germplasm line and the range of results obtained. The cropping cycle of Pran starts 2nd fortnight of November (planting of bulbs) and lasts upto 1st fortnight of June (Harvesting). Characterization of various morphological traits for development of DUS testing guidelines on Pran.

4.1.11. Development of DUS testing guidelines for Pran (*Allium x proliferum*) under Indian conditions

This project was initiated during financial year 2022-23 at Division of Vegetable Science and Floriculture, ICAR-Central Institute of Temperate Horticulture, Srinagar for "Development of DUS testing guidelines for Pran (Allium x proliferum) under Indian conditions. Pran germplasm comprising 17 genotypes were planted in the first week of October, 2022 in Randomized Complete Block Design with three replications. Row to row and plant to plant distances were maintained at 30 cm and 20cm, respectively, in a plot sized 1 m × 1 m, accommodating 20 plants per plot per replication. The crop was maintained according to recommended package of practices. In order to characterize the germplasm, UPOV and IBPGR descriptors were used. The observations on plant morphological traits were recorded on five representative plants marked at random in each plot over the replications. For the assessment of colour characteristics, colour chart of Royal Horticultural Society V edition was used. Subsequent to data collection on plant and plant parts

including flowering, the crop was harvested in July 2023 and stored in low cost naturally ventilated net house. Data collection and photography of bulbs is underway and will be completed by the end of September, 2023.

4.1.12. Development of DUS testing guidelines for Turnip (*Brassica rapavar. rapa* L.).

This project was initiated during financial year 2022-23 at Division of Vegetable Science SKUAST-K, Srinagar for "Development of Descriptors for Promoting DUS guidelines for Turnip (Brassica rapavar. rapa L.). Germplasm lines of Turnip collected from natural population from different parts of Kashmir valley and other states of India have been studied in the present project. Potential Turnip growing areas of Kashmir valley were surveyed and germplasm was collected from all districts of Kashmir valley viz. Srinagar, Ganderbal, Baramulla, Kupwara, Bandipora, Anantnag, Pulwama, Shopian, Budgam and Kulgam for germplasm collection. Collection was also done from farmers' fields and kitchen/home gardens. Germplasm was also collected from other states of India wherever the crop is cultivated and also from other ICAR institutes and SAUs. A total of 103 (3 lines failed to germinate) germplasm lines were collected from 96 collection sites. During 2022-23, project trial was laid out with collected 103 germplasm lines. Raised beds were prepared with the dimensions of 3m x 1.5 m x 0.15 m and seeds of all germplasm lines were sown on 29-08-2022. Thinning of turnip was done when third or fourth leaf emerged and spacing of 30 x 10 cm was maintained between the rows and plants respectively. The final DUS guidelines shall be developed after validation of data during second year.

4.1.13. Development of DUS testing guidelines for Bambara Groundnut (*Vigna subterranea* (L.) *Verdc*).

This project was initiated during financial year 2022-23 at Department of Genetics and Plant Breeding, UAS, GKVK, Bengaluru, Karnataka for "Development of Guidelines to Conduct DUS test in Bambara Groundnut (*Vigna subterranea* (L.) Verdc). 90 germplasm accessions of Bambara Groundnut have been procured from IITA, Nigeria through NGPGR, Delhi. All the 90 accessions are being evaluated in a certified Post Entry Quarantine facility (Net house) of Department of Genetics and Plant Breeding, UAS Bangalore. A new net house has been constructed inside the polyhouse to prevent the entry of any pests. The accessions were sown on 29/08/22 in pots at the rate of one accession per pot. All the agronomic practices were carried out

on a timely basis to ensure maximum support for the growth of plants. The plants were inspected by regional plant quarantine officer on 20.9.2022 and also by a team of scientist constating of Dr. K Anitha (PS and OIC) and Dr. B. Parmeswari (Senior Scientist) from NBPGR Hyderabad on 3.11.2022. Seeds harvested from polyhouse were then sown in field of K block, UAS, GKVK, Bengaluru-65 for seed multiplication in Augmented design. Each accession is grown in single line with spacing of 45 x 10cm. All agronomic practices were followed to establish good crop stand. The remaining seeds of all 90 germplasms were grown again in polyhouse for re-confirming the quarantine studies. Hence, Bambara Groundnut germplasm accessions are sown in polyhouse in Augmented design. All agronomic practices were followed to take up good crop stand.

4.1.14. Development of DUS testing guidelines for Daffodils (*Narcissus sp*.), Tulip (*Tulip asp*.) and *Iris sp*.

This project was initiated during financial year 2022-23 at Division of Floriculture Landscape & Architecture, Faculty of Horticulture, SKUAST-Kashmir, Shalimar, Srinagar for "Development of DUS testing guidelines for Daffodils (*Narcissus sp*.), Tulip (*Tulip asp*.) and *Iris sp".* During reporting period Collection and evaluation of germplasm lines of Daffodils (*Narcissus spp*.), Tulip (*Tulipa sp*.) and *Iris spp*. from heterogeneous population of Jammu and Kashmir at Research Farm of Division of Floriculture SKUAST-Kashmir could not only confirm the plant descriptors but will also help in identifying high yielding genetic stock for further improvement and conservation.

The DUS testing of Tulip, Iris, and Daffodil is a crucial step towards preserving the genetic diversity of these ornamental plants. The project focuses on evaluating different cultivars within each species to determine their uniqueness and stability. Identification of hotspots and collection of bulbous germplasm typically involves a systematic process to identify areas with high biodiversity and endemic species (hotspots) and the collection of diverse bulbous plant varieties for preservation and research purposes. We conducted the field surveys in the identified hotspots to locate and collect bulbous plant species. The appropriate techniques to sample collection and preserve the planting material without harming the population or ecosystem were followed. Depending on the reproductive strategy of the bulbous plants, we collected bulbs/rhizomes for long-term preservation,

storage and evaluation. Recorded relevant data about the collection sites, and plant characteristics to aid research and development was collected. Propagation of the collected bulbous germplasm in research institution is tomake sure of their survival and accessibility for future research and breeding programs.The process of identifying hotspots and collecting germplasmwas carried out with a conservation mindset, focusing on the long-term sustainability of plant populations and their ecosystems. Detailed morphological observations were conducted, recording characteristics

such as leaf shape, flower structure, stem length, and overall plant habit etc. Measurements and photographs were taken for documentation.

4.1.15. Development of DUS testing guidelines for Avacado (*Persea Americana* Mill)

This project was initiated during financial year 2022-23 (month of December,2022) at ICAR-Indian Institute of Horticultural Research, Bengaluru, Karnataka for "Development of DUS testing guidelines for Avacado (*Persea Americana* Mill). From Jan to March,2023 DUS centre were collected Avacado accessions from different locations of Karnataka, Kerala and Tamil Nadu. Avocado germplasm was established in Central Horticultural Experimental Station at Chettalli. Presently, the observations are recorded in six-year-old orchard for the characters *viz*., morphological and floweringas per the avocado descriptor. The collection of data was carried out in avocado germplasm and varieties on regular interval. Presently, vegetative and flowering parameters data are being collectedusingdescriptors. The parameters recorded for Morphological characters: Tree height (m), canopy spread (m), colour of twig, colour of young flush, surface of young flush and leaf characters were observed in different accessions. Other important traits *viz*., branching pattern, trunk surface, distribution of branches, leaf shape, mature leaf colour and leaf margin etc. for development of DUS guidelines on Avacado.

4.1.16. Development of Development of DUS testing guidelines for Dragon fruit (*Hylocereus sp*.)

This project was initiated during financial year 2022-23 (month of December,2022) at ICAR-Indian Institute of Horticultural Research, Bengaluru, Karnataka for "Development of DUS testing guidelines for Avacado (Persea Americana Mill). From Jan to March,2023 DUS centre were collected Collection of Dragon fruit accessions was carried out for DUS testing. The collected accessions are maintained at ICAR-IIHR- CHES, Hirehalli, Tumakuru consisting of 29 exotic collections and 26 secondary collections. To estimate the genetic diversity, characterization was initiated in the germplasm of Hylocereus sp. Observations was recorded in the existing germplasm on regular interval. Presently, the flowering parameters are being recorded using dragon fruit descriptor to trace out the variability. The characters like flower bud shape, shape of bud apex, bud colour, length of pericarpal, width of pericarpal, length of perianth, intensity of colour of bract, petal colour, sepal main colour, pattern of secondary colour in sepal and length of style was recorded for development of DUS guidelines on dragon fruit.

4.1.17. 'Development of DUS test guidelines for Mesta (Kenaf - Hibiscus cannabinus L. & Roselle - H. sabdariffa L)':

Development of DUS test guidelines for Mesta (Kenaf - Hibiscus cannabinus L. & Roselle - H. sabdariffa L)' is being implemented at ICAR-CRIJAF and ARS, Amadalavalasa, since 2020-21 with following objectives:

- To develop DUS test guideline in kenaf and roselle
- To identify appropriate characteristics for the examination of DUS
- To prepare harmonized descriptors of all available variety.
- To digitize DUS characteristics of all reference varieties.

At ICAR-CRIJAF & ARS, Amadalavalsa locations, 19 varieties/ line/farmers' varieties in Roselle (*H. sabdariffa*) and 14 in Kenaf (*H. cannabinus*) were evaluated. Details are given in the following table:

Varieties evaluated at both centers	Source Institute
Roselle -*Notified Variety*: HS 4288, HS 7910, CRIJAF R8, JRR-17, JRHS 1, GR 27, *Elite lines*: CRIJAF R 5, PB 137	ICAR-CRIJAF
Roselle- *Notified Variety:* AMV-1, AMV-2, AMV-3, AMV-4, AMV-5, AMV 7, AMV 8, AMV 9, AMV 10, *Elite line*: Dark red roselle, *FV*: Balijipeta Local	ARS, Amadalavalasa
Kenaf-*Notified Variety*: HC 583, AMC 108, MT 150, JBM-2004-D, JRM 3, JRM 5, JBM 71, JBM 81, JBMG4, JRKM-9-1, JBMP2, JBMP 3, JBMP 4, JRHC 3	ICAR-CRIJAF

During the entire crop growing season, a total of 32 characters were recorded. Three characters, viz., cotyledonary leaf margin colour, cotyledonary leaf collar pigmentation, and density of spine on stem did not show uniformity in expression over the locations. Three characters, viz., flower eye zone extension, capsule dehiscence and seed shape showed mono-morphic expression at the species level. Again, three characters, *viz.,* leaf length width ratio, leaf blade angle and days to 50% flowering were not sufficiently diverse to classify entries into separate groups and 'flower bud colour' is redundant with fruit colour, thus these 10 characters were not considered as DUS descriptors.

Finally, based on uniformity and stability out of 32 characters, following 22 characters are identified for development of DUS guideline:

Vegetative characters	hypocotyl pigmentation, leaf lobing pattern, leaf vein colour, leaf petiole pigmentation, leaf collar colour, leaf pubescence, stipule colour, stem colour, stem pubescence, presence of spine on the stem, stem branching habit, plant height
Reproductive	flower petal colour, flower eye zone colour, flower stigma colour, fruit colour, falyx length, fruit pubescence
Seed characters	seed coat colour, thousand seed weight
Quality Characters	fibre strength, fibre fineness

In Kenaf varieties, hypocotyl pigmentation was either absent (AMC-108) or present (MT-150). Plant height was ranged from 3.58 m (JBMP 3) to 4.13 m (JBM 2004 D). Stem colour was either green in HC 583 (RHS 143C) or coppery red in JRHC 3(RHS 174A). Stipule colour was either green in JBMP 2(RHS143C) or greyish reddish orange in AMC 108 (RHS 174C). The fibre strength were varied from 23.7g/tex (JRM 3) to 28.23g/tex (JBM 2004-D). The fibre fineness of kenaf varieties were varied between 2.63 tex (JRM-3) to 3.62 tex (MT-150). Flower petal colour was either creamy yellow in JRM-5 (RHS 2C) or violet inJRHC-3 (RHS 94C) whereas stigma colour was either red in JRHC-3 (RHS 45B) or dark red in JBMP-2 (RHS code-187B). Thousand seed weight was varied between 24.61g (JRKM 9-1) to 32.01g (HC-583).

In Roselle varieties, leaf vein colour had three different states of expression i.e. green in Balijipeta Local(RHS 137A), red in Dark red roselle(RHS 183A) and variegated (JRR-17)). Leaf petiole pigmentation was either absent (Balijipeta local) or present (AMV-10). Leaf collar colour showed three different states of expression i.e., green in Balijipeta local (RHS 143C), red in JRHS-1 (RHS 183A) and variegated (HS-4288). Plant height ranged from 1.91 m for Dark red roselle to 4.30 m in AMV-2). Stem colour had four different states i.e. green for Balijipeta local(RHS 143C), dark red in JRHS-1(RHS code-187A), variegated (HS-7910) and others like green stem with red nodefor HS-4288. Stipule colour was either green (RHS 143C)in HS-4288 or variegated in HS-7910. The fibre strength of roselle varieties varied from 16.03g/tex for Dark red roselle to 21.89g/tex in JRR-17. The fibre fineness of roselle varieties were varied between 3.01 tex in Dark red roselle to 3.79 tex for HS-7910. Stigma colour was either pale yellow (RHS 2D)in Balijipeta Local or dark red (RHS code-187B) in AMV-7. Fruit colour showed four different states of expression i.e., green (RHS 144D) in Balijipeta local , red in HS-7910(RHS 187C), dark red in Dark red roselle (RHS187B) and variegated for HS 4288. Thousand seed weight was varied between 19.86g (HS-4288) to 35.55g (Dark red roselle) in roselle varieties.

Chapter 5: Activities Related to Farmers

5.1 TRAINING-CUM-AWARENESS PROGRAMMES

The Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA) conducts various Training-cum-Awareness programmes on different provisions and sections of PPVFR Act, 2001 Rules and Regulations and provides financial assistance to the ICAR Institutes, IARI, Central Agriculture Universities (CAU), State Agricultural Universities (SAU), Affiliated Colleges/Institutes of CAU/SAU and other government or non-government organizations (NGO) for the organization of such kind of programmes for the benefit of Agriculture Scientists/Researchers/Scholers/Students/Farmers and other stakeholders. During the reporting period of 2022-23 the PPVFR Authority has funded Rs. 40,53,388/- (Rupees Forty Lakh Fifty Three Thousand Three Hundred Eighty Eight Only) for organization/co-organization of such kind of programmes. The PPVFR Authority organized/co-organized the following activities during 2022-23;

Training cum Awareness Programmes and other activities organized/co-organized during 2022-23				
Sr. No.	**ACTIVITIES**	**Fund allotted**	**2022-23**	**TOTAL**
	Awareness-cum-Training Programme	Rs. 3,20,000/-	4	4
	Exhibition & Fair	Rs. 14,33,388/-	12	12
	Seminar/Symposium/Conference	Rs. 23,00,000/-	9	9
	Grand Total	**Rs. 40,53,388/-**	**25**	**25**

9th GB meeting of ITPGRFA:

During the reporting period of 2022-23 the Authority has conducted a 9th Governing Body meeting of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) of Food and Agriculture Organization, Rome from September 19-25, 2022 in collaboration with Ministry of Agriculture and Farmers Welfare, Government of India.

During the 9th session of the Governing Body meeting of International Treaty of Plant Genetic Resources for Food and Agriculture around 2000 Scientists/Stakeholders/Students from Central and State Agricultural Universities, Various Institutes of ICAR & IARI and Farmers from different regions of India were participated. Plant Genome Saviour Awarded and Rewarded farmers were invited for the participation and they displayed their genetic materials and seeds of different varieties.

Hon'ble Union Minister of Agriculture and Farmers Welfare Shri Narendra Singh Tomar visited the stall of PPVFRA established in the 9th GB meeting of ITPGRFA

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

6.1 PLANT VARIETY JOURNAL OF INDIA

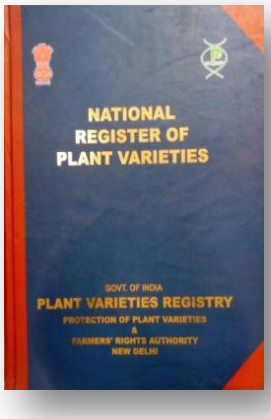
In accordance with Rule 2(g) of PPVFR Rules, 2003 the Authority publishes its official journal "Plant Variety Journal of India" (PVJ) as a monthly publication and made available to public each month on its official website. This journal has the equivalent status of a Gazette under the PPVFR Regulations, 2006. The contents of Journal include official and public notices, Gazette notifications, passport data of plant varieties along with photographs, published DUS test guidelines of different crop species, details of certificate of registration and other related official matters and notices.

