



# **Handbook on OECD Varietal Certification in India**

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Ministry of Agriculture, Government of India  
New Delhi**

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## CHAPTER-I

# OECD Varietal Certification in India

### 1. Introduction

The Organization for Economic Co-operation and Development (OECD) an inter-governmental organization founded in 1958, Secretariat at Paris (France) provides a multilateral forum to discuss, develop and reform economic and social policies. The OECD's mission is to promote for sustainable economic growth and employment, a rising standard of living and trade liberalization. The OECD brings together its member countries to discuss and develop domestic and international policies during its Technical Working Group and Annual Meetings. It analyses issues, identifies good policy practices and recommends action in a unique forum in which countries can compare their experiences, seek answers to common problems and work to co-ordinate policies.

### 2. OECD Seed Schemes

The OECD Seed Schemes provide an international framework for the certification of agriculture seed moving in international trade. The schemes were established in 1958 driven by a combination of factors including a fast-growing seed trade, regulatory harmonization in Europe, the development of off-season production, the seed breeding and production potential of large exporting countries in America (North and South) and Europe, and the support of private industry. Membership of the Schemes is voluntary and participation varies.

There are seven agriculture Seed Schemes in OECD viz.,

- i. Cereals
- ii. Maize and sorghum
- iii. Crucifers and other oil or fiber species
- iv. Grasses and Legumes
- v. Fodder beet and sugar beet
- vi. Subterranean clover and similar species
- vii. Vegetables

### 3. Participating countries

Including India, 58 countries from Europe, North and South America, the Middle-East, Asia and Oceania currently participation in the OECD Seed Schemes.

### 4. Objectives

- The objectives of the OECD Schemes for the varietal certification of seed are to encourage the use of “quality-guaranteed” seed in participating countries.
- The Schemes authorize the use of labels and certificates for seed produced and processed for international trade according to agreed principles ensuring identify and purity.
- The Schemes facilitate the import and export of seed, by the removal of technical trade barriers through internationally recognized labels (passports for trade).
- They also lay down guidelines for seed multiplication abroad as well as for the delegation of some control activities to the private sector (“accreditation”).

## **5. Operation of OECD Seed Schemes**

The success of international certification depends upon close-operation between maintainers, seed producers, traders and the Designated Authority (appointed by the Government) in each participating country. Frequent meeting allow for a multi-stakeholder dialogue to exchange information, discuss case studies prepare new rule and update the Schemes. The UN family of bodies, a vast range of non-government organizations (UPOV, ISTA) and seed industry networks participate actively in the Schemes.

## **6. Benefits of the Schemes**

- i. To facilitate international trade by using globally-recognized OECD labels and certificate (e.g. they are required to export seeds to Europe).
- ii. To build a framework to develop seed production with countries or companies.
- iii. To participate in the elaboration of international rules for seed certification.
- iv. To develop collaboration between the public and private sectors.
- v. To benefit from regular exchanges of information with other national certification agencies and observer organizations.

## **7. Rules and Directions of OECD Seed Scheme:**

Since 1958, the OECD Seed Schemes are open to OECD countries as well as other UN Members, 58 countries participate. The OECD certification is applied to varieties satisfying distinction, uniformity and stability conditions, having an agronomic value, and published in official lists. The annual list of varieties eligible for OECD certification includes about 42,000 varieties from 194 species. The schemes ensure the varietal identity and purity of the seed through appropriate requirements and controls throughout the cropping, seed processing and labeling operations. eg: Generation control (pre-basic, Basic and certified seed), isolation distances, purity standards, field inspection, lot sampling, post-control plots, compulsory official laboratory analysis for each certified seed lot. The OECD certification provides for official recognition of “quality-guaranteed” seed, thus facilitating international trade and contributing to the removal of technical trade barriers.

## **8. Government of India’s Participation in the OECD Seed Schemes**

The Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation submitted a formal application to the Secretary General of the OECD on 21<sup>st</sup> September, 2007, for membership of the OECD Seed Schemes. Subsequently the OECD Evaluation Mission visited India during April, 2008; then India delegation participated and presented a status of country’s Seed Industry and Seed Certification System during the Annual Meeting held at Chicago during June, 2008; India’s application was admitted and approval was given during October, 2008 by the OECD Council. Accordingly, India became member to participate in OECD Seed Schemes and entitled to attend the meeting of OECD to participate in the multilateral forum for discussion and expressing country’s position on Varietal Certifications. In this India’s participation in following five Seed Schemes have been accepted by the OECD Council from October, 2008 viz.,

- i. Cereals seed
- ii. Maize and sorghum seed
- iii. Crucifers and other oil or fiber species seed
- iv. Grasses and Legumes seed
- v. Vegetables seed

## 9. Notification of National Designated Authority (NDA):

Notification of the Joint Secretary to the Government of India in-charge Seeds Division, Ministry of Agriculture, Department of Agriculture and Cooperation as NDA for the OECD Seed Scheme, who will be responsible for the implementation of the Seed Schemes in India.

## 10. Notification of Designated Authorities (DAs):

National Designated Authority have already nominated 10 State Seed Certification Agencies who are capable of operating the varietal certification Process of OECD Seed Schemes in our country as Designated Authorities by considering their Technical and administrative facilities. DAs are responsible for OECD Varietal certification System in India. List of Ten DAs carrying varietal certification under OECD Seed Schemes in India is as follows:

Sl. No.	Name and Address of Designated Authority	Code	Area of Operation
1.	The Director, Andhra Pradesh State Seed Certification Agency, House No. 5-10-193, 1st Floor, HACA Bhawan, Opposite Public Gardens, Hyderabad- 500004.	AP	Andhra Pradesh, Odisha & Chhatisgarh
2.	The Director, Assam State Seed Certification Agency, R.K. Mission Road, Ulubari, Guwahati- 781007,	AS	All Seven North Eastern States and Sikkim.
3.	The Director, Bihar State Seed Certification Agency, Meethapur, Patna – 800001.	BH	Bihar, West Bengal and Andaman & Nicobar
4.	The Director, Haryana State Seed Certification Agency, Plot No. B-11&12, Sector-14, Sector 12A Panchkula-134 109	HR	Haryana, Punjab, Chandigarh and Jammu & Kashmir
5.	The Director, Karnataka State Seed Certification Agency, KAIC Premises, Opp. Baptist Hospital, Bellary Road, Hebbal, Bangalore – 560024.	KA	Karnataka, Kerala and Lakshadweep
6.	The Director, Maharashtra State Seed Certification Agency, Neel Kanth Sekhari soot, Girni Amravathi Road Akola – 444 005.	MH	Maharashtra, Gujarat, Daman & Diu, Dadra & Nagar Haveli and Goa
7.	The Director, Rajasthan State Seed & Organic Production Certification Agency, 3 <sup>rd</sup> Floor, Pant Krishi Bhawan, Jan Path, Jaipur-302004.	RJ	Rajasthan and Madhya Pradesh
8.	The Director, Directorate of Seed Certification, 1424 A Thadagam Road, GCT Post, Coimbatore-641013.	TN	Tamil Nadu and Puducherry

9.	The Director, Uttar Pradesh State Seed Certification Agency, Government Garden Campus, Alambag, Lucknow– 226005.	UP	Uttar Pradesh and Jharkhand
10.	The Director, Uttarakhand State Seed and Organic Production Certification Agency, 12/II, Vasant Vihar, Dehradun – 248006.	UK	Uttarakhand, Himachal Pradesh and Delhi

The State Seed Certification Agencies which are not notified as Designated Authorities should assist concerned DA notified by NDA as stated above for undertaking OECD Varietal Certification Activities in their respective States.

The responsibilities of DAs are as follows.

- i. Ensuring that the variety to be OECD Listed has been registered on the National Official Catalogue.
- ii. Communicating the name of the person(s) or organization(s) responsible for the maintenance of the variety.
- iii. Liaising with the maintainer of the variety.
- iv. Providing written agreement for the multiplication of seed outside the country of registration to the appropriate Designated Authority.
- v. Supplying an authenticated standard sample of the variety to be multiplied in order that a control plot can be sown to provide an authentic reference of the variety.
- vi. Supplying an authenticated standard sample of the variety to be multiplied in order that a
- vii. control plot can be sown to provide an authentic reference of the variety;
- viii. Supplying an official description of the variety to be multiplied;
- ix. Authenticating the identity of the seed to be multiplied.

## 11. List of Indian crop varieties eligible for OECD seed certification

109 varieties in 20 crops from India are enlisted in OECD list of varieties eligible for OECD Varietal certification. The detailed list of Indian varieties enlisted in the OECD list of varieties, Key Symbol of eligible varieties based on classification of OECD Seed Scheme, maintainers name and addresses, morphological description of varieties, parents and hybrids and background details of eligible varieties under OECD Seed Scheme are annexed at Annexure II to VI.

## CHAPTER-II

### **Rules and Directions of OECD Seed Schemes**

#### **1. General**

1.1 The OECD Seed Scheme shall cover seed of varieties from species belonging to *all* botanical families of the group; the seed shall be produced, processed, sampled, labeled and fastened in accordance with the Rules and Directions which form the subject of the following paragraphs and which are regarded as minimum requirements.

1.2 The list of species eligible for certification is given in the individual seed scheme. This list can be increased by common agreement of the National Designated Authorities.

1.3 The Scheme shall be implemented in the participating countries under the responsibility of the national Governments that will Designate Authorities for this purpose.

#### **2. Acceptance of Varieties**

2.1 Varieties shall be accepted into the Scheme only if satisfactory results have been obtained by official tests (including comparative field tests) in at least one participating country.

2.2 For all varieties, the tests must establish that the variety is distinct and that its generations have sufficiently uniform and stable characters. An accurate description of the variety including the essential physiological and morphological characters and in the case of hybrid varieties the descriptions of the parental components must be available.

2.3 The tests must also establish that the varieties have an acceptable value in at least one country.

#### **3. List of Eligible Varieties and Parental constituents**

3.1 In each country, an official national list of varieties that have been accepted into the Scheme after the tests shall be published and annually revised. Synonyms and homonyms must be clearly indicated in these lists.

3.2 Only seed of listed varieties and parental constituents is eligible for certification according to the Scheme. For a hybrid variety, listing of the variety is understood to include the parental constituents. Inbred lines or crosses intended as potential parental constituents may also be listed separately.

3.3 The varieties of each species shall be grouped in the lists as follows:

- i) bred varieties with names and addresses of their maintainers;
- ii) local varieties with region of origin and address of the person or organisation to whom enquiries about the variety should be sent.

3.4 Varieties shall not be maintained in the list if the conditions of acceptance are no longer fulfilled.

## **4. OECD List of varieties**

4.1 The OECD List of Varieties Eligible for Certification is an official list of varieties which have been accepted by National Designated Authorities as eligible for certification in accordance with the Rules of the OECD Seed Schemes. The List of Varieties, which is revised annually on the basis of notifications received from the Designated Authorities participating in the Schemes, includes details of the maintainer(s) of the variety and the name of the country(ies) where the variety has been registered.

4.2 The OECD Secretariat provides the National Designated Authorities with the instructions of the listing of varieties in the List.

4.3 The Designated Authority of the Country of Registration is responsible for:

- i) Ensuring that the variety to be OECD listed has been registered on the National Official Catalogue;
- ii) Communicating the name of the person(s) or organisation(s) responsible for the maintenance of the variety;
- iii) Liaising with the maintainer of the variety;
- iv) Providing written agreement for the multiplication of seed outside the Country of Registration to the appropriate Designated Authority;
- v) Supplying an authenticated standard sample of the variety to be multiplied in order that a control plot can be sown to provide an authentic reference of the variety;
- vi) Supplying an official description of the variety to be multiplied;
- vii) Authenticating the identity of the seed to be multiplied.

## **5. Classes and sources of seeds for OECD varietal certification System**

### **5.1 Designation of Categories of Seed**

The following categories of seed are recognized in the Scheme:

- i. Pre-Basic Seed;
- ii. Basic Seed;
- iii. Certified Seed.

### **5.2 Breeders Maintenance Material:**

- Checked against DUS Centers for the definite characters.
- Carries maintainer/breeder Labels.
- Controlled and maintained by the maintainer/breeder.
- Used for pre-basic seed multiplication

### **5.3 Pre-Basic Seed:**

Pre-basic seed is defined a seed of generations preceding Basic seed and may be at any generation between the parental material and the Basic seed.

- Controlled by official Maintainer + Designated Authority.
- Subject to compulsory pre-control test.
- Cannot be commercialized and it has to be used for further multiplication.
- Produced officially by the recognized Institute/organization.
- Carries White Label with diagonal Violet Stripe

#### **5.4 Basic Seed:**

Basic seed is defined as seed which has been produced under the responsibility of the maintainer according to the generally accepted practices for the maintenance of the variety and is intended for the production of certified seed. Basic seed must conform to the appropriate conditions in the Scheme and the fulfillment of these conditions must be confirmed by an official examination.

- Controlled by official Maintainer + Designated Authority.
- Subject to compulsory pre-control test.
- Cannot be commercialized and it has to be used for further multiplication.
- Produced officially by the recognized Institute/organization.
- No validity period.
- Carries White Label.

#### **5.5 Certified Seed:**

Certified seed is defined as seed that is of direct descent from either Basic seed or certified seed of a variety and is intended for the production of either certified seed or of crops for purposes other than seed production. It must conform to the appropriate conditions in the Scheme and the fulfillment of these conditions must be confirmed by an official examination.

- Not under Breeder/Maintainers control however consulted for the number of multiplication.
- DA's shall under take the quality control including post control test
- Used for the commercial multiplication/sale.
- No validity period.
  - (C1): Carries Blue Label
  - (C2... ): Carries Red Label

#### **5.6 Not Finally Certified Seed:**

- Seed which is to be exported from the country of production after field approval, but before final certification as basic or certified seed is called not finally certified seeds.
- Carries Grey Label

#### **5.7 Standard Seed:**

- This category mainly exists in vegetable seed scheme
- Seed which declared by the supplier as being true to the variety and of satisfactory varietal purity. It must conform to the appropriate conditions in the Scheme.
- Carries Dark Yellow Label.

## 5.8 Classes and Stages of Seed exist between Indian Seed Certification System and OECD Varietal Certification System

Sl. No.	Indian Seed Certification System	OECD Varietal Certification System
1.	<p><b>Nucleus Seed:</b></p> <ul style="list-style-type: none"> <li>• Produced through maintenance breeding by the maintainers / breeders varietal characters checked.</li> <li>• Controlled and maintained by the maintainers/breeder.</li> <li>• Carries breeder's certificate.</li> <li>• Used for breeder seed multiplication.</li> </ul>	<p><b>Breeders Maintenance Material:</b></p> <ul style="list-style-type: none"> <li>• Checked against DUS Centers for the definite characters.</li> <li>• Carries Maintainer/breeder Labels.</li> <li>• Controlled and maintained by the maintainer/breeder.</li> <li>• Used for pre-basic seed multiplication.</li> </ul>
2.	<p><b>Breeder Seed:</b></p> <ul style="list-style-type: none"> <li>• Carries Golden Yellow Tag</li> <li>• Controlled by monitoring team by experts of i. concerned breeder, ii. Representative of State of Seed Certification Agency iii. Representative of NSC, iv. Farmers / producers representative</li> <li>• Grow Out Test is conducted for certain crops</li> <li>• Produced through Breeder Seed Production Center based on the indent allocated by the Department of Agriculture and Cooperation, Govt. of India through ICAR.</li> <li>• Used for Foundation class seed multiplication.</li> </ul>	<p><b>Pre-Basic Seed:</b></p> <ul style="list-style-type: none"> <li>• Carries White Label with diagonal Violet Stripe</li> <li>• Controlled by official Maintainer + Designated Authority.</li> <li>• Subject to compulsory pre-control test.</li> <li>• Cannot be commercialized and it has to be used for further multiplication.</li> <li>• Produced officially by the recognized Institute/organization.</li> </ul>
3.	<p><b>Foundation Seed:</b></p> <ul style="list-style-type: none"> <li>• Carries White Colour Tag</li> <li>• Controlled by official seed certification agency directly and no role of maintainer.</li> <li>• GOT test is not compulsory and only on need based undertaken.</li> <li>• Produced through registered seed producers / growers.</li> <li>• Can be used for Foundation stage I (F1) to Foundation stage II (F2) multiplication on specific cases for the open pollinated varieties with specific approval from the Director of Seed Certification.</li> <li>• Used for multiplication of Certified Class seeds.</li> <li>• Initial validity period of 9 months from the date of test and subsequently six months provision for revalidation based on the quality test.</li> </ul>	<p><b>Basic Seed:</b></p> <ul style="list-style-type: none"> <li>• Carries White Label</li> <li>• Controlled by official Maintainer + Designated Authority.</li> <li>• Subject to compulsory pre-control test.</li> <li>• Cannot be commercialized and it has to be used for further multiplication</li> <li>• Produced officially by the recognized Institute/organization.</li> <li>• No validity period.</li> </ul>

4.	<p><b>Certified Seed:</b></p> <ul style="list-style-type: none"> <li>• Carries Azure Blue Tag</li> <li>• Controlled by official seed certification agency directly and no role of maintainer.</li> <li>• GOT test is not compulsory and only on need based undertaken.</li> <li>• Produced through registered seed producers / growers.</li> <li>• Can be used for certified stage I (C1) to certified stage II (C2) multiplication on specific cases for the open pollinated varieties with specific approval from the Director of Seed Certification.</li> <li>• Can be used for certified stage II and commercial multiplication.</li> <li>• Initial validity period of 9 months from the date of test and subsequently six months provision for revalidation based on the quality test.</li> </ul>	<p><b>Certified Seed</b></p> <ul style="list-style-type: none"> <li>• (C1): Carries Blue Label</li> <li>• (C2... ): Carries Red Label</li> <li>• Not under Breeder's/Maintainers control however consulted for the number of multiplication. DA's and Controlling Authorities under take the quality control including post control test + provision of Patent Royalty to the Maintainers / Breeder's.</li> <li>• Used for the commercial multiplication/sale.</li> <li>• No validity period.</li> </ul> <p><b>Not Finally Certified Seed</b></p> <ul style="list-style-type: none"> <li>• Carries Grey Label</li> <li>• Seed which is to be exported from the country of production after field approval, but before final certification as basic or certified seed is called not finally certified seeds.</li> </ul>
		<p><b>Standard Seed:</b></p> <ul style="list-style-type: none"> <li>• Carries Dark Yellow Label</li> <li>• This category mainly exists in vegetable seed scheme</li> <li>• Seed which declared by the supplier as being true to the variety and of satisfactory varietal purity. It must conform to the appropriate conditions in the Scheme.</li> </ul>

## 6. Control of the production of the seed

### 6.1 Guidelines for control plot tests and field inspection of seed crops

The OECD Seed Schemes are designed as procedures which enable the production of seed to be monitored to ensure that technically sound methods are followed, thus safeguarding the identity and varietal purity of varieties. There are two procedures used in OECD for checking the satisfactory progress of a variety.

- Samples of seed are grown in control plots so that the plants can be examined critically throughout the period of growth to full maturity
- Fields intended for the production of seed are inspected on one or more occasions to report upon their condition

In making these particular checks, it is necessary to adopt technical methods which will achieve results of sufficient accuracy and reliability but it must be possible to work within the limits of reasonable resources. The methods described in the OECD Methods for Plot Tests and Field Inspection is those which have been found to give satisfactory results.

### **6.1.1 Control plots**

Purpose of control plots is to ascertain that the schemes are operating satisfactorily and to determine whether or not the characteristics of a variety have remained unchanged during multiplication and will indicate for example the effectiveness of limiting the number of generations of increase. Control plots also enable the varietal purity of individual seed lots to be assessed by weeds. This requires a carefully planned rotation which includes crops which allow the field to be cleared of weeds and self-sown crop plants. For varietal purity, the designated layout of the tests should be such that the information obtained will be sufficiently precise for it to be related to the published varietal purity standards of the schemes.

Control plots should be situated in a field where there is no risk of contamination by volunteers from previous cropping or the plot recorder should be an expert in the characteristics of the species and the description of the variety so that a decision can be made as to whether a plant is sufficiently different from the variety to be considered as an off-type. In general terms, the recorder should only include clearly distinct off-types in the final count which may determine acceptance or rejection of the sample. When a control plot is a pre-control it is also necessary to consider the plot results alongside those from field inspection and there should be conformity between the two. For some off-types, it may only be possible to see them easily in the plot (e.g. transient characteristic which can be seen only at a particular stage of development of the plant).

The control plots have been designed to conform to the description of the variety by visual comparison between the plot grown from the sample and the plot grown from the Standard Sample. For the assessment of trueness to variety by visual comparison and for the identification of off-type plants it is best to arrange the plots so that all samples of one variety are together and within each variety to keep all samples which have been derived from the same origin, normally the same Basic seed lot together. In this way plots which are wholly different in appearance and off-type plants within individual plots are more readily observed

The controls plots have also been designed to conform to the published standards for varietal purity. This requires the identification of off-type plants within the plot so that their numbers can be related to the published standards. These standards are normally expressed either as a percentage of the population or as a number per unit area. The off-type plant count in the plots can be used to give a probability of the seed lot meeting the published standards provided that the plot size is sufficiently large. Reject numbers should be used which relate the number of off-type plants observed in sample to a published standard in such a way that reasonable account is taken of the risks of wrongly accepting or rejecting the seed lot. The seriousness of this risk is related to the sample size

### **6.1.2 Seed crop inspection**

Seed crops are inspected to ensure that there are no circumstances which might be prejudicial to the quality of the seed to be harvested. The main points which the inspector has to check are:

- i. That the crop as a whole is of the variety which it is supposed to be.
- ii. That there are no more off-type plants present than the standards allow.
- iii. That there are no more plants of other species present than the standards allow.
- iv. That the crop is properly isolated to provide against mechanical admixture or out-pollination.
- v. That all other aspects of the crop are satisfactory, e.g. previous cropping, freedom from disease.

The seed certification officer/inspector is required to give an independent opinion on the state of the crop and must therefore be responsible to the Designated Authority. The inspection reveals the state of the crop at the time of inspection. In some circumstances a second inspection may be needed before a decision can be reached. In all cases, the inspection must be supplemented by results from control plots which can be kept under continuous observation and generally give more accurate information on the trueness to variety and varietal purity of the seed stock. The seed certification officer/inspector should ensure that the right crop is inspected and check all relevant information such as the identity of the seed stock used to sow the crop, previous cropping of the field.

- Growers should retain at least one label from the seed lot used to sow the crop and produce it for the inspector.
- The seed certification officer/inspector should be properly trained to recognise the variety to be inspected and must be provided with an adequate description including notes of the main varietal characteristics.
- On entering the crop the seed certification officer/inspector should first walk into the field and satisfy himself that the crop conforms to the varietal characteristics of the variety.
- For some species, positive identification of individual varieties may not be possible in a seed crop, but it should always be possible to ensure that the crop is of the right variety group.
- Subsequently, in examining the field in more detail, the seed certification officer/inspector should look for signs of any part of the crop which may have been grown from different seed, such as areas which appear different or contain a higher proportion of off-type plants.
- Evidence of contamination of a seed crop can usually be seen at the edges, at the start or finish of sowing or planting or near gate ways, etc
- The inspector should walk around the outside of the crop looking for contaminated areas.
- At the same time he should check that the isolation is satisfactory and conforms to the standards
- For cross-pollinated crops this will involve checking neighbouring crops and local gardens and looking for weeds or volunteer plants which might cross-pollinate with the seed crop.
- The inspector must then finally assess the varietal purity of the crop.
- To do this he has to focus on small areas which can be examined in great detail (quadrates?).
- The number and size of these areas have to be related to the standards which the crop is required to achieve and will have to balance the need for reasonable confidence in the result against the limitations of time available and physical endurance of the individual.
- To minimise the effects of the latter it is essential to provide the seed certification officer/inspector with all possible information before he goes to the crop, in particular, results from the control plots should be available to him.
- To achieve a result within reasonable confidence limits requires that the seed certification officer/inspector work to a pre-conceived sampling procedure which will cover the entire area of the crop.
- This procedure has to be adapted to the particular features of the different species and in particular whether the standard is expressed as a percentage or as a maximum number of impurities per unit area.

## **7. Criteria for listing of varieties in the OECD seed scheme:**

If a variety is to be added to the OECD List of Varieties eligible for certification it must be distinct and have an acceptable “value” in at least one participating country, (value is a measurement of the main performance characters, yield, disease resistance, and quality characters, bread making, malting, distilling, etc.).

- be maintained; ( the maintainer of a variety is a person or an organisation responsible for the production or maintenance of a bred variety included in a national list of varieties eligible for certification under the OECD Scheme. The maintainer shall ensure that the variety remains true to type throughout its full life-span and in the case of hybrid varieties, that the formula for hybridisation is followed. Maintenance of a variety may be shared).
- be included on the National Official Catalogue of the **country of registration** of the variety.

### **7.1 NDA has adopted the following criteria for selection of variety for inclusion in the OECD Seed Scheme.**

1. Varieties and Hybrids released and notified under the Seeds Act, 1966 and are in commercial use (as they have already under gone the requisite testing).
2. Varieties and Hybrids which have been filed for registration to PPV & FR Authority (based of DUS criteria).
3. Varieties and Hybrids that have already under gone the multi-location testing for two years in public system (ICAR, SAU etc).
4. Varieties and Hybrids which are export potential and have under gone multi-location testing including in house trials with appropriate checks and plot size, continuously for Two Years.
5. Varieties and Hybrids from India which have been tested outside the country only for export purpose in multi-location trials under national varietal testing system for two years along with data.

## **8. Pre and Post- Control of the Seed**

### **8.1 Pre-Control of the Seed**

#### ***Testing procedures***

Pre-control is the term applied to variety verification of early generation seed, i.e. Pre-basic and Basic seed. Although field inspections are an essential requirement of OECD Seed Schemes, there are many advantages available to Designated Authorities in conducting pre-control plots. These are as follows:

- i. Plants representing the seed lot of the variety can be observed as frequently as is necessary.
- ii. The observation period can be extended from seedling emergence to full maturity.
- iii. All plants in the control plot population can be examined in detail if necessary.
- iv. A comparison can be made with the Standard sample.

- v. Comparisons can also be made with seed lots of the same variety in the same and previous generations.
- vi. One expert can make judgements on all control plots for all varieties and categories thus ensuring the standardisation of recording.
- vii. Where the land is free from volunteers and clean machines have been used for sowing, the Designated Authority can be certain that all off-type plants observed in the control plot have arisen from the seed sample.
- viii. Designated Authorities may use an adverse pre-control plot test result to reject seed crops sown with the same seed lot.

A part of every sample of Basic Seed and of a percentage of the samples of Certified Seed shall be checked in a post-control test conducted immediately or in the season following the drawing of the samples. The test shall be conducted by, or under the supervision of, the Designated Authority. (When a Basic Seed lot is being grown in a post-control plot test it is also a “pre-control test” of the next generation, i.e. Certified seed first generation).

The percentage of post-control of certified seed is defined by the National Authority. Its level is generally located between 5 and 10 per cent but can be adapted annually according to the results of the previous year control. It is recommended that India post control tests a minimum of 10% of certified seed lots for at least 5 years. In pre-control such characteristics shall be checked as were used to confirm the Distinctness, Uniformity and Stability of the variety.

When a control plot is a pre-control, the Designated Authority is not entitled to certify seed derived from the lot concerned if the results from the plot test show that varietal identity or purity has not been maintained.

## 8.2 Post-Control Tests of the Seed

### *Testing procedures*

A part of every sample of Basic Seed and of a percentage of the samples of Certified Seed, drawn shall be checked in a post-control test conducted immediately or in the season following the drawing of the samples. The test shall be conducted by, or under the supervision of, the Designated Authority. The test does not apply to the samples for re-packing and re-labelling of seed lot, when seed produced in one country and re-packing and re-labeling is carrying out in other country.

The percentage of post-control of certified seed is defined by the National Authority. Its level is generally located between 5 and 10 per cent but can be adapted annually according to the results of the previous year control. In particular the Designated Authority may increase the percentage of post-control of certified seed beyond 10 per cent for any specific case that could induce a non-conformity risk, or if the frequency of post-control failures shown the previous year is high as in the following indicative table :

<b>Frequency of post-control Failures for certified seed Of previous year</b>	<b>Minimum level of checks in post-control of certified seed of current year</b>
< 0.5%	5%
0.5% - 3.0%	10%
> 3.0%	25%

In post-control such characteristics shall be checked as were used to confirm the Distinctness, Uniformity and Stability of the variety. Post-control is obligatory for all samples of Certified Seed when the lot is to be used for the production of a further seed generation, being in this case also a pre-control of the following generation. Subject to compliance with all prescribed conditions which may include payment of a stated fee, the owner of any lot of seed certified in accordance with the Scheme shall be entitled to receive from the Designated Authority, in respect of that lot, a statement of the results of any tests for varietal identity and purity assessment.

## **9. Seed Lots and Fastening of Containers**

### **9.1 Lot homogeneity**

Seed lots presented for sampling must be as homogeneous as practicable. The Designated Authority may refuse to certify any lot when there is evidence that it is not sufficiently homogeneous.

### **9.2 Lot size**

Seed lot size varies from scheme to scheme.

### **9.3 Fastening of Containers**

The seed containers shall be fastened at the time of sampling and the contents identified in accordance with Identification of Contents of Seed Containers by the person taking the sample or under his supervision. For not finally certified seed, the person normally taking samples for certification or under his supervision shall fasten the containers.

The seed containers shall be fastened in such a way that they cannot be opened without destroying that fastening or leaving traces showing that it has been possible to alter or change the contents of the container. The effectiveness of the fastening device must be ensured, either by incorporating the label in the device or by use of a seal. Containers are exempted from this requirement if the fastening cannot be reused.

### **9.4 Identification of Contents of Seed Containers**

The contents of each container shall be indicated by a new label, showing no trace of previous use, issued by the Designated Authority and which shall conform to the specification in Appendix 4. Tie-on labels are only allowed in conjunction with a seal. It must not be possible to reuse adhesive labels; or marking indelibly on the outside of the container all the information required to be printed on the label according to Appendix 4 (including an indication of the colour of the label) in a manner approved by the Designated Authority.

A model of any label or any printed information must always be submitted to the OECD for prior approval. A copy of the information may be enclosed in each container but must be clearly differentiated from the OECD label on the outside of the container. There is no need to use the white label for Basic Seed if the Basic seed has been produced and is to be used in the same country and has affixed thereto a national label containing all necessary information.

## **9.5 Re-packing and Re-labeling in Another Country**

The expression "re-packing and re-labeling" shall be understood to include the use of labels that may also serve as a sealing device as per the Fastening of Containers and Identification of Contents of Seed Containers. A Designated Authority wishing to re-package and re-label a particular seed lot which has been produced in another country is only required to make an arrangement with the Designated Authority of the country of production, if the re-labeling was carried out to allow for certification at a different seed category. Basic and Certified Seed re-packaged and re-labeled under these rules shall be recognised as "Seed certified according to the OECD Grass and Legume Seed Scheme".

When re-packing and re-labeling take place, the original seals and labels shall be removed and all operations conducted in the presence of an authorised representative of the Designated Authority who will supervise the re-packing and re-labeling. The new labels may retain the original seed lot reference number, but if a new number is allocated, details of the original one must either be kept by the Designated Authority or included on the new labels. The original country of production and a statement relating to re-packing and re-labeling shall be given on the labels. When blends are made, the blended lot shall be given a new seed lot reference number. The Designated Authority will keep records to show the reference numbers of the lots making up each blend and the proportion of each lot in the blend. If the lots making up the blend have been produced in different countries all the countries of production must be indicated on the label. Each blended lot shall be sampled and a part of the sample shall be used.

## CHAPTER-III

# RULES AND DIRECTIONS OF OECD CEREAL SEED SCHEME

### 1. General

1.1 The OECD Cereal Seed Scheme shall cover seed of varieties of cereals produced, processed, sampled, labeled and fastened in accordance with the Common Rules and Regulations above, and those which form the subject of the following paragraphs and which are regarded as minimum requirements.

1.2 The list of species eligible for certification according to the Scheme is given in Appendix 2 of this Scheme. This list can be increased by common agreement of the National Designated Authorities.

1.3 The Scheme shall be implemented in the participating countries under the responsibility of the national governments that will designate Authorities for this purpose.

### 2. Lot Size

2.1 One seed lot shall not exceed 30 000 kg for eligible species of *Avena* spp., *Triticum aestivum*, *Triticum turgidum*, *Triticum spelta*, *Hordeum vulgare*, *Oryza sativa*, *Secale cereal* and *x Tritico secale*, and shall not exceed 10 000 kg for *Eleusine coracana*, *Fagopyrum sculentum* and *Phalaris canariensis*. These maximum sizes do not apply to lots to be fastened as not finally certified seed.

2.2 Seed in excess of 30 000 kg (or 10 000 kg where applicable as mentioned in 2.1) shall be divided into lots no larger than 30 000 kg each (or 10 000 kg where applicable) identified according to Rule 9.1 as a separate seed lot.

2.3 A tolerance of five per cent on these maxima is permissible

## MINIMUM REQUIREMENTS FOR THE PRODUCTION OF BASIC AND CERTIFIED SEED

### A) MINIMUM REQUIREMENTS FOR ALL VARIETIES

#### 1. Previous Cropping

1.1 *The National Designated Authority shall:*

- require the grower to furnish particulars concerning the previous cropping in each seed field;
- reject fields when the previous cropping history is not in accordance with regulations published by the National Designated Authority. There shall be a minimum time interval of at least two years between cereal crops of the same species. Successive crops of the same variety and category of seed may be grown on the same field without any time-interval, provided that satisfactory varietal purity is maintained.

## **2. Isolation**

2.1 Seed crops of cross-pollinating species and of mainly cross-pollinating varieties of triticale (*x Triticum secale* Wittm.) shall be isolated from all other crops of rye and triticale respectively by:

- Basic Seed 300 meters;
- Certified Seed 250 meters.

Seed crops of self-pollinating varieties of triticale shall be isolated from all other crops of triticale by:

- Basic Seed 50 meters;
- Certified Seed 20 meters.

2.2 These distances can be disregarded when there is sufficient protection from undesirable pollen sources.

2.3 The seed crops of self-fertilising species shall be isolated from other cereal crops by a definite barrier or a space sufficient to prevent mixture during harvest.

## **3. Weeds**

Crops containing an excessive number of weeds shall be rejected.

## **4. Field Inspection**

4.1 The crop must be in a fit state to permit accurate determination of varietal and species purity.

4.2 Inspectors shall be specially trained. In their field inspection they shall be responsible only to the National Designated Authority. Additional conditions apply to authorised inspectors as indicated in Common Appendix 5.

4.3 There shall be at least one field inspection of each seed crop after the emergence of the inflorescence.

4.4 The field inspector shall check that all the minimum requirements laid down in this Appendix have been satisfied.

4.5 Control plots grown from samples of the seed used to sow the crop entered for certification should, whenever possible, be available for detailed examination at the time of field inspection of the seed crops. This examination is intended to supplement the examination made for the determination of varietal purity at field inspection.

4.6 The National Designated Authority must decide for each field whether or not approval can be given to the field following inspection and, whenever possible, a study of the results of the examination of the corresponding pre-control plot.

4.7 When determining the number of plants not true to the variety and the number of plants of other species, the inspector shall work to an appropriate method (Methods are described in the OECD document "Guide to the Methods used in Plot Tests and for Field Inspection").

## 5. Number of Harvest Years

The National Designated Authority shall decide the number of harvest years to be permitted for a seed field, with particular attention when multiplying foreign varieties to the effects of changed ecological conditions on varietal purity. These harvest years shall not be interrupted by one or more years in which the crop is not under the supervision of the National Designated Authority.

## 6. Varietal Purity

6.1 Varietal purity standards apply to all seed-producing fields and shall be checked at field inspection.

6.2 Where post-control plots are grown in accordance with Rule 7 these also shall be used as a check.

6.3 Minimum percentages of varietal purity shall apply to some species according the following table:

Species	Basic Seed	Certified Seed first generation	Certified seed second generation
<i>Triticum aestivum</i> , <i>Hordeum vulgare</i> , <i>Avena</i> spp. and <i>Oryza sativa</i>	99.9%	99.7%	99.0%
Mainly self-pollinating varieties of X <i>Tritico secale</i>	99.7%	99.0%	98.0%

6.4 Maximum number of plants of the same species being not true to variety for cross-pollinating varieties of some species

For cross-pollinating varieties of *Secalecereale* and x *Tritico secale*, the number of plants of the same species which are recognisable as being not true to the variety concerned shall not exceed one plant in thirty square meters in fields to produce Basic Seed, and one plant in ten square meters in fields to produce Certified Seed.

### Summary Table: Maximum number of plants of the same species being not true to cross-pollinating variety

Species	Basic Seed	Certified Seed
Cross-pollinating varieties of <i>Secalecereale</i> and x <i>Tritico secale</i>	1 in 30 sq. m	1 in 10 sq. m

## **B) ADDITIONAL MINIMUM REQUIREMENTS FOR HYBRID CEREALS**

### **7. Previous Cropping**

The National Designated Authority shall:

- a) require the grower to furnish particulars concerning the previous cropping in each seed field;
- b) reject fields when the previous cropping history is not in accordance with regulations published by the National Designated Authority. Crops to produce hybrid seed may not be grown on the same field in successive years.

### **8. Isolation**

8.1 Seed crops to produce Certified Seed of a hybrid variety of wheat, barley, oats or rice shall be isolated from sources of contaminating pollen. The female seed parent must be not less than 25 meters from any other variety of the same species except from a crop of the male pollen parent. This isolation distance may be modified by a National Designated Authority to ensure further protection against contamination by foreign pollen. A distance of not less than 100 meters may be considered to permit modification of the requirements of 3.6 below in respect of the determination of varietal purity.

8.2 Seed crops to produce the Basic seed components and Certified seed of a hybrid variety of rye shall be isolated at every stage of seed production from sources of contaminating pollen that might result in undesirable foreign pollination. The minimum isolation distances shall be as follows:

a) for the production of Basic Seed:

where male sterility is used	1 000 m
where male sterility is not used	600 m

b) for the production of Certified Seed 500 m

8.3 A National Designated Authority can modify these distances where there is sufficient protection from undesirable pollen or where the possibility of cross-fertilisation is eliminated as a result of a clear difference in time of flowering.

### **9. Field Inspection**

9.1 For crops to produce Basic Seed of parental varieties or parental lines intended for the production of hybrid varieties using a Chemical Hybridizing Agent (CHA), an inspection should be made as for seed of conventional cereal varieties.

9.2 For crops to produce Basic Seed of hybrid varieties using genetic or cytoplasmic male sterility, an inspection should be made of the male sterile line, the pollen parent of the male sterile single cross hybrid, the maintainer line and the male restorer component.

9.3 For crops to produce Certified Seed of a hybrid variety at least one inspection will be made when ear emergence of both parents is complete to check that the technical details for the production of the hybrid variety, agreed with the National Designated Authority, have been met.

9.4 Where male sterility is used in the production of a hybrid variety, the level of sterility of the male sterile component shall be at least 98 per cent to be eligible for seed certification subject to any other examinations required by the National Designated Authority in accordance with section 11 below "Determination of Varietal Purity".

9.5 For crops to produce F1 hybrid seed by means of CHA the National Designated Authority may require a second inspection to be carried out when the grains are ripe to determine the level of male sterility of the female seed-parent and/or the hybridity of the seed.

At the second inspection the crop inspector will calculate either the percentage sterility or the percentage hybridity as follows:

#### *9.5.1 Percentage Sterility*

It is equal to:  $100(1-a/b)$

where *a* is the number of fertilised grains in a specified number of ears sampled from CHA treated female seed-parent plants which have been protected by pollen-proof bags or tents put in place after the application of CHA but before anthesis of either parent;

and *b* is the number of fertilised grains in a sample of the same specified number of ears of untreated female seed-parent plants taken from an area which has been protected from CHA treatment by a further tent. To prevent the escape of pollen from these untreated female plants this tent must remain in position until anthesis has ended.

#### *9.5.2 Percentage Hybridity*

It is equal to:  $100(1-a/c)$

where *a* is the number of fertilised grains in a specified number of ears sampled from CHA treated female seed parent plants which have been protected by pollen-proof bags or tents put in place after the application of CHA but before anthesis of either parent;

and *c* is the number of fertilised grains in a sample of the same specified number of ears of CHA treated female seed parent plants which have not been protected by pollen-proof bags or tents.

9.6 Crops which meet a hybridity standard of 95 per cent will be eligible for certification of the seed, subject to any other examinations required by the National Designated Authority in accordance with section 11 below "Determination of Varietal Purity". Exceptionally, National Designated Authorities requiring isolation distances of not less than 100 meters may accept the level of hybridity assessed in the field as the level of varietal purity of the hybrid, provided that the assessed level is not less than 90 per cent.

## **10. Varietal Purity and Identity**

### **10.1 *Trueness to hybrid variety***

The hybrid variety must be satisfactory for trueness to variety and the plants must conform to the characteristics of the variety when listed by the National Designated Authority.

## 10.2 *Minimum varietal purity standard in seed crops*

For hybrid varieties of wheat, barley, oat and rice, the minimum varietal purity standards in crops to produce basic seed of parental lines or varieties and in crops to produce certified seed, as well as in post-control of certified seed, will be as follows:

Species	Fields to produce Basic Seed (of parental lines)	Fields to produce Certified Seed (of the hybrid variety)	Post-control plots of Certified Seed (of the hybrid variety)
<i>Triticum aestivum</i> , <i>Hordeum vulgare</i> , <i>Avena</i> spp., <i>Oryza sativa</i>	99.9%	99.7%	90.0%

## 10.3 *Maximum number of plants not being true to variety in crops of rye hybrid varieties*

In crops of *Secalecereale* to produce:

- Basic seed of parental lines, the number of plants of the crop species which are recognisable as obviously not being true to the single cross hybrid or synthetic variety concerned shall not exceed one plant in thirty square meters;
- Certified seed of the hybrid variety, the number of plants of the crop species which are recognisable as obviously not being true to the single cross hybrid concerned shall not exceed one plant in ten square meters.

In post-control plots of *Secalecereale* of:

- Basic seed (single cross hybrid), the number of plants of the crop species which are recognisable in post-control as obviously not being true to the single cross hybrid cultivar concerned shall not exceed six plants in 1000 plants;
- Certified seed, the hybrid must be satisfactory for trueness to variety and the plants must conform to the characteristics of the hybrid variety when listed by the National Designated Authority.

## 11. Determination of Varietal Purity

Varietal purity will be determined by an approved method appropriate to the maintenance system. At least one of the following assessments must be made:

- a) measurement of hybridity in the hybrid seed production field (see 8.5.2 above); this must be combined with other assessments including the results of field inspection and isolation control. It is to be noted that hybridity is not to be equated with varietal purity and there is not necessarily a close correlation between them;
- b) a post-harvest control conducted before certification using an internationally recognised test of the hybrid seed, excluding rye.

## CHAPTER-IV

### **RULES AND DIRECTIONS OF OECD MAIZE AND SORGHUM SEED SCHEME**

#### **1. General**

1.1 The OECD Maize and Sorghum Scheme shall cover seed of varieties of maize and sorghum produced, processed, sampled, labeled and fastened in accordance with the Common Rules and Regulations above, and those which form the subject of the following paragraphs and which are regarded as minimum requirements.

1.2 The list of species eligible for certification according to the Scheme is given in Annexure-II of this Scheme. This list can be increased by common agreement of the National Designated Authorities.

1.3 The Scheme shall be implemented in the participating countries under the responsibility of the national governments that will designate Authorities for this purpose.

1.4 The OECD Maize and Sorghum Seed Scheme is not intended to interfere in any way with the trade in seed which is produced and traded entirely under the responsibility of its sellers, subject to national laws and regulations.

1.5 Post-control of Basic Seed is only required when the Basic Seed is to be used for the production of Certified Seed outside the country of origin of the variety. However, breeders should, whenever possible, themselves plant post-control plots of all Basic Seed lots. This is particularly useful when the possibility exists of growing them out of season, before the use of the Basic Seed.

#### **2. Lot size**

2.1 One seed lot shall not exceed 40 000 kg for maize and 10 000 kg for sorghum. For seeds to be fastened as not finally certified seed, these maximum seed lot sizes do not apply.

2.2 The maximum lot size of the following species shall be raised to 30 000 kg:

- Sorghum x alnum Parodi
- *Sorghum bicolor* (L.) Moench
- *Sorghum bicolor* (L.) Moench x *S. sudanense* (Piper) Stapf

2.3 A tolerance of five per cent on these maxima is permissible

### **MINIMUM REQUIREMENTS FOR THE PRODUCTION OF BASIC AND CERTIFIED SEED**

#### **A) MINIMUM REQUIREMENTS FOR ALL VARIETIES**

##### **1. Previous Cropping**

The National Designated Authority shall require the grower to provide particulars concerning the previous cropping in each seed field and reject fields when the previous cropping history is not in accordance with regulations published by the National Designated Authority.

## **2. Isolation**

### **2.1 *Zea mays***

#### **2.1.1 Basic Seed**

Crops to produce Basic Seed must be not less than 200 m from any source of contaminating pollen.

#### **2.1.2 Certified Seed**

Crops to produce Certified Seed must be not less than 200 m from any source of contaminating pollen.

### **2.2 *Sorghum bicolor and Sorghum sudanense***

#### **2.2.1 Basic Seed**

Crops to produce Basic Seed must be not less than 400 m from any source of contaminating pollen.

#### **2.2.2 Certified Seed**

Crops to produce Certified Seed must be not less than 200 m from any source of contaminating pollen.

### **2.3 Sufficient protection**

These distances may be disregarded if there is sufficient protection from any source of contaminating pollen.

## **3. Field Inspection**

Inspectors shall be specially trained. In their field inspection they shall be responsible only to the National Designated Authority. Additional conditions apply to authorised inspectors as indicated in Common Appendix 5.

### **3.1 *Zea mays***

3.1.1 For crops to produce Basic Seed and Certified Seed of *Zea mays* at least one inspection must be made when varietal purity can be determined.

3.1.2 When the seed crop follows another crop of *Zea mays* in either the preceding year or the current year, at least one additional inspection must be made to determine the freedom of the seed crop from volunteer plants.

### **3.2 *Sorghum bicolor and Sorghum sudanense***

3.2.1 For crops to produce Basic Seed and Certified Seed at least one inspection must be made when varietal purity can be determined.

## **4. Varietal Identity**

Crop inspection must confirm that the plants are true to the description of the variety furnished to the National Designated Authority in accordance with the requirements of Rule 2.

## **5. Varietal Purity**

### **5.1 *Zea mays***

5.1.1 At field inspection, in crops to produce Basic Seed, the minimum varietal purity will be 99.5 per cent.

5.1.2 At field inspection, in crops to produce Certified Seed, the minimum varietal purity will be 99.0 per cent.

### **5.2 *Sorghum bicolor* and *Sorghum sudanense***

5.2.1 At field inspection, in crops to produce Basic seed, the crop shall be rejected if there is more than one off-type plant per 30 square meters.

5.2.2 At field inspection, in crops to produce certified seed, the crop shall be rejected if there is more than one off-type plant per 10 square meters.

## **6. Species Purity of *Sorghum bicolor* and *Sorghum sudanense***

Crops to produce Basic seed shall not contain more than one plant in 30 m<sup>2</sup> and for certified seed not more than one plant in 10 m<sup>2</sup> of another species of *Sorghum*, the seeds of which are difficult to distinguish in a laboratory test or which will readily cross-pollinate with the crop being grown for seed.

## **B) ADDITIONAL MINIMAL REQUIREMENTS FOR HYBRID VARIETIES**

### **7. Isolation**

#### **7.1 *Zea mays***

Crops to produce Basic seed of parental lines and hybrid varieties must be not less than 200 m from any source of contaminating pollen.