The details of category of crops published in the reporting year are following;

S. No.	Category of variety	No. of variety	Crop
1	Farmer	67	Rice, Mango, Bread Wheat, Chickpea, Pearl Millet, Onion, Grapes, Banana, Sorghum, Brinjal, Pumpkin, Maize, Jackfruit, Tomato, Ridge Gourd, Pomegranate, Guava
2	New	34	Rice, Mango, Tetraploid Cotton, Barley, Okra, Pearl Millet, Grapes, Banana, Sorghum, Brinjal, Jute, Soybean, Pigeon Pea
3	Extant	103	Rice, Bread Wheat, Durum Wheat, Chickpea, Tetraploid Cotton, Diploid Cotton, Barley, Okra, Bitter Gourd, Bottle Gourd, Kidney Bean, Pearl Millet, Cowpea, Black Gram, Finger Millet, Foxtail Millet, Brinjal, Maize, Jute, Safflower, Mulberry, Pigeon Pea, Ridge Gourd, Green Gram, Tuberose

6.2 NATIONAL REGISTER OF PLANT VARIETIES

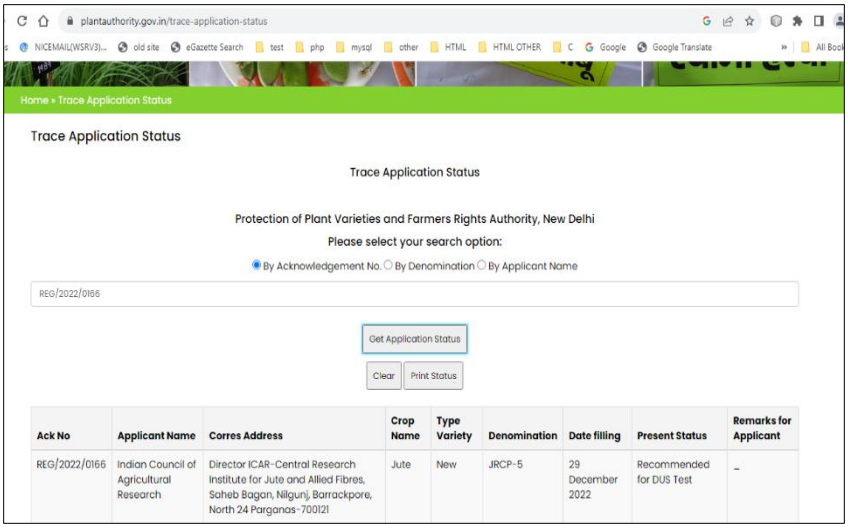
The PPVFR Authority, in compliance with section 13 of the PPVFR Act, 2001, has opened the National Register of Plant Varieties at the Headquarters of the Plant Varieties Registry. It contains complete details of the names of all the registered plant varieties along with the names and addresses of the respective breeders, denomination, specifications, salient features etc.



Chapter 7: Development of Database, IINDUS, Website and Information and Communication Technology (ICT)

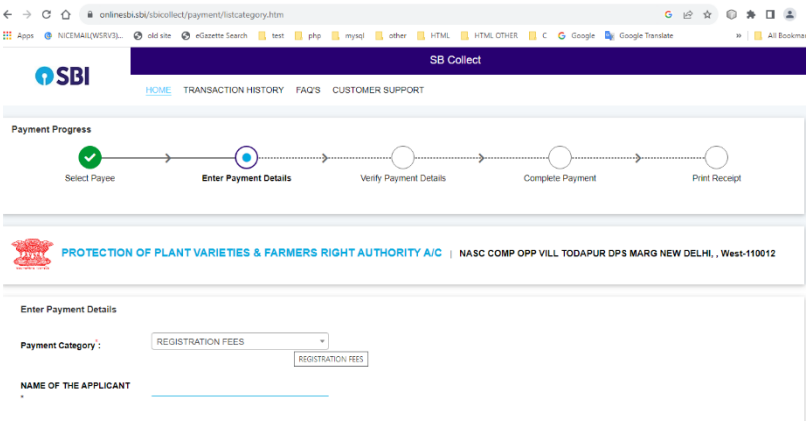
7.1 WEBSITE:

The official website (www.plantauthority.gov.in) of the Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA) has been deployed on NIC cloud server. The website is developed in bilingual (Hindi and English) using latest technology. The website has compliance with all the Guidelines for Indian Government Websites (GIGW) norms and follow all the mandatory guidelines set by the government. The website has featured with MIS report in graphic view for registration certificates issued and important information about news and events, Plant Genome Saviour Community Award and Plant Genome Saviour Farmer Reward & Recognition and other important functions. The most Important Monthly Publication published in the Authority's website is Plant Varieties Journal (PVJ) which is equivalent to Gazette of India with the digitally signed and publishes public notice, important orders, forth coming activity and other significant information. The quick online tracking status system for registration applications on the website has also incorporated. 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. This page has provided all important useful information about the application i.e., applicant name, their corresponding address and crop name, type of variety, denomination of variety, date of filling and current status as well. It is very feasible to view and print the status report. This web page is compatible with all web browsers.



The official website has also been facilitated Online Payment gateway through SBI Collect fee payment Interface. It encourages the government campaign of cashless digital payment with reliable, secure and

hassle-free fee payment environment. The Payment of Registration fee, All type of DUS Test Fee, Annual fee, Renewal fee etc.



7.2 INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

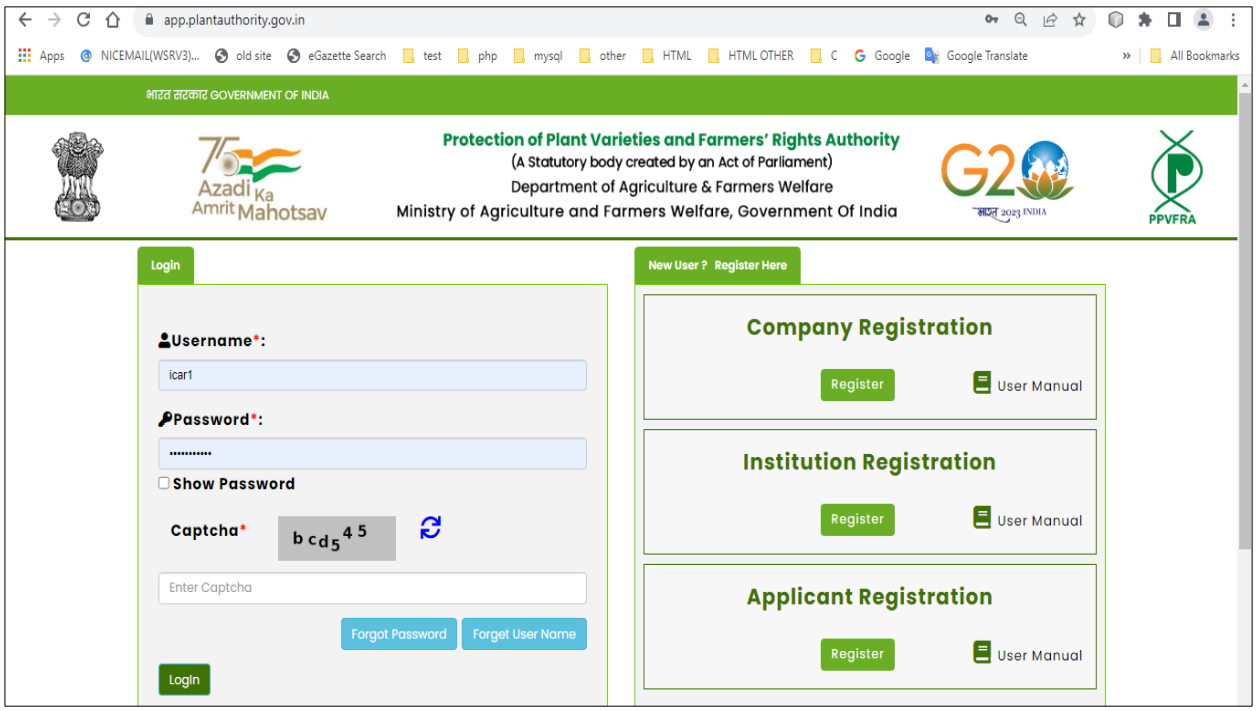
The Authority invites tenders on Central Public procurement portal (https://eprocure.gov.in/eprocure/app), purchase goods and services from Government-e-Marketplace (GeM), update General Pool Residential Accommodation (https://esampada.mohua.gov.in/signin/), Online RTI Application receiving and reply the information submitted by the department in the time bound as well as RTI application related Quarterly reports updation on the CIC portal regularly (http://dsscic.nic.in/users/pn-login), National 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 fulfill the concept of national e-governance and has taken initiatives in this regard.

7.3 ONLINE FILING OF APPLICATION FOR REGISTRATION:

The Authority initiated registration of 12 crop species in 2007 which has been extended to 182 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 service. Development of online process for submission of applications and payment for registration process of plant varieties will facilitate the applicants to file their applications in online mode to the Authority and also to pay the prescribed fee through 'Payment Gateway' which may be either through digital payment mode i.e. Debit card/Credit card/Net Banking. The system is now being implemented by NIC/NICSI and development of software is in final stage. The following feature available in the Online filing software:

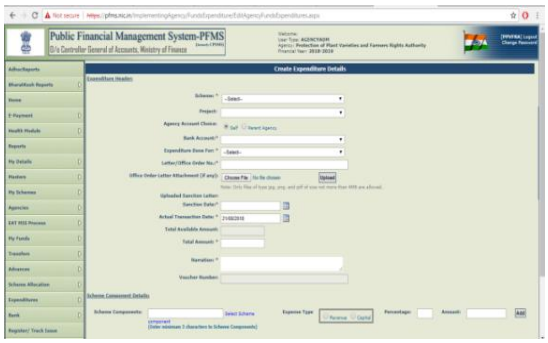
- On line management and processing of the applications for the Grant of rights to breeders as well as farmers.
- Real-time notification and communication between stakeholders like Applicants and Plant Varieties Registry to enhance user experience.
- The scrutiny of applications for grant of PVP to be done more effectively using the on-line tools thereby reducing time. The monitoring of the DUS Test Results shall be more effective, accurate and reduce processing time.

- 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.
- Send email and SMS to respective registered user to enter/update the relevant information.
- The monitoring of the DUS Test Results shall be more effective, accurate and reduce processing time.
- Send email and SMS to respective registered user to enter/update the relevant information. The Online filing application software is almost completed and currently under testing phase after successfully testing application the application will be launch in the public domain by the authority earliest.
- Facilitation given to the Applicant to payment all types of fees in online mode, which are required for registration of application.



7.5 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. The list of institutes mapped in PFMS is here under



MAPPED IN PFMS SCHEME 3025

S. No.	Agency Name	Agency Type
1	Acharya N.G. Ranga Agricultural University	Statutory Bodies
2	Agriculture University, Jodhpur	Statutory Bodies
3	Assam Agricultural University	State Government Institutions
4	ATARI Guwahati	Central Government
5	ATARI Patna	Central Government
6	Bidhan Chandra Krishi Viswavidyalaya	Statutory Bodies
7	Bihar Agricultural University, Sabour Bhagalpur	Statutory Bodies
8	Birsa Agricultural University, Kanke, Ranchi, Jharkhand	State Government PSUs
9	C.S. Azad University of Agriculture & Technology, Kanpur	Statutory Bodies
10	CCS Haryana Agricultural University, Hisar	Statutory Bodies
11	Central Agricultural Research Institute, Port Blair	Central Government
12	Central Institute of Temperate Horticulture Srinagar (ICAR)	Central Government
13	Central Coffee Research Institute - Balehonnur	Registered Societies (Govt., Autonomous Bodies)
14	Central Institute for Arid Horticulture, Bikaner	Central Government
15	Central Institute for Cotton Research Nagpur (Unit of ICAR)	Central Government
16	Central Institute for Subtropical Horticulture	Central Government
17	Central Plantation Crops Research Institute	Central Government
18	Central Potato Research Institute	Central Government
19	Central Research Institute for Jute and Allied Fibres	Central Government
20	Central Rice Research Institute	Central Government
21	Central Tobacco Research Institute	Central Government
22	Central Tuber Crops Research Institute	Central Government
23	CIMAP	Registered Societies (Govt., Autonomous Bodies)
24	Comptroller, Maharana Pratap University of Agriculture and Technology, Udaipur	Registered Societies (Govt., Autonomous Bodies)

25	CSR&TI Mysore	Registered Societies (Govt., Autonomous Bodies)
26	Directorate of Cashew Research (Formerly National Research Centre For Cashew)	Central Government
27	Directorate of Groundnut Research (ICAR Unit)	Central Government
28	Directorate of Maize Research	Central Government
29	Directorate of Medicinal and Aromatic Plants	Central Government
30	Directorate of Oilseeds Research, Rajendranagar, Hyderabad	Central Government
31	Directorate of Rice Reserach	Central Government
32	Directorate of Seed Research, Uttar Pradesh	Central Government
33	Directorate of Soybean Research (Indian Council of Agricultural Research)	Central Government
34	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth	Registered Societies (Govt., Autonomous Bodies)
35	Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola	State Government PSUs
36	Dr.Y.S. Parmar University of Horticulture and Forestry	State Government Institutions
37	G.B. Pant University of Agriculture and Technology, Pant Nagar	Statutory Bodies
38	Icar- Agricultural Technology Application Research Institute	Central Government
39	ICAR- Agricultural Technology Application Research Institute, Kanpur	Central Government
40	ICAR Directorate of Onion and Garlic Research	Central Government
41	ICAR- IIWBR (Indian Council of Agricultural Research- Indian Institute of Wheat and Barley Research)	Central Government
42	ICAR Research Complex for NEH Region	Central Government
43	ICAR Research Complex, Goa, (Indian Council of Agricultural Research)	Central Government
44	ICAR Unit Drmr (Directorate of Rapeseed-Mustard Research)	Central Government
45	ICAR, ATARI-III	Central Government
46	ICAR, NRC For Orchids	Central Government
47	ICAR-Agricultural Technology Application Research Institute, Hyderabad	Central Government
48	ICAR-Agricultural Technology Application	Central Government

	Research Institute, Jabalpur	
49	ICAR-Agricultural Technology Application Research Institute, Pune	Central Government
50	ICAR-Agricultural Technology Application Research Institute, Zone-I	Central Government
51	ICAR-ATARI Kolkata	Central Government
52	ICAR-ATARI, Bangalore	Central Government
53	ICAR-National Research Centre on Pomegranate (NRCP), Solapur	Central Government
54	Indian Agricultural Statistics Research Institute	Central Government
55	Indian Grassland and Fodder Research Institute	Central Government
56	Indian Institute of Horticultural Research	Central Government
57	Indian Institute of Millets Research	Central Government
58	Indian Institute of Pulses Research	Central Government
59	Indian Institute of Spices Research (ICAR)	Central Government
60	Indian Institute of Sugarcane Research, Lucknow	Central Government
61	Indian Instute of Vegetable Research (ICAR)	Central Government
62	Indian Society of Seed Technology	Registered Societies (Govt., Autonomous Bodies)
63	Indira Gandhi Krishi Vishwavidyalaya, Raipur.	Registered Societies (Govt., Autonomous Bodies)
64	Institute of Forest Genetics and Tree Breeding (Indian Council of Forestry Research and Education)	Registered Societies (Govt., Autonomous Bodies)
65	Jawaharlal Nehru Krishi Vishwavidyalaya	Statutory Bodies
66	Junagadh Agricultural University	State Government Institutions
67	Kerala Agricultural University	State Government PSUs
68	M S Swaminathan Research Foundation	Trusts
69	Mahatma Phule Agricultural University, Rahuri	State Government Institutions
70	Nagaland University	Statutory Bodies
71	Narendra Deva University of Agriculture & Technology, Kumarganj, Faizabad	State Government Institutions
72	National Botanical Research Institute, Lucknow	Registered Societies (Govt., Autonomous Bodies)
73	National Bureau of Plant Genetic Resource - NBPGR (ICAR)	Central Government
74	National Research Center for Litchi	Central Government
75	National Research Centre for Banana (ICAR)	Central Government
76	National Research Centre for Citrus, Nagpur (Unit of ICAR)	Central Government

77	National Research Centre for Grapes (ICAR)	Central Government
78	National Research Centre on Seed Spices	Central Government
79	Navsari Agricultural University	State Government PSUs
80	North-East Institute of Science & Technology (CSIR)	Registered Societies (Govt., Autonomous Bodies)
81	Prof. Jayashankar Telangana State Agricultural University, Rajendranagar, Hyderabad	State Government Institutions
82	Punjab Agricultural University	Registered Societies (Govt., Autonomous Bodies)
83	Sam Higginbottom Institute of Agriculture Technology And Sciences	State Government PSUs
84	Sardar Krushinagar Dantiwada Agricultural University	State Government PSUs
85	Sher-E-Kashmir University of Agricultural Sciences and Technology of Kashmir	Registered Societies (Govt., Autonomous Bodies)
86	Sri Karan Narendra Agriculture University, Jobner	State Government Institutions
87	Sugarcane Breeding Institute, Coimbatore, (ICAR)	Central Government
88	Tamil Nadu Agricultural University	Registered Societies (Govt., Autonomous Bodies)
89	Tea Board DTR&DC,Kurseong	Registered Societies (Govt., Autonomous Bodies)
90	Tea Research Association	Registered Societies (Govt., Autonomous Bodies)
91	University of Agricultural and Horticultural Sciences, Shivamogga	Statutory Bodies
92	University of Agricultural Sciences, Bangalore	Statutory Bodies
93	University of Agricultural Sciences, Dharwad	Registered Societies (Govt., Autonomous Bodies)
94	University of Horticultural Sciences, Bagalkot	Statutory Bodies
95	VPKAS(ICAR), Almora	Central Government
96	ICAR- Indian Agriculture Research Institute	Central Government

Chapter 8: Administration, Governance and Other Miscellaneous Activities

8.1 ADMINISTRATION:

During the period under report the following changes has taken place in PPVFR Authority.