#### **7.2 *Sorghum spp.***

7.2.1 Crops to produce Basic seed must be not less than 300 m from any source of contaminating pollen.

7.2.2 Crops to produce certified seed of hybrid varieties must be not less than 200 m from any source of contaminating pollen.

#### **7.3 *Sufficient protection***

These distances may be disregarded if there is sufficient protection from any source of contaminating pollen.

## **8. Field Inspection**

8.1 For crops to produce Basic Seed of parental lines a minimum of two inspections must be made. The first inspection is to be made before flowering, the second inspection during flowering.

8.2 For crops to produce Basic seed of a hybrid, a minimum of three inspections must be made. The first inspection must be made before flowering to check isolation and roguing. The second and third inspections must be made at the beginning and end of flowering respectively to check roguing and male sterility.

8.3 For crops to produce certified seed of hybrid varieties, the following inspections must be made.

#### 8.3.1 *Zea mays*

8.3.1.1 For crops to produce Certified seed of hybrid varieties, a minimum of three inspections must be made when the silks of the seed-bearing parent are receptive, to determine whether the published requirements have been carried out and there is a sufficient supply of pollen from the pollen-parent plants.

8.3.1.2 Sucker tassels, portions of tassels or tassels on the main plant will be counted as shedding pollen when 50 mm or more of the tassels' central stem, side branches or a combination of the two, have anthers extended from the glumes and are shedding pollen.

8.3.1.3 Where the crop follows a maize crop in either the preceding year or the current year, at least one additional inspection must be made to determine the freedom of the seed crop from volunteer plants.

#### 8.3.2 *Sorghum spp.*

For crops to produce certified seed of hybrid varieties, a minimum of three inspections must be made. The first inspection must be made before flowering to check isolation and roguing. The second and third inspections must be made at the beginning and end of flowering respectively to check roguing and male sterility.

### 9. Varietal Purity

#### 9.1 *At field inspection in crops to produce Basic seed of parental lines*

9.1.1 In crops to produce Basic seed of parental lines, the minimum varietal purity will be 99.9 per cent.

9.1.2 In crops to produce Basic seed of single cross hybrids, the minimum varietal purity of each parent will be 99.9 per cent.

9.1.3 Crops of *Zea mays* only, inspected at a stage when 5 per cent or more of female parent plants have receptive silks, will be rejected if:

- the number of female parent plants which have either shed pollen or are shedding pollen exceeds 0.5 per cent at any one inspection; or,
- the total number of female parent plants which have either shed pollen or are shedding pollen exceeds one per cent for the three inspections carried out on different dates.

#### 9.2 *At field inspection in crops to produce Certified seed of hybrid varieties*

##### 9.2.1 *Zea Mays*

9.2.1.1 In crops to produce certified seed, the minimum varietal purity of plants of the seed-bearing parent will be 99.8 per cent.

The minimal varietal purity of plants of the pollen parent that are shedding pollen will be 99.8 per cent.

9.2.1.2 Crops inspected at a stage when 5 per cent or more of female parent plants have receptive silks will be rejected if:

- the number of female parent plants which have either shed pollen or are shedding pollen exceeds one per cent at any one inspection, *or*,
- the total number of female parent plants exceeds two per cent at three inspections carried out on different dates.

### 9.2.2 *Sorghum spp.*

In crops to produce certified seed, the minimum varietal purity of plants of the seed-bearing parent will be 99.7 per cent.

## 10. Species Purity of *Sorghum spp.*

10.1 Crops to produce Basic seed shall not contain more than one plant in 30 m<sup>2</sup> of plants of another *Sorghum spp.*, if its seeds are difficult to distinguish from the crop seeds in a laboratory test or if it will readily cross-pollinate with the crop being grown for seed.

10.2 Crops to produce certified seed shall not contain more than one plant in 10 m<sup>2</sup> of plants of another *Sorghum spp.*, if its seeds are difficult to distinguish from the crop seeds in a laboratory test or if it will readily cross-pollinate with the crop being grown for seed.

## 11. Varietal Identity

The hybrid variety must be satisfactory for trueness to variety and the plants must conform to the characteristics of the variety when listed by the National Designated Authority.

## 12. Production involving a Male Sterile Seed Parent

A male sterile seed parent can be used to produce certified seed by either of the two methods:

- i) by blending seed (containing a high level of male sterility) produced by a male sterile seed parent with a male fertile seed parent. The ratio of male sterile parent seed to male fertile parent seed shall not exceed two to one.
- ii) by using a pollen parent which contains a specific restorer line or lines so that not fewer than one-third of the plants grown from the resulting hybrid will produce pollen which appears normal in all respects.

## 13. Plots post-controlling seed lots of hybrid varieties

In post-control plots established for certified seed lots of hybrid varieties of *Zea mays* and *Sorghum* species, the minimum varietal purity standard shall be 97 per cent for single cross hybrids and 95 per cent for other types of hybrids.

## **(C) MINIMUM REQUIREMENTS FOR THE CERTIFICATION OF VARIETAL ASSOCIATIONS OF HYBRID MAIZE SEED**

### **1. Varieties eligible for varietal association**

Only maize varieties included in the List of varieties eligible for seed certification according to the OECD Schemes may be included in a certified varietal association of hybrid maize seed.

### **2. Registration of the varietal association**

For the purposes of certification, the name of the varietal association shall be registered with the National Designated Authority. The percentage breakdown by weight or by number of seeds of component varieties shall also be registered with the National Designated Authority by the person responsible for their maintenance.

### **3. Constituent seed lots eligible for inclusion in a certified varietal association of hybrid maize seed**

Only lots of maize seed previously certified under the rules of the OECD Maize and Sorghum Scheme shall be eligible for inclusion in a certified varietal association of hybrid maize seed.

### **4. Control of the mixing and packaging operation**

4.1 All organisations producing varietal associations of hybrid maize seed must be approved by the National Designated Authority.

4.2 The seed of the pollinator dependent hybrid and the seed of the pollinator shall be mechanically combined in proportions jointly determined by the persons responsible for the maintenance of these component varieties. The seed of the female and male components shall be coated with different colours.

4.3 The mixing and packing operation must be carried out under the supervision of an official or authorised seed sampler, who is responsible to the National Designated Authority.

4.4 The mixing itself must be carried out so as to ensure that only lots intended for inclusion are used and that the resulting varietal association is as homogeneous as possible.

### **5. Inspection of the production of varietal associations**

5.1 The inspection of production of varietal associations must be carried out by the National Designated Authority or their authorized representative.

5.2 The inspection must be carried out through:

a) controls of the identity and total percentages by weight or by number of each component, at least by random checks of the official labels identifying the percentages of seed; and,

b) a random check of the mixing operations, including the finished varietal association.

## **6. Labeling and sealing of the varietal association**

6.1 The appropriate varietal association labels must be fixed to each container. The labels shall be blue with a diagonal green line.

6.2 The labeling specifications and information requirements set out in Common Appendix 3 for certified seed shall apply, except for the label colour (see 6.1 above) and for the name of the variety to be replaced with the name of the varietal association. In addition, the percentage breakdown by weight or by number of seeds of the component varieties shall be given; it shall be sufficient to give the name of the varietal association if the percentage breakdown has been officially recorded.

## **7. Records of varietal associations**

7.1 Records must be kept, by the producers, for all varietal associations as follows:

7.1.1 Name of the varietal association;

7.1.2 Reference number of the varietal association seed lot;

7.1.3 Details of the component varieties of the varietal association seed lot, including names and percentage by weight or by number of seeds;

7.1.4 Seed lot reference numbers of the constituent seed lots;

7.1.5 Weight of each constituent seed lot;

7.1.6 Total weight of the varietal association seed lot.

7.2 A copy of the seed test certificate for each constituent seed lot included in the varietal association must be kept by the producer of the varietal association.

7.3 These records must be kept in such form that it is possible to identify and verify the authenticity of the constituents of each varietal association seed lot. They must be made available to the National Designated Authority on request.

7.4 The National Designated Authority shall make regular checks of all the records kept by the producers in respect of varietal associations of hybrid maize seed.

## **8. Analysing varietal associations of hybrid maize seed**

The National Designated Authority shall proceed to official check-sampling and official check-testing on a proportion of the varietal association seed lots produced in its territory to ensure compliance with the rules for certification.

## CHAPTER-V

### **RULES AND DIRECTIONS OF THE OECD CRUCIFER SEED AND OTHER OIL SEED OR FIBRE SEED SCHEME**

#### **1. General**

1.1 The OECD Seed Scheme for Crucifers and other Oil or Fibre Species shall cover seed of varieties from species belonging the crucifers' botanical family and to other species mainly used for oil or fibre production; the seed shall be produced, processed, sampled, labeled and fastened in accordance with the Common Rules and Regulations above, and those which form the subject of the following paragraphs and which are regarded as minimum requirements.

1.2 The Scheme does not apply to plants from other Schemes. The list of species eligible for certification according to this Scheme is given below. This list can be increased by common agreement of the National Designated Authorities.

1.3 The Scheme shall be implemented in the participating countries under the responsibility of the national governments that will designate Authorities for this purpose.

#### **2. Lot size**

2.1 For seeds the size of wheat, or larger, one seed lot shall not exceed 20 000 kg; for seeds smaller than wheat, one seed lot shall not exceed 10 000 kg. For seeds to be fastened as not finally certified seed, these maximum seed lot sizes do not apply.

The maximum lot size of the following species shall be raised to 25 000 kg:

- *Carthamus tinctorius* (L.)
- *Gossypium hirsutum* (L.) and *Gossypium barbadense* (L.)
- *Helianthus annuus* (L.)

The maximum lot size of the following species shall be raised to 30 000 kg:

- *Arachis hypogaea* (L.)

2.2. Seed in excess of the maxima set out in the previous paragraph above shall be divided into lots no larger than those, each lot being identified according to Rule 9.1 as a separate seed lot.

2.3 A tolerance of five per cent on these maxima is permissible.

# MINIMUM REQUIREMENTS FOR THE PRODUCTION OF BASIC AND CERTIFIED SEED

## A) MINIMUM REQUIREMENTS FOR ALL VARIETIES

### 1. Previous Cropping

#### 1.1 *The National Designated Authority shall:*

- require the grower to furnish particulars concerning the previous cropping in each seed field;
- reject fields when the previous cropping history is not in accordance with regulations published by the National Designated Authority.

There shall be a minimum time interval between seed crops and any other crop of the same species as follows:

- for crucifer species: five years;
- for other species: two years.

These intervals are defined in terms of crop years. They may be adapted in conformity with the published regulations of the National Designated Authority, if there exist genetic or agronomic protection with respect to any source of contamination.

1.2 Successive crops of the same variety and category of seed may be grown on the same field without any time interval, provided that satisfactory varietal purity is maintained.

### 2. Isolation

2.1 The seed crops of cross-pollinating species shall be isolated from any possible source of contaminating pollen. The isolation distances must not be less than:

		<b>All size fields</b>
1.	Rape Seed <i>Brassica napus</i> (L.) var. <i>oleifera</i> Fields to produce: - Basic Seed - Certified Seed	200 m 100 m
2.	Cotton <i>Gossypium barbadense</i> Fields to produce: - Basic Seed - Certified Seed Non hybrid varieties F1 hybrids produced without CMS F1 hybrids produced using CMS <i>Gossypium hirsutum</i> Fields to produce: - Basic Seed - Certified Seed Non hybrid varieties F1 hybrids produced without CMS	200 m 150 m 150 m 800 m 100 m 30 m 30 m

	F1 hybrids produced using CMS <i>Gossypium hirsutum</i> x <i>Gossypium barbadense</i> (Fixed inter-specific hybrid varieties)	800 m
	Fields to produce: - Basic Seed - Certified Seed	200 m
	Fixed inter-specific hybrid varieties	150 m
	F1 hybrids produced without CMS	150 m
	F1 hybrids produced using CMS	800 m
3.	Sunflower <i>Helianthus annuus</i> Fields to produce: - Basic Seed (Hybrid varieties) - Basic Seed (Varieties other than hybrid) - Certified Seed	1 500 m 750 m 500 m
4.	Other cross-pollinating species or subdivisions thereof Fields to produce: - Basic Seed - Certified Seed	400 m 200 m

2.2 These distances apply to seed production fields and to plants or fields of species which can cross-pollinate. They can be disregarded when there is sufficient protection from undesirable pollen sources.

2.3 The seed crops of self-pollinating or apomictic varieties shall be isolated from other crops by a definite barrier or a space sufficient to prevent mixture during harvest.

### 3. Weeds

Crops containing an excessive number of weeds shall be rejected.

### 4. Number of Harvest Years

The National Designated Authority shall decide the number of harvest years to be permitted for a seed field, with particular attention when multiplying foreign varieties to the effects of changed ecological conditions on varietal purity. These harvest years shall not be interrupted by one or more years in which the crop is not under the supervision of the National Designated Authority.

### 5. Field Inspection

5.1 The crop must be in a fit state to permit accurate determination of varietal and species purity.

5.2 Inspectors shall be specially trained and, in their field inspection, responsible only to the National Designated Authority. Additional conditions apply to authorised inspectors as indicated in Common Appendix 5.

5.2 There shall be at least one field inspection of each seed crop. These shall be at the time of the maximum expression of the most important diagnostic characters of the variety. For the other species, if this is not at flowering time (e.g. Kale), a second inspection will be necessary to check the isolation at flowering time.

For hybrid varieties a minimum of three inspections must be made when the flowers of the seed-parent are pollen receptive. Two inspections are sufficient if a post-control test is conducted prior to certification.

5.4 The field inspector shall check that all the minimum requirements laid down in this Appendix have been satisfied.

5.5 Control plots grown from samples of the seed used to sow the crop entered for certification should, whenever possible, be available for detailed examination at the time of field inspection of the seed crops. This examination is intended to supplement the examination made for the determination of varietal purity at field inspection.

5.6 The National Designated Authority must decide for each field whether or not approval can be given to the field following inspection and, whenever possible, a study of the results of the examination of the corresponding pre-control plot.

5.7 When determining the number of plants not true to the variety and the number of plants of other species, the inspector shall work to an appropriate method (Methods are described in the OECD document "Guide to the Methods used in Plot Tests and for Field Inspection").

## 6. Varietal Purity in seed crops

6.1 Varietal purity standards apply to all seed-producing fields and shall be checked at field inspection.

6.2 Where post-control plots are grown in accordance with Rule 7 these also shall be used as a check.

### 6.3 *Varietal purity standards*

6.3.1 Minimum percentages of varietal purity shall apply to some species according the following table:

Species	Basic seed	Certified Seed first generation	Certified seed second generation
<i>Brassica napus</i> var. <i>Oleifera</i> and <i>Brassica rapa</i> , except varieties of strictly the fodder type as indicated in the OECD List of Varieties Hybrid varieties: see section 13 below	99.9%	99.7%	99.7%
<i>Brassica napus</i> var. <i>oleifera</i> and <i>Brassica rapa</i> , for varieties of strictly the fodder type as indicated in the OECD List of Varieties Hybrid varieties: see section 13 below	99.7%	99.0%	98.0%
<i>Brassica oleracea</i> con var. <i>acephala</i> , <i>Brassica napus</i> var. <i>napobrassica</i> , <i>Sinapis alba</i> , <i>Helianthus annuus</i> , <i>Pisum sativum</i> , <i>Vicia faba</i> Hybrid varieties of <i>Brassica napus</i> and <i>Helianthus</i> : see section 13 below	99.7%	99.0%	98.0%
<i>Arachis hypogaea</i>	99.7%	99.5%	99.5%
<i>Linum usitatissimum</i>	99.7%	98.0%	97.5%
<i>Papaver somniferum</i>	99.0%	98.0%	98.0%

### 6.3.2 Maximum number of plants of the same species being not true to variety

For all species, the number of plants of the crop species which are recognisable as being not true to the variety concerned shall not exceed one plant in thirty square meters in fields to produce Basic Seed, and one plant in ten square meters in fields to produce Certified Seed.

#### **Summary Table: Maximum number of plants of the same species being not true to variety**

	<b>Basic Seed</b>	<b>Certified Seed</b>
All species	1 in 30 sq. M	1 in 10 sq. m

### **7. Species purity in seed crops**

For all species, the number of plants of other species which seed would be difficult to distinguish in a laboratory test from the seed of the crop, or which will readily cross-pollinate with the plants of the crop, shall not exceed one plant in thirty square meters in fields to produce Basic Seed, and one plant in ten square meters in fields to produce Certified Seed.

#### **Summary Table: Maximum number of plants of other species**

	<b>Basic Seed</b>	<b>Certified Seed</b>
All species	1 in 30 sq. M	1 in 10 sq. m

### **8. Hybrid Varieties**

8.1 Crops producing Basic Seed shall be rejected if there are more than 0.2 per cent off-type, pollen-shedding plants in the pollen parent when 2 per cent or more of the seed parent plants have pollen-receptive flowers. They shall also be rejected if there are more than 0.5 per cent off-type plants, including pollen-shedding plants, in the seed parent.

8.2 Crops producing Certified Seed shall be rejected if there are more than 0.5 per cent off-type, pollen-shedding plants in the pollen parent when 5 per cent or more of the seed-parent plants have pollen-receptive flowers. They shall also be rejected if there are more than 1 per cent off-type plants or more than 0.5 per cent pollen-shedding plants in the seed parent.

### **9. Male Sterile Seed Parent**

A male sterile seed parent can be used to produce hybrid Certified Seed by either of two methods:

by mixing seed produced by the male sterile parent with seed produced by the fully fertile seed parent. The ratio of male sterile parent seed to male fertile parent seed shall not exceed 2 to 1; *or* by using a pollen parent which contains a specific restorer line or lines so that not fewer than one-third of the plants grown from the resulting hybrid will produce pollen which appears normal in all respects.

**B) ADDITIONAL MINIMUM REQUIREMENTS FOR HYBRID VARIETIES OF *HELIANTHUS ANNUUS*, *BRASSICA NAPUS*, *BRASSICA RAPA*, *GOSSYPIUM HIRSUTUM*, *GOSSYPIUM BARBADENSE* and INTER-SPECIFIC HYBRIDS OF THESE GOSSYPIUM SPECIES**

**10. Previous Cropping**

**10.1 *Helianthus annuus***

There shall be an interval of at least two years between seed crops to produce either Basic Seed or Certified Seed and any other crop of the same species.

**10.2 *Brassica napus* and *Brassica rapa***

There shall be an interval of at least five years between seed crops to produce either Basic Seed or Certified Seed and any other Crucifer crop.

**10.3 *Gossypium hirsutum*, *Gossypium barbadense* and *Gossypium hirsutum* x *G. barbadense***

10.3.1 A piece of land may be registered as a male, female or maintainer unit (basic seed) and hybrid seed unit only if no plants of any cotton variety have been established thereon for seed production or otherwise during the 12 months prior to the registration thereof.

10.3.2 A piece of land which is intended for the production of certified hybrid seed may also be registered as a unit under the following conditions:

10.3.2.1 if certified seed of the same variety has been produced thereon during the previous growing season;

10.3.2.2 if any other plants but cotton have been established thereon for seed production or otherwise as an intermediate crop prior to the registration thereof;

10.3.2.3 if production practices are used that minimise/prevent the viability of volunteer cotton.

**11. Isolation**

**11.1 *Crops to produce Basic Seed of parental lines***

**11.1.1 *Helianthus annuus***

Crops to produce Basic Seed of *Helianthus annuus* must be not less than 1500 m from any source of contaminating pollen except from a crop of Basic Seed with the same pollen parent, provided there is at least a 3 m gap and the pedigree of that seed is known to the National Designated Authority.

**11.1.2 *Brassica napus* and *Brassica rapa***

Crops to produce Basic Seed of *Brassica napus* and *Brassica rapa* must be not less than 500 m from any source of contaminating pollen except from a crop of Basic Seed with the same pollen parent, provided there is at least a 3 m gap and the pedigree of that seed is known to the National Designated Authority.

### 11.1.3 *Gossypium barbadense*

Crops to produce Basic seed of *Gossypium barbadense* must not be less than 200m from any source of contaminating pollen except from a crop of Basic seed with the same pollen parent, provided there is a 3m gap and the pedigree of that seed is known to the National Designated Authority.

### 11.1.4 *Gossypium hirsutum*

Crops to produce Basic seed of *Gossypium hirsutum* must not be less than 100m from any source of contaminating pollen except from a crop of Basic seed with the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

### 11.1.5 *Gossypium hirsutum* x *Gossypium barbadense*

Crops to produce Basic seed of fixed inter-specific hybrid varieties of *Gossypium hirsutum* x *Gossypium barbadense* must not be less than 200m from any source of contaminating pollen except from a crop of Basic seed with the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

## 11.2 **Crops to produce Certified Seed of hybrid varieties**

### 11.2.1 *Helianthus annuus*

Crops to produce Certified Seed of hybrid varieties of *Helianthus annuus* must be not less than 500 m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3 m gap and the pedigree of that seed is known to the National Designated Authority.

### 11.2.2 *Brassica napus* and *Brassica rapa*

Crops to produce Certified Seed of hybrid varieties of both *Brassica napus* and *Brassica rapa* must be not less than 300 m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3 m gap and the pedigree of that seed is known to the National Designated Authority.

### 11.2.3 *Gossypium barbadense* (intra-specific hybrids)

a) Crops not using the cytoplasmic male sterility method to produce Certified seed of F1 hybrid varieties of *Gossypium barbadense* must not be less than 150m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

b) Crops using the cytoplasmic male sterility method to produce Certified seed of F1 hybrid varieties of *Gossypium barbadense* must not be less than 800m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

### 11.2.4 *Gossypium hirsutum* (intra-specific hybrids)

a) Crops not using the cytoplasmic male sterility method to produce Certified seed of F1 hybrid varieties of *Gossypium hirsutum* must not be less than 30m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

b) Crops using the cytoplasmic male sterility method to produce Certified seed of F1 hybrid varieties of *Gossypium hirsutum* must not be less than 800m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

### **11.2.5 *Gossypium hirsutum* x *Gossypium barbadense***

a) Crops not using the cytoplasmic male sterility method to produce Certified seed of F1 hybrid varieties of *Gossypium hirsutum* x *Gossypium barbadense* must not be less than 150m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

b) Crops using the cytoplasmic male sterility method to produce Certified seed of F1 hybrid varieties of *Gossypium hirsutum* and *Gossypium barbadense* must not be less than 800m from any source of contaminating pollen except from a crop of the same pollen parent, provided there is at least a 3m gap and the pedigree of that seed is known to the National Designated Authority.

11.3 These distances apply to seed production fields and to plants or fields which can cross-pollinate. They can be disregarded when there is sufficient protection from any source of contaminating pollen.

## **12. Seed Crop Inspection**

### **12.1 *At field inspection in crops to produce Basic Seed of parental lines***

#### **12.1.1 *Helianthus annuus***

For crops using the cytoplasmic male sterility method to produce Basic Seed of parental lines at least three inspections must be made. The first inspection should be made before the flowering stage, the second inspection at the early flowering stage and the third inspection before the end of the flowering stage.

#### **12.1.2 *Brassica napus* x *Brassica rapa***

For crops using either the cytoplasmic male sterility method or the self-incompatibility method to produce Basic Seed of parental lines at least three inspections must be made. The first inspection should be made before the flowering stage, the second inspection at the early flowering stage and the third inspection before the end of the flowering stage.

#### **12.1.3 *Gossypium hirsutum* x *Gossypium barbadense***

For crops to produce Basic seed of parental lines at least three inspections must be made. The first inspection shall be made at the early flowering stage, the second inspection before the end of the flowering stage and the third inspection at the end of the flowering stage, after the removal of the pollen parent plants.

### **12.2 *At field inspection in crops to produce Certified Seed of hybrid varieties***

#### **12.2.1 *Helianthus annuus***

For crops using the cytoplasmic male sterility method to produce hybrid varieties of *Helianthus annuus* at least three inspections must be made on each parent line. The first inspection should be made before the flowering stage, the second inspection at the early flowering stage and the third inspection before the end of the flowering stage.

### 12.2.2 *Brassica napus* x *Brassica rapa*

For crops using either the cytoplasmic male sterility method or the self-incompatibility method to produce hybrid varieties of *Brassica napus* and *Brassica rapa*, at least three inspections must be made on each parent line. The first inspection should be made before the flowering stage, the second inspection at the early flowering stage and the third inspection before the end of the flowering stage. Two inspections are sufficient if a post-control test of the Basic Seed components is conducted prior to certification.

### 12.2.3 *Gossypium hirsutum* x *Gossypium barbadense*

For crops to produce hybrid varieties of seed of *Gossypium hirsutum* and *Gossypium barbadense* at least three inspections must be made. The first inspection shall be made at the early flowering stage, the second inspection before the end of the flowering stage and the third inspection at the end of the flowering stage, after the removal of the pollen parent plants.

## 13. Varietal Purity

### 13.1 *At field inspection in crops to produce Basic Seed of parental lines and parental hybrids*

#### 13.1.1 *Helianthus annuus*

13.1.1.1 In crops to produce Basic Seed of parental lines of *Helianthus annuus*, the minimum varietal purity of the pollen parent will be 99.8 per cent. The minimum varietal purity of the seed-bearing parent will be 99.8 per cent including pollen-shedding plants.

13.1.1.2 In crops to produce Basic Seed of parental hybrids of *Helianthus annuus*, the minimum varietal purity of the pollen parent will be 99.8 per cent, when 2 per cent or more of seed-bearing plants have pollen receptive flowers. The minimum varietal purity of the seed-bearing parent will be 99.5 per cent and this standard will include male fertile plants.

#### 13.1.2 *Brassica napus* x *Brassica rapa*

13.1.2.1 In crops to produce Basic Seed of parental lines of *Brassica napus* and *Brassica rapa*, using the cytoplasmic male sterility method, the minimum varietal purity of both the seed-bearing parent line and the pollen parent line will be 99.9 per cent. The level of male sterility of the seed-bearing parent line will be assessed by examining the flowers for the presence of sterile anthers; it will not be not less than 98.0 per cent for *Brassica rapa* and the spring-type varieties of *Brassica napus*, and not less than 99.0 per cent for the winter-type varieties of *Brassica napus*.

13.1.2.2 In crops to produce Basic Seed of parental lines of *Brassica napus* and *Brassica rapa*, using the self-incompatibility method, the minimum varietal purity of each line will be 99.9 per cent.

#### 13.1.3 *Gossypium hirsutum* x *Gossypium barbadense*

In crops to produce Basic seed of parental lines of *Gossypium hirsutum* and *Gossypium barbadense*, the minimum varietal purity of both the female and male parental lines shall be 99.8% when five percent or more of seed-bearing plants have pollen receptive flowers. The level of male sterility of the seed-bearing parent line shall be assessed by examining the flowers for the presence of sterile anthers and shall not be less than 99.9%.

### 13.2 *At field inspection in crops to produce Certified Seed of hybrid varieties*

#### 13.2.1 *Helianthus annuus*

13.2.1.1 In crops to produce Certified Seed of hybrid varieties of *Helianthus annuus* the minimum varietal purity of pollen-shedding plants in the pollen parent will be 99.5 per cent, when 5 per cent or more of the seed-bearing plants have pollen receptive flowers.

13.2.1.2 The minimum varietal purity of the seed-bearing parent will be 99.0 per cent. The level of male sterility will be not less than 99.5 per cent.

#### 13.2.2 *Brassica napus* x *Brassica rapa*

13.2.2.1 In crops to produce Certified Seed of hybrid varieties of *Brassica napus* and *Brassica rapa*, using the cytoplasmic male sterility method, the minimum varietal purity in the pollen parent will be 99.5 per cent for *Brassica rapa* and 99.7 per cent for *Brassica napus*. The minimum varietal purity in the seed bearing parent line will be 99.0 per cent. The level of male sterility in the seed-bearing parent line will be assessed by examining the flowers for the presence of sterile anthers and will be not less than 98.0 per cent.

13.2.2.2 In crops to produce Certified Seed of hybrid varieties of *Brassica napus* and *Brassica rapa*, using the self-incompatibility method, the minimum varietal purity of each line will be 99.5 per cent.

#### 13.2.3 *Gossypium hirsutum* x *Gossypium barbadense*

In crops to produce Certified seed of hybrid varieties of *Gossypium hirsutum* and *Gossypium barbadense*, the minimum varietal purity of both the seed-bearing parent and the pollen parent line shall be 99.5% when five percent or more of seed-bearing plants have pollen receptive flowers. The level of male sterility of the seed-bearing parent line shall be assessed by examining the flowers for the presence of sterile anthers and shall not be less than 99.7 per cent.

### 13.3 *Plots or chemotaxonomic tests post controlling seed lots of hybrid varieties*

13.3.1 The chemotaxonomic tests possibly used for post control must be internationally recognised and officially approved.

The post control field plots and the possible chemotaxonomic tests must have a sufficient accuracy and repeatability.

#### 13.3.2 *Helianthus annuus*

The minimum varietal purity will be 95.0 per cent.

#### 13.3.3 *Brassica napus* x *Brassica rapa*

13.3.3.1 The minimum varietal purity, using the cytoplasmic male sterility method, will be 90.0 per cent. For *Brassica napus*, the minimum varietal purity may be assessed either in plots or in an approved chemotaxonomic test.

For *Brassica rapa*, the minimum varietal purity may be assessed only in an approved chemotaxonomic test.

13.3.3.2 The minimum varietal purity, using the self-incompatibility method, will be 90.0 per cent.

For *Brassica napus* and *Brassica rapa*, the minimum varietal purity may be assessed only in an approved chemotaxonomic test.

**Summary Table of the minimum varietal purity standards applied for hybrid varieties of species *Helianthus annuus*, *Brassica napus*, *Brassica rapa*, *Gossypium hirsutum* and *Gossypium barbadense***

**For *HELIANTHUS ANNUUS***

**In crops to produce:**

- Basic seed of parental lines	Seed-bearing parent line.....	99.8%, with pollen shedding plants included in off-type plants.
	Pollen parent line.....	99.8%
- Basic seed of parental hybrids	Seed-bearing parent line.....	99.5% with male fertile plants included in off-type plants.
	Pollen parent line.....	99.8%
- Certified seed of hybrid varieties	Seed-bearing parent line varietal purity.....	99.0%
	male sterility.....	99.5%
	Pollen parent line.....	99.5%

**in post-control of:**

- Certified seed of hybrid varieties.....	95.0%
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**For *BRASSICA NAPUS* and *BRASSICA RAPA***

**In crops to produce:**

- Basic seed of parental lines	* Cytoplasmic male sterility method	
	Seed-bearing parent line varietal purity.....	99.9%
	male sterility for <i>B. rapa</i> .....	98.0%
	male sterility for <i>B. napus</i> :	
	- for winter type varieties.....	99.0%
	- for spring type varieties.....	98.0%
	Pollen parent line.....	99.9%
	* Self-incompatibility method	
	Self-incompatible line.....	99.9%
- Certified seed of hybrid varieties	* Cytoplasmic male sterility method	
	Seed-bearing parent line varietal purity.....	99.0%
	male sterility.....	98.0%
	Pollen parent line for <i>B. rapa</i> .....	99.5%
	for <i>B. napus</i> .....	99.7%
	* Self-incompatibility method	
	Self-incompatible line.....	99.5%

**In post-control of:**

- Certified seed of hybrid varieties	* Cytoplasmic male sterility method.....	90.0%
	* Self-incompatibility method.....	90.0%

**For *GOSSYPIUM HIRSUTUM* and *GOSSYPIUM BARBADENSE***

**In crops to produce:**

	- Basic seed of parental lines	
	* Cytoplasmic male sterility method and hand emasculation method	
	Seed-bearing parent line varietal purity.....	99.8%
	male sterility.....	99.9%

	Pollen parent line varietal purity.....	99.8%
- Certified seed of hybrid varieties		
	* Cytoplasmic male sterility method and hand emasculatation method	
	Seed-bearing parent line	
	varietal purity.....	99.5%
	male sterility.....	99.7%
	Pollen parent line varietal purity.....	99.5%

**(C ) MINIMUM REQUIREMENTS FOR THE CERTIFICATION OF VARIETAL ASSOCIATIONS OF HYBRID SWEDE RAPE SEED**

**1. Varieties eligible for varietal association**

Only varieties of swede rape (*Brassica napus* var. *oleifera*) included in the List of varieties eligible for seed certification according to the OECD Schemes may be included in a certified varietal association of hybrid swede rape seed.

**2. Registration of the varietal association**

For the purposes of certification, the name of the varietal associations shall be registered with the National Designated Authority. The percentage breakdown by number of seeds of component varieties shall also be registered with the National Designated Authority by the person responsible for their maintenance.

**3. Constituent seed lots eligible for inclusion in a certified varietal association**

Only lots of swede rape seed previously certified under the rules of the OECD Seed Scheme for Crucifer and Other Oil or Fiber Species shall be eligible for inclusion in a certified lot of a varietal association of hybrid swede rape seed.

**4. Control of the Mixing and Packing Operation**

4.1 All organisations producing varietal associations of hybrid swede rape seed must be approved by the National Designated Authority.

4.2 The seed of the pollinator-dependent hybrid and the seed of the pollinator(s) shall be mechanically combined in proportions jointly determined by the persons responsible for the maintenance of these component varieties. The seed of the female and male components shall be coated with different colours.

4.3 The mixing and packing operation must be carried out under the supervision of an official or authorised seed sampler, who is responsible to the National Designated Authority.

4.4 The mixing itself must be carried out so as to ensure that only lots intended for inclusion are used and that the resulting varietal association is as homogeneous as possible.

**5. Inspection of the Production of Varietal Associations**

5.1 The inspection of the production of varietal associations must be carried out by the National Designated Authority or their authorized representative.

5.2 The inspection must be carried out through:

- a) controls of the identity and total percentages by number of each component, at least by random checks of the official labels identifying the percentages of seed, and
- b) a random check of the mixing operations, including the finished varietal association.

## **6. Labeling and Sealing of the Varietal Association**

6.1 The appropriate varietal association labels must be fixed to each container. The labels shall be blue with a diagonal green line.

6.2 The labeling specifications and information requirements as per the reference numbers for certificates and seed lots, except for the label colour (see 6.1 above) and for the name of the variety to be replaced with the name of the varietal association. In addition, the percentage breakdown by number of seeds of the component varieties shall be given; it shall be sufficient to give the name of the varietal association if the percentage breakdown by number of seeds of the component varieties has been notified to the purchaser, on request, and officially recorded.

## **7. Records of Varietal Associations**

7.1 Records must be kept, by the producers, for all varietal associations as follows:

7.1.1 Name of the varietal association;

7.1.2 Reference number of the varietal association seed lot;

7.1.3 Details of the component varieties of the varietal association seed lot, including names and percentage by number of seeds;

7.1.4 Seed lot reference numbers of the constituent seed lots;

7.1.5 Weight of each constituent seed lot;

7.1.6 Total weight of the varietal association seed lot.

7.2 A copy of the seed test certificate for each constituent seed lot included in the varietal association must be kept by the producer of the varietal association.

7.3 These records must be kept in such form that it is possible to identify and verify the authenticity of the constituents of each varietal association seed lot. They must be made available to the National Designated Authority on request.

7.4 The National Designated Authority shall make regular checks of the records kept by the producers in respect of varietal associations of hybrid swede rape.

## **8. Analysing varietal associations of hybrid swede rape seed**

The National Designated Authority shall proceed to official check-sampling and official check-testing on a proportion of the varietal association seed lots produced in its territory to ensure compliance with the rules for certification.

## CHAPTER-VI

### **RULES AND DIRECTIONS OF THE OECD GRASS AND LEGUME SEED SCHEME**

#### **1.1 General**

The OECD Grass and Legume Seed Scheme shall cover seed of varieties from species belonging to *Gramineae* and *Leguminosae* botanical families, in one or more of the countries participating in the Scheme. The seed shall be produced, processed, sampled, labeled and fastened in accordance with the Common Rules and Regulations and those which form the subject of the following paragraphs and which are regarded as minimum requirements.

#### **1.2 Lot size**

For seeds the size of wheat, or larger, one seed lot shall not exceed 20 000 kg; for seeds smaller than wheat, one seed lot shall not exceed 10 000 kg. For seeds to be fastened as not finally certified seed, these maximum seed lot sizes do not apply.

The maximum lot size of the following species shall be raised to 30 000 kg:

*Cice rarietinum* L.  
*Glycine max* (L.) Merr.  
*Lens culinaris* Medik.  
*Lupinus albus* L.  
*Lupinus angustifolius* L.  
*Lupinus luteus* L.  
*Phaseolus vulgaris* L.  
*Pisum sativum* L. *sensulato*  
*Vicia benghalensis* L.  
*Vicia faba* L.  
*Vicia pannonica* Crantz  
*Vicia sativa* L. [inc. *Vicia angustifolia* (L.)]  
*Vicia villosa* Roth  
*Vigna angularis*(Willd.)Ohwi& H. Ohashi  
*Vigna mungo*(L.)Hepper  
*Vigna radiata* (L.)R. Wilczek  
*Vigna unguiculata*(L.)Walp.

Seed in excess of the maxima set out in the previous paragraph above shall be divided into lots no larger than those, each lot being identified into separate seed lot. However, for the *Gramineae* species, the maximum lot size of certified seed can be raised to 25 000 kg on a derogation basis. A tolerance of five per cent on these maxima is permissible.

# MINIMUM REQUIREMENTS FOR THE PRODUCTION OF BASIC AND CERTIFIED SEED

## A) MINIMUM REQUIREMENTS FOR ALL VARIETIES

### 1. Previous Cropping

#### 1.1 *The National Designated Authority shall:*

Require the grower to furnish particulars concerning the previous cropping in each seed field; There shall be a minimum time interval between seed crops and any other crop of the same species as follows:

- for grass species: two years;
- for legume species: three years.

These intervals are defined in terms of crop years. They may be adapted in conformity with the published regulations of the National Designated Authority, if there exist genetic or agronomic protection with respect to any source of contamination.

1.2 Successive crops of the same variety and category of seed may be grown on the same field without any time interval, provided that satisfactory varietal purity is maintained.

### 2. Isolation

2.1 The seed crops of cross pollinating shall be isolated from any possible source of species contaminating pollen. The isolation distances must not be less than:

		<b>For fields of 2 ha or less</b>	<b>For fields larger than 2 ha</b>
1	<i>Gramineae</i> and <i>Leguminosae</i> ( <i>non hybrids</i> ) Fields to produce: - Seed for further multiplication - Seed for fodder production or amenity purposes	200 m 100 m	100 m 50 m
2	<i>Gramineae and Leguminosae (hybrids)</i> Fields to produce: - Seed for further multiplication - Seed for fodder production or amenity purposes	400 m 200 m	200 m 100 m

2.2 These distances apply to seed production fields and to plants or fields of species which can cross-pollinate. They can be disregarded when there is sufficient protection from undesirable pollen sources.

2.3 The seed crops of self-pollinating or apomictic varieties shall be isolated from other crops by a definite barrier or a space sufficient to prevent mixture during harvest.

### 3. Weeds

Crops containing an excessive number of weeds shall be rejected.

#### **4. Number of Harvest Years**

The Designated Authority shall decide the number of harvest years to be permitted for a seed field, with particular attention when multiplying foreign varieties to the effects of changed ecological conditions on varietal purity. These harvest years shall not be interrupted by one or more years in which the crop is not under the supervision of the Designated Authority.

#### **5. Field Inspection**

5.1 The crop must be in a fit state to permit accurate determination of varietal and species purity.

5.2 Inspectors shall be specially trained and, in their field inspection, responsible only to the National Designated Authority. Additional conditions apply to authorised inspectors as indicated in Common Appendix 5.

5.3 There shall be at least one field inspection of each seed crop. These shall be at the following times:

- Grasses: near the time of inflorescence emergence;
- Legumes: at flowering time.

5.4 The field inspector shall check that all the minimum requirements have been satisfied.

5.5 Control plots grown from samples of the seed used to sow the crop entered for certification should, whenever possible, be available for detailed examination at the time of field inspection of the seed crops. This examination is intended to supplement the examination made for the determination of varietal purity at field inspection.

5.6 The National Designated Authority must decide for each field whether or not approval can be given to the field following inspection and, whenever possible, a study of the results of the examination of the corresponding pre-control plot.

5.7 When determining the number of plants not true to the variety and the number of plants of other species, the inspector shall work to an appropriate method (Methods are described in the OECD document "Guide to the Methods used in Plot Tests and for Field Inspection").

#### **6. Varietal purity in seed crops**

6.1 Varietal purity standards apply to all seed-producing fields and shall be checked at field inspection.

6.2 Where post-control plots are grown also shall be used as a check.

##### ***Varietal purity standards***

6.3.1 Minimum percentages of varietal purity shall apply to some species according to the following table:

Species	Basic Seed	Certified Seed First generation	Certified seed second generation
<i>Pisum sativum</i> , <i>Vicia faba</i>	99.7%	99.0%	98.0%
<i>Glycine max</i>	99.5%	99.0%	99.0%

### 6.3.2 Maximum number of plants not being true to the variety at field inspection

#### 6.3.2.1 For *Poa pratensis*

Crops to produce Basic Seed of *Poa pratensis* shall not contain more than one plant in twenty square meters of plants of the crop species which are recognisable as being not true to the variety concerned; in fields to produce Certified Seed, this maximum authorised number shall be four plants in ten square meters. However, for varieties which are officially classified as "apomictic uni-clonal varieties"<sup>4</sup>, the number of plants which are recognisable as being not true to the variety shall not exceed six per ten square meters in fields to produce Certified Seed.

#### 6.3.2.2 For all species excluding *Poa pratensis*, *Pisum sativum*, *Vicia faba* and *Glycine max*

For all species except *Poa pratensis*, *Pisum sativum*, *Vicia faba* and *Glycine max*, the number of plants of the crop species which are recognisable as being not true to the variety concerned shall not exceed one plant in thirty square meters in fields to produce Basic Seed, and one plant in ten square meters in fields to produce Certified Seed.

#### 6.3.2.3 Summary Table: Maximum number of plants of the same species being not true to variety

Species	Basic seed	Certified seed
<i>Poa pratensis</i> (except apomictic uni-clonal varieties)	1 in 20 sq. M	4 in 10 sq. M
<i>Poa pratensis</i> , apomictic uni-clonal varieties only	1 in 20 sq. M	6 in 10 sq. M
All Gramineae species, excluding <i>Poa pratensis</i>	1 in 30 sq. M	1 in 10 sq. M
All Leguminosae species, excluding <i>Pisum sativum</i> , <i>Vicia faba</i> and <i>Glycine max</i>	1 in 30 sq. M	1 in 10 sq. M

## 7. Species purity in seed crops

7.1 Species purity standards apply to all seed-producing fields and shall be checked at field inspection.

### 7.1.1 For all species, except *Lolium* species

The number of plants of other species, which seed would be difficult to distinguish in a laboratory test from the seed of the crop or which will readily cross-pollinate with the plants of the crop, shall not exceed one plant in thirty square meters in fields to produce Basic Seed, and one plant in ten square meters in fields to produce Certified Seed.

### 7.1.2 For *Lolium* species

The number of plants of *Lolium* species being not true to the *Lolium* species grown shall not exceed one plant in fifty square meters in fields to produce Basic Seed, and one plant in ten square meters in fields to produce Certified Seed.

### 7.2 Summary Table: Maximum number of plants of other species

Species	Basic seed	Certified seed
All species, excluding <i>Lolium</i> species	1 in 30 sq. m	1 in 10 sq. m
<i>Lolium</i> species	1 in 50 sq. m	1 in 10 sq. m

## B) ADDITIONAL MINIMUM REQUIREMENTS FOR HYBRID VARIETIES

### 8. Seed Crop Inspection

#### 8.1 *At field inspection in crops to produce Basic Seed of parental lines*

For crops using the cytoplasmic male sterility method to produce Basic Seed of parental lines at least three inspections must be made. The first inspection should be made before inflorescence emergence or flowering (grasses and legumes), the second inspection at the time of inflorescence emergence for grasses and at flowering for legumes and the third inspection at the end of the pollination stage for grasses and at the end of the flowering stage for legumes, after the removal of the pollen parents.

#### 8.2 *At field inspection in crops to produce Certified Seed of hybrid varieties*

For crops using the cytoplasmic male sterility method to produce hybrid varieties at least three inspections must be made on each parent line. The first inspection should be made before inflorescence emergence or flowering (grasses and legumes), the second inspection at the time of inflorescence emergence for grasses and at flowering for legumes and the third inspection at the end of the pollination stage for grasses and at the end of the flowering stage for legumes, after the removal of the pollen parents.

#### 8.3 *Hybrid varieties of Medicago species*

8.3.1 Crops producing Basic seed of pollen parent lines may be produced from Breeder's Seed and/or certified Pre-basic seed or Pre-basic seed bordering a production field of the same hybrid while maintaining the required isolation distance from other Medicago production. Cytoplasmic male sterile female lines produced from clones or cuttings are exempted from the requirement of being the product of a certified Pre-basic seed field that has been field inspected.

8.3.2 Crops producing Certified Seed that use a production method whereby the male and female lines are planted as a composite shall be rejected if the pollen production index exceeds 30. Crops producing Certified Seed with a pollen production index in excess of 25 must be blended with an appropriate amount of seed to reach a pollen production index of 25. The pollen production index is determined by tripping a minimum of 200 flowers on a red label and rating from 1, 2, 3 and 4 and weighted 0, 0.1, 0.6 and 1.0 respectively, with 1 equal to male sterile with no pollen, 2 is partial male sterile with trace amounts of pollen, 3 is partial fertile with a moderate amount of pollen and 4 being equal to fertile with full pollen. Multiply the number of plants per class by the factor indicated, and total the values. Divide by the number of plants and multiply by 100.

## **(C) MINIMUM REQUIREMENTS FOR THE CERTIFICATION OF MIXTURES OF HERBAGE SEED**

### **1. Eligibility of Species and Varieties for Certification**

Any combination of varieties, of an individual species or of several species, included in the list of varieties eligible for certification according to the OECD Grass and Legume Scheme Subterranean Clover and Similar Species Scheme and Cereal Scheme, may constitute a mixture of herbage seed eligible for certification.

### **2. Constituent Seed Lots Eligible for Inclusion in a Certified Mixture of Herbage Seed**

Only lots of seed previously certified under the rules of the OECD Grass and Legume Scheme Subterranean Clover and Similar Species Scheme and Cereal Scheme shall be eligible for inclusion in a certified mixture of herbage seed.

### **3. Requirements for Seed Companies producing Seed mixtures (= producers of seed mixtures)**

The National Designated Authority shall require that producers of seed mixtures:

- a) have installed mixing equipment which will ensure the finished mixture is uniform;
- b) have appropriate procedures for all mixing operations;
- c) have a person in charge who has direct responsibility for the mixing operation;
- d) maintain a register of seed mixtures and their intended use (fodder, amenity, soil conservation, etc.).

### **4. Control of the Mixing and Packaging Operation**

4.1 The mixing and packaging operation must be carried out under the supervision of an official or authorized sampler, who is responsible to the National Designated Authority.

4.2 The mixing itself must be carried out so as to ensure that there is no risk of contamination from lots not intended for inclusion and that the resulting mixture is as homogeneous as possible.