Dr. Dinesh Kumar Agarwal, assumed the charges of Registrar-General in PPVFR Authority on 20.05.2022 on deputation.

8.1.1 MANPOWER:

The Authority has submitted a detailed proposal to DAFW for creation of 148 new posts during the period under report. At the time of submission of this report, the positions of three Registrars of the are vacant. Manpower in the form of Registrar is most crucial and have to be in position mandatorily for the implementation of the provisions of the Act including registration of the varieties, judicial proceedings on any appeals or objections or petitions. These statutory roles cannot be executed by any other officer or temporary officers given the charge. The posts of Registrar three position are vacant and Joint Registrar are not being filled despite three advertisements during the year under report and one more since then so far as there are no applicants. The only reasons these posts are not being filled or are attractive enough among professional scientists in the country as at the time of printing this Report are,). The status of these positions are lower than contemporary posts in the Universities and ICAR/CSIR or other such organizations b). The conditions of being only on deputation for 3-5 years. Both these are concerns need to be addressed on priority in time to come.

8.2 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, 33 cases were pending against the Authority.

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

Central Administrative Tribunal	High Courts	Supreme Court
3	21	7

The Legal Cell also provided inputs to all judgements passed by the Authority/ Registrar during the Reporting Period. During this period,

The following Gazette Notifications were published in the year 2022-23:

- Gazette Notification **S.O. 2023 (E)** dated **28th April, 2022** regarding appointment of Non-Official Member representing Agricultural University.
- Gazette Notification **S.O. 5402 (E)** dated **18th November, 2022** regarding notification of 6 Crops species Horse gram, Gerbera, Coffee, Flue-Cured Virginia (FCV) and bidi tobaccos, Moth bean, Cluster bean"
- Gazette Notification **S.O. 5571 (E)** dated **29th November, 2022** regarding notification of Centres U/s 41 of PPV&FR Act, 2001".
- Gazette Notification **S.O. 683 (E)** dated 14th February, 2023 regarding 3 Crop species Cocoa, Radish and Carrot.

8.3 RIGHT TO INFORMATION (RTI)

During the reporting period 2022-23, under the Right to Information (RTI) Act, 2005, Sh. Uma Kant Dubey, Deputy Registrar and Dr. Dinesh Kumar Agarwal, Registrar General continues as Central Public Information Officer (CPIO) and First Appellate Authority (FAA) respectively at Protection of Plant Varieties and Farmer's Rights Authority (PPVFRA), Ministry of Agriculture and Farmers Welfare, Govt. of India for furnishing information to the applicants applies for information under Right to Information (RTI) Act, 2005. The details of the officers designated are available on website of the Authority i.e. https://plantauthority.gov.in/ under the menu heading RTI. Compliance of provisions 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. The Authority complies the Transparency Audit by the CIC and other requirements and compliances as per the CIC and RTI Act, 2005. During the reporting period, the Authority received 40 applications either directly from the applicant or transferred from other departments seeking information under RTI Act, 2005. The information sought was made available within the stipulated period.

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 Central Information Commission (CIC) with full details including receipt of fees too.

8.4 GOVERNMENT e-MARKETPLACE (GEM)

During the reporting year 2022-23, the Authority purchased different items, worth **Rs. 47,26,651/- (Rupees Forty Seven Lakh Twenty Six Thousand Six Hundred Fifty One only)** through GeM after completing necessary formalities. The month-wise purchase with value and items are as under:

Report of Procurement through GeM during 2021 -2022			
Sr. No.	**Particular**	**Month**	**Amount (Rs.)**
1.	Hard disk, Photocopier toner, Duster, Sanitizer, Hit, Air freshener, floor cleaner, Post Hole digger, Sprayer 20-liter, Refrigerator, HP toner, Paper Rim, Paper shredding Machine, Index file, Glue stick, Keyboard, Pencil, Notebooks, Power sprayer, Cycle, Printer, Analog Penetrometer, Security Cabin, Gel Pen, Scissors, Self-adhesive Paper note, Envelop, Oil	April, 2022	26,127
2.		May, 2022	43,057
3.		June, 2022	87,431
4.		July, 2022	1,20,168
5.		August, 2022	50,566
6.		September, 2022	69,582
7.		October, 2022	1,97,925

8.	filled Heater, Ball Pen, Tape, Note sheet, Naphthalene Ball, Toilet Cleaner, Glass tumblers, UPS, Rubber bands, Register, Calling bell etc.	November, 2022	---
9.		December, 2022	1,01,527
10.		January, 2023	82,151
11.		February, 2023	23,496
12.		March, 2023	1,26,511
		Total A	**9,28,541**
	Services		
1.	Manpower		20,25,352
2.	Audit Service		32,420
3.	Vehicle Hiring		17,37,458
4.	Printing		2,880
		Total B	**37,98,110**
		Grand Total Amount (A+B)	**47,26,651**

8.5 INSPECTION OF RECORDS AND SUPPLY OF CERTIFIED COPY

During the reporting period, 4 requests for inspection of records and supply of certified copies were received under section 84 of PPVFR Act, 2001 and Rule 76 of PPVFR Rule, 2003. The amount Rs. 1,73,000/- (Rupees One Lakh Seventy Three Thousand Only) as fees for the above purpose were deposited by the concerned applicant. After receipt of fees, the certified copies were supplied to the concerned applicants.

8.6 BRANCH OFFICES:

PPVFR Authority has five branch offices located in different parts of the country headed by Deputy Registrar as detailed below:

1. **Sh. U.K. Dubey (In-charge),**
   Deputy Registrar
   Protection of Plant Varieties and Farmers' Rights Authority
   Department of Agriculture & Farmers Welfare,
   Computer Centre Building, Near Damodar International Guest House,
   Birsa Agriculture University Campus, Kanke, Ranchi (JH)-834006

2. **Sh. U.K. Dubey (In-charge)**
   Protection of Plant Varieties and Farmers' Rights Authority
   Govt. of India, Ministry of Agriculture & Farmers Welfare,
   Department of Agriculture & Farmers Welfare,
   Assam Agricultural University, Near Administrative Building, Khanapara, Guwahati-781022

3. **Dr. Swarn latha,**
   Deputy Registrar (on contract basis)
   Protection of Plant Varieties and Farmers' Rights Authority

Department of Agriculture & Farmers Welfare,
CSK HP Krishi Viswavidyalaya, Palampur, Dist. Kangra, Himachal Pradesh-176061

4. **Sh. R.S. Sengar,**
   Deputy Registrar (In-charge)
   Protection of Plant Varieties and Farmers' Rights Authority
   Department of Agriculture & Farmers Welfare,
   Centenary Building, College of Agriculture Campus,
   Mahatma Phule Krishi Vidyapeeth, Pune, Maharashtra-411005

5. **Dr. A.K. Singh, Deputy Registrar (In-charge)**
   Protection of Plant Varieties and Farmers' Rights Authority
   Department of Agriculture, Co-operation & Farmers Welfare,
   UAHS Shivamogga, Abbalagere post, Shivamogga, Karnataka-577204

8.7. PPVFRA ENTRUSTED WITH THE CHAIRMANSHIP OF "NARAKAS" OR TOLIC (TOWN OFFICIAL LANGUAGE IMPLEMENTATION COMMITTEE)

In September, 2018, by the Department of Official Language, Ministry of Home Affairs, Government of India, the Protection Plant Varieties and Farmers' Rights Authority has been entrusted with the responsibility of chairing the Town Official Language Implementation Committee (TOLIC), North Delhi. A meeting is held every half year during the year and the committee comprises a total of 76 member offices. A 10 member committee was formed to administer various provisions of the official language.

8.7.1 Official Language Implementation Committee and Hindi Workshop in Protection Plant Varieties and Farmers Rights Authority

Official Language Implementation Committee already exists in the Authority for official language implementation. During the year under report, meetings were held every quarter and issues related to the official language were discussed in substance. A Hindi workshop was organized in the Authority on March 31, 2023, in which all the officers and employees of the authority participated. Shri D.S. Rajganesh, Legal Consultant, delivered a lecture on the Hindi Workshop on Intellectual Resource, in which he shared his suggestions about the importance of Hindi and advised to use Hindi as much as possible.

8.7.2 Organization of Hindi Day/Week/Fortnight and Hindi Month

Hindi Month was celebrated in the Protection Plant Varieties and Farmers' Rights Authority during the period from 14th September to 13th October, 2022. During this period, many competitions were organized in which many contractual employees including regular officers participated and prize distribution ceremony was organized in the Authority and cash prizes and certificates were given to the winners of the competitions. The names of the winners of Hindi month competitions are as follows:-

Writing a short story by writing the meaning of idioms/proverbs and proving their meaning

S.No.	Name of Participant	Place
1.	Mrs. Manisha	First
2.	Ms. Shaheen Purveen	Second
3.	Mr. Nirendra Kumar	Third
4.	Mrs. Sudesh	Consolation-I
5.	Dr. Jyoti Jaiswal	Consolation-II

Essay Writing Competition

S.No.	Name of Participant	Place
1.	Mrs. Garima Karnataka	First
2.	Mr. Vivek Sengar	Second
3.	Mr. Sunit Kumar	Third
4.	Mr. Dharmendra	Consolation-I
5.	Mrs. Shaheen Praveen	Consolation-II

Noting & Drafting

S.No.	Name of Participant	Place
1.	Mrs. Ritu Yadav	First
2.	Mr. Santosh Singh Bisht	Second
3.	Mr. Suneet Kumar	Third
4.	Ms. Shaheen Purveen	Consolation-I
5.	Mrs. Garima Karnataka	Consolation-II

English Hindi Administrative Vocabulary Competition

S.No.	Name of Participant	Place
1.	Ms. Shaheen Purveen	First
2.	Mr. Pawan Pandey	Second
3.	Shri Ramveer Singh	Third
4.	Mr. Gaurav Kumar Sharma	Consolation-I
5.	Mr. Arun Kumar	Consolation-II

Motivational story/story telling competition in Hindi

S.No.	Name of Participant	Place
1.	Mrs. Sudesh	First
2.	Mr. Gaurav Kumar Sharma	Second
3.	Mr. Manoj Mathur	Third
4.	Mrs. Ritu Yadav	Consolation-I
5.	Mr. Vivek Sengar	Consolation-II

English Hindi Administrative Glossary (Non-Hindi)

S.No.	Name of Participant	Place
1.	Shri D.S. Raj Ganesh	First
2.	Ms. Anuradha Das	Second
3.	Ms. M.S. Ranjani	Third
4.	Mr. S Raghul	Consolation-I
5.	Mr. Sangamesh Nevan	Consolation-II

8.7.3 Use of official Language Hindi

The official language Hindi is used in the office by the officers of Protection Plant Varieties and Farmers Rights Authority. Comments and drafts are prepared in Hindi language by the officers of the authority. All necessary documents falling under Section 3(3) of the Official Languages Act, 1963 were issued in bilingual form and correspondence is being conducted with Regions A, B and C as per the instructions of the Government of India.

8.8. OBSERVANCE OF VIGILANCE AWARENESS WEEK

Though the Authority does not come under the jurisdiction of the Central Vigilance Act or Central Vigilance Commission Act (2003), in view of the establishment of the spirit of maintaining the Authority free of any corruption and misuse of official position, the Authority in solidarity with the same observed Vigilance Awareness Week administering the oath by its staff, employees and officers.

The Authority observed the Vigilance Awareness Week where the staff of the Authority collectively participated in the prevention of corruption and the fight against corruption being vigilant as part of the Vigilance Awareness Week (31st October, 2022 to 6th November, 2022) with the theme "भ्रष्टाचार मुक्त भारत- विकसित भारत (Corruption free India for a developed Nation)

The observance of the Vigilance Awareness Week commenced with the taking of the Integrity Pledge.

8.9 PPV&FR AUTHORITY MEETINGS

During the year 2022-23, three meetings of the PPV&FR Authority were held and detailed minutes of meetings are available in the PPV&FRA website. Salient points are given:

8.9.1 Thirty-Third meeting on 08th August, 2022

- Fixation of time limit for registration of Horse gram, Gerbera, Coffee, Flue-Cure Virginia, bidi tobacco, Moth Bean and Cluster Bean
- Approval of DUS test guidelines of Horse gram, Gerbera, Coffee, Flue-Cure Virginia, bidi tobacco, Moth Bean and Cluster Bean
- Approval of DUS test fees of Approval of DUS test guidelines of Horse gram, Gerbera, Coffee, Flue-Cure Virginia, bidi tobacco, Moth Bean and Cluster Bean
- Approval of Annual Report and Annual Accounts 2019-20 and 2020-21.
- Amendment of Rule 29
- Approval of Recruitment Rules for the post of PVE, STO and TA.

8.9.2 Thirty-Fourth meeting on 23rd December, 2022.

- Fixation of time limit for registration of Cocoa, Radish and Carrot.
- Approval of DUS test guidelines of Cocoa, Radish and Carrot.
- Approval of DUS test fees of Approval of DUS test guidelines of Cocoa, Radish and Carrot.
- Approval of Annual Report and Annual Accounts of 2021-22

8.9.2 Thirty-Fifth meeting on 02nd February, 2023.

- Fixation of time limit for registration of Teak, Kalazeera, Saffron, Dolichos Bean, Ash gourd, Snake Gourd and Ivy Gourd.

- Approval of DUS test guidelines of Teak, Kalazeera, Saffron, Dolichos Bean, Ash gourd, Snake Gourd and Ivy Gourd.
- Approval of DUS test fees of Approval of DUS test guidelines of Teak, Kalazeera, Saffron, Dolichos Bean, Ash gourd, Snake Gourd and Ivy Gourd.
- Re-constitution of EDV committee.