4.3 The seed containers of an herbage seed mixture including small seeds and seeds the size of wheat or larger shall not exceed 40 kg

### **5. Inspection of the Production of Seed Mixtures**

5.1 The inspection of the production of the seed mixtures must be carried out by the National Designated Authority.

5.2 The inspection must be carried out through:

- a) Controls of the identity and total weight of each component, at least by random checks of the official labels identifying the packages of seed; and
- b) a random check of the mixing operations, including the finished mixtures

## **6. Labeling and Sealing of the Herbage Seed Mixtures**

- 6.1 The appropriate mixture labels must be fixed to each container.
- 6.2 Minimum size of the label - 110 mm x 67 mm.
- 6.3 The label shall be coloured green.
- 6.4 The containers must be properly sealed.
- 6.5 The prescribed contents of the official label for a package of a mixture of herbage seed are as follows:
  - 6.5.1 Name of the mixture (if any);
  - 6.5.2 Seed mixture for .....;  
(e.g. turf, lawn, permanent pasture, grazing, conservation...)
  - 6.5.3 Name and address of National Designated Authority;
  - 6.5.4 Reference number of the lot;
  - 6.5.5 Month and year when officially sealed;
  - 6.5.6 Species of the constituents;
  - 6.5.7 Declared net or gross weight or declared number of seeds;
  - 6.5.8 Where weight is indicated and granulated pesticides, pelleting substances or other solid additives are used, the nature of the additive and the approximate ratio between the weight of seed and the total weight;
- 6.6 Further information to be given for each constituent of the mixture:
  - 6.6.1 Species (Latin name);
  - 6.6.2 Variety denomination (or synonym);
  - 6.6.3 Seed lot reference number;
  - 6.6.4 Percentage by weight of the mixture.

This information [6.6.1 to 6.6.4] must be included, for each constituent, on the certificate or the label issued by the National Designated Authority.

## **7. Records of Mixtures of Herbage Seed**

- 7.1 Records must be kept (by the producer of the mixture) for each mixture as follows:
  - 7.1.1 Reference number of the mixture and name of the mixture (if any);
  - 7.1.2 Species and varieties of constituents;
  - 7.1.3 Seed lot reference numbers of constituent lots;
  - 7.1.4 Proportion by weight of each constituent;

- 7.1.5 Details of labels used on mixture;
- 7.1.6 Total weight of mixture;
- 7.1.7 A copy of the seed test certificate for each constituent seed lot included in the mixture must be kept by the producer of the mixture.
- 7.2 This record must be kept in such form that it is possible to identify and verify the authenticity of the constituents of each mixture. They must be made available to the National Designated Authority on request.
- 7.3 The National Designated Authority shall make regular checks of the records kept by the producers in respect of mixtures of herbage seed.

## **8. Analysing Mixtures of Herbage Seed**

8.1 In view of the length of time required to analyse a mixture of herbage seed, and the fact that a mixture may contain a number of different varieties of the same species, analysis of all mixtures of herbage seed certified under the rules of the OECD Grass and Legume Scheme shall not be carried out.

8.2 The National Designated Authority shall proceed to official check-sampling and official check-testing on a proportion of the mixtures of herbage seed certified in its territory to ensure compliance with the rules for certification.

## **(D) MINIMUM REQUIREMENTS FOR THE CERTIFICATION OF VARIETAL ASSOCIATIONS OF HYBRID GRASS AND LEGUME SEED UNDER THE SCHEME**

### **1. Varieties eligible for varietal association**

All varieties of all grass and legume species included in the List of varieties eligible for seed certification according to the OECD Scheme may be included in a certified varietal association of hybrid grass and legume seed.

### **2. Registration of the varietal association**

For the purposes of certification, the name of the varietal associations shall be registered with the National Designated Authority. The percentage breakdown by number of seeds of component varieties shall also be registered with the National Designated Authority by the person responsible for their maintenance.

### **3. Constituent seed lots eligible for inclusion in a certified varietal association**

Only lots of grass or legume seed previously certified under the rules of the OECD Scheme shall be eligible for inclusion in a certified lot of a varietal association of hybrid grass and legume seed.

### **4. Control of the Mixing and Packing Operation**

4.1 All organisations producing varietal associations of hybrid grass or legume seed must be approved by the National Designated Authority.

4.2 The seed of the pollinator-dependent hybrid and the seed of the pollinator(s) shall be mechanically combined in proportions jointly determined by the persons responsible for the maintenance of these component varieties. The seed of the female and male components shall be coated with different colours.

4.3 The mixing and packing operation must be carried out under the supervision of an official or authorised seed sampler, who is responsible to the National Designated Authority.

4.4 The mixing itself must be carried out so as to ensure that only lots intended for inclusion are used and that the resulting varietal association is as homogeneous as possible.

## **5. Inspection of the Production of Varietal Associations**

5.1 The inspection of the production of varietal associations must be carried out by the National Designated Authority or their authorized representative.

5.2 The inspection must be carried out through:

- a) controls of the identity and total percentages by number of each component, at least by random checks of the official labels identifying the percentages of seed, and
- b) a random check of the mixing operations, including the finished varietal association.

## **6. Labeling and Sealing of the Varietal Association**

6.1 The appropriate varietal association labels must be fixed to each container. The labels shall be blue with a diagonal green line.

6.2 The labeling specifications and information requirements set out in Common Appendix 3 shall apply, except for the label colour and for the name of the variety to be replaced with the name of the varietal association. In addition, the percentage breakdown by number of seeds of the component varieties shall be given; it shall be sufficient to give the name of the varietal association if the percentage breakdown by number of seeds of the component varieties has been notified to the purchaser, on request, and officially recorded.

## **7. Records of Varietal Associations**

7.1 Records must be kept, by the producers, for all varietal associations as follows:

- 7.1.1 Name of the varietal association;
- 7.1.2 Reference number of the varietal association seed lot;
- 7.1.3 Details of the component varieties of the varietal association seed lot, including names and percentage by number of seeds;
- 7.1.4 Seed lot reference numbers of the constituent seed lots;
- 7.1.5 Weight of each constituent seed lot;
- 7.1.6 Total weight of the varietal association seed lot.

7.2 A copy of the seed test certificate for each constituent seed lot included in the varietal association must be kept by the producer of the varietal association.

7.3 These records must be kept in such form that it is possible to identify and verify the authenticity of the constituents of each varietal association seed lot. They must be made available to the National Designated Authority on request.

7.4 The National Designated Authority shall make regular checks of the records kept by the producers in respect of varietal associations of hybrid grass and legume seed.

#### **8. Analysing varietal associations of hybrid grass and legume seed**

The National Designated Authority shall proceed to official check-sampling and official check-testing on a proportion of the varietal association seed lots produced in its territory to ensure compliance with the rules for certification.

## **CHAPTER-VII**

### **RULES AND DIRECTIONS OF OECD VEGETABLE SEED SCHEME**

#### **1. General**

1.1 The OECD Vegetable Seed Scheme shall cover seed of varieties of vegetables produced, processed, sampled and labeled in accordance with the Rules and Regulations which form the subject of the following paragraphs and which are regarded as minimum requirements.

1.2 The Scheme shall be implemented in the participating countries under the responsibility of the national governments that will designate Authorities for this purpose.

1.3 The OECD Vegetable Seed Scheme provides for:

1.3.1 the production of Certified Seed directly produced through one generation from authentic Basic Seed of the variety. The main factor determining the quality of Certified Seed is the quality of the Basic Seed and for this reason inspections and tests for Basic Seed are prescribed; Certified Seed is subjected to post-control tests;

1.3.2 the designation of seed as "Standard Seed" that is checked by sampling and subjecting a certain number of samples to post-control tests.

1.4 The OECD Vegetable Seed Scheme is not intended to interfere in any way with the trade in "commercial" seed, that is seed which is neither Certified nor traded as Standard Seed under the terms of the Scheme and is of a variety that may or may not be included in the official lists, but which is produced and traded entirely under the responsibility of its sellers, subject to the national laws and regulations.

#### **(A) THE PRODUCTION OF BASIC AND CERTIFIED SEED**

#### **2. Acceptance of Varieties**

A variety shall be accepted for the production of Basic or Certified Seed only when a National Designated Authority has checked that it is distinct and that its generation used for vegetable production has sufficiently uniform and stable characters. An adequate description, including essential morphological or physiological characters, must be available.

#### **3. List of Eligible Varieties**

3.1 In each country an official national list of varieties shall be published and annually revised. Synonyms and homonyms must be clearly indicated in these lists.

3.2 Only seed of listed varieties is eligible for certification according to the Scheme.

3.3 The name and address of the maintainer of each variety shall be given.

3.4 Varieties shall not be maintained in the list if the conditions of acceptance are no longer fulfilled.

#### **4. Designation of Categories of Seed**

The following categories of seed are recognized in the Scheme:

- Pre-Basic Seed;
- Basic Seed;
- Certified Seed.

#### **5. Production of Basic and Certified Seed**

5.1 Basic Seed of each variety shall be produced under the responsibility of the maintainer who will maintain a supply of parental material and ensure that it preserves the characters of the variety. For those varieties, for which there is more than one maintainer, each shall accept this responsibility.

5.2 If the Basic Seed is produced in a country other than the country of registration of the variety, technical conditions must be agreed in advance by the National Designated Authorities of both countries concerned.

5.3 Certified Seed may be produced in the country of origin of the variety or in another country. The person or persons responsible for the production of the Certified Seed shall inform the National Designated Authority in the country of production that a multiplication is being made and carry out at least one field inspection of each crop. The results of the field inspection shall be reported to the National Designated Authority. A signed statement that the published requirements referred to in 6.1 above have been met shall also be submitted.

#### **6. Control of the Production of the Seed**

##### **6.1 *Requirements of the production and field inspection***

6.1.1 In each participating country, requirements for the production of Basic Seed and Certified Seed approved under the Scheme as being satisfactory for varietal identity and purity shall be officially applied. These requirements shall not be lower than those given in the topic of minimum requirements for the production of basic and certified seed.

6.1.2 The National Designated Authority must satisfy itself by inspection of the plants at an appropriate stage or stages during production that the lot is acceptable.

6.1.3 In the case of production of seed of “Certified” category, the National Designated Authority may, under official supervision, authorise non-official inspectors to operate field inspection with a view to seed certification, on the conditions described in Appendix 6-A. The National Designated Authority which decides to use this method must define the operation scope (species, territories, areas and period concerned), ensure the official check inspections, sampling and post-control tests and other requirements as set out in Appendix 6-A, and take all necessary measures to guarantee equivalent inspection in the sense of the Schemes for field inspected by authorised inspector or by official.

A minimum of 20 per cent of the seed crops entered for certification of each species of vegetable shall be officially field inspected. The National Designated Authority will check that each field inspection report shows that the requirements of Rule 6.1 have been met.

6.2 The National Designated Authority must take all practicable steps to ensure that the identity and varietal purity of the seed have been maintained between harvest and the sealing and labeling of containers.

### 6.3 *Seed lot sampling and seed analysis*

#### 6.3.1 *Seed lot sampling, fastening and labeling of containers*

6.3.1.1 Seed lot sampling, fastening and labeling of containers shall be made by the National Designated Authority.

6.3.1.2 An official sample shall be drawn from each cleaned lot of Basic and Certified Seed submitted for certification and the seed containers fastened and made identifiable or labeled in accordance with Rules 8 and 9. The sample shall be large enough to meet the requirements outlined in this Rule and Rule 7. The sample shall be drawn according to current international methods for seed sampling recognised by the National Designated Authority.

6.3.1.3 The National Designated Authority may authorise non-official persons to carry out, under official supervision, seed sampling, fastening and labeling of containers on the conditions described in Appendix 6-B. If the National Designated Authority decides to use this procedure, it must define its scope (activities, species, seed categories and persons concerned). The National Designated Authority shall take the official check samples and satisfy itself of verifications and other requirements as set out in Appendix 6-B, and takes all measures which guarantee equivalent operations by an authorised person or by an official.

6.3.1.4 One part of each sample shall be available to meet the requirements of Rule 7 (Basic Seed) or Rule 8 (Certified Seed).

6.3.1.5 Another part of each sample shall be submitted to a laboratory for seed analysis.

#### 6.3.2 *Seed analysis*

6.3.2.1 Seed analysis of the sample shall be made by the official laboratory designated by the National Designated Authority.

6.3.2.2 Seed analysis of samples of Certified Seed shall be conducted for analytical purity, germination and, at the discretion of the National Designated Authority, for the presence of specific seed-borne diseases; the analysis shall be made according to current international methods for seed testing recognised by the National Designated Authority. Seed analysis of samples of Basic Seed is made at the discretion of the National Designated Authority.

6.3.2.3 The National Designated Authority may authorise non-official laboratories to carry out, under official supervision, seed analysis in accordance with Appendix 6-B. If the National Designated Authority decides to use this procedure, it must define its scope (activities, species, seed categories and persons concerned). The National Designated Authority shall undertake the official check analysis and satisfy itself of verifications and other requirements as set out in Appendix 6-B, and takes all measures which guarantee equivalent operations by an authorised laboratory or by an official laboratory.

### 6.3.3 *Sample storage*

For Basic Seed a third part of each sample shall be stored for as long a period as possible for comparison in control plots with future samples of Basic Seed. For Certified Seed a third part of each sample shall be stored for at least one year.

### 6.3.4 *Control of the remaining Basic Seed*

Basic Seed held for use in subsequent years need not to be re-sampled but records must be available to the National Designated Authority to account fully for its use.

### 6.3.5 *Other controls as appropriate*

The National Designated Authority is entitled to make any other tests appropriate to the variety concerned and to obtain any information required for the certification of each seed lot.

## 6.4 *Issue of Certificates*

The National Designated Authority may issue certificates for each lot of Basic Seed and of Certified Seed, approved under the Scheme, as follows:

- For Varietal Purity, according to the specimen shown in Appendix 5 A;
- For Analysis Results, according to the procedure outlined in Appendix 5 B.

These two Certificates shall carry the same OECD reference number (see Appendix 3).

## 6.5 *Certification of Pre-Basic Seed*

6.5.1 On request, Pre-Basic Seed may be officially controlled and a special label provided for it (see Appendix 4). It is essential to identify the stage in the multiplication cycle which Pre-Basic Seed has reached and there shall be a statement of the number of generations by which the seed precedes Certified Seed.

6.5.2 The crop producing the seed shall have been officially inspected and accepted as at least of the standard required for a crop producing Basic Seed. All the requirements for the control of Basic Seed shall apply.

## 6.6 *Not finally certified seed*

6.6.1 Seed which is to be exported from the country of production after field approval but before final certification as Basic Seed shall be identified in fastened containers by the special label described in Appendix 4. This label will show that the seed has met the requirements of paragraphs 6.1 to 6.2 above, but is not yet finally certified according to the requirements of paragraph 6.3. The sample will be stored for at least two years.

6.6.2 The National Designated Authorities in the country of production and the country of final certification have to exchange relevant information. On request the country of production shall supply all relevant production data on the seed. The certifying country shall automatically supply information on quantities certified from a given not finally certified seed lot to the National Designated Authority of the country of production.

## **7. Pre-control Tests of the Basic Seed Preceding the Production of Certified Seed**

7.1 One part of each sample of the Basic Seed shall be grown by, or under the supervision of, the National Designated Authority, in pre-control plots not later than in the season immediately following the receipt of the sample. The number of plants in the pre-control plot shall be sufficient to make a reliable estimation of varietal identity and purity.

7.2 In pre-control, such characteristics shall be checked as were used to comply with the requirements of Rule 2. The National Designated Authority is not entitled to certify seed derived from the lot concerned if the results from the plot tests show that varietal identity or purity has not been maintained.

7.3 Another part of each sample of the Basic Seed shall be stored for as long a period as possible for comparison in control plots with future samples of Basic Seed and samples of Certified Seed.

## **8. Post-Control Tests of Certified Seed**

8.1 The National Designated Authority will check varietal identity and purity by growing a proportion of the samples in post-control test conducted immediately or in the season following the receipt of the samples. The choice of samples to be controlled is at the discretion of the National Designated Authority. In post-control, such characteristics shall be checked as were used to comply with the requirements of Rule 2.

8.2 A part of each sample drawn according to Rule 6.3.1 shall be stored for at least two years.

8.3 Subject to compliance with all prescribed conditions which may include payment of a stated fee, the owner of any seed certified in accordance with the Scheme shall be entitled to receive from the National Designated Authority, in respect of that lot, a statement of the results of any tests for varietal identity and purity assessment provided the request is made within two years of the date of certification.

## **9. Seed Lots and Fastening of Containers**

### **9.1 *Lot Homogeneity***

Seed lots presented for sampling under these Rules must be as homogeneous as practicable. The National Designated Authority may refuse to certify any lot when there is evidence that it is not sufficiently homogeneous.

### **9.2 *Lot size***

9.2.1 For seeds the size of wheat, or larger, one seed lot shall not exceed 20 000 kg; for seeds smaller than wheat, one seed lot shall not exceed 10 000 kg. For seeds to be fastened as not finally certified seed, these maximum seed lot sizes do not apply.

9.2.2 Seed in excess of 20 000 kg or 10 000 kg as specified above shall be divided into lots no larger than 20 000 or 10 000 kg, each identified according to Rule 10.1 as a separate seed lot.

9.2.3 A tolerance of five per cent on these maxima is permissible.

### 9.3 *Fastening of containers*

9.3.1 The seed containers shall be fastened and the contents identified in accordance with Rules

9.3.2 and 10 at the time of sampling by the person taking the sample or under his supervision.

For not finally certified seed, the containers shall be fastened by the person normally taking samples for certification or under his supervision.

9.3.2 The seed containers shall be fastened in such a way that they cannot be opened without destroying that fastening or leaving traces showing that it has been possible to alter or change the contents of the container. The effectiveness of the fastening device must be ensured, either by incorporating the label provided for in paragraph 9.3.1 in the device or by use of a seal. Containers are exempted from this requirement if the fastening cannot be reused.

## **10. Identification of Contents of Seed Containers**

10.1 The contents of each container shall be indicated by:

10.1.1 a new label, showing no trace of previous use, issued by the National Designated Authority and which shall conform to the specification in Appendix 4. Tie-on labels are only allowed in conjunction with a seal. It must not be possible to reuse adhesive labels; *or*

10.1.2 marking indelibly on the outside of the container all the information required to be printed on the label according to Appendix 4 (including an indication of the colour of the label) in a manner approved by the National Designated Authority.

10.2 A model of any label or any printed information must always be submitted to the OECD for prior approval.

10.3 A copy of the information required under this Rule may be enclosed in each container but must be clearly differentiated from the OECD label on the outside of the container.

10.4 There is no need to use the white label for Basic Seed if the Basic seed has been produced and is to be used in the same country and has affixed thereto a national label containing all necessary information.

## **11. Breaking Bults, Re-processing, Re-labeling and Re-fastening**

11.1 Certified Seed may be re-packaged in containers of any size but to retain its designation as Certified Seed the following requirements shall be met:

11.1.1 The original labels and seals shall be removed and all operations (which may include the further processing or any treatment of the seed) shall be conducted under the official supervision of the National Designated Authority. Rules 9 and 10 apply to the re-labeling and re-fastening;

11.1.2 At the discretion of the National Designated Authority a new reference number or the original reference number may be used on the new labels. If a new reference number is used, the National Designated Authority must keep a record of the original reference number. The name of this Authority and the information given on the original labels as to species, Variety denomination (or synonym) and category shall be included on the new labels;

11.1.3 Two or more lots of Certified Seed of one variety may be blended in accordance with the regulations of the National Designated Authority;

11.1.4 At the discretion of the National Designated Authority each seed lot may be sampled at the time of fastening.

11.2 Under the control exercised by the National Designated Authority, Certified Seed may be re-packaged in weights equal to or less than those specified as under and these may, on request, also be officially sealed. If they are not officially sealed, each individual package of seed shall bear no reference to the OECD Scheme other than "Packaged from OECD Certified Seed" and shall bear a code number that will permit the origin of the contents to be traced. Letters in this statement shall be all of the same size. No claim shall be made on the package which is contrary to the facts presented on the original certification label. The National Designated Authority must take all practicable steps to ensure that the identity of seed in small packages is maintained when certified lots are broken down.

#### Maximum weights of "small packages" of vegetable certified seed

1.	<i>Leguminous species</i>	—	5 kg
	<i>Zea mays</i> (L.)	Sweet corn and popcorn	5 kg
2.	<i>Allium cepa</i> (L.)	Onion	500 g
	<i>Anthriscus cerefolium</i> (L.) Hoffm.	Chervil	500 g
	<i>Asparagus officinalis</i> (L.)	Asparagus	500 g
	<i>Beta vulgaris</i> (L.) var. <i>cicla</i> (L.) Ulrich	Spinach beet	500 g
	<i>Beta vulgaris</i> (L.) var. <i>rubra</i> (L.)	Red beet	500 g
	<i>Brassica rapa</i> (L.) var. <i>rapa</i> (L.) Thell	Turnip	500 g
	<i>Citrullus lanatus</i> (Thumb) Mansf.	Water melon	500 g
	<i>Cucurbita maxima</i> Duchesne	Pumpkin	500 g
	<i>Daucus carota</i> (L.) ss. <i>Sativus</i> (Hoffm.) Hayek	Carrot	500 g
	<i>Lepidium sativum</i> (L.)	Common Cress	500 g
	<i>Raphanus sativus</i> (L.)	Radish	500 g
	<i>Scorzonera hispanica</i> (L.)	Scorzonera or Black Salsify	500 g
	<i>Spinacia oleracea</i> (L.)	Spinach	500 g
	<i>Valerianella locusta</i> (L.) Laterrade	Corn Salad	500 g
3.	All other kinds of vegetables		100 g

11.3 Those responsible for packaging shall keep proper records of all such operations and of the intake and disposal of all seed produced under the Scheme. Such records shall be made available, on request, to the National Designated Authority.

## **(B) THE DESIGNATION OF SEED AS STANDARD SEED**

### **12. General**

12.1 Standard Seed is a category of seed of varieties that are distinct, sufficiently uniform and stable and conform to the definition of a variety.

12.2 Varieties that are eligible for Part I of this Scheme are automatically eligible for the production of Standard Seed.

12.3 Varieties other than those in 12.2 are eligible for the production of Standard Seed when the National Designated Authority is satisfied that it can make an adequate post-control test. The National Designated Authority will maintain a list of these varieties. Varieties shall not be maintained in the list if the conditions of acceptance are no longer fulfilled.

12.4 A supplier is entitled to designate seed as Standard Seed subject to notifying the National Designated Authority of his intention and under the control exercised by the National Designated Authority. The name of the supplier must appear on the label of such seed lots.

12.5 This supplier is responsible to the National Designated Authority for the varietal identity and purity of Standard Seed so designated and for the correctness of his statement to that effect.

12.6 The seed shall have been tested in a laboratory for analytical purity and germination, and if appropriate, for freedom from specific seed-borne diseases and the results of such tests must be available to the National Designated Authority.

### **13. Labeling and Identification Numbering**

13.1 The contents of each container or package of Standard Seed shall be indicated by:

13.1.1 a label which conforms to the specification in Appendix 4 and which is provided and attached by the supplier of the seed whose name appears on it; *or*

13.1.2 marking indelibly on the outside of the container or package all the information required to be printed on the label according to Appendix 4. This shall be done by the supplier whose name is marked on the container or package, in a manner approved by the National Designated Authority.

13.2 The identification number of the lot shall be given and recorded by the supplier of the seed whose name appears on the label. He will keep this information available to the National Designated Authority.

### **14. Sampling**

Under the control exercised by the National Designated Authority all seed lots will be sampled. These samples will be kept by the supplier whose name appears on the label for at least two years and made available to the National Designated Authority on request. The National Designated Authority will also officially draw random samples.

14.1 For seeds the size of wheat, or larger, one seed lot shall not exceed 20 000 kg; for seeds smaller than wheat, one seed lot shall not exceed 10 000 kg.

14.2 Seed in excess of 20 000 or 10 000 kg as specified above shall be divided into lots no larger than 20 000 or 10 000 kg, each identified according to Rule 13.1 as a separate seed lot.

14.3 A tolerance of five per cent on these maxima is permissible.

## **15. Records**

Suppliers who affix Standard Seed labels to lots of Standard Seed must keep records of all such lots and these records must be made available to the National Designated Authority on request.

## **16. Control Plots and Laboratory tests**

The National Designated Authority will check a proportion of the samples either in control plots or in the laboratory, or both, for varietal identity and purity and for the correctness of the results of the laboratory tests foreseen under Rule 12.6 above. The proportion checked shall be notified to the OECD.

# MINIMUM REQUIREMENTS FOR THE PRODUCTION OF BASIC AND CERTIFIED SEED

## 1. Health of Seed Used for Seed Crop Production

The seed used for seed crop production should be as pest and disease free as possible. Its health should be checked before use and, if pest or disease organisms against which there is an effective seed treatment are present, that treatment should be applied.

## 2. Previous Cropping

2.1 Seed production fields or glasshouses shall be sufficiently free from volunteer plants to avoid contamination of the crop seed by:

2.1.1 any seed which is difficult to remove from the crop seed;

2.1.2 cross-pollination;

2.1.3 seed-borne diseases transmitted from volunteer plants.

2.2 the previous cropping shall be such that there is the least possible risk of any soil-borne diseases being present which could subsequently be transmitted in the harvested seed.

2.3 If any previous crops could have made the fields or glasshouses unsuitable for the above reasons, adequate measures must be taken.

## 3. Isolation

3.1 Seed crops shall be isolated from all sources of pollen contamination and seed-borne diseases (including seed-borne virus infection and wild plants that might serve as a source of disease).

In particular, the distances must not be less than:

		Minimum distances	
		Basic Seed	Certified Seed
1.	When the foreign pollen can cause serious deterioration: in varieties of <i>Beta</i> and <i>Brassica</i> species	1000 m	600 m
2.	From other sources of foreign pollen affecting varieties of <i>Beta</i> and <i>Brassica</i> species	500 m	300 m
3.	When the foreign pollen can cause serious deterioration in varieties of all other cross-pollinating species	500 m	300 m
4.	From other sources of foreign pollen affecting varieties of all other cross-pollinating species	300 m	100 m

3.2 The distances apply both to other seed crops and to plants or crops grown for vegetable production flowering at the same time as the seed crop. They can be disregarded when there is sufficient protection from undesirable pollen sources and seed-borne diseases (e.g. crops produced in aphid-proof glasshouses).

#### **4. Field Inspection**

4.1 Each crop of Basic Seed shall be inspected at least once at an appropriate stage or stages of growth on behalf of the National Designated Authority by inspectors who are specially trained and, in their inspections, responsible only to the National Designated Authority.

4.2 Each crop of Certified Seed shall be inspected under the responsibility of the person responsible for the production of Certified Seed. In case of field inspection performed by authorised inspectors (Appendix 6-A), at least 20 per cent of the crops of Certified Seed of each species shall be inspected by an official inspector.

4.3 The field inspector shall check that all the minimum requirements laid down in this Appendix have been satisfied.

4.4 The crop must be satisfactory as regards to varietal identity and purity.

4.5 The presence of any seed-borne diseases shall be at the lowest possible level.

## CHAPTER-VIII

### **Rules and Directions of multiplication of seed in Abroad under OECD Seed Scheme**

At the present time the Annual Meeting of the OECD Seed Schemes is undertaking an exercise to Group and Amend the Rules for Multiplication Abroad in a single section, of all provisions dealing with seed multiplication abroad that currently exist in various places in the OECD Seed Schemes. This grouping is expected to facilitate the use of the Schemes by National Authorities and other stakeholders involved in this increasing trend of multiplying seed in another country.

The proposed modification to the Rules will have to be supported by a technical guideline document once the Rules have been agreed.

It is proposed to revise this Section as follows:

The success of the Schemes depends upon very close co-operation between the maintainers of varieties eligible for certification and the Designated Authorities in participating countries. When seed multiplication takes place outside a country of registration of a variety, close contact may need to be established between the Designated Authority in a country of registration and the Designated Authority in the country of multiplication to enable seed varietal certification.

It is likely that the following amendments to the grouping and wording of the Rules, as they relate to Multiplication Abroad, will be accepted by the next Annual Meeting.

If we take the example of the “Grass and Legume Seed Scheme” the following amendments are proposed:

#### **In Section 3. List of Eligible Varieties and Parental constituents**

Rule 3.5.3 The Designated Authority of a Country of Registration is responsible for:

- 1) Ensuring that the variety to be OECD listed has been registered on the National Official List;
- 2) Communicating the name of the person(s) or organisation(s) responsible for the maintenance of the variety;
- 3) Liaising with the maintainer of the variety;
- 4) Providing written agreement for the multiplication of seed outside the Country of registration to the Designated Authority in the country of multiplication if that Designated Authority requests a written agreement. If a written agreement is requested it must:
  - provide details of the identity of the seed to be multiplied,
  - include the type of hybrid in the case of a hybrid variety and its denomination,
  - confirm the category of the seed to be harvested, and
  - confirm the current status of the variety in relation to National Listing,The agreement may be sent by e-mail.
- 5) Obtaining an official definitive sample of the variety in order that a control plot can be sown to provide an authentic reference of the variety. In addition, in the case of a hybrid variety, obtaining official definitive samples of the parental components;
- 6) Establishing the official description of the variety and of the parental components in the case of a hybrid variety;

- 7) Verifying the identity of the seed to be multiplied.
- 8) In particular, this Authority must:
  - be satisfied, after consulting the maintainer, that the variety is likely to remain true to its description under the conditions proposed;
  - decide, after consulting the maintainer if felt necessary, whether more than one generation of increase should be permitted in the country of multiplication and, if so
  - decide the maximum number of these multiplications;
  - decide the number of harvests that are permissible for crops where more than one seed harvest is possible from one sowing.

## **In Section 5 “Production of Basic and Certified Seed”**

Title to be revised to read:

“Production of Pre-Basic, Basic and Certified Seed”.

### **5.1 Pre-Basic Seed**

5.1.1 On request, Pre-Basic Seed may be officially controlled and labeled. Except for hybrid varieties, it is essential to identify the stage in the multiplication cycle which Pre-Basic Seed has reached and there shall be a statement of the number of generations by which the seed precedes Certified Seed, first generation.

### **In Section 5.2 (was 5.1) Basic Seed (no changes proposed)**

### **In Section 5.3 (was 5.2) Certified Seed**

5.3.1 Certified Seed of bred and local varieties may be produced either inside or outside the country of registration of the variety.

5.3.2 The technical conditions for the production of Certified Seed of bred and local varieties must be approved by the Designated Authority which must decide, after consulting the maintainer, whether more than one generation of Certified seed from Basic seed should be permitted and, if so, the number of generations that should be allowed. For crops where more than one seed harvest is possible from one sowing, the Designated Authority must define the number of harvests that are permissible.

## **Proposed new Section 6. Production of Basic and Certified Seed outside a Country of Registration of the Variety**

6.1 The Designated Authority of the Country of Multiplication is responsible for:

1) Confirming the eligibility of the seed to sow for OECD certification by ensuring that OECD labels are attached to the seed containers and an OECD certificate is issued. In the absence of an OECD certificate, there must be direct communication with the Designated Authority in the country of registration for confirming the eligibility of the seed for OECD certification.

2) Ensuring that the official description of the variety, or of the parental lines, in the case of a hybrid variety, is available before the crop inspection season commences.

In the case of a variety that has not yet been registered on a National List of Varieties, ensuring that the official or provisional description of the variety, or of the parental components, in the case of a hybrid variety is received before the crop inspection season commences. The description should be based on internationally recognised guidelines such as those provided by UPOV or OECD

3) If required, ensuring that a sub-sample taken from the official definitive sample of the variety is available by an appropriate closing date and, in addition, in the case of a hybrid variety, ensuring that sub-samples taken from the official definitive samples of the parental components of the variety are available. The sub-samples would be used to sow control plots to provide authentic reference of the variety or of the parental components.

4) Making the official or provisional description(s) available to the seed crop inspectors and the control plot recorders before inspection and control plot recording takes place.

5) Ensuring that the appropriate OECD labels are attached to the containers of the produced seed lots.

6) In the absence of an OECD certificate, there must be direct communication with the Designated Authority of the country of registration.

## **Section 7. (was 6) Control of the Production of the Seed**

7.1 The Designated Authority in the country of multiplication of the seed is responsible for implementing the Scheme in relation to that production.

The remaining Rules in this Section and all the following sections are unchanged.

### **Multiplication Abroad - Guidelines**

#### **Responsibilities of the Designated Authority of the Country of Registration during a multiplication abroad:**

1) On request, provide the official description of the variety or of the parental components in the case of a hybrid variety. In the case of a variety undergoing registration testing, the description will be provisional.

2) On request, provide a sub sample of the definitive sample of the variety or of the parental components in the case of a hybrid variety.

3) Be satisfied, after consulting the maintainer if necessary, that the variety is likely to remain true to its description under the conditions proposed.

4\*) Verify the identification of the seed lot to be multiplied.

5\*) Decide whether more than one generation of increase should be permitted in the country of multiplication, if felt necessary, after consulting the maintainer and/or the company sending the seed for multiplication.

6\*) Decide the maximum number of multiplication cycles permissible.

7\*) Define the number of harvests that are permissible for crops where more than one seed harvest is possible from one sowing.

8) Communicate the arrangements for the multiplication to the NDA in the country of multiplication.

9) Include the outcome of points 4 to 7 marked \* in the arrangements for the multiplication communicated to the to the NDA in the country of multiplication.

10) Conducting post control testing on samples of multiplication category seed produced in the country of registration of the variety.

11) Notifying the NDA in the country of multiplication of any adverse findings in the post control testing.

### **Responsibilities of the Designated Authority of the Country of Multiplication**

1) Implement the OECD Seed Scheme in relation to the multiplication and seed production.

2) Confirming the eligibility of the seed to sow for OECD certification by ensuring that the appropriate OECD labels were attached to the seed containers and/or an OECD certificate was issued by the country that certified the seed.

3) In the absence of an OECD certificate and OECD labels (e.g. Breeders seed), there must be direct communication with the Designated Authority in the country of registration for confirming the eligibility of the seed for multiplication according to OECD rules.

4) If required, requesting a copy of the official description from the NDA in the country of registration of the variety.

5) In the case of a variety undergoing registration testing, the descriptions will be provisional.

6) If required, requesting a sub-sample taken from the official definitive sample of the variety or the parental components is available by an appropriate closing date to be used to sow control plots to provide authentic reference of the variety or of the parental components as comparison with the seed sown in the multiplication.

7) Arranging for the inspection of the crop to be carried out at the correct growth stage.

8) Making the official or provisional description available to the seed crop inspectors before inspection takes place.

9) Making the official or provisional description available to the control plot recorders before control plot recording takes place.

10) Notifying crop inspectors and companies of any adverse findings from plots.

11) Notifying the NDA in the country of registration of any adverse findings from plots or crop.

12) The Designated Authority must take all practicable steps to ensure that the identity and varietal purity of the seed have been maintained between harvest and the fastening and labeling.

13) Ensuring that the appropriate OECD labels are attached to the containers of the produced seed lots.

### **Responsibilities of Company sending seed for multiplication**

1) Ensuring that the seed sent is eligible for the intended multiplication. For example OECD certified with correct labeling and sealing.

2) Making arrangements with multiplying company in country of multiplication.

3) Notifying NDA of country of registration of details of proposed multiplication well in advance of the start of the multiplication.

4) Notifying NDA in country of registration (or country conducting registration) of any special conditions attached to the multiplication.

5) Arranging for any necessary sample to be taken before despatch.

6) Ensuring that the company engaged to multiply the seed is aware of the requirement for certification of the seed being produced and any other commercial arrangements.

### **Responsibilities of the company conducting multiplication**

1) Notifying NDA in country of multiplication sufficiently in advance of the multiplication to allow time for requests for and receipt of definitive (standard) samples and descriptions before sowing time.

2) Making the whole of the seed lot received available for official sampling and any other necessary checks.

3) Entering the crop in the OECD certification scheme of the country of multiplication and ensuring that the grower is aware of the relevant requirements for OECD certification. For example the grower will need to:

- undertake cultural care (e.g. isolation, weed control) of the crop,
- give reasonable access to the crop for crop inspectors,
- retain the label(s) from each seed lot sown in the crop for presentation to the crop inspector on request,
- ensure the identity of the harvested seed is maintained after harvest and make it available for sampling/official sealing.

### **List of information to be supplied to the Designated Authority in the country of registration of the seed for a registered variety**

- Name and address of the contracting party in the country of registration of the seed
- Name and address of the contracting party in the country of multiplication of the seed
- Species name
- Variety name
- Reference number of seed lot(s)
- Weight of seed lot(s)
- Contracted area (ha)
- First harvest year
- Number of harvest years permitted
- Number of generations permitted
- Special conditions

The information is required for all categories of seed i.e. Breeder's seed, Pre-basic seed, Basic Seed and C1 seed.

### **List of information to be supplied by the Designated Authority in the country of registration of the seed to the Designated Authority in the country of multiplication of the seed for a registered variety**

- Copy of the official description of the variety or of the parental components in the case of hybrid variety
- Availability of definitive (standard) sample(s)
- Name and address of the contracting party in the country of registration of the seed
- Name and address of the contracting party in the country of multiplication of the seed

- Species name
- Variety name
- Reference number of seed lot(s)
- Weight of seed lot(s)
- Contracted area
- First harvest year
- Number of harvest years permitted
- Number of generations permitted
- Special conditions

The information is required for all categories of seed i.e. Breeder's seed, Pre-basic seed, Basic Seed and C1 seed.

**List of information to be supplied by the Designated Authority in the country of registration of the seed to the Designated Authority in the country of multiplication of the seed for a variety still undergoing registration testing**

- Provisional description of the variety or of the parental components in case of hybrid variety provided by the Registration Authority, **OR** a description of the variety or parental components of the hybrid variety provided by the Breeder
- Availability of seed from the official DUS seed submissions for the variety/parental components
- Name and address of the contracting party in the country of registration of the seed
- Name and address of the contracting party in the country of multiplication of the seed
- Species name
- Variety name
- Reference number of seed lot(s)
- Weight of seed lot(s)
- Contracted area
- First harvest year
- Number of harvest years permitted
- Number of generations permitted
- Special conditions

The information is required for all categories of seed i.e. Breeder's seed, Pre-basic seed, Basic Seed and C1 seed.

**The Use of Control Plots**

- OECD is the international organisation that governs methods to determine varietal purity in seed certification by means of
  - control plots and
  - crop inspection
- OECD – Organisation for Economic Co-operation and Development, based in Paris, produced guidelines on control plots

**The seed**

- Comes from a seed lot
- MAX WEIGHT 30T
- Sample is drawn – ISTA Rules
- Seed tested – ISTA Rules

### Field Conditions

- Sowing direction
- Fertilisers
- Herbicides
- Fungicides
- Previous cropping

### Plot Size

- 10m X 1m (1/1000 Ha)
- 7 rows but ?
- Sow longer and trim back

### Sowing

- Organise by variety – next to each other
- Sow standards for each variety
- All multiplication category plots
  - Pre basic, basic and C1
  - Duplicated
  - % of final generation plots sown

### OECD Guidelines

Frequency of post-control failures for certified seed Of previous year	Minimum level of checks in post-control of certified seed of current year
< 0.5%	5%
0.5% - 3.0%	10%
> 3.0%	25%

### Use of control plots

- Variety verification testing is a check to determine if:
- the breeder's quality management system works and that Breeder's seed is as pure as practical;
- the grower has taken care to avoid contamination of the stock seed and resulting production;
- the seed crop inspector has not missed any visual off-types during inspection;
- the seed processor has not contaminated the seed during handling; and
- seed certification procedures and practices, in general, are effective.
- Confirm the varietal identity is it the variety stated on the label
- Determine varietal purity – how many off-types
- Use established characters – description
- Compare to other samples especially the standard

## **Advantages of growing plots**

- Plants representing the seed lot of the variety can be observed as frequently as is necessary.
- The observation period can be extended from seedling emergence to full maturity.
- All plants in the control plot population can be examined in detail if necessary.
- A comparison can be made with the Standard Sample.
- Comparisons can also be made with seed lots of the same variety in the same and previous generations.
- One expert can make judgements on all control plots for all varieties and categories thus ensuring the standardisation of recording.
- Where the land is free from volunteers and clean machines have been used for sowing, the Designated Authority can be certain that all off-type plants observed in the control plot have arisen from the seed sample.
- Designated Authorities may use an adverse pre-control plot test result to reject seed crops sown with the same seed lot.

## **Categories of Seed for Wheat, Barley**

- Breeders Seed
- Pre-Basic Seed
- Basic Seed
- Certified Seed 1st Generation
- Certified Seed 2nd Generation

## **Plot Varietal Purity standards**

- i. OECD not yet set standards – Ongoing
- ii. Most use same standards as for field inspection -
  - PB/ B 99.9% purity
  - C1 99.7
  - C2 99.0

## **Reject values**

- The concept of “reject numbers” is to relate the number of off-type plants observed in a sample to a published standard in such a way that reasonable account is taken of the risks of incorrect acceptance or rejection of the seed lot.
- A set of “reject tables” is used rather than a straightforward application of the standard.
- Note: This system is biased in favour of the seed producer, since the risk of an incorrect acceptance of a seed lot is higher than the risk of an incorrect rejection.
- Plant Population
- 5 m along the row

## **Use of control plots**

- Two uses
    1. Pre control
- to provide information to crop inspectors

## 2. Post control

- To provide information on the seed lot – useful for final generation seed where no crop inspection

### **Pre Control**

- A seed lot is being multiplied to produce a further generation of seed, the information provided by a control plot is invaluable in that it gives the Designated Authority data on identity and quality which are available before --or about the same time-- as the next seed crop is ready for field inspection.
- Grown simultaneously with the seed crop of the following generation. It provides important and essential information which is additional to that obtained at the seed crop inspection and becomes an integral part of the process of certifying seed.

### **Post Control**

- To monitor the quality of the seed produced - the results are not usually available until the end of the next growing season after the seed was harvested.
- Valuable because they monitor how efficient or not the seed production process has been in maintaining varietal purity and identifying ways in which the system might be improved. By allowing comparisons between
- Plants grown from the seed lot produced and those grown from the Standard Sample, the Designated Authority can monitor quality and give assurance that the minimum standards are being upheld.
- Withdraw certification and merchant to compensate farmer

### **Value of plots**

- Can record plots frequently over a period
- Can see varietal differences easier
- Count total number of ears (plants)
- Compare to standard – reject values
- Alert crop inspectors of problems
- Certifying Authority can use control plots to override the crop inspection result
- Withdraw certification
- Can downgrade

## Specimen of OECD Labels

## Pre-Basic Seed (White with Diagonal violet stripe)

<b>O.E.C.D. SEED SCHEME</b> Systeme de l'OCDE pour les SEMENCES	Category	: PRE-BASIC SEED
	Label No.	: IN
	Species	:
	Variety	:
	Lot Ref No.	: IN
	Statement of repacking & relabeling (if applicable)	:
	Month & Year Sealed/Packed	:
	Weight	:
	Country of Production	:
	Certifying authority	:
Number of generation before certified seed first generation		
<b>Monogram</b>	National Designated Authority: Joint Secretary (Seeds) Govt. of India, Ministry of Agri., New Delhi, India	

## BASIC SEED (White)

<b>O.E.C.D. SEED SCHEME</b> Systeme de l'OCDE pour les SEMENCES	Category: BASIC SEED
	Label No.:
	Species:
	Variety:
	Parent: Seed bearing / Pollen shedding
	Lot Ref No.: IN
	Statement of repacking & relabeling (if applicable):
	Month & Year Sealed / packed:
	Weight:
	Country of Production:
Certifying authority:	
Number of generation before certified seed first generation	
<b>Monogram</b>	National Designated Authority: Joint Secretary (Seeds), Govt. of India, Ministry of Agri., New Delhi, India

## BASIC SEED FOR HYBRID (White)

<b>O.E.C.D. SEED SCHEME</b> Systeme de l'OCDE pour les SEMENCES	Category: BASIC SEED FOR HYBRID
	Label No.:
	Species:
	Hybrid Variety:
	Parent: Seed bearing / Pollen shedding
	Lot Ref No.: IN
	Statement of repacking & relabeling (if applicable):
	Month & Year Sealed / packed:
	Weight:
	Country of Production:
Certifying authority:	
Number of generation before certified seed first generation	
National Designated Authority: Joint Secretary (Seeds), Govt. of India, Ministry of Agri., New Delhi, India	

## CERTIFIED SEED FIRST GENERATION (Blue)

<b>O.E.C.D. SEED SCHEME</b> Systeme de l'OCDE pour les SEMENCES	<b>Category : CERTIFIED SEED (1<sup>st</sup> GENERATION)</b>
	<b>Label No.:</b>
	<b>Species:</b>
	<b>Cultivar:</b>
	<b>Ref No.: IN</b>
	<b>Region of Production:</b>
	<b>National Designated Authority: Joint Secretary (Seeds), Govt. of India, Ministry of Agri., New Delhi, India</b>

**CERTIFIED SEED 2<sup>nd</sup> GENRATION OR SUCCESSIVE GENERATION (Red)**

<b>O.E.C.D. SEED SCHEME</b> Systeme de l'OCDE pour les SEMENCES	<b>Category:</b> CERTIFIED SEED (..... GENERATION)
	<b>Label No.:</b>
	<b>Species:</b>
	<b>Cultivar:</b>
	<b>Ref No.:</b> IN
	<b>Region of Production:</b>
	<b>National Designated Authority:</b> Joint Secretary (Seeds), Govt. of India, Ministry of Agri., New Delhi, India

**Not finally certified seed (Grey)**

<b>O.E.C.D. SEED SCHEME</b> Systeme de l'OCDE pour les SEMENCES	<b>Category</b> : NOT FINALLY CERTIFIED SEED
	<b>Intended generation :</b>
	<b>Label No. :</b>
	<b>Species :</b>
	<b>Variety :</b>
	<b>Ref No. : IN</b>
	<b>Month &amp; Year Sealed :</b>
	<b>Weight :</b>
	<b>Country of Production :</b>
	<b>Certifying authority :</b>
Number of generation before certified seed first generation	
<b>National Designated Authority:</b> Joint Secretary (Seeds), Govt. of India, Ministry of Agri., New Delhi, India	

### Fee Structure for the OECD Seed Schemes in India:

1. Grass and legume Seed.
2. Cereal Seed.
3. Maize and Sorghum Seed.

S.No.	Operational Details	OECD certification Charges (Rs.)
1	Registration charges for Grower/sowing report	125
2	Field inspection charges/acre Varieties: Hybrids:	500 750
3	Processing charges	40/Qt1.
4	Seed Testing Charges	400/ sample or actual
5	Pre-control & Post control test charges	1000/sample
6	Tag charges	10/tag
7	Varietal purity (DNA test) test charges	2000/ sample or actual

#### 4. Crucifer seed and other Oil seed or Fiber seed species

S1. No.	Operational Details	OECD certification Charges (Rs.)
1.	Registration charges for Grower/sowing report	125
2.	Field inspection charges/ acre Varieties: Hybrids:	500 750
3.	Processing charges For Cotton: Ginning and processing	40/ Qt1. 75/ Qt1 of Kapas
4.	Seed Testing Charges	400/ sample or actual
5.	Pre-control & Post control test charges	1000/sample
6.	Tag charges	10/ tag
7.	Varietal purity (DNA test) test charges	2000/sample or actual

#### 5. Vegetables Seed

S1. No.	Operational Details	OECD certification Charges (Rs.)
1.	Registration charges for Grower/sowing report	125
2.	Field inspection charges/ acre	
	1. Pod crops : (Pea, cowpea, Beans)	500
	2. Leafy vegetables (Lettuce, spinach, Fenugreek, coriander	750
	3. Fruit Vegetable (Brinjal, Tomato, Capsicum, Chillies)	
	Varieties:	2000/acre
	Hybrids:	3000/acre

	4. Okra	1000/acre
	5. Cole crops (Cauliflower, Cabbage, Knol Khol, Broccoli)	4000/acre
	6. Tuber crops (Rhizome, Potato, Ginger Turmeric)	1000/acre
	7. Root crops (Radish, Turnip, Carrot)	2000/acre
	8. Bulb Crops (Garlic, Onion)	4000/acre
	9. Cucurbits (Cucumber and all gourds)	2000/acre
3.	Post harvest supervision charges	1000 for 8 hrs
4.	Seed Testing Charges	400/ sample or actual Actual
5.	Pre-control & Post control test charges	1000/sample
6.	Tag charges	10/ tag
7.	Varietal purity (DNA test) test charges	2000/ sample or actual

### **Other Fees**

Registration and annual renewal fee for registration of seed producing agency/firm/producer under OECD seed Scheme: Rs.2000 and Rs.1000 respectively

Registration/annual renewal fee for Seed Processing Unit under OECD seed Scheme : Rs.3000 and Rs. 1000 respectively

**REFERENCE NUMBERS FOR CERTIFICATES AND SEED LOTS**

- 1.** In international trade it is desirable that reference numbers should be of a uniform pattern so as to be easily identified.
- 2.** Employing the ISO-3166-1 three-letter code shall denote the country of certification. Where there is more than one National Designated Authority in the country, appropriate initial letters should be added, although it is then necessary to take care that this does not conflict with the above-mentioned code.
- 3.** The remainder of the reference number is used to distinguish the seed lot from others harvested in the same country. It is usually convenient to try to arrange that all reference numbers be composed of the same number of digits. Estimating, in advance, how many lots of seed are likely to be certified and beginning with the required number of noughts can do this. Thus, if the number of certificates to be issued is unlikely to exceed 9 999, the first would be given the number 0001, the tenth would be 0010 and so on. Care must be taken that there is no confusion between reference numbers issued for different seed lots in different years (a code letter can be used to indicate harvest year).