8.10 PARTICIPATION OF CHAIRPERSON IN VARIOUS MEETINGS AND DISCUSSIONS DURING 2022-23

DATE	DESRIPTION
APRIL, 2022	
1st April, 2022	Chairperson attended IARI Foundation Day Celebration at Dr. B.P. Pal Auditorium, IARI, New Delhi.
14th April, 2022	Chairperson attended a meeting for Bio-Sciences Congress at Hindustan College of Science and Technology, Farah, (NH-2 Agra-Mathura) Uttar Pradesh.
20th April, 2022	Chairperson attended a meeting of GB9 Session - Provisional Agenda & Coordination Meeting through VC
22nd April, 2022	Chairperson attended a 230th meeting of RCGM through VC
26th April, 2022	Chairperson attended a meeting of IARI Maize application with Joint Registrar and Legal Advisor at PPVFRA
27th April, 2022	Chairperson Discussed for arrangements of 9th Session of GB of International Treaty on Plant Genetic Resources for Food and Agriculture at Krishi Bhawan, New Delhi
MAY, 2022	
9th May, 2022	Chairperson attended a meeting of 8th Edition of the India Maize Summit 2022 ***"Session 2" Technological advancements in Maize for supply-side sustainability through VC***
12th May, 2022	Chairperson attended a meeting of 8th India Maize Summit, 2022 ***"Session 2" Technological advancements in Maize for supply-side sustainability through VC***
23rd May, 2022	Chairperson discussed on arrangements of 9th Session of GB of International Treaty on Plant Genetic Resources for Food and Agriculture at Krishi Bhawan, New Delhi
24th May, 2022	Chairperson attended "Prospects of Varieties/Crops Developed through Genome Editing (regulatory framework, technologies and experience)"under Indo-German Cooperation on Seed Sector Development VC
24th May, 2022	*Chairperson attended नराकास की समन्वय समिति की बैठक at NAAS, NASC Complex, New Delhi*
24th May, 2022	*Chairperson attended a meeting of* "Prospects of Varieties/Crops Developed through Genome Editing (regulatory framework, technologies and experience)"under Indo-German Cooperation on Seed Sector Development through VC
26th May, 2022	*Chairperson attended a meeting of* 29th Dr. B.P. Pal Memorial Lecture through VC
JUNE, 2022	

05th June, 2022	Chairperson attended Induction of Newly Elected Fellows in AGM - Citation reading through VC
05th June, 2022	PPVFRA Conducted Foundation Day Lecture, 2022 at A.P. Shinde Symposium Hall, NASC, DPS Marg, New Delhi
07th June, 2022	Chairperson attended Proposed TCP for the promotion of landraces through community-manged seed systems (CMSS) through VC
07th June, 2022	Chairperson attended a meeting related to ITPGRFA at , Krishi Bhawan, New Delhi
14th June, 2022	Chairperson attended CGIAR Research Portfolio Introduction and Stakeholder Dialogue in South Asia at NAAS Lecture Hall, NASC Complex, New Delhi
27th June, 2022	Chairperson attended a meeting of Sub-Committee on Exhibition and Genome Savior Coordination to organise the 9th session of the Governing Body through VC
28th June, 2022	Chairperson attended a meeting of the Committee members on the visit of Dr. Kent Nnadozie, Secretary, ITPGRFA and his team members to discuss the arrangements of 9th Session of the Governing Body at Krishi Bhawan, New Delhi
JULY, 2022	
4th July, 2022	Chairperson attended Pusa Krishi's flagship incubation programs -- ARISE & UPJA 2021 through VC
20th July, 2022	Chairperson attended a Symposium for commemorating birth bicentenary of Gregor Johann Mendel on the theme " Tending Mendel's Garden for a Perpetual and Bountiful Harvest" at IARI, New Delhi
21st July, 2022	Chairperson attended a Symposium for commemorating birth bicentenary of Gregor Johann Mendel on the theme " Tending Mendel's Garden for a Perpetual and Bountiful Harvest" at Dr. B.P. Pal Auditorium, IARI, New Delhi
22-23, July, 2022	Chairperson attended an International conference on Harnessing Indian Agriculture for indigenous and global prosperity at A.P. Shinde Hall, NASC Complex, New Delhi
29th July, 2022	Chairperson attended a meeting with Chairman of various sub-committee with Director, North Central Zone Cultural Centre (NCZCC) Pryagraj at Krishi Bhawan, New Delhi
AUGUST, 2022	
05th August, 2022	Chairperson attended 9th Governing Body Meeting of ITPGRFA through VC
11th August, 2022	Chairperson attended a meeting with the Host Government and the Secretariat of the ITPGRFA: Ninth Session of the Governing Body of the ITPGRFA through VC
18th August, 2022	Chairperson attended meeting to discuss GB-9 Exhibit, posters, banner, etc. through VC
25th August, 2022	Chairperson attended a meeting with Dr Kent Nnadozie, Mr Francisco Lopez &(Ms) Afshaan Shafi at United Nations House, 55 Lodhi Estate
26th August, 2022	Chairperson attended a meeting with Dr Kent Nnadozie, Mr Francisco Lopez &(Ms) Afshaan Shafi through VC
26th August, 2022	Chairperson attended a meeting of Sub-Committee on Exhibition of ITPGRFA through VC

30th August, 2022	Chairperson attended Third meeting of executive committee under the co-chairmanship of Secretary, DARE &DG, ICAR at Krishi Bhawan, New Delhi
SEPTEMBER, 2022	
01st September, 2022	Chairperson attended a meeting under the Chairmanship of Additional Secretary & Financial Advisor with Chairman of various Sub-Committees for hosting 9th Session of the Governing Body of the Treaty at Krishi Bhawan, New Delhi
07th September, 2022	Chairperson attended a meeting of "Indo Indo German workshop on Apple and Pear" through VC
07th September, 2022	Chairperson attended a meeting to finalize a few outstanding items vis-à-vis GB-9 through VC
08th September, 2022	Chairperson attended a meeting to be held under the Chairmanship of the Hon'ble Minister of Agriculture and Farmers Welfare to review the arrangements of 9th Session of GB of International Treaty on Plant Genetic Resources for Food and Agriculture at Krishi Bhawan, New Delhi
09th September, 2022	Chairperson attended a meeting under the Chairmanship of the Hon'ble Minister of Agriculture and Farmers Welfare to review the arrangements of 9th Session of GB of International Treaty on Plant Genetic Resources for Food and Agriculture at Krishi Bhawan, New Delhi
17th -24th September, 2022	PPVFRA Organizing 9th Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture at Pullman and Novotel, New Delhi Aerocity
30th September, 2022	Chairperson attended a meeting of Genome editing brain storming session through VC
OCTOBER, 2022	
7th October 2022	Chairperson attended Round 2 of India-EU FTA negotiations on IPR chapter through VC
10th October, 2022	Chairperson Visited of Japanese delegation led by Dr. Hide Omae, Director of Tropical Agriculture Research Front (TARF)- JIRCAS, Japan at Prof. M.S. Swaminathan Library Conference Hall, ICAR- IARI, New Delhi
	NOVEMBER, 2022
02nd November, 2022	Chairperson conducted a Monthly meeting to review the progress of Shivamogga Branch Office through VC
9th November, 2022	Chairperson attended UNLEASHING THE POTENTIAL OF INDIAN AGRICULTURE Session 1: Policies to Power Farm Growth at PUSA Campus, New Delhi
10th & 11th	Chairperson attended 18th Annual Review meeting of DUS Centre at NASC Complex,

November, 2022	New Delhi
11th November, 2022	Chairperson attended 2nd Foundation Day Lecture at NASC Complex, New Delhi
16th November, 2022	Chairperson attended a Joint Workshop to Present and Discuss Activities and Achievements under the Indo-German Seed Sector Project and Latest Trends and Challenges in PVP and PGR Management at Conference Hall, NBPGR, New Delhi
22nd November, 2022	Chairperson attended *Inaugural Session* of 1st National Conference on Plant Genetic Resources Management- 2022 at AP Shinde Hall, NASC Complex, New Delhi
24th November, 2022	Chairperson attended 1st National Conference on Plant Genetic Resources Management-2022 "Session V" Enabling Policy on PGR Management (Sub themes: IPR, Farmers & Breeders Rights, ABS, General policies) (Concurrent Poster Session) at AP Shinde Hall, NASC Complex, New Delhi
28th to 29th November, 2022	Chairperson attended Two day International Workshop on "DUS Testing of Cauliflower and Cabbage in India" at Conference Hall, NASC Complex, New Delhi
DECEMBER, 2022	
06th December, 2022	Chairperson attended Virtual talk at the Training Course on " New Crop Breeding Technologies" organized by ICRISAT through VC
07th December, 2022	Chairperson attended Professor S.K. Sinha Memorial Lecture Award of the Society for the year- 2022 Lecture: 5th International Plant Physiology Congress- 2023 (iFANS-2023) through VC
13th December, 2022	Chairperson attended a meeting of Global Symposium on Farmers' Rights through VC
21st December, 2022	Chairperson attended Online debriefing meeting of evaluation of Indo German seed project through VC
25th December, 2022	Chairperson attended Seminar on "Azadi Ka Amrit Kal – Making New India" on the Occasion of 161st Birth Anniversary of Bharat Ratna Pt. Madan Mohan Malaviya at India International Centre, New Delhi
JANUARY, 2023	
04th January, 2023	Chairperson attended Gracing the inaugural function of workshop on "Geographical Indications of North Western Himalayas" through VC
05th January, 2023	Chairperson Discussed on the draft DUS guidelines of Saffron through VC
07th January, 2023	Chairperson attended Professor S.K. Sinha Memorial Lecture Award of the Society for the year- 2022 Lecture: 5th International Plant Physiology Congress- 2023 (iFANS-2023) through VC
10th January, 2023	Chairperson Discussed on the draft DUS guidelines of chow-chow and Ash gourd through VC

8.11 PARTICIPATION OF REGISTRAR-GENERAL IN VARIOUS MEETINGS AND DISCUSSIONS DURING 2022-23

MONTH	DESCRIPTION
MAY, 2022	
24th May, 2022	Registrar-General attended "Prospects of Varieties/Crops Developed through Genome Editing (regulatory framework, technologies and experience)"under Indo-German Cooperation on Seed Sector Development at V.C.
JUNE, 2022	
05th June, 2022	Registrar-General attended Foundation Day Lecture, 2022 at A.P. Shinde Symposium Hall, NASC, DPS Marg, New Delhi.
07th June, 2022	Registrar-General attended proposed TCP for the promotion of landraces through community-manged seed systems (CMSS) at V.C.
10th June, 2022	Registrar-General attended Raajabhaasha Kaaryaanvayan Samiti kee Baithak at Committee Room, PPVFRA
10 – 16th June, 2022	Registrar-General to visit of PPVFRA, Branch Office at Shivamoga
27th June, 2022	Registrar-General attended meeting of Sub-Committee on Exhibition and Genome Savior Coordination to organise the 9th session of the Governing Body at V.C.
30th June, 2022	Registrar-General attended a meeting with CIPAM professionals regarding IP awareness programs in agricultural sector at PPVFRA
JULY, 2022	
06th July, 2022	Registrar-General attended a meeting with CIPAM professionals regarding IP awareness programs in agricultural sector at PPVFRA
08-10th July, 2022	Registrar-General participation in Garvit-Gujarat – A Mega Exhibition at Mehasana (Gujarat)
18 – 19th July, 2022	Registrar-General attended Two days mutistakeholder convention for Holistic Agriculture Development in J&K – Global Vision & Local Action at Sher-i-Kashmir International Conference Centre at (SKICC), Srinagar
AUGUST, 2022	
07- 09th August, 2022	Registrar-General attended International Conference on "Sustainable Development in Hill and Coastal Ecosystems" at At MSSRF, Chennai, India
22nd August 2022	Registrar-General participation in National Seed Seminar at Gwalior
26th August, 2022	Registrar-General attended meeting of Sub-Committee on Exhibition and Genome Savior Coordination to organise the 9th session of the Governing Body at V.C.
SEPTEMBER, 2022	
01st September, 2022	Registrar-General participation as speaker and to deliver a talk on Role of PPV&FR Authority in protection of plant varieties among the farmers and farming at ICAR-Indian Institute of Soybean Research, Indore
07 to 10th September, 2022	Registrar-General attended International worship on "DUS testing of apple and pear" at V.C.
14th September 2022	Registrar-General participated in Hindi Divas Karyakram at Surat
NOVEMBER, 2022	
24th November, 2022	Registrar-General attended 1st National Conference on Plant Genetic Resources Management 2022 Session V Enabling Policy on PGR Management (Sub themes:IPR, Farmers & Breeders Rights , ABS,

	General policies) (Concurrent Poster Session) at AP Shinde Hall
24-26th November, 2022	Registrar-General to visit Branch Office Pune & Rahori for monitoring of DUS Centres at Pune
28-29th November, 2022	Registrar-General attended International workshop on DUS testing of Cauliflower & Cabbage at NASC Complex, Committee Room No. 2
DECEMBER, 2022	
9th December, 2022	Registrar-General attended Selection Committee of Plant Genome Saviour Community Award at NAHEP National Director Conference Room KAB-2, Pusa, New Delhi 110012
15th December 2022	Registrar-General attended 39th Extent Variety Recommendation Committee (EVRC) at NAHEP National Director Conference Room KAB-2, Pusa, New Delhi 110012
16-25th December, 2022	Registrar-General participate in Task Force Meeting for Anthurium guidelines, Mudigere. Participate in Export Consultative workshop in Export of GI & Traditional Banana, Trichy. Review the DUS test centre at TNAU & IFGTB Coimbatore at Banglore/Tamilnadu
28th December, 2022	Registrar-General attended Raajabhaasha Kaaryaanvayan Samiti kee Baithak at Committee Room, PPVFRA
JANUARY, 2023	
05th January, 2023	Registrar-General attended a discussion on the draft DUS guidelines of Saffron- regarding at Committee Room, PPV&FR Authority
05th January, 2023	Registrar-General attended a discussion on the draft DUS guidelines of Dolichos Bean at Committee Room, PPV&FR Authority
06th January, 2023	Registrar-General attended a DUS guidelines of Kokum at Committee Room, PPV&FR Authority
06th January, 2023	Registrar-General attended a DUS guidelines of Lemon and Pummelo at Committee Room, PPV&FR Authority
10th January, 2023	Registrar-General attended a discussion on the draft DUS guidelines of Chow-Chow and Ash gourd-regarding at Committee Room, PPV&FR Authority
12th January, 2023	Registrar-General attended a discussion on the DUS guidelines on Ash gourd, snake gourd and Ivy gourd at Committee Room, PPV&FR Authority
12th January, 2023	Registrar-General attended a meeting "Constitution of Committee for engagement of Consultant Technical, Hindi, Administration, Accounts & Audit and Deputy Registrars" for Branch Offices of PPVFRA at Ranchi, Guwahati and Palampur on Contract basis at Committee Room, PPV&FR Authority
13th January, 2023	Registrar-General attended a discussion on the DUS guidelines on Ash gourd, snake gourd and Ivy gourd at Committee Room, PPV&FR Authority
16th January, 2023	Registrar-General attended a meeting "Web Based Application" at Committee Room, PPV&FR Authority
18th January, 2023	Registrar-General attended a Selection Committee for Plant Genome Saviour Farmers' Reward and Recognition 2020-21 & 2021-22- regarding at Krishi Bhawan, New Delhi
23rd January, 2023	Registrar-General attended a discussion on draft DUS Guidelines of Kokum at Committee Room, PPV&FR Authority