## SPECIFICATIONS FOR THE OECD LABEL OR MARKING OF SEED CONTAINERS

### 1. Description

1.1 **Type:** Labels may be *either* adhesive *or* non-adhesive. The information may be printed on one side only or on both sides.

1.2 **Shape:** Labels shall be rectangular.

1.3 **Colour:** The colours of the labels shall be:

- |  |                                    |
|--|------------------------------------|
| • Pre-Basic Seed   | White with diagonal violet stripe; |
| • Basic Seed   | White;                             |
| • Certified Seed (including Certified seed in "small packages"): | Blue;                              |
| • Not Finally Certified Seed                                     | Grey;                              |
| • Standard Seed  | Dark yellow.                       |

One end of the label shall be overprinted black for a minimum distance of 3 cm or one quarter of the label, whichever is less, leaving the rest of the label coloured.

1.4 **Material:** The material used must be strong enough to prevent damage in ordinary usage.

### 2. Reference to the OECD Scheme

Reference to the OECD Scheme shall be printed in English and in French within the black portion of the label or on the outside of the seed container. This shall read: "OECD Seed Scheme" and "Système de l'OCDE pour les Semences".

### 3. Information on the Label

#### 3.1 **Prescribed Information:**

The following information shall be printed in black type on the coloured portion of the label (white, blue, grey or dark yellow):

##### 3.1.1 *Pre-Basic Seed*

- Name and address of National Designated Authority:
- Species: (Latin name)
- Common name:

#### **Variety denomination (or synonym)**

- Pre-Basic Seed
- Lot Reference number
- Number of generations by which the seed precedes Certified Seed:

1. If, for reasons of commercial secrecy, the producer of the Basic Seed does not wish the Variety denomination (or synonym) to be included on the label, a code number may be used. The National Designated Authority will record the Variety denomination (or synonym) for each code number.

### 3.1.2 *Basic Seed*

- Name and address of National Designated Authority:
- Species: (Latin name)
- Common name:
- Variety denomination (or synonym):
- Basic Seed
- Lot Reference number:
- Country of Production: (if the seed has been previously labeled as Not finally certified seed)

On the label for *not finally certified seed* shall appear the statement:

- "Not Finally Certified Seed".

### 3.1.3 *Certified Seed*

- Name and address of National Designated Authority:
- Species: (Latin name)
- Common name:
- Variety denomination (or synonym):
- Certified Seed
- Lot Reference number:
- Country of Production: (if the seed has been previously labeled as Not finally certified seed)

On the label for *not finally certified seed* shall appear the statement:

- "Not Finally Certified Seed"

### 3.1.4 *Certified Seed in "Small Packages" which are not Officially Sealed:*

- Common name of vegetable:
- Variety denomination (or synonym):
- Name and address of packager:
- The following statement: "Packaged from OECD Certified Seed"
- Code number:

### 3.1.5 *Standard Seed*

- Common name:
- Variety denomination (or synonym):
- Standard Seed
- Identification number of the lot:
- Name and address of the person or firm responsible for the lot:
- The following statement: "Seed subject only to random post-control"

3.2 The space allowed and the size of the lettering shall be sufficient to ensure that the label is easily read.

3.3 Labels described under 3.1.1, 3.1.2 and 3.1.3 will be issued by the National Designated Authority. Labels described under 3.1.4 may be issued by the packager. Those described under

3.1.5 will be issued by the seed supplier.

4.4 When the information is marked indelibly on the container, the layout of the information and the area marked shall conform as closely as possible to a normal label.

### 3.5 *Additional information*

3.5.1 Any additional information shall be strictly factual and not of an advertising nature.

3.5.2 For Standard Seeds of varieties that are well known at the introduction of the Schemes, a selection name may be mentioned. There must be no reference to the particular properties of the selection.

#### 3.5.3 Non-official Additional Information:

At the discretion of the National Designated Authority in the producing country, barcodes can be placed at the periphery of the official label, within a non-official space of not more than 20 per cent of the total area of the label, to be defined by a different colour background and bearing the title "Information contained within this space is non-official, non-endorsed and not verified by the National Designated Authority."

## **4. Languages**

All information shall be given in either English or French except reference to the Scheme that must be in both English and French as specified in paragraph 2 above. Translations into any other language may be added if thought desirable.

## SPECIMEN CERTIFICATE AND ANALYSIS RESULTS

### A) SPECIMEN CERTIFICATE

Certificates must contain all the information outlined below, but the exact arrangement of the text is at the discretion of the Designated Authority.

#### **Certificate Issued under the OECD Scheme for the Varietal Certification of Grass and Legume Seed Moving in International Trade**

Name of Designated Authority issuing the Certificate:

Lot Reference Number:

Species:

Variety:

Statement of re-packing and relabelling: (if applicable)

Number of containers and declared weight of lot:

“The seed lot bearing this Reference Number has been produced in accordance with the OECD Grass and Legume Seed Scheme and is approved / provisionally approved as:

- Pre-Basic Seed (White label with diagonal violet tripe);
- Basic Seed (White label / Grey label);
- Certified Seed, 1st Generation (Blue label / Grey label);
- Certified Seed, 4 ...Generation (Red label / Grey label).”

Signature:

Place and Date:

### B) ANALYSIS RESULTS

The results of the laboratory analyses should, whenever possible, be given on the Orange International Seed Lot Certificate issued under the Rules of ISTA.

Those countries that do not wish to use this certificate as issued by the Association may use it as a model for reporting the results of laboratory analyses as required in the Rules and Directions of the Scheme. Specimen copy may be obtained from:

International Seed Testing Association (ISTA)

Zürichstrasse 50, P.O. Box 308

CH - 8303 Bassersdorf,

Switzerland

Phone: +41 1 838 60 00

Fax: +41 1 838 60 01

E-mail: ista.office@ista.ch

The certificate issued by ISTA may be used only by those countries which have full authority to do so from the Association. Other countries using this certificate as a model for the presentation of results must ensure that there is no implication that they are issuing an Orange Certificate. For instance, reference to ISTA must not be made and the certificate should not be on orange paper.

## **CONDITIONS FOR OPERATING ACTIVITIES OF THE SEED CERTIFICATION PROCESS BY AUTHORISED PERSONS AND LABORATORIES UNDER OFFICIAL SUPERVISION**

### **A) Field Inspection of Seed Crops by Authorised Inspectors under Official Supervision**

1. In the case of production of seed eligible for certification in the “Certified” category, the Designated Authority may, under official supervision, authorise non-official inspectors to operate field inspections. These inspections will be equivalent to the official inspections on the conditions listed below.

2. In the case of authorised inspectors they shall have the necessary qualifications, either through being trained in the same way as official inspectors, or alternatively their competence shall have been confirmed in official examinations. Authorised inspectors shall be sworn in or sign a statement of commitment to the rules governing official inspections.

3. Pre-basic and Basic crops must be inspected by official crop inspectors.

4. Certified generation crops may be inspected by authorised inspectors where seed of the generation prior to Basic seed is officially controlled according to Rule 6.7.

5. Where certified generation crops are inspected by authorised inspectors, a proportion of these crops must be check inspected by official inspectors. The level of check inspections must be set by the Designated Authority to adequately assess the performance of the authorised inspectors. That proportion shall be at least 20% for vegetable species.

6. Designated Authorities shall determine the penalties applicable to infringements of the rules governing examination under official supervision. The penalties they provide for must be effective, proportionate and dissuasive. Penalties may include the withdrawal of recognition of authorised inspectors who are found guilty of deliberately or negligently contravening the rules governing official examinations. Any certification of the seed examined shall be annulled in the event of such contravention unless it can be shown that such seed still meets all relevant requirements.

### **B) Seed Sampling (including Fastening and Labelling of containers) and Seed Analysis by Authorised persons or laboratories under Official Supervision**

#### ***1. Principles***

1.1 The Designated Authority may authorise persons who are not under its direct and exclusive

authority to draw, under official supervision, samples under the Schemes (these persons are hereafter called “seed samplers”). Laboratories may also be authorised to carry out seed analysis as required under the Schemes.

1.2 Sampling, fastening and labelling of seed containers may be entrusted to authorised persons. The conditions set out below also apply to Articles dealing with seed sampling, seed containers fastening and labelling and seed analysis as provided by the Rules and Directions of the Schemes.

1.3 All Scheme Rules and Directions including obligation of conformity or strict conformity shall be considered satisfied by countries implementing authorisation procedures in the course of certification.

1.4 Designated Authorities cannot deny approval to multiply seed outside the country of origin solely on the grounds that an authorisation was granted to a non-official person or laboratory in the country where seed is intended to be multiplied.

## **2. Scope**

The authorisation may apply to seed certification of all genera and species of vegetables admitted to the official national List, within the scope defined by the Designated Authority: activities, species, seed categories, persons, seed companies and laboratories.

## **3. Seed lot sampling**

### **3.1 Authorised seed samplers**

3.1.1 Seed sampling shall be carried out by samplers who have been authorised for that purpose by the Designated Authority, under the conditions set out in sections 3.1.2 to 3.1.5.

3.1.2 Seed samplers shall have the necessary technical qualifications obtained in training courses organised under conditions applicable to official seed samplers and confirmed by official examinations.

3.1.3 They shall carry out seed sampling in accordance with current international methods recognized by the Designated Authority.

3.1.4 Seed sampling premises and equipment must be officially recognised to be satisfactory for the purpose by the Designated Authority, within the scope of the authorisation.

3.1.5 Seed samplers shall be:

(a) independent natural persons, or

(b) persons employed by natural or legal persons whose activities do not involve seed production, seed growing, seed processing or seed trade, or

(c) persons employed by natural or legal persons whose activities involve seed production, seed growing, seed processing or seed trade. In the case referred to in point (c), a seed sampler may carry out seed sampling only on seed lots produced on behalf of his employer, unless it has been otherwise agreed between his employer, the applicant for certification and the Designated Authority.

### **3.2 Official supervision**

3.2.1 The performance of seed samplers shall be subject to proper supervision by the Designated Authority and shall include check sampling or process monitoring as appropriate. In case of automatic sampling, supervision shall include appropriate monitoring by the Designated Authority with regular audits of expertise and implementation. Audits shall be made on-site while sampling is in progress.

3.2.2 A proportion of the seed lots entered for the official certification shall be check-sampled by official seed samplers. That proportion shall in principle be as evenly spread as possible over natural and legal persons entering seed for certification, but may also be orientated to eliminate specific doubt. That proportion shall be at least 5 per cent. Check sampling shall not apply to seed lots that have been sampled by automatic samplers.

#### **4. Seed analysis**

##### **4.1 Authorised laboratories**

4.1.1 Seed testing shall be carried out by seed testing laboratories which have been authorised for that purpose by the Designated Authority under the conditions set out in sections 4.1.2 to 4.1.5.

4.1.2 The laboratory shall be maintained in premises and with equipment officially considered by the Designated Authority to be satisfactory for the purpose of seed testing, within the scope of the authorisation.

4.1.3 The laboratory shall have a seed analyst-in-charge who has direct responsibility for the technical operations of the laboratory and has the necessary qualifications for technical management of a seed testing laboratory. Its seed analysts shall have the necessary technical qualifications obtained in training courses organised under conditions applicable to official seed analysts and confirmed by official examinations.

4.1.4 The laboratory shall carry out seed testing in accordance with current international methods recognised by the Designated Authority.

4.1.5 The laboratory shall be:

(a) an independent laboratory, or

(b) a laboratory belonging to a seed company. In the case referred to in point (b), the laboratory may carry out seed testing only on seed lots produced on behalf of the seed company to which it belongs, unless it has been otherwise agreed between the seed company, the applicant for certification and the Designated Authority.

##### **4.2 Official supervision**

4.2.1 The laboratory's performance of seed testing shall be subject to proper supervision by the Designated Authority. Supervision shall include check-analysis and regular audits of expertise, implementation, processing of results and response to non-conformities.

4.2.2 A proportion of the seed lots entered for the official certification shall be check-tested by official seed testing. That proportion shall in principle be as evenly spread as possible over natural and legal persons entering seed for certification but may also be altered to eliminate specific doubts. That proportion shall be at least 5 per cent.

4.2.3 The Designated Authority shall compare the results of seed samples tested officially with those of the same seed lot tested under official supervision. The comparison shall include at least analytical purity and germination test results.

**Form No. – I**

**OECD Seed Schemes Registration/Renewal of Seed producing agency/firm/grower  
(To be registered before 3 months prior to sowing season)**

**Designated Authority.....**

1. Name of the Producer/firm:
2. Address of the Producer/firm(with telephone/mobile number/E-mail)
3. Details of Seed selling license number and validity
4. TIN/PAN number
5. Name of the person in charge:
6. Address of the person in-charge: (with telephone/mobile number/E-mail)
7. Details of crop/varieties to be offered:

S.No.	Crop	Variety	Class	Area (acres)

8. Initial registration/Annual renewal fees:  
(Initial registration Rs. 2000 per firm & annual renewal fees Rs. 1000 per firm)  
Name of Bank.....Amount.....  
Bank Draft No.....Date.....

9. Details of initial registration:

I hereby state that all the information's furnished above are correct and true to my knowledge.

Place:  
Date

Signature  
of the In-charge

---

For Office Use only

---

1. Date of receipt of the application.....
2. Amount receipt number and date:

The details of seed producing agency/firm/grower in registration/renewal form are verified and forwarded for registration.

**Forwarding officer  
(Signature and Stamp)**

Sanctioned/not sanctioned

Registration number allotted.....

**Designated Authority  
(Signature and stamp)**



**Form No. – II**

**Form of Application for seed production under OECD varietal certification programme**

(Registration for maximum 25 acres)

Season (Kharif/Rabi/Summer)

**S.No.....**

1. Name & address of the Producer/firm:
2. Firm OECD Seed Scheme Registration Number:
3. Name of the seed grower:
4. Father's name:
5. Address:
6. Area of Operation of Designated Authority (DAs):-
7. Location of the plot:
  - (a) State..... (b) District.....
  - (c) Tehsil/Mandal?Block..... (d) Post Office.....
  - (e) Village..... (f) Land mark.....
8. Seed Scheme .....
9. Name of the Crop..... Variety.....
10. Class of seed offered for production:
  - (a) Pre Basic
  - (b) Basic
  - (c) Certified generation
  - (d) Standard Seed
11. Area offered for certification (acres):
  - (a) Own area.....
  - (b) Contract/lease area.....
12. Name and Address of the Maintainer: (with telephone/mobile number/E-mail)
13. Previous Cropping details: Crop/Variety
  - 1<sup>st</sup> year.....2<sup>nd</sup> year .....3<sup>rd</sup> year.....
  - 4<sup>th</sup> year .....5<sup>th</sup> year .....

14. Source of seed  
 (a) Pre Basic/Basic/Certified gen.  
 (b) Reference number of lot:  
 (c) OECD Tag number:  
 (d) Purchase bill number and date:  
 (e) Quantity of seed used (Kg.).....  
 (f) If hybrid Male ..... Female
15. Date of sowing .....if hybrid male  
 .....Female.....
16. Name of the approved processing plant proposed for  
 processing/packing.....
17. Details of fees paid:

S.No.	Component	Amount (Rs.)	Demand Draft No., Date and Bank
	Registration		
	Inspection		
	Varieties		
	Hybrids		
	Total		

I here by state that all the information's furnished above are correct and true to my knowledge. I will abide by all the Rules and Regulations laid down under the Organization of Economic Cooperation & Development (OECD) seed scheme as amended then and there by National Designated Authority (NDA) and the Designated Authority (DA) authorized for implementation of the scheme.

Place:

Date

Signature of the grower

Place: Signature & stamp

Date of the in-charge of producing agency/firm

For Office Use only
---------------------

1. Date of receipt of the application .....

2. Amount receipt number and date:

The details of seed producing agency/firm/grower in registration/renewal form are verified and forwarded for registration.

**Forwarding officer  
(Signature and stamp)**

Approved/not approved

Registration number allotted.....

**Designated Authority  
(Signature and stamp)**



Kharif/Rabi/Summer 201.....

**Form No. III**  
**Seed Plot Inspection Report**

Report No.....

**Seed Scheme.....**

**Designated Authority.....**

**Inspection Number: I/II/III/Final**

**Registration No.....**

**Date of Inspection**

1. Name & address of the Producing agency/firm:
2. Name & address of the grower:
3. Crop.....Variety.....Parentage  
(Hybrid).....
4. Planting ratio (F:M)..... Male marking yes/no.....No. of Border  
rows.....
5. Date of sowing: As per Form II.....As per inspection.....
6. Area (acres): (a) Registered area.....(b) Inspected area.....
7. Class of seed: Source.....Class of Production.....
8. Verification of Source seed:
  - (a) Reference number of lot:
  - (b) Tag number:
  - (c) Purchase bill number and date:
  - (d) Quantity of seed used (kg.):.....  
if hybrid male.....Female.....
9. Previous cropping details: Crop/Variety  
1<sup>st</sup> year.....2<sup>nd</sup> year.....3<sup>rd</sup> year.....  
4<sup>th</sup> year.....5<sup>th</sup> year.....
10. Isolation: Satisfactory/not satisfactory
11. Seed Crop Stage: Vegetative/Flowering/Maturity:
12. Crop Condition: Poor/Average/Good/Excellent
13. Field counts: Quadrature Size:.....

Seed Plot Map  <div style="text-align: right; margin-top: 20px;">↑</div>
--

Direction of contaminant:
Distance of contaminant (M):

Number of the counts	Plant Population per Quadrate	Off types	Hybrid		Pollen Shedder/Shedding tassels	Remarks
		Parental lines /Varieties	Off types			
			Female	Male		
1						
2						
3						
4						

5						
6						
7						
8						
9						
10						
Total						
Average						
(%)						

Hybrid Cotton			
Number of Plants of Female Length X Breadth		Total Area No. of Plants X Average Spacing	
Spacing Length X Breadth			
Av. No. of open Flower/Selfed bolls/Plant	Av. No. of Crossed bolls/plant	Average Bolls Weight	Kapas Picked

14. (a) Crop is eligible for certification: yes/No.....(b) Estimated yield (Qtl./Ac):.....

15. Expected period of harvest.....

16. Remarks:

Signature of grower

Authorized Signature of DA & stamp



Directory No.....



**Form No. – IV**  
**Profile of Seed Produced**

Designated Authority.....

Kharif/Rabi/Summer .....

Name of the Producing Agency.....

S.No	Name of grower	Registration No.	Crop	Variety	Class of Seed	Registered area (ac)	Inspected area (ac)	Area rejected due to (ac)					Certified Area (ac)	Estimated Yield (Qt.)	Verified produce (Qt.)
								off type	Lodging	Isolation	Other	Total			
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															

Inspecting official

Checked

Authorized DA

Signature and stamp

Signature and stamp

Signature and stamp



**Form No. – V**  
**Seed Sample Slip**

S. No.....

**Designated Authority.....**

1. Crop.....Variety.....
2. Class of Seed: Pre Basic/Basic/certified generation I/II/III
3. Reference Lot number:.....
4. Quantity of lot:.....
5. Tests required:  
Purity/Moisture/Germination/ODV/Genetic Purity(GP)/Seed Health
6. Name of the sampler:
7. Date of Sampling

**Signature and stamp of the Sampler**

- \* In case any firm needs ISTA orange International Seed Analysis Certificate, then sampling will done as per ISTA procedure



सत्यमेव जयते



**Form No. – VI**  
**Seed Sample Forwarding**

Designated Authority.....

To,

The Officer in-charge  
Seed testing laboratory

.....

Letter No.....

Date.....

Sir,

Please find enclosed here with the following .....samples for seed analysis. I request you to kindly communicate the analytical result immediately after the completion of tests or within 30 days after the receipt of samples, whichever is earlier.

S.No.	Code Number	Crop	Variety	Class	Tests required					Remarks
					Purity	Moisture	Germination	ODV/GP	Seed health	
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

**Signature and stamp of forwarding authority**

# Form No. VII

## ISTA seed analysis report (orange certificate)

A filled in orange certificate issued by the accredited laboratories for specimen purpose



**ISTA**  
ORANGE INTERNATIONAL SEED LOT CERTIFICATE  
BULLETIN INTERNATIONAL ORANGE DE LOT DE SEMENCES  
INTERNATIONALER ORANGE-BERICHT ÜBER EINE SAATGUTP  
(See back - Voir au verso - Rückseite beachten)

Stamp of Laboratory  
Cachet du Laboratoire  
Stempel der Prüfstelle



1 / 1

STATED BY APPLICANT - INFORMATIONS DU REQUÉRANT - ANGABEN DES ANWENDERS  
Without responsibility of the Laboratory - Sans responsabilité du Laboratoire - Ohne Verantwortung des Anwenders

Name of applicant / Nom du requérant / Name des Antragstellers: **Monsieur DUPONT**

Species, cultivar, category, weight of lot etc. / Espèce, cultivar, catégorie, poids du lot, etc. / Art, Sorte, Kategorie, Gewicht der Partie usw.:  
**BETTERAVE POTAGERE**  
**PDS LOT: 500 kg**  
**THIRAME**

INFORMATION - INFORMATIONS - ANGABEN

Testing and issuing laboratory / Laboratoire d'essai qui délivre le bulletin / Untersuchungs- und bescheinigende Prüfstelle: **STATION NATIONALE D'ESSAIS DE SEMENCES**

Sampling by / Échantillonnage par / Probenahme durch: **B. P. 90024 - F-49071 BEAUCOUZE CEDEX - France - (FRDL0200)**

Station Nationale D'Essais De Semences

Mark of lot / Marque du lot / Kennzeichnung der Partie: **BP 90024 - F-49071 BEAUCOUZE CEDEX - FRANCE - (FRDL0200)**

Seal of lot / Plomb du lot / Versiegelung der Partie: **J98008**

Status of Certificate / Statut du Bulletin / Status des Berichts: **ORIGINAL**

Number of containers / Nombre de contenants / Anzahl der Behälter	Date of sampling / Échantillonnage effectué le / Datum der Probenahme	Date sample received / Échantillon reçu le / Eingangsdatum der Probe	Date test concluded / Analyse terminée le / Datum des Prüfungsabschlusses	Test number / No de l'analyse / Untersuchungs-Nr.
25 SACS	2011-05-26	2011-05-27	2011-06-10	S11 20449 (1)

ANALYSIS RESULTS - RÉSULTATS DE L'ANALYSE - UNTERSUCHUNGSERGEBNISSE

SPECIES - ESPÈCE - ART (Scientific name - Nom scientifique - wissenschaftlicher Name):

PURITY - PURETÉ - REINHIT			Beta vulgaris esculenta							REGISTERED CONTENT / CONTENU ENREGISTRÉ / INHALT / %
% Moisture - % en poids - % Gewicht			% Number - % en nombre - % Anzahl							
Pure seeds / Semences pures / Reine Samen	Inert matter / Matières inertes / Unschädliche Verunreinigungen	Other seeds / Semences d'autres plantes / Andere Samen	Number of days / Nombre de jours / Anzahl Tage	Normal seedlings / Germes normaux / Normale Keimlinge	Hard seeds / Graines dures / Harte Samen	Fresh seeds / Graines fraîches / Frische Samen	Abnormal seedlings / Germes anormaux / Anormale Keimlinge	Dead seeds / Semences mortes / Tote Samen		
100,0	TRACE	TRACE	10	91	1	0	3	5	N	

Kind of inert matter - Nature des matières inertes - Art der unschädlichen Verunreinigungen

**débris végétaux**

Other seeds - Semences d'autres plantes - Andere Samen / Species (scientific names) - Espèces (noms scientifiques) - Arten (wissenschaftliche Namen)

**Torilis sp., Fallopia convolvulus**

OTHER DETERMINATIONS - AUTRES DÉTERMINATIONS - WEITERE UNTERSUCHUNGSERGEBNISSE

----- METHODE FACULTE GERMINATIVE SUR 400 GR PP 15°C>25 O Lav+THIRAME 80%

(See also additional observations on back - Voir aussi observations complémentaires au verso - Siehe zusätzliche Bemerkungen auf der Rückseite)

<b>BEAUCOUZE FRANCE</b>	<b>2011-06-14</b>	<b>P.O. Directeur de la SNES, J. LÉCHAPPE</b>
<small>Place and country - Localité et pays - Ort und Staat</small>	<small>Date - Datum</small>	<small>Signature - Unterschrift</small>

See declaration on back - Voir déclaration au verso - Siehe Erklärung auf der Rückseite

ISTA  
Reg. No. 01121181  
Reg.-Nr.