27th January, 2023	Registrar-General attended a discussion on the draft DUS guidelines of lemon and Pummelo at Committee Room, PPV&FR Authority
FEBRUARY, 2023	
8th February, 2023	Registrar-General attended a meeting of the Committee constituted as per the judgement dated 03.12.2021 of Ld. Chairperson in revocation application relating to FL-20 at Committee Room, PPV&FR Authority
10th February, 2023	Registrar-General attended a Task Force Meeting on Jasmine at V.C.
17-18th February, 2023	Registrar-General to visit PPVFRA, Branch Office for discussion meeting with university officials of CSK Himachal Pradesh Krishi Vishvavidyalaya at Palampur
13th February, 2023	Registrar-General attended a Capacity Building Training Programme on "Seed Production and Quality Evaluation **Topic** Lecture on Plant Variety Protection: Indian Perspective at IARI, New Delhi
14th February, 2023	Registrar-General attended a Task Force Meeting on Lemon Grass at V.C.
22nd February, 2023	Registrar-General attended Capacity Building Programme on Seed Production and Quality Evaluation at Rajmahal Hall, Hotel Grand Exotica, 1/12, West Patel Nagar, Opp. Metro Pillar No. 201, New Delhi – 110028
24th- 25th February, 2023	Registrar-General attended a People's Convention on Millets for Millions at A.P. Shinde Symposia Hall, NASC Complex, Ne w Delhi
28th February, 2023	Registrar-General attended a Winter School Training Programme Topic Plant Variety Protection in India at IARI, New Delhi
28th February – 01st March, 2023	Registrar-General participation in the National Conference on Millets at JNKVV, Jabalpur
MARCH, 2023	
2nd March 2023	Registrar-General attended Pusa Krishi Vigyan Mela 2023 (Millets for Nutritional, Food and Environmental Security" at IARI Mela Ground
14th March, 2023	Registrar-General attended International women's Day at Plant Authority Bhawan, opp. Todapur Village, New Delhi-12
15th March, 2023	Registrar-General attended 2nd National Project Steering Committee (NPSC) Meeting of Global Environment Facility (GEF) project "Green Agriculture: Transforming Indian Agriculture for Global Environmental Benefits and the Conservation of Critical Biodiversity and Forest Landscapes' at Room No. 142, Krishi Bhawan, New Delhi (V.C)
16th March, 2023	Registrar-General attended Engagement of Labours in Branch Office, UAHS, Shivamogga for the year 2023-24 at V.C
21st March, 2023	Registrar-General attended Presentation on the outcome of the 9th Session of the Governing body of the Treaty at Committee Room No. 138, Krishi Bhawan
27th March, 2023	Registrar-General attended Raajabhaasha Kaaryaanvayan Samiti kee Baithak at Committee Room, PPVFRA
27th March, 2023	Registrar-General attended Indo-German Seed Project - Preparation of online exchange on DUS data management issues at V.C

27th – 30th March, 2023	Registrar-General to visit DWR, Karnal, Solan, Dhuala Kuan (Sirmour)
31st March, 2023	Registrar-General attended Hindi Karyashala at Plant Authority Bhawan, PPV&FRA

Chapter 9: Financial Statements of the Authority as on 31.03.2023

The financial statements were prepared under the historical cost convention in accordance with Generally Accepted Accounting Principles (GAAP), the applicable mandatory Accounting Standards (AS) issued by the Institute of Chartered Accountants of India (ICAI) and relevant presentational requirements for Central Autonomous Bodies as prescribed by the Controller General of Accounts (CGA). The Authority follows the accrual system of accounting in respect of all items of expenditure & income except where otherwise stated. A copy of Balance sheet as on 31 March, 2023, Income & Expenditure Account and Receipt & Payment Account for the year ended 31 March, 2023 are given. The audit for the year 2022-23 has already been completed by C&AG and they have also issued Separate Audit Report.

In compliance with section 62(2) of PPVFRA Act, 2001, the accounts of the Authority were submitted to the Comptroller and Auditor General of India (C&AG). The audited accounts along with audit report and management's reply shall be sent to the Ministry separately for placing before both the houses of Parliament. The Authority has received Rs.4459.77 lakh as grants-in-aid from Department of Agriculture and Farmers' Welfare, during the year 2022–23 and utilized Rs.4220.62 lakh after adjusting unspent balance of Rs.18.00 lakh (revalidation received from the Ministry) of previous year leaving a balance of Rs.257.15 lakh.

BALANCE SHEET AS AT 31st MARCH, 2023		
		(Amount in Rupees)
Corpus / Capital Fund and Liabilities	**As at March 31, 2023**	**As at March 31, 2022**
Corpus/ Capital Fund	**2,028,507,365**	1,916,785,605
Reserves and Surplus	-	-
Earmarked / Endownment Funds	-	-
Secured Loans and Borrowings	-	-
Unsecured Loans and Borrowings	-	-
Deferred Credit Liabilities	-	-
Current Liabilities and Provisions	**275,020,802**	190,965,194
TOTAL	**2,303,528,167**	**2,107,750,799**
Assets		
Fixed Assets	**29,480,218**	29,123,053
Less: Accumulated Depreciation	**24,818,895**	23,948,835
Net Fixed Assets	**4,661,323**	5,174,218
Capital Work in Progress	**1,212,565,799**	1,059,968,279
Investments-From Earmarked/Endownment Funds	-	-
Investments - Others	-	-

Current Assets, Loans and Advances etc.	**1,086,301,045**	1,042,608,302
Miscellaneous Expenditure	**-**	
(to the extent not written off or adjusted)		
TOTAL	**2,303,528,167**	**2,107,750,799**

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 2023				
				(Amount in Rupees)
	AUTHORITY FUND		**GENE FUND**	
Income	**For the year ended March 31, 2023**	**For the year ended March 31, 2022**	**For the year ended March 31, 2023**	**For the year ended March 31, 2022**
Income from Sales/ Services	-	-	-	-
Grants/Subsides	**390,225,079**	69,194	**20,000,000**	40,000,000
Fees/Subscriptions	**18,822,800**	17,925,100	**10,453,471**	20,388,259
Income from Investments	-	-	-	-
Income from Royality, Publication etc.	-	-	-	-
Interest Earned	**25,941,014**	25,284,149	**19,089,390**	12,398,132
Other Income	**265,771**	6,807,541	-	304
Increase/(Decrease) in stock of Finished goods and works in progress	-	-	-	-
Deferred Income(Depreciation/Amortization on fixed asset)	-	-	-	-
Prior period Adjustment A/c	**1,205,600**	6,701,730	**10,000**	-
TOTAL (A)	**436,460,264**	**266,187,714**	**49,552,861**	**72,786,695**
EXPENDITURE				
Establishment Expenses	**67,672,302**	55,055,443	-	-
Other Administrative Expenses etc.	**179,141,828**	18,323,228	**369,832**	10,957,282
Expenditure on Grants , Subsidies etc.	**149,014,678**	122,171,369	-	-
Interest	**1,178,608**	1,278,635	-	-

Depreciation/Amortization including Impairement Loss	**942,917**	1,019,734	-	-
Prior period Adjustment A/c	**6,372,454**	496,188	**1,434,911**	40,000
TOTAL(B)	**404,322,787**	**198,344,596**	**1,804,743**	**10,997,282**
Balance being excess of Income Over Expenditure (A-B)	**32,137,477**	**67,843,117**	**47,748,118**	**61,789,413**
Transfer to special Reserve(Specify each)	-	-	-	-
Transfer to /from General Reserve	-	-	-	-
Balance being Surplus/(Deficit) carried to Corpus/Capital Fund	**32,137,477**	**67,843,117**	**47,748,118**	**61,789,413**

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31st MARCH, 2023					
					(Amount in Rupees)
RECEIPTS	**For the year ended March 31, 2023**	**For the year ended March 31, 2022**	**PAYMENTS**	**For the year ended March 31, 2023**	**For the year ended March 31, 2022**
1. Opening Balances			1. Expenses		
a) Imprest (Cash In hand)			a) Establishment Expenses	**52,356,003**	52,699,424
Palampur	**841**	-	b) Administrative Expenses etc.	**178,210,046**	19,641,212
Ranchi Branch	-	1,268			
Guwahati Branch	-	3,991	2. Payments made against funds		
Shivmogga Branch	-	450	a) Existing DUS Centres	**84,925,974**	68,639,980
			b) New DUS Centres	**28,315,185**	22,733,907
b) Bank Balances			c) Field Gene Bank	**3,010,629**	3,433,325
i. In Current Account					

State Bank of India	**594,560**	772,527	3. Expenditure on fixed Assets and Capital Work in Progress		
SBI (Gene Fund)	**20,393,594**	232,892	a)Purchase of Fixed Assets(Authority)	**436,165**	245,340
SBI Palampur Branch	**33,771**	33,363	b) Capital Work-in-Progress	**21,679,118**	-
ii. In Deposit Accounts			4. Advance for Construction of Building given to Uttar Pradesh Rajkiya Nirman Nigam Ltd	**30,144,000**	383,990,400
SBI-Gene Fund	**76,975,000**	162,679,459			
Canara Bank-Gene Fund	**125,042,176**	83,582,522	5. Grant release to Training Centres	**1,470,000**	80,000
UBI- Gene Fund	**101,246,700**	-			
Canara Bank-Authority	**213,612,151**	142,196,474	6. Advance to outside Deptt.	**4,645,698**	2,569,880
UBI- Authority	**188,808,444**	-			
SBI-Authority	**2,257,000**	192,212,760	7. Contribution to Gene Fund	**20,000,000**	40,000,000
iii. In Savings Accounts			8. Refund of Fees / Subscriptions/ Other Income		
Canara Bank	**18,668,834**	61,446,622	Refund of Application/Registration Fees	**117,500**	259,200
SBI Guwahati Branch	**117,612**	137,548			
SBI Ranchi Branch	**110,834**	131,268	9. Contribution	-	2,139,512

			to ITPGFRA		
Canara Bank Shivamogga Branch	**706,593**	56,472			
Bank of Maharashtra Pune Branch	**119,963**	126,843	10. Other Prior Period Adjustment A/c	**6,591,765**	518,670
UBI	**37,202**	-			
			11. Advance to Employee of PPVFRA	**2,389,310**	791,039
2. Grants received from Government of India	**445,977,233**	599,990,000			
			12. Statutory Liabilities Paid	**24,245,843**	27,616,080
3. Interest Received from Bank	**25,092,985**	30,489,421			
			13. Other Remmittances	**165,604**	150,219
4.Refund of Grant from Maintenance of reference varieties	**67,065**	-			
			14. Closing Balances		
5.Refund of Grant from Training Centres	**626,104**	80,000	a) Imprest (Cash In hand)		
			Ranchi Branch	**673**	
6. Refund of Grant for Development of DUS Guidelines (New DUS Centre)	**1,125,000**	93,836	Guwahati Branch	**1,458**	
			Shivmoga Branch		
7. Refund of Advance from Employees	**546,747**	950	Palampur Branch	**11,842**	841

8. Unclassified/ Receipts from Parties	**22,601,358**	20,554,247	b) Bank Balances		
			i. In Current Account		
9. Fees / Subscriptions/Other Income			State Bank of India	**1,162,153**	594,560
Application/Registration Fees	**4,089,800**	4,464,800	SBI (Gene Fund)	**20,995,351**	20,393,594
PV Subscription Fees	**2,098,500**	3,812,500	SBI Palampur Branch	**16,758**	33,771
Annual Fees (Including Share from sale of Seeds)- Gene Fund	**10,375,705**	19,014,771			
DUS Test Fees	**5,772,000**	7,458,000	ii. In Deposit Accounts		
Other Income (including prior period)	-	276,039	SBI-Gene Fund	**75,000,000**	76,975,000
Annual Renewal Fees	**7,062,000**	2,660,000	Canara Bank-Gene Fund	**159,343,786**	125,042,176
			UBI-Gene Fund	**121,231,037**	101,246,700
Sale of Old Newspapers, Scrap	-	1,600	Canara Bank-Authority	**253,956,570**	213,612,151
			UBI-Authority	**167,104,312**	188,808,444
Contribution from Authority Fund	**20,000,000**	40,000,000	SBI-Authority	-	2,257,000
			iii. In Savings Accounts		
10. GPF Recurring Deposit	-	-	Canara Bank	**36,825,577**	18,668,834
			SBI Guwahati Branch	**142,396**	117,612
11. CGEGIS Amount Received	-	1,320	SBI Ranchi Branch	**128,540**	110,834
			Canara Bank Shivamogga Branch	**516,526**	706,593

12. Refund from Income Tax Department	**2,535,000**	1,711,142	Bank of Maharashtra Pune Branch	**140,540**	119,963
			Union Bank of India	**1,414,411**	37,202
13. Sale of assets	-	10,380			
TOTAL	**1,296,694,772**	**1,374,233,464**	**TOTAL**	**1,296,694,772**	**1,374,233,464**

Chapter 10: Citizen's Charter

10.1 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.

10.2 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.

10.3 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.

10.4 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 PPVFR 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

10.5 GRIEVANCES REDRESSAL MECHANISM:

Financial Advisor, PPVFRA, is designated as the 1st Appellate Authority for RTI matters from 16.10.2020 and can be contacted at:

Sh. Vipin Tyagi,
Financial Advisor
1st Appellate Authority
Protection of Plant Varieties and Farmers' Rights Authority
S-2, A Block, NASC Complex, DPS Marg,
New Delhi-110012.
Ph: 011-25843632, Fax: 011-25840478
E-mail: fa-ppvfra@nic.in; www.plantauthority.gov.in

Deputy Registrar, PPVFRA, is designated as the Central Public Information Officer to address the RTI matters and can be contacted at:

Sh. Uma Kant Dubey,
Deputy Registrar
Central Public Information Officer
Protection of Plant Varieties and Farmers' Rights Authority
S-2, A Block, NASC Complex, DPS Marg,
New Delhi-110012.
Ph: 011-25843853, Fax: 011-25840478
E-mail: uk.dubey@gov.in; www.plantauthority.gov.in

Annexure I: Members of PPVFR Authority (As on 31st March, 2023)

List of Authority Members

S.No	Name	Designation	Address
1	Dr. P.K.Singh	Agriculture Commissioner	Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Govt. of India, Krishi Bhawan, New Delhi – 110 001
2	Dr. T.R.Sharma	Deputy Director General (Crop Science)	Division of Crop Science, ICAR, Ministry of Agriculture and Farmers Welfare, Govt. of India, Krishi Bhawan, New Delhi - 110 001
3	Shri Pankaj Yadav	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. R.S.Verma	Additional Secretary	Department of Legal Affairs, Shastri Bhawan, New Delhi-110001.
5	Dr. Prabhat Kumar	Horticultural Commissioner	Department of Agriculture and Farmer Welfare, Ministry of Agriculture & Farmers Welfare, Govt. of India, Krishi Bhawan, New Delhi - 110001
6	Dr. G.P. Singh	Director	National Bureau of Plant Genetic Resources, Pusa, DPS Marg, New Delhi-110 012
7	Dr. Sanjay Mishra	Senior Adviser	Department of Biotechnology, Ministry of Science & Technology, Govt. of India, 7th Floor, Block- 2, CGO Complex, Lodhi Road, New Delhi- 110003.
8	Ms. Rita Khanna	Adviser	Ministry of Environment & Forests and Climate Change Govt. of India, Indira Paryavaran Bhawan, Jor Bagh Raod, Aliganj, New Delhi - 110003
9	Shri Tummala Anjaneyulu	Member	Sugar Cane Grower's Association of Andhra Pradesh Village Remalle, Bapulapadu Mandal, Distt. Krishna, Andhra Pradesh – 521110
10	Smt. Jui Pethe		Vanvasi Kalyan Ashram, 1, Shripad, Vakratunda Row, House, Opp. Rama Raman Apartment, Vrindavan Nagar, Kamatwade, Nashik- 422010.

11	Shri V. Venkateswarlu	Director	M/s Vasanth Agri Biotech Pvt Ltd. 1-3-158/401, BSN Reddy Complex, Rajendranagar, Mahabubnagar, Telangana – 509001
12	Dr. Ganesh Kumar Koutu,	Director of Research Services,	Jawaharlal Nehru Krishi Vishwa Vidyalaya, B-6 Krishi Nagar, Aadhartal, Jabalpur, Madhya Pradesh, Pin- 482004.
13	Dr. Sudha Tiwari	National President	SHAKTI (NGO for empowerment of Women), 50-51, Gurukripa Society, Naik Nagar, Near. Manewada Sq. Nagpur - 440027
14	-	Additional Chief Secretary (Agriculture) or/Principal Secretary (Agriculture)	Government of Gujarat
15	-	Additional Chief Secretary (Agriculture) or/Principal Secretary (Agriculture)	Government of Himachal Pradesh

Annexure II: Details of Human Resources of PPVFR Authority as on 31st March, 2023

S. No	Name	Designation	Pay Level as per 7th CPC
1.	Dr. K. V. Prabhu (superannuated on 06.02.2023)	Chairperson	Level 17 (Rs. 225000/-)
2.	Dinesh. K. Agarwal	Registrar -General	Level 15 (Rs. 144200-218200/-)
3.	Dr. Ravi Prakash **(superannuated on 31.07.2022)**	Registrar	Level 13 (Rs.123100-215900)
4.	Dr. T. K. Nagarathna (Deputation tenure completed on 11.08.2022)	Registrar	
5.	**Vacant (w.e.f. 05.12.2018)**	**Registrar**	
6.	Sh. Vipin Tyagi	Financial Advisor	
7.	Sh. D. R. Choudhury	Joint Registrar	Level 12 (Rs.78800-209200)
8.	**Vacant (11.11.2017)**	Joint Registrar	
9.	Sh. D.S. Raj Ganesh	Legal Advisor	Level 11 (Rs.67700-208700)
10.	Sh. U.K. Dubey	Deputy Registrar	
11.	Sh. R. S. Sengar	Deputy Registrar	
12.	Sh. Arun Kumar	Legal Advisor	
13.	Dr. A. K. Singh	PVE	Level 7 (Rs. 44900-142400)
14.	Dr. D. S. Plania	Technical Assistant	Level 6 (Rs. 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 (Under suspension)	Computer Assistant	
19.	Sh. Shyam Narayan Prasad	Computer Assistant	

Annexure III: Statement Showing Funds Released to New DUS Centres/Projects During 2022-23

Sr. No.	Name of the New DUS Centre	Crop	Release During 2022-23 (in Rupees)
1	IIHR, ICAR-Unit, Bangalore	Papaya and Custard Apple	571,642
2	Dr.Y.S.Parmar University of Horticulture & Forestry, Solan	Carnation	150,000
3	IIHR, ICAR-Unit, Banglore	China Astar	756,013
4	TNAU,Coimbatore	Papaya and Custard Apple	182,576
5	UHS, Bagalkot	Moringa Oleifera Lam	265,277
6	IFGTB, Coimbatore	Tectona Grandis	766,450
7	CIAH, ICAR-Unit, Bikaner	Anola	227,282
8	CISH, ICAR-Unit, Lucknow	Bael	853,275
9	CIAH, ICAR-Unit, Bikaner	Bael	329,509
10	NRC, Puttur	Cashew	401,392
11	TNAU,Coimbatore	Neem, Karanj & Jatrapha	567,845
12	Dr. Y. S. Parmar University of Horticulture & Forestry, Solan	Willow (Salix Species)	286,151
13	IIHR, ICAR-Unit, Bangalore	Marigold	466,156
14	CPCRI ICAR-Unit, Kerala	Cocoa	726,348
15	NRCSS, Ajmer	Ajwain, Dill, Nigella, Celery & Anise	657,622
16	Dr.Y.S.Parmar University of Horticulture & Forestry, Solan	Lillum Sp, Oriental, Asiatic, LA & OT Hybrids	100,000
17	IIHR, ICAR-Unit, Bangalore	Gerbera	640,000
18	Central Coffee Research Institute, Karnataka	Coffee	870,000

19	UAS Dharwad	Cowpea	300,000
20	CPCRI, Karnataka	Arecanut	421,723
21	CIAH, ICAR-Unit, Bikaner	Datepalm	569,239
22	CIAH (Central Institute for Arid Horticulture), ICAR-Unit, Bikaner	Jamun	188,260
23	Dr. Y. S. Parmar University of Horticulture & Forestry, Solan	Seabuckthorn	681,246
24	CISH, (Central Institute for Subtropical Horticulture), ICAR-Unit, Lucknow	Anola	424,478
25	CISH, (Central Institute for Subtropical Horticulture), ICAR-Unit, Lucknow	Jamun	500,156
26	Dr B S Konkan Krishi Viswadidyalaya, Dapoli	Nutmeg	598,007
27	IARI, Division of vegetable, ICAR-Unit, New Delhi	Radish and Carrot	681,387
28	UAS, GKVK, Bangalore	Jackfruit	949,015
29	IARI, Regional Station, Katrain Kullu Valley	Radish & Carrot	644,945
30	Dr. Y. S. Parmar University of Horticulture and Forestry, Solan (Regional stn. Sirmour)	Dahlia	225,000
31	DFR-ICAR, Pune	Rose	863,328
32	CRIJAF, Barrackpore	Mesta and Roselle	727,555
33	IIHR, Bangalore	Sapota	748,277
34	IIOR, Hyderabad	Niger	864,885
35	TNAU, Coimbatore	Black Gram	671,144
36	IARI, New Delhi	Sponge Gourd	797,887
37	IIVR, Varanasi	Sponge Gourd	590,357

38	Navsari Agricultural University (NAU), Gujarat	Sapota	306,773
39	SKUAST, Kashmir	Knol- Khol	669,355
40	CITH, Srinagar	Vegetable Kale	562,726
41	UAS- GKVK, Bangalore	Brown Top Millet	835,193
42	CIMAP, Lucknow	Ashwagandha	861,353
43	IIHR, Bangalore	Curry Leaves	435,358
44	NRC on Litchi,Muzaffarpur	Litchi & Guava	780,000
45	SKUAST-K, Srinagar	Daffodils	900,000
46	CITH, Srinagar	parn	900,000
47	ICAR Unit IIHR, Bangalore	Dragon Fruit	900,000
48	ICAR, Unit IIHR, Bangalore	Avacado	900,000
TOTAL			**28,315,185**

Annexure IV: Statement Showing Funds Released to Existing DUS Centres/Projects during 2022-23

Sr. No.	Name of DUS Centre	Crop	Release During 2022-23 (in Rupees)
1	IIHR, ICAR-Unit, Bangalore	Tuberrose & Carnation	787,017
2	CTCRI (Central Tuber Crops Research Institute), Thiruvananthapuram	Sweet Potato and Cassava	614,423
3	NBRI, ICAR-Unit, Lucknow	Gladiolus, Bougainvillea & Canna	804,388
4	DFR, (Directorate of Floricultural Research), IARI Campus, New Delhi	Gladiolus	615,000
5	BCKV, (Bidhan Chandra Krishi Visavidyalaya), Kalyani	Pointed Gourd	300,000
6	IIHR, ICAR-Unit, Bangalore	Jasmine	754,157
7	CIAH, Bikaner	-	500,000
8	CITH, (Central Institute for Tropical Horticulture), ICAR-Unit, Srinagar	Peach, Plum, Apple, Almond, Pear, Apricot & walnut	2,445,685
9	CISH (Central Ins for Subtopical Horticulture), ICAR-Unit, Lucknow	Mango	963,437
10	RARI, Durgapur, Jaipur	Barley	123,832
11	DFR (Dir. Of Floriculture) ICAR, Pune	Tuberose	548,514
12	IARI, Divivision of Floriculture, New Delhi	Bouganvilla	682,558
13	MPKV, (Mathma Phule Krishi Viswavidyalaya), Rahuri (Pune Station)	China astar	715,570
14	JNKVV, Jabalpur	Field Pea, Linseed & Lentil	729,844
15	BCKV, (Bidhan Chandra Krishi Visavidyalaya), Kalyani	Betel Vine	221,368
16	IGKV, Raipur	Rice	192,650

17	CIMAP, (Central Institute for Medicinal and Aromatic Plants), Lucknow	Medicinal Plants	564,859
18	CIAH (Central Institute for Arid Horticulture), ICAR-Unit, Bikaner	Ber	795,176
19	IARI, Division of Vegetable Science, New Delhi	Bottle gourd, Bitter Gourd, Pumpkin & Cucumber	845,055
20	IIHR, ICAR-Unit, Bangalore	Mango	692,480
21	NRC, ICAR-Unit, Trichy	Banana	838,589
22	TRA, Tocklai	Tea	783,575
23	CARI, ICAR-Unit, Port Blair	Noni	709,250
24	TNAU, Coimbatore	Small Millet	500,000
25	NBPGR, ICAR-Unit, New Delhi	Grain Amaranth	207,538
26	TNAU, Coimbatore	Jasmine	702,928
27	DGR, (Directorate of Groundnut Research), ICAR-Unit,Junagarh	Groundnut	522,640
28	JNKVV, Jabalpur	Sesame and Niger	732,723
29	IIHR, ICAR-Unit, Bangalore	Watermelon and Muskmelon	935,999
30	JAU, (Junagadh Agriculture University), Jamnagar	Castor	728,823
31	Dr. Y. S. Parmar University of Horticulture & Forestry, Solan	Poplar Germplasm	303,608
32	IFGTB (Institute of Forest Genetics and Tree Breeding), Coimbatore	Eucalyptus and Casuarina	661,037
33	IIHR, ICAR-Unit, Bangalore	Amaranth, Spinach & Ridge Gourd	1,108,812
34	NRCSS, (National Research Centre for Seed Spices), ICAR-Unit, Ajmer	Seed Spices	309,633
35	AAU, (Assam Agriculture University), Jorhat	Rice	366,489
36	Division of Floriculture, IARI, ICAR-Unit, New Delhi	Marigold	894,475

37	VPKAS (Vivekananda Parvatiya Krishi Anusandhan Shala), ICAR-Unit, Almora	Rajma, Soybean & Maize	1,294,205
38	DOGR (Directorate of Onion and Garlic Research), ICAR-Unit, Rajgurunagar	Onion and Garlic	1,064,830
39	NRC (National Research Centre for Orchid), ICAR-Unit, Sikkim	Orchids	209,124
40	NRCP, ICAR-Unit, Sholapur	Pomegranate	506,186
41	Division of Vegetable Science, IARI, ICAR-Unit, New Delhi	Onion and Garlic	1,223,060
42	IISR (Indian Institute of Sugarcane Research), ICAR-Unit, Lucknow	Sugarcane	1,138,679
43	IIHR, ICAR-Unit, Bangalore	Betel Vine	667,207
44	CSAUA&T (Chandra Sekhar Azad University of Agriculture and Technology), Kanpur	Mustard & Wheat	1,153,518
45	IISR, (Indian Institute of Spices Research), ICAR-Unit, Calicut	Spices	677,146
46	DSR (Directorate of Soybean Research), ICAR-Unit, Indore	Soybean	912,708
47	IIPR, (Indian Ins of Pulses Research), ICAR-Unit, Kanpur	Mungbean, Urdbean, Lentil, Rajma & Pea	694,255
48	NRC, (National Research Centre of Grapes), ICAR-Unit, Pune, Maharastra	Grapes	449,020
49	IARI, ICAR-Unit, Regional Station, Karnal	Rice	612,060
50	Sugarcane Breeding Institute, ICAR-Unit, Coimbatore	Sugarcane	2,158,330
51	IGKV, Raipur	Grow out Test (Rice)	577,870
52	Sugarcane Breeding Institute, ICAR-Unit, Karnal	Sugarcane	904,919
53	IIWBR, ICAR-Unit, Karnal	Barley & Wheat	1,951,506
54	DRMR (Directorate of Rapeseed and Mustard Research), ICAR-Unit, Bharatpur	Rapeseed and Mustard	511,050

55	RAU, Bikaner-Mandore AICPMIP, Jodhpur	Pearl Millet	269,835
56	PAU, (Punjab Agriculture University), Ludhiana	Oat, Cowpea & Guinea Grass & Cotton	568,694
57	Central Tuber Crops Research Institute,ICAR-Unit,Trivandrum	Elephant Footyam, Taro, Yam Bean & Greater Yam	2,338,163
58	NRRI, (N Rice Research Institute), ICAR-Unit, Cuttack	Rice	1,316,834
59	PDKV, (Panjab Rao Deshmukh Krishi Viswavidyalaya), Akola	Pigeion Pea, Chickpea, Red Gram & Safflower	1,313,664
60	Division of Vegetable Science, IARI, New Delhi	Amaranth, Palak, Ridge Gourd	617,397
61	DMAPR (Dir. Medicinal & Aromatic Plant Research), Anand	Medicinal & Aromatic Plants	300,000
62	CCSHAU (Choudhary Charan Singh Hisar Agriculture University), Hisar	Cotton & Chickpea	481,479
63	IARI, ICAR-Unit, Regional Station, Indore	Wheat	679,598
64	CPRI (Central Potato Research Institute), ICAR-Unit, Shimla	Potato	943,017
65	NEH Region Barapani Manipur & Nagaland	Rice	1,268,520
66	Division of Vegetable Science, IARI, New Delhi	Cabbage and Cauliflower	815,869
67	PJTSAU, (Prof. Jayashankar Telengana State Agricultural University), Hyderabad	Maize	793,336
68	TNAU (Tamil Nadu Agricultural University), Coimbatore	Rice, Sunflower & Groundnut	688,593
69	CTCRI (Central Tuber Crops Research Institute), ICAR-Unit, Regional Station, Bhubaneshwar	Sweet Potato and Cassava	593,207
70	IIMR, ICAR-Unit, Hyderabad	Sorghum	865,777
71	CRIJAFR, (Central Research Institute for Jute and Allied Fibres Research), Barrackpore & CSRS, Budbud	Jute	1,102,445

72	MPKV, Rahuri	Cotton	612,479
73	IIOR, ICAR-Unit, Hyderabad	Sunflower, Castor & Safflower	749,441
74	CPCRI, ICAR-Unit, Kerala	Coconut	796,228
75	UAS, GKVK, Banglore	Small Millet	833,243
76	CISH, (Central Ins For Subtropical Horticulture), ICAR-Unit, Lucknow	Guava & Litchi	409,195
77	IIPR, (Indian Ins of Pulses Research), ICAR-Unit, Kanpur	Chickpea & Pigeon pea	831,776
78	MPKV, Rahuri	Sorghum, Pearl Millet & Chickpea	1,532,955
79	IIHR, ICAR-Unit, Hassarghatta, Bangalore	Vegetables	1,672,281
80	UAS (University of Agriculture Sciences), Dharwad	Cotton, Soybean, Groundnut, Durum Wheat and Sesame	1,118,870
81	IIHR, (Indian Ins for Horticultural Research), ICAR-Unit, Bangalore	Rose & Chrysanthemum	650,359
82	IIRR, Hyderabad, ICAR-Unit, Hyderabad	Rice	1,108,139
83	IIMR, ICAR-Unit, New Delhi	Maize	832,803
84	CICR, ICAR-Unit, (Central Institute For Cotton Research), Nagpur	Cotton	1,381,162
85	IIVR, (Indian Institute of Vegetable Research), ICAR-Unit, Varanasi	Okra, Brinjal, Tomato, Cabbage & Cauliflower etc.	5,441,551
86	CCRI, ICAR-Unit, Nagpur	Citrus, Acid Lime Sweet Orange & Mandarin	755,894
87	IIHR, Bangalore	Chrysanthamum	847,653
88	IARI, New delhi	Chrysanthamum	927,472
89	IIVR (Indian Institute of Vegetable Research), Varanasi	Pointed Gourd	742,417
90	IIHR, Bangalore	Crossandra	516,830
91	ANGRAU, Guntur	Mesta and Roselle	337,619
92	Dr. Y S R Horticulture University, Guntur,	Chilli & Paprika	688,950

	Andhra Pradesh		
93	CSKHPKV, Palampur	Chilli, Paprika & Bell Pepper	621,661
94	UHS, Bagalkote	Chilli, Paprika & Bell Pepper	893,310
95	SDAU,SK Nagar, Gujurat	Grain Amaranth	384,431
96	PDKV, Akola, Colllabrating center	Mung Bean	500,000
97	CSKHPKV, Palampur	Buckwheat	413,999
98	CSAUA&T, Kanpur	Linseed	406,023
99	Comp. PAU, Ludhiana	Faba Bean	645,000
100	ICAR,Unit NBPGR,New Delhi	Faba Bean	310,000
101	Dir. NRC for Orchid, Pakyong, Sikkim	Orchid	300,000
102	ICAR-AICRP Jodhpur	Pearl Millet	500,000
103	ICAR,Unit IIHR, Bangalore	Okra, Brinjal, Tomato, Bitte	800,000
104	IIPR Kanpur	Pigeon Pea	500,000
Total			**84,925,974**

Annexure V: Statement Showing Funds Released to Field Gene Banks during 2022-23

S. No.	Name of Centres	Release During 2022-23 (in Rupees)
1	Dr. Balasaheb Konkan Krishi Vidyapeeth, Dapoli	800,000.00
2	NBPGR, New Delhi	1,249,665.00
3	YSPUH, Solan (Temperate Fruits) (FGB)	960,964.00
TOTAL		**3,010,629**

Annexure VI: Statement Showing Funds Released to the Organisation/Centre for Training & Awareness during 2022-23

S. No.	Name of Beneficiary	Release During 2022-2023 (in Rupees)
1	JNKVV, Jabalpur	250,000
2	UAS Raichur	500,000
3	NRC for Banana, Trichy	200,000
4	CITH, Srinagar	200,000
5	CPCRI, Kasargod	80,000
6	Zonal Projects Directorater, ICAR Zone -V, Kolkata, W.B	80,000
7	Programme Co- Ordinator Kvk Deomali	80,000
8	Swami Vivekanand Subharti University, Meerut	80,000
TOTAL		**1,470,000**

Annexure VII: Crops Under Registration

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

33	Turmeric	*Curumma longa* L.
34	Ginger	*Zingiber officinale* Rosc.
35	Tomato	*Lycopersion lycopersicum* (L.) Karsten ex. Farw.
36	Brinjal	*Solanum melongena* L.
37	Okra	*Abelmoschus esculentus* (L.) Moench.
38	Cauliflower	*Brassica oleracea* L.var. *botrytis*
39	Cabbage	*Brassica oleracea* L. var *capitata*
40	Potato	*Solanum tuberosum* L.
41	Onion	*Allium cepa* L.
42	Garlic	*Allium sativum* L.
43	Rose	*Rosa* spp.*(*other than *R.damascena)*
44	Chrysanthemum	*Chrysanthemum* spp.
45	Mango	*Mangifera indica* L.
46	Duram wheat	*Triticum durum* Desf.
47	Dicoccum wheat	*Triticum dicoccum* L.
48	Other Triticum species	
49	Isabgol	*Plantago ovata* Forsk
50	Menthol mint	*Mentha arvensis* L.
51	Damask Rose	*Rosa damascena* Mill
52	Periwinkle	*Catharanthus roseus* L.
53	Brahmi	*Bacopa monnieri* L.Pennell
54	Coconut	*Cocos nucifera* L.
55	Orchids	*Vanda*
56	Orchids	*Dandrobium*
57	Orchids	*Cymbidium*
58	Pomegranate	*Punica granatum* L
59	Orchid	*Cattleya* Lindl.
60	Orchid	*Phalaenopsis* Blume
61	Eucalyptus	*Eucalyptus camaldulensis* Dehnh.
62	Eucalyptus	*Eucalyptus tereticornis* Sm.
63	Casurina	*Casuarina equisetifolia* L
64	Casurina	*Casuarina junghuhniana* Miq.
65	Bitter Gourd	*Momordica charantia* L.
66	Bottle Gourd	*Lagenaria siceraria (*Mol.*)* Standl.

67	Cucumber	*Cucumis sativus* L.
68	Pumpkin	*Cucurbita moschata* Duch. ex Poir.
69	Barley	*Hordeum vulgare* L.
70	Coriander	*Coriandrum sativum* L.
71	Fenugreek	*Trigonella foenum graecum* L.
72	Almond	*Prunus dulcis* (Mill.) D.A. Webb
73	Apple	*Malus domestica* Borkh
74	Pear	*Pyrus communis* L.
75	Apricot	*Prunus armeniaca* L.
76	Cherry	*Prunus avium* L.
77	Walnut	*Juglans regia* L.
78	Grapes	*Vitis* spp.
79	Indian jujube (Ber)	*Ziziphus mauritiana* Lamk.
80	Tea	*Camellia sinensis*
81	Tea	*Camellia assamica*
82	Tea	*C.assamica* ssp *lasiocalyx.*
83	Acid Lime	*Citrus aurantifolia* Swingle
84	Mandarin	*Citrus reticulata* Blanco
85	Sweet Orange	*Citrus sinensis* (L.) Osbeck
86	Bougainvillea	*Bougainvillea Comm. Ex* Juss.
87	Banana	*Musa* spp.
88	Orchid	*Oncidium* Sw.
89	Canna	*Canna* L.
90	Gladioulus	*Gladioulus* L.
91	Muskmelon	*Cucumis melo* L.
92	Watermelon	*Citrullus Lanatus* (Thunb.) Mansf.
93	Jasmine	*Jasminum auriculatum*. L.
94	Tuberose	*Polianthes tuberose* L.
95	Papaya	*Carica papaya* L.
96	China Aster	*Callistephus chinensis* (L.)Nees.
97	Peach	*Prunus persica* L Batsch.
98	Japanese Plum	*Prunus salicina* L.
99	Strawberry	*Fragaria x ananasan* Duch.

100	Chilli, Bell Pepper and Paprika	*Capsicum annuum* L.
101	Finger Millet	*Eleusine coracana* (L.) Gaertn.
102	Foxtail Millet	*Setaria italic* (L.) Beauv
103	Vegetable Amaranth	*Amaranthus tricolor* L.
104	Ridge gourd	*Luffa acutangula* (L.) Roxb.
105	Spinach beet	*Beta vulgaris var. bengalensis* Roxb.
106	Carnation	*Dianthus caryophyllus* L.
107	Orchid	*Paphiopedilum Pfitz.*
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	*Tagetesspp.* 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	*Echinocloa frumentaceae* (Roxb.) Link
136	Little Millet	*Panicum sumatrense* Roth. Ex. Roemer And Schultes
137	Kodo Millet	*Paspalum scorbiculatum* L.
138	Elephant Foot Yam	*Amorphophallus paeoniifolius*
139	Taro	*Colocasia esculenta*
140	Giant SwampTaro	*Cyrtosperma chamissionis/C.merkusii*
141	Cashew	*Anacardium occidental L.*
142	Arecanut	*Areca catechu L.*
143	Chironji	*Buchananialanzan Sperng.*
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.
158	Melia	*Melia dubia Cav.*
159	Pointed Gourd	*Trichosanthes dioica Roxb.*
160	Crossandra	*Crossandra infundibuliformis (L.) Nees.*
161	Cowpea	*Vigna unguiculata (L.) Walp. ssp. unguiculata and Vigna unguiculata (L.) Walp. ssp. sesquipedalis (L.) Verdc. (L.) Walp.*
162	Jackfruit	*Artocarpus heterophyllus* Lam.
163	Greater Yam	*Dioscorea alata* L.
164	Yam Bean	*Pachyrhizus erosus* (L.)
165	Seabuckthrorn	*Hippophae rhamnoides* L.
166	Ajwain	*Trachyspermum ammi* L.
167	Anise	*Pimpenella anisum* L.
168	Celery	*Apium graveolens* L.

169	Cumin	*Cuminum cyminum* L.
170	Dill	*Anethum graveolens* L. and *Anethum sowa* Roxb
171	Fennel	*Foeniculum vulgare* Mill.
172	Nigella	*Nigella sativa* L.
173	Horse gram	*Macrotyloma uniflorum* (Lam) Verdc
174	Gerbera	*Gerbera jamesonii* Adlem *ex.* Hooker *f*
175-176	Coffee	*Coffea arabica* L. *& Coffea canephora* Pierre ex A. Froehner
177	Flue-Cured Virginia (FCV) and *bidi* tobaccos	*Nicotiana tabacum* (L.)
178	Moth bean	*Vigna aconitifolia* (Jacq.) Marechal.
179	Cluster bean	*Cyamopsis tetragonaloba* L. Taub
180	Cocoa	Theobroma cacao L.
181	Radish	Raphanussativus L.
182	Carrot	Daucuscarota L.
183	Teak (Registration open only for extant variety)	*Tectona grandis* L. f.
184	Kalazeera Registration open only for extant variety)	*Bunium persicum* (Bioss.) Fedts.
185	Saffron Registration open only for extant variety)	*Crocus sativus* L.
186	Dolichos bean Registration open only for extant variety)	*Lablab purpureus* (L.) Sweet
187	Ash gourd Registration open only for extant variety)	*Benincasa hispida* (Thunb.) Cogn.
188	Snake gourd Registration open only for extant variety)	*Trichosanthes anguina* L.
189	Ivy gourd Registration open only for extant variety)	*Coccinia grandis* (L.

Annexure VIII: Certificates of Registration issued During 2022-23

S. No.	Registration No.	Type of Variety	Denomination	Crop	Applicant Name
1.	REG/2008/514	Extant (VCK)	M 3434	Maize	Mahyco Private Limited
2.	REG/2009/167	Extant (VCK)	NC-61	Tetraploid Cotton	Nuziveedu Seeds Ltd
3.	REG/2009/176	Extant (VCK)	NC-112	Tetraploid Cotton	Nuziveedu Seeds Ltd
4.	REG/2009/197	Extant (VCK)	NC-173	Tetraploid Cotton	Nuziveedu Seeds Ltd
5.	REG/2009/252	Extant (VCK)	NC-1050 Bt	Tetraploid Cotton	Nuziveedu Seeds Ltd
6.	REG/2009/324	Farmer	MKV 48	Wheat	Mahaveer Singh Arya
7.	REG/2009/325	Farmer	MK Kranti	Wheat	Mahaveer Singh Arya
8.	REG/2010/414	Extant (VCK)	BJ 60223	Brinjal	Mahyco Private Limited
9.	REG/2011/147	New	KOL 1148	Okra/Lady's Finger	Kaveri Seed Company Ltd
10.	REG/2012/140	Farmer	SANTRA 500	Onion	Balwan Singh Urf Ballu
11.	REG/2013/182	New	PP64	Pearl Millet	M/s Crystal Crop Protection Limited
12.	REG/2013/374	New	GK155	Rice	Savannah Seeds Pvt. Ltd.
13.	REG/2013/414	New	GK151	Rice	Savannah Seeds Pvt. Ltd.
14.	REG/2013/418	New	GK-GOURI	Rice	Savannah Seeds Pvt. Ltd.
15.	REG/2013/476	New	PAN-5027	Rice	Pan Seeds Pvt Ltd
16.	REG/2013/669	New	279A	Sorghum	Indian Council of Agricultural Research
17.	REG/2013/879	Farmer	Barsi Jawar	Sorghum	Smt. Girijadevi
18.	REG/2013/977	New	PSP70	Pearl Millet	M/s Crystal Crop Protection Limited
19.	REG/2013/1250	Farmer	Daita Sail	Rice	Abdul Latif
20.	REG/2013/1254	Farmer	SAHEB SAIL	Rice	Mastakin Ali
21.	REG/2013/1255	Farmer	BADSHA BHOG	Rice	Nikunja Malakar

22.	REG/2013/1264	Farmer	JORIA	Rice	Sontush Kairi
23.	REG/2013/1265	Farmer	ARFA	Rice	Nazmul Hussain Laskar
24.	REG/2013/1267	Farmer	BALAM	Rice	Ranu Nath
25.	REG/2013/1272	Farmer	CHAND-MONI	Rice	Monir Uddin
26.	REG/2013/1275	Farmer	JOWAL-POOL	Rice	Bidyut Das
27.	REG/2013/1276	Farmer	INDRA-BHOG	Rice	Abdul Bari
28.	REG/2013/1278	Farmer	GOBINDA BHOG (KMJ)	Rice	Mosmon Ali
29.	REG/2014/155	New	NP - 9369	Rice	Nuziveedu Seeds Ltd
30.	REG/2014/178	Farmer	MASALA BHAT	Rice	Seed Saver Farmers' Group
31.	REG/2014/179	Farmer	MALGHUDYA	Rice	Seed Saver Farmers' Group
32.	REG/2014/180	Farmer	KOLPI (HALVI)	Rice	Seed Saver Farmers' Group
33.	REG/2014/182	Farmer	DHUNDUNE	Rice	Seed Saver Farmers' Group
34.	REG/2014/183	Farmer	DANGI (WHITE)	Rice	Seed Saver Farmers' Group
35.	REG/2014/184	Farmer	DHAVAL BHAT	Rice	Seed Saver Farmers' Group
36.	REG/2014/185	Farmer	DULA-1	Rice	Seed Saver Farmers' Group
37.	REG/2014/186	Farmer	LALYA BHAT	Rice	Seed Saver Farmers' Group
38.	REG/2014/187	Farmer	KALI KHADSI	Rice	Seed Saver Farmers' Group
39.	REG/2014/188	Farmer	KOLPI (NIMGARVI)	Rice	Seed Saver Farmers' Group
40.	REG/2014/189	Farmer	MAHADI	Rice	Seed Saver Farmers' Group
41.	REG/2014/190	Farmer	PACHEKI	Rice	Seed Saver Farmers' Group

42.	REG/2014/191	Farmer	CHIMANSAL	Rice	Seed Saver Farmers' Group
43.	REG/2014/192	Farmer	JUNA KOLAM	Rice	Seed Saver Farmers' Group
44.	REG/2014/193	Farmer	RAGHUDYA	Rice	Seed Saver Farmers' Group
45.	REG/2014/194	Farmer	NAJAR BHAT	Rice	Seed Saver Farmers' Group
46.	REG/2014/195	Farmer	KASBAI	Rice	Seed Saver Farmers' Group
47.	REG/2014/196	Farmer	TORNYA	Rice	Seed Saver Farmers' Group
48.	REG/2014/197	Farmer	VAKVEL	Rice	Seed Saver Farmers' Group
49.	REG/2014/198	Farmer	BANGLYA	Rice	Seed Saver Farmers' Group
50.	REG/2014/199	Farmer	KASVEL	Rice	Seed Saver Farmers' Group
51.	REG/2014/200	Farmer	DODGI	Rice	Seed Saver Farmers' Group
52.	REG/2014/204	Farmer	JAVYACHI GUNDI	Rice	Seed Saver Farmers' Group
53.	REG/2014/205	Farmer	DULA-2	Rice	Seed Saver Farmers' Group
54.	REG/2014/206	Farmer	SUKLYA	Rice	Seed Saver Farmers' Group
55.	REG/2014/207	Farmer	TULSHYA	Rice	Seed Saver Farmers' Group
56.	REG/2014/224	Farmer	KAMAL	Rice	Mavanji Ganpat Pawar
57.	REG/2014/225	Farmer	ASHWINI	Rice	Sunil Mahadu Kamadi
58.	REG/2014/489	New	BIO-LM135Z	Pearl Millet	DCM Shriram Limited
59.	REG/2014/492	New	EM104Z	Pearl Millet	DCM Shriram Limited
60.	REG/2014/775	Farmer	AUGUST	Mango	Parmeshwar Deen
61.	REG/2014/776	Farmer	TUKHMI HEERA	Mango	Chottey Lal Kashyap

62.	REG/2014/777	Farmer	SAFEDA AMIN	Mango	Amit
63.	REG/2014/779	Farmer	JAMUN	Mango	Devendra Singh
64.	REG/2014/780	Farmer	MATKA GOLA	Mango	Nawab Hasan
65.	REG/2014/783	Farmer	AAMIN	Mango	Md. Shahdab
66.	REG/2014/784	Farmer	MUNJJAR AAMIN	Mango	Md. Shahdab
67.	REG/2014/807	Farmer	DESHI GOLA	Mango	Puttilal
68.	REG/2014/1268	New	B122	Rice	Bayer Crop Science LP
69.	REG/2014/1270	New	M049	Rice	Bayer Crop Science LP
70.	REG/2014/2112	New	ACG 42-2 BG-II (Ajeet 42 BGII)	Tetraploid Cotton	Ajeet Seeds Ltd
71.	REG/2014/2292	Farmer	BASANTI	Rice	Amarkanan Rural Socio-Environmental Welfare Society (ARSW Society)
72.	REG/2014/2391	New	RC411	Tetraploid Cotton	Rasi Seeds Pvt Ltd
73.	REG/2014/2434	Extant (VCK)	AOL-311	Okra/Lady's Finger	Ajeet Seeds Ltd
74.	REG/2015/58	New	GK124	Rice	Savannah Seeds Pvt. Ltd.
75.	REG/2015/59	New	GK123	Rice	Savannah Seeds Pvt. Ltd.
76.	REG/2015/60	New	GK43	Rice	Savannah Seeds Pvt. Ltd.
77.	REG/2015/209	Farmer	JPP 49	Cauliflower	Mr. Jagdish Prasad Pareek
78.	REG/2015/229	Farmer	MOTI-MASOOR	Lentil	Mohammed Idris Ahmed Quadri
79.	REG/2015/235	Farmer	BAGDAL PEELI JAWAR (KHARIF)	Sorghum	Mohammed Idris Ahmed Quadri
80.	REG/2015/270	New	MP12P021R	Pearl Millet	Rallis India Limited

81.	REG/2015/332	New	PR 123	Rice	Punjab Agricultural University
82.	REG/2015/333	New	PR 124	Rice	Punjab Agricultural University
83.	REG/2015/485	New	GK107	Rice	Savannah Seeds Pvt. Ltd.
84.	REG/2015/486	New	GK125	Rice	Savannah Seeds Pvt. Ltd.
85.	REG/2015/490	New	GK114	Rice	Savannah Seeds Pvt. Ltd.
86.	REG/2015/491	New	GK120	Rice	Savannah Seeds Pvt. Ltd.
87.	REG/2015/493	New	GK121	Rice	Savannah Seeds Pvt. Ltd.
88.	REG/2015/581	Farmer	BASS ZINIA (WADA KOLAM)	Rice	Mr. Sanjeev Prabhakar Samel
89.	REG/2015/1164	Farmer	SARVAT	Rice	Mr. Parshuram Ramji Lambe
90.	REG/2015/1275	New	RA411	Rice	Pioneer Overseas Corporation
91.	REG/2015/1277	New	RA317	Rice	Pioneer Overseas Corporation
92.	REG/2015/1278	New	RA204F	Rice	Pioneer Overseas Corporation
93.	REG/2015/1279	New	RA406	Rice	Pioneer Overseas Corporation
94.	REG/2015/1281	New	RA208	Rice	Pioneer Overseas Corporation
95.	REG/2015/1718	Farmer	TULAIPANJI-AD	Rice	Punjan Barman
96.	REG/2015/2082	New	M051	Rice	Bayer Crop Science LP
97.	REG/2015/2083	New	M050	Rice	Bayer Crop Science LP
98.	REG/2015/2084	New	M056	Rice	Bayer Crop Science LP
99.	REG/2016/169	Farmer	THA ANIMAKHAI CHABI	Cauliflower	Smt. Keisham (O) Thoibi Devi
100.	REG/2016/289	Farmer	ABER CHAIBI SELECTION	Potato	Mr. Sapam Lukhoi Singh

101.	REG/2016/407	Extant (VCK)	R909F	Rice	Pioneer Overseas Corporation
102.	REG/2016/711	Farmer	MOMSHASTHI	Brinjal	Aloke Kumar Das
103.	REG/2016/723	Farmer	PULI	Brinjal	Inchura Agro Producer Limited
104.	REG/2016/1266	Extant (Notified)	ANJANA	Rice	Professor Jayashankar Telangana State Agricultural University
105.	REG/2016/1677	Farmer	RADHUNIPAGAL	Rice	Dr. Md. Kudrat-E-Khuda Gramin Vigyan-O-Projukti Bikash Kendra
106.	REG/2016/1708	Extant (VCK)	NR-1011	Rice	Nirmal Seeds Pvt Ltd
107.	REG/2016/1831	Farmer	THOMBE	Rice	Mr. Dattaram Tukaram Yelamkar
108.	REG/2016/1894	New	M052	Rice	Bayer Crop Science LP
109.	REG/2017/230	Farmer	Jau Amarwah	Barley	Yamuna Prasad
110.	REG/2017/232	Farmer	Chote Jwar	Sorghum	Chotelal Koul
111.	REG/2017/233	Farmer	Kuchwahi Jwar	Sorghum	Balram Gupta
112.	REG/2017/489	Farmer	Varpani Chana	Chickpea	Charan Lal Thakur
113.	REG/2017/546	Farmer	Gola Turai Raja	Ridge gourd	Rajaram Ahirwar
114.	REG/2017/970	Farmer	Jhalari Jhanjhar	Sorghum	Hariom Singh
115.	REG/2017/977	Farmer	Choti Jowar Chameliya	Sorghum	Chameliya Rawat
116.	REG/2017/991	Farmer	Jhalari Chak	Sorghum	Raj Bhan Singh
117.	REG/2017/1460	Farmer	PARUL	Pumpkin	Hooghly Vegetable Growers Producers Co. Ltd.
118.	REG/2017/1464	Farmer	MAKHRA	Brinjal	Sree Durga Farmers Club
119.	REG/2017/1603	Extant (VCK)	Alhama	Kidney bean	Monsanto Holdings Pvt Ltd
120.	REG/2017/1605	Extant (VCK)	Moraleda	Kidney bean	Monsanto Holdings Pvt Ltd

121.	REG/2017/1608	Farmer	Gorakhnath No. 1	Wheat	Sanjay Kumar Singh
122.	REG/2017/1785	New	M062	Rice	Bayer Crop Science LP
123.	REG/2017/2217	Farmer	RB-TISIWA	Linseed	Rambhadur Bhagat
124.	REG/2017/2225	Farmer	RP-TISIWA	Linseed	Rahul Pratap
125.	REG/2018/71	Extant (VCK)	ARKA PRAJWAL	Tuberose	Indian Institute of Horticultural Research
126.	REG/2018/85	Farmer	VASUNDHARA DAMINI GOLD	Rice	Chandra Shekhar Singh
127.	REG/2018/114	New	M033	Rice	Bayer Crop Science LP
128.	REG/2018/116	New	M067	Rice	Bayer Crop Science LP
129.	REG/2018/118	New	M071	Rice	Bayer Crop Science LP
130.	REG/2018/351	Farmer	BDPJ-238	Barley	Dayashankar Kushwaha
131.	REG/2018/363	Farmer	WBPRA-249	Wheat	Bablu Patel
132.	REG/2018/371	Farmer	WLCM-257	Wheat	Lalji Prasad Verma
133.	REG/2018/381	Farmer	Desi Gehun (GKRA-1)	Wheat	Kamla Shankar
134.	REG/2018/391	Farmer	WBRB-282	Wheat	Bablu Patel
135.	REG/2018/618	Farmer	Dangar-Bajare	Muskmelon	Suresh Ragho Dhangar
136.	REG/2018/678	Farmer	RUNA CH-2	Chickpea	Satya Dev Singh
137.	REG/2018/680	Farmer	CHIKANA S.D.	Linseed	Satya Dev Singh
138.	REG/2018/682	Farmer	ANANDI-01	Chickpea	Anand Mohan Singh
139.	REG/2018/690	Farmer	TISU PHR	Linseed	Vivekanand Singh
140.	REG/2018/714	New	ARKA SIRI	Muskmelon	Indian Institute of Horticultural Research

141.	REG/2019/35	New	M074	Rice	Bayer Crop Science LP
142.	REG/2019/36	New	M073	Rice	Bayer Crop Science LP
143.	REG/2019/37	New	M072	Rice	Bayer Crop Science LP
144.	REG/2019/46	Extant (VCK)	K 828	Rice	Kaveri Seed Company Ltd
145.	REG/2019/47	Extant (VCK)	Shireen	Rice	Kaveri Seed Company Ltd
146.	REG/2019/49	Extant (VCK)	Elito	Rice	Kaveri Seed Company Ltd
147.	REG/2019/51	Extant (VCK)	KOS11MM0034 R	Rice	Kaveri Seed Company Ltd
148.	REG/2019/83 P1	Extant (VCK)	DG 25	Tetraploid Cotton	Dhanlaxmi Crop Science Private Limited
149.	REG/2019/85 H	Extant (VCK)	ZCH-511 (Prachand Pro Plus) BGII	Tetraploid Cotton	Dhanlaxmi Crop Science Private Limited
150.	REG/2019/85 P2	Extant (VCK)	DG 18	Tetraploid Cotton	Dhanlaxmi Crop Science Private Limited
151.	REG/2019/96	Extant (VCK)	PP83	Pearl Millet	M/s Crystal Crop Protection Limited
152.	REG/2019/97	New	S12189-41301	Barley	Limagrain Europe s.a.
153.	REG/2019/101	New	ARUNIKA	Mango	Indian Council of Agricultural Research
154.	REG/2019/122	Farmer	SEMMATTI	Banana	Mr. S. Meenakshi Sundaram
155.	REG/2019/124	Farmer	CHINGAN	Banana	Mr. S. Meenakshi Sundaram
156.	REG/2019/126	New	Lady Silk	Potato	C. Meijer B.V.
157.	REG/2019/127	New	LADY TERRA	Potato	C. Meijer B.V.
158.	REG/2019/128	New	Lady Lolo	Potato	C. Meijer B.V.
159.	REG/2019/130	Extant (VCK)	Swarna Yamini	Bitter Gourd	Indian Council of Agricultural Research
160.	REG/2019/134	Extant (VCK)	Swarna Sneha	Bottle Gourd	Indian Council of Agricultural Research

161.	REG/2020/11	New	KAVERI SUGANTHAM	Banana	Indian Council of Agricultural Research
162.	REG/2020/30	Farmer	Safed Phulpatash	Rice	Amrite Devi
163.	REG/2020/49	New	DEVIKA	Rice	Super Seeds Pvt. Ltd.
164.	REG/2020/66	Farmer	WRCB-421	Wheat	RAM AKBAL TIWARI
165.	REG/2020/80 H	New	NPH-X1	Rice	Nuziveedu Seeds Ltd
166.	REG/2020/80 A	New	NPS 2030 A	Rice	Nuziveedu Seeds Ltd
167.	REG/2020/80 B	New	NPS 2030 B	Rice	Nuziveedu Seeds Ltd
168.	REG/2020/80 R	New	NPS 2342	Rice	Nuziveedu Seeds Ltd
169.	REG/2020/101	New	Manjari Shyama	Grapes	ICAR-National Research Centre for Grapes
170.	REG/2020/153	Extant (VCK)	M164R	Pearl Millet	Pioneer Overseas Corporation
171.	REG/2020/169	Extant (Notified)	MDU1 (ACM 07002)	Black gram	Director of Research, Tamil Nadu Agricultural University
172.	REG/2020/191	Farmer	HARIKESH AISI (LHBP-424)	Linseed	HARIKESH
173.	REG/2020/234	Extant (Notified)	TPS 5	Rice	Director of Research, Tamil Nadu Agricultural University
174.	REG/2020/336	Extant (Notified)	HAGARI NAVANE-46 (HN-46)	Foxtail Millet	University of Agricultural Sciences
175.	REG/2020/373	Extant (Notified)	RVG 204 (Raj Vijay Gram 204)	Chickpea	Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya
176.	REG/2020/375	Extant (Notified)	RVG 202 (RAJ VIJAY GRAM 202)	Chickpea	Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya
177.	REG/2020/385	Extant (Notified)	Phule Satwik (NIAW 3170)	Wheat	Mahatma Phule Krishi Vidyapeeth
178.	REG/2020/388	Farmer	BABARKOT NO BAJRO	Pearl Millet	Laxmanbhai Bhavanbhai Makwana
179.	REG/2021/8	Extant (Notified)	JROMU-1	Jute	Indian Council of Agricultural Research

180.	REG/2021/0019	Extant (Notified)	CO 53 (CB 06803)	Rice	Tamil Nadu Agricultural University
181.	REG/2021/0048	Extant (VCK)	G-2	Mulberry	Central Silk Board
182.	REG/2021/0049	Extant (VCK)	Sahana	Mulberry	Central Silk Board
183.	REG/2021/0050	Extant (VCK)	MSG-2	Mulberry	Central Silk Board
184.	REG/2021/0051	Extant (VCK)	RC-1	Mulberry	Central Silk Board
185.	REG/2021/0052	Extant (VCK)	AR-12	Mulberry	Central Silk Board
186.	REG/2021/0065	Extant (Notified)	HIM PALAM CHANA 1 (DKG 986)	Chickpea	CSK Himachal Pradesh Krishi Vishvavidyalaya
187.	REG/2021/0069	Extant (Notified)	CHHITTISGARH HANSA WHEAT (CG 1023)	Wheat	Indira Gandhi Krishi Vishwavidyalaya
188.	REG/2021/0070	Extant (Notified)	CG 1029 (Kanishika)	Wheat	Indira Gandhi Krishi Vishwavidyalaya
189.	REG/2021/0074	Extant (Notified)	PKB 4	Cowpea	University of Agricultural Sciences
190.	REG/2021/0075	Extant (Notified)	KBC 9	Cowpea	University of Agricultural Sciences
191.	REG/2021/0089	Extant (Notified)	SAKOLI-9 (SKL-2-50-56-45-30-60)	Rice	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
192.	REG/2021/0092	Extant (Notified)	UP 2844	Wheat	Indian Council of Agricultural Research
193.	REG/2021/0093	Extant (Notified)	UP 2855	Wheat	Indian Council of Agricultural Research
194.	REG/2021/0094	Extant (Notified)	UP 2865	Wheat	Indian Council of Agricultural Research
195.	REG/2021/0095	Extant (Notified)	UP 2784	Wheat	Indian Council of Agricultural Research
196.	REG/2021/0096	Extant (Notified)	GR-17 (Sardar)	Rice	Navsari Agricultural University
197.	REG/2021/0134	Farmer	Siddh Golden	Grapes	Shashindra Balkrushna Potdar
198.	REG/2021/0135	Farmer	BLACK KWIN BERRY	Grapes	Jaykar RajaramMane
199.	REG/2021/0137	Extant (Notified)	DWRB 182	Barley	Indian Council of Agricultural Research

200.	REG/2021/0156	Extant (Notified)	NIDW 1149 (Durum)	Durum Wheat	Mahatma Phule Krishi Vidyapeeth
201.	REG/2021/0164	Extant (Notified)	HI 1633 (PUSA VANI)	Wheat	Indian Council of Agricultural Research
202.	REG/2021/0165	Extant (Notified)	HI 1634 (PUSA AHILYA)	Wheat	Indian Council of Agricultural Research
203.	REG/2021/0173	Extant (Notified)	HD 3298	Wheat	Indian Agricultural Research Institute
204.	REG/2021/0184	Extant (Notified)	Hima	Finger Millet	Acharya N.G. Ranga Agricultural University
205.	REG/2021/0192 H	Extant (Notified)	Ladhowal Popcorn Hybrid 3 (LPCH 3) IMHP 1540 (Hybrid)	Maize	Indian Council of Agricultural Research
206.	REG/2021/0192 P1	Extant (Notified)	Dpcl 15-90	Maize	Indian Council of Agricultural Research
207.	REG/2021/0201 H	Extant (Notified)	Pusa Super Sweet Corn 2 (ASKH1)	Maize	Indian Agricultural Research Institute
208.	REG/2021/0201 P1	Extant (Notified)	PMI-SWT016	Maize	Indian Agricultural Research Institute
209.	REG/2021/0201 P2	Extant (Notified)	PMI-SWT017	Maize	Indian Agricultural Research Institute
210.	REG/2021/0202 H	Extant (Notified)	Pusa Super Sweet Corn 1 (ASKH4)	Maize	Indian Agricultural Research Institute
211.	REG/2021/0202 P1	Extant (Notified)	PMI-SWT019	Maize	Indian Agricultural Research Institute
212.	REG/2021/0202 P2	Extant (Notified)	PMI-SWT020	Maize	Indian Agricultural Research Institute
213.	REG/2021/0215 H	Extant (Notified)	PUSA 1201 (MH 1849)	Pearl Millet	Indian Agricultural Research Institute
214.	REG/2021/0215 A	Extant (Notified)	MS 411A	Pearl Millet	Indian Agricultural Research Institute
215.	REG/2021/0215 B	Extant (Notified)	MS 411B	Pearl Millet	Indian Agricultural Research Institute
216.	REG/2021/0215 R	Extant (Notified)	ICMR 07333	Pearl Millet	Indian Agricultural Research Institute

Annexure IX: 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 Internationl)
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
PPVFRA	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 2022-23 was adopted by the Protection of Plant Varieties and Farmers' Rights Authority in its 37th Authority meeting held on 1st December, 2023 vide Agenda item No. 4 at New Delhi.

PPVFRA

Protection of Plant Varieties and Farmers' Rights Authority

(A Statutory Authority Created by an Act of Parliament)

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