**Form No. VIII**

(As per appendix 5 of relevant rules)

**Certificate issued under the OECD Schemes**  
**For Varietal Certification of Seed Moving in International Trade**

1. Name of the Seed Scheme .....
2. Name of Designated Authority issuing the Certificate.....
3. Lot Reference Number .....
4. Species.....
5. Variety.....
6. Statement of re-packing and re-labeling (if applicable).....
7. (a) Number of containers.....(b) Declared weight of lot.....

“The Seed lot bearing this reference number has been produced in accordance with the above OECE seed scheme and is approved/provisionally approved as:

- Pre-Basic Seed (White lable with diagonal violet stripe);
- Basic seed (White lable/ Grey label);
- Certified Seed, 1<sup>st</sup> Generation (Blue lable/Gray label).
- Certified seed, 2<sup>nd</sup>/3<sup>rd</sup>.... Generation (Red Label/Gray label)

**Date:**

**Signature of Designated Authority**

**Place:**

**Seal**



**Form No. IX A**

**Application form for Registration/Renewal of seed processing Unit under OECD Seed schemes**

To,  
The Designated Authority

.....  
.....

Subject: Regarding Registration/Renewal of seed Processing Unit (SPU) for OECD seed scheme  
Sir,

I/we the under signed are willing to register our seed processing unit for processing of seed produced under OECD seed scheme. The details of SPU are furnished below. Kindly accord sanction and registration no. as per DA's rules.

1. Name of the seed producing firm .....
2. Name of the person in charge.....
3. Address and contact details.....
4. Details of seed selling licence.....
  - (a) Issuing Authority.....
  - (b) Licence Number.....
  - (c) Valid up to.....
5. Name of the seed processing unit.....
  - (a) Place with exact address.....
  - (b) Post/block/tehsil/.....
  - (c) District.....
  - (d) State.....
  - (e) Contact Details (Phone/Fax/E-mail).....
6. Whether have a domestic Registration of SPU Yes/No  
If yes Reg. No..... Valid upto.....
7. Facilities available with SPU

S.NO.	Name of Facility	Availability Status
1	Godown (No. with Capacity)	
2	Office room	
3	Stack covers for Fumigation	
4	Fire Fighting Equipments	
5	Wooden Pallets	
6	Stock Board	
7	Seed Triers	
8	Other Facilities - Specify	

8. Available Processing Machinery Details

S.No.	Name of Machine	Make/Model	Capacity	Number	Remark
1	Scalper/Pre cleaner				
2	Seed Grader				
3	Indented Cylinder				
4	Gravity Separator				
5	Seed Driers				
6	Seed Treater				
7	Bag Closer				
8	Weighing Machine				
9	Elevators				
10	Spiral Separator				
11	Sealing Machine				
12	Moisture meter				
13	Hygrometer				
14	Air Compressor/Blower				
15	Sprayer				
16	Power Generator				
17	Packing machine				
18	Others-specify				

9. Details of Fees paid amount .....DD No.....Date.....Bank..... (initial registration fee Rs. 3000/- subsequent annual renewal fees Rs. 1000/-)

10. Any other relevant information .....

11. An affidavit regarding address proof and ownership of SPU- Attached (A Notary Public affidavit on Rs. 100 stamp paper should be submitted along with this form) I hereby declare that I will abide by the rules and regulations of OECD seed schemes and conditions laid down by the National Designated Authority/Designated Authority.

12. I further state that the information's furnished above are correct and true to the best of my knowledge, I am aware that if any of the information furnished above is found false at any stage, the registration offered will be liable for cancelation.

Place:-

Date:-

Enclosure

Signature  
Name & Designation

.....  
For office use only

Date of Receipt of Application

Recommendation of verifying officer

Place :-

Date:-

Signature  
Name & Designation

As per the application and recommendation of relevant officer, the SPU is registered with DA.....and allotted registration no.....it is valid upto.....

Place:-

Date:-

Designated Authority  
Seal

**OECD SEED SCHEMES  
GROWERS FIELD INSPECTION REGISTER**

Name of Designated Authority.....

Season: Kharif/Rabi/Summer .....

Name of the Seed Producing Agency/Firm

S. No.	Registration No.	Name & Address of the grower	Crop	Variety	Class	Date of Sowing	Area offered (ac)	Area inspected (ac)	Area (ac) rejected due to	Area Certified (ac)	Field inspection Report No./Date				Expected Yield/Acre (qts.)	Remark
											I	II	III	IV		









**Impurity Diagram**

Main plot

		Plot No.

Duplicate Plot

		Plot No.

**LIST OF CROP VARIETIES OFFERED FOR VARIETAL CERTIFICATION UNDER OECD SEED SCHEME IN INDIA**

<b><u>I. Grass and Legume Seed</u></b>					
<b>S.No.</b>	<b>Common Name</b>	<b>Botanical Name</b>	<b>French Name</b>	<b>Variety</b>	<b>Maintainer Details</b>
1.	Black Gram	<i>Vigna mungo</i> (L) Hepper	Haricot Mungo	KU-300	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India..
2.	Black Gram	<i>Vigna mungo</i> (L) Hepper	Haricot Mungo	TAU-2	1. Bhabha Atomic Research Centre, Trombay, Mumbai -400 085, Maharashtra, India. 2. Dr.Punjabrao Krishi Vidhyapeeth, Akola, Maharashtra, India.
3.	Cow Pea	<i>Vigna unguiculata</i> (L) Walp	Dolique de Chine, Niébé	Sweta	Mahatama Phule Agriculture University, Rahuri – 413 722, Distt. Ahmednagar, Maharashtra, India.
4.	Cow Pea	<i>Vigna unguiculata</i> (L) Walp	Dolique de Chine, Niébé	DFC-1	Konkan Krishi Vidhya Peeth, Wakawali, Deepoli, Maharashtra, India.
5.	French bean	<i>Phaseolus vulgaris</i> (L.)	Haricot	Arka komal	Indian Institute of Horticulture Research, Hessaraghatta Lake Post, Bangalore- 560 089, Karnataka, India
6.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	Pant Moong-4	Govind Ballabhbai Pant Agriculture University & Technology, Pantnagar- 263145, Uttarakhand, India.
7.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	PDM-139	Indian Institute of Pulses Research, Kanpur -208024, Uttar Pradesh, India.
8.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	PusaVishal	Indian Agriculture Research Institute, Pusa, New Delhi -110012, India.
9.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	SML-668	Punjab Agriculture University, Ludhiana, Punjab, India.
10.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	RMG-268	Agriculture Research Station, Rajasthan Agriculture University, Durgapur, Jaipur, Rajasthan, India.
11.	Lentil	<i>culinaris</i> Medic	Lentille	Noori	Indian Institute of Pulse Research, Kanpur-208 024, Uttar Pradesh, India.

12.	Pea	<i>Pisum sativum (L)</i>	Pois fourrager	Rachna:Syn KPMR-10	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
13.	Pea	<i>Pisum sativum (L)</i>	Pois fourrager	KPMR-400	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
14.	Rai	<i>Brassica juncea (Linn) czern &amp; coss</i>	Moutarde brune	Maya	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
15.	Red Gram	<i>Cajanus cajan (L)</i>	Pois cajan	ICPL-85063	Regional Agriculture Research Station, ANGRAU, Lam, Guntur, Andhra Pradesh, India.
16.	Red Gram	<i>Cajanus cajan (L)</i>	Pois cajan	ICPL-87119	International Crops Research Institute for the Semi-Arid Tropics, (ICRISAT), Hyderabad, Andhra Pradesh, India.
17.	Red Gram	<i>Cajanus cajan (L)</i>	Pois cajan	BSMR-736	Agriculture Research Station, Badanapur-431202, Distt.Jalna, Maharashtra, India.
18.	Soybean	<i>Glycine max</i>	Soja	JS-335	RAK College of Agriculture, Sehore, Madhya Pradesh, India.
19.	Soybean	<i>Glycine max</i>	Soja	Jawahar: Syn JS-93-05	Jawaharlal Nehru Krishi Vishwa Vidhyalaya, College of Agriculture Indore-452001, Madhya Pradesh, India.
<b><u>II. Crucifer Seed and Other Oil Or Fibre Species Seed</u></b>					
20.	Cotton	<i>Gossypium spp.</i>	Cotonnier	Bunny	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.
21.	Cotton	<i>Gossypium spp.</i>	Cotonnier	PKV HY-3	Dr. Punjabrao Krishi Vidhyapeeth, Akola, Maharashtra, India.
22.	Cotton	<i>Gossypium spp.</i>	Cotonnier	PKV HY-4	Dr.Punjabrao Krishi Vidhyapeeth, Akola, Maharashtra, India.
23.	Groundnut	<i>Arachis Hypogiia</i>	Arachide	TMV-2	Oilseed Research Station, Tamilnadu Agricultural University, Erayanur Village (PO), Tindivanam-604 001, Tamil Nadu, India.

24.	Groundnut	<i>Arachis Hypogiia</i>	Arachide	TG-26	1. Bhabha Atomic Research Centre, Trombay, Mumbai- 400065, Maharashtra, India. 2. Dr. Punjabrao Krishi Vidhyapeeth, Akola, Maharashtra, India.
25.	Groundnut	<i>Arachis Hypogiia</i>	Arachide	Amber	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
26.	Groundnut	<i>Arachis Hypogiia</i>	Arachide	Prakash	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
27.	Mustard	<i>Brassica juncea</i> (Linn) czern & coss	Moutarde brune	Pusa Bold	Indian Agriculture Research Institute, Pusa, New Delhi, India.
28.	Safflower	<i>Carthamus tinctorius</i> L.	Carthame	NARI-6	Nimbkar Agriculture Research Station, NARI, P.O. Box-44, Phaltan- 415 523, Maharashtra, India.
29.	Safflower	<i>Carthamus tinctorius</i> L.	Carthame	Sharda	Oilseed Research Station, Latur, Maharashtra, India.
30.	Sunflower	<i>Helianthus annuus</i> L.	Tournesol	DK-3849	Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.
31.	Sunflower	<i>Helianthus annuus</i> L.	Tournesol	SH-491	Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.
32.	Cotton	<i>Gossypium spp.</i>	Cotonnier	ARCHH-3028	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.
33.	Cotton	<i>Gossypium spp.</i>	Cotonnier	ARCHH-8188	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.
34.	Cotton	<i>Gossypium spp.</i>	Cotonnier	BUNNY	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.
35.	Cotton	<i>Gossypium spp.</i>	Cotonnier	Mallika	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.

<b><u>III. Cereal Seed</u></b>					
36.	Bajra	<i>Pennisetum americanum</i> (L.) Leek	Millet perlé, Mil pénicillaire	HHB-67	Haryana Agriculture University, HISSAR, Haryana, India.
37.	Bajra	<i>Pennisetum americanum</i> (L.) Leek	Millet perlé, Mil pénicillaire	GHB-558	Gujrat Agriculture University, Millet Research Station, Jamnagar- 361 006, Gujarat, India.
38.	Bajra	<i>Pennisetum americanum</i> (L.) Leek	Millet perlé, Mil pénicillaire	Raj-171	Agriculture Research Station, Rajasthan Agriculture University, Durgapur, Jaipur, Rajasthan, India.
39.	Barley	<i>Hordeum vulgare</i> L.	Orge	K-551	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
40.	Barley	<i>Hordeum vulgare</i> L.	Orge	K-409	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
41.	Barley	<i>Hordeum vulgare</i> L.	Orge	N.Barley-3	Narendra Dev University of Agriculture & Technology, Kumar Gang, Faizabad, Uttar Pradesh, India.
42.	Barley	<i>Hordeum vulgare</i> L.	Orge	RD-2552	Agriculture Research Station, Rajasthan Agriculture University, Durgapur, Jaipur, Rajasthan, India.
43.	Paddy	<i>Oryza sativa</i> L.	Riz	BPT-5204	Andhra Pradesh Agricultural University, Rice Research Unit, Agricultural College, Bapatlla, Andhra Pradesh, India.
44.	Paddy	<i>Oryza sativa</i> L.	Riz	BPT-3291	Andhra Pradesh Agricultural University, Rice Research Unit, Agricultural College, Bapatlla, Andhra Pradesh, India.
45.	Paddy	<i>Oryza sativa</i> L.	Riz	MTU-7029	Agriculture Research Station. Andhra Pradesh Agriculutre University, Maruteru- 534122, Andhra Pradesh, India.
46.	Paddy	<i>Oryza sativa</i> L.	Riz	Chaitanya	Agriculture Research Station. Andhra Pradesh Agriculutre University, Maruteru- 534122, Andhra Pradesh, India.

47.	Paddy	<i>Oryza sativa L.</i>	Riz	MTU-2077	Agriculture Research Station. Andhra Pradesh Agriculture University, Maruteru- 534122, Andhra Pradesh, India.
48.	Paddy	<i>Oryza sativa L.</i>	Riz	MTU-1010	Agriculture Research Station. Andhra Pradesh Agriculture University, Maruteru- 534122, Andhra Pradesh, India.
49.	Paddy	<i>Oryza sativa L.</i>	Riz	NLR-145	Agricultural Research Station, Nellore-524 004, Andhra Pradesh, India.
50.	Paddy	<i>Oryza sativa L.</i>	Riz	WGL-20471	Agriculture Research Station, Andhra Pradesh Agriculture University, Warangal- 506 007, Andhra Pradesh, India.
51.	Paddy	<i>Oryza sativa L.</i>	Riz	IR-64	1. Central Rice Research Institute, Cuttack, Orissa, India. 2. Directorate of Rice Research, Rajendranagar, Hyderabad, Andhra Pradesh, India.
52.	Paddy	<i>Oryza sativa L.</i>	Riz	RGL-2537	Agriculture Research Station, Andhra Pradesh Agriculture University Ragolu-532484 Srikakulam District, Andhra Pradesh, India.
53.	Paddy	<i>Oryza sativa L.</i>	Riz	RGL-2538	Agriculture Research Station, Andhra Pradesh Agriculture University Ragolu-532484 Srikakulam District, Andhra Pradesh, India.
54.	Paddy	<i>Oryza sativa L.</i>	Riz	RNRM-7	Agricultural Research Institute, Rice Section, ANGRAU, Rajendranagar, Hyderabad, Andhra Pradesh, India.
55.	Paddy	<i>Oryza sativa L.</i>	Riz	Pusa - RH-10	Indian Agriculture Research Institute, Pusa, New delhi-110 012, India
56.	Paddy	<i>Oryza sativa L.</i>	Riz	KRH-2	Regional Research Station, University of Agriculture Science, VC Farm, Mandya-571 405, Karnataka, India.

57.	Paddy	<i>Oryza sativa L.</i>	Riz	Narendradhan-97	Narendra Dev University of Agriculture & Technology, Kumar Gang, Faizabad, Uttar Pradesh, India.
58.	Wheat	<i>Triticum astivum</i>	Blé tendre	PBW-373	Punjab Agriculture University, Ludhiana, Punjab, India.
59.	Wheat	<i>Triticum astivum</i>	Blé tendre	PBW-343	Punjab Agriculture University, Ludhiana, Punjab, India
60.	Wheat	<i>Triticum astivum</i>	Blé tendre	Raj-3765	Agriculture Research Station, Rajasthan Agriculture University, Durgapur, Jaipur, Rajasthan, India.
61.	Wheat	<i>Triticum astivum</i>	Blé tendre	GW-322	Gujrat Agriculture University, Wheat Research Station, Vijapur- 382870, Gujarat, India.
62.	Wheat	<i>Triticum astivum</i>	Blé tendre	Raj-3077	Agriculture Research Station, Rajasthan Agriculture University, Durgapur, Jaipur, Rajasthan, India.
63.	Pearl Millet	<i>Pennisetum glaucum (L.)</i>	Millet perle, Mil penecillaire	MLBH-504	Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.
64.	Pearl Millet	<i>Pennisetum glaucum (L.)</i>	Millet perle, Mil penecillaire	Pratap (NBH-77)	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.- 501401., India.
65.	Pearl Millet	<i>Pennisetum glaucum (L.)</i>	Millet perle, Mil penecillaire	KPMH-1 (Kaveri Superboss)	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.
66.	Pearl Millet	<i>Pennisetum glaucum (L.)</i>	Millet perle, Mil penecillaire	NBH 4903	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.
67.	Pearl Millet	<i>Pennisetum glaucum (L.)</i>	Millet perle, Mil penecillaire	KBH 1952	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.

68.	Rice	<i>Oryza sativa</i> L.	Riz	US 312	Seed Works International Private Limited, #437, Avenue 4, Banjara Hills, Hyderabad – 500034, Andhra Pradesh, India.
69.	Rice	<i>Oryza sativa</i> L.	Riz	ARHH 7434	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.
70.	Rice	<i>Oryza sativa</i> L.	Riz	Sonam	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.
71.	Rice	<i>Oryza sativa</i> L.	Riz	Motigold	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.
72.	Rice	<i>Oryza sativa</i> L.	Riz	Sonal	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.
73.	Rice	<i>Oryza sativa</i> L.	Riz	NPH 8899	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.
74.	Rice	<i>Oryza sativa</i> L.	Riz	GK 5003	Ganga Kaveri Seeds Private Limited, 1406, Babukhan Estate, Bashirbhag, Hyderabad-500 001, Andhra Pradesh, India.
75.	Rice	<i>Oryza sativa</i> L.	Riz	KSL 210011	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
76.	Rice	<i>Oryza sativa</i> L.	Riz	KSL 120014	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.

77.	Rice	<i>Oryza sativa</i> L.	Riz	KSL 120007	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
78.	Rice	<i>Oryza sativa</i> L.	Riz	KSL - 333	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
79.	Rice	<i>Oryza sativa</i> L.	Riz	SPS - 14	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
80.	Rice	<i>Oryza sativa</i> L.	Riz	Rasika selection	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
81.	Rice	<i>Oryza sativa</i> L.	Riz	Komal - 101	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
82.	Rice	<i>Oryza sativa</i> L.	Riz	US – 382	Seed Works International Private Limited, #437, Avenue 4, Banjara Hills, Hyderabad – 500034, Andhra Pradesh, India.
83.	Rice	<i>Oryza sativa</i> L.	Riz	Frontline Gold RH-1531	Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.
84.	Rice	<i>Oryza sativa</i> L.	Riz	NPH-924-1	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.
85.	Rice	<i>Oryza sativa</i> L.	Riz	PNPH - 24	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.

86.	Rice	<i>Oryza sativa</i> L.	Riz	KPH-199	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.
87.	Rice	<i>Oryza sativa</i> L.	Riz	KPH-272	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.
88.	Rice	<i>Oryza sativa</i> L.	Riz	KPH-371	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.
89.	Wheat	<i>Triticum aestivum</i>	Ble tendre	Kedar	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.
<b>IV. Maize and Sorghum Seed</b>					
90.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSV-15	National Research Centre for Sorghum, ICAR, Rajendranagar, Hyderabad – 500030, Andhra Pradesh, India.
91.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSH-17	National Research Centre for Sorghum, ICAR, Rajendranagar, Hyderabad – 500030, Andhra Pradesh, India.
92.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSH-18	Jawaharlal Nehru Krishi Vishwa Vidhyalaya, College of Agriculture, Indore-452001, Madhya Pradesh, India.
93.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSH-16	National Research Centre for Sorghum, ICAR, Rajendranagar, Hyderabad – 500030, Andhra Pradesh, India.
94.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, sorgho fourrager	KSH-950	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.
95.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, sorgho fourrager	NSH-54	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.

96.	Forage Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, sorgho fourrager	MFSH-4	Maharashtra Hybrid Seeds Company Limited, Resham Bhavan, 4 <sup>th</sup> Floor, 78 Veer Nariman Road, Mumbai – 400 020, Maharashtra, India.
97.	Maize	<i>Zea Mays</i> L.	Maïs	PusaEarly-2	Indian Agriculture Research Institute, Pusa, New Delhi -110012, India.
98.	Maize	<i>Zea mays</i> L.	Mais	INDRA – 17 (KDMH – 017)	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
99.	Maize	<i>Zea mays</i> L.	Mais	NMH – 731	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.- 501401., India.
100.	Maize	<i>Zea mays</i> L.	Mais	NMH – 920	Nuziveedu SeeIds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.- 501401., India.
101.	Maize	<i>Zea mays</i> L.	Mais	NMH – 777	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.- 501401., India.
102.	Maize	<i>Zea mays</i> L.	Mais	NMH – 4040	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.- 501401., India.
103.	Maize	<i>Zea mays</i> L.	Mais	KMH-218 Plus	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.

104.	Maize	<i>Zea mays</i> L.	Mais	KMH-3669 (25K60)	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.
105.	Maize	<i>Zea mays</i> L.	Mais	KMH-3426	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.
106.	Maize	<i>Zea mays</i> L.	Mais	KMH-3712	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.
107.	Maize	<i>Zea mays</i> L.	Mais	KMH-548	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.
108.	Maize	<i>Zea mays</i> L.	Mais	KMH-128 (2181)	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.
109.	Maize (Sweet Corn)	<i>Zea mays</i> L.	Mais	Misthi	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.

**KEY SYMBOL OF ELIGIBLE CROP VARIETIES BASED ON CLASSIFICATION OF OECD SEED SCHEMES FROM INDIA**

<b><u>I. Grass and Legume Seed</u></b>					
<b>S.No.</b>	<b>Common Name</b>	<b>Botanical Name</b>	<b>French Name</b>	<b>Variety</b>	<b>Key Symbol</b>
1.	Black Gram	<i>Vigna mungo</i> (L) Hepper	Haricot Mungo	KU-300	In,16
2.	Black Gram	<i>Vigna mungo</i> (L) Hepper	Haricot Mungo	TAU-2	In,13,18
3.	Cow Pea	<i>Vigna unguiculata</i> (L) Walp	Dolique de Chine, Niébé	Sweta	In,30
4.	Cow Pea	<i>Vigna unguiculata</i> (L) Walp	Dolique de Chine, Niébé	DFC-1	In,29
5.	French bean	<i>Phaseolus vulgaris</i> (L.)	Haricot	Arka komal	In,26
6.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	Pant Moong-4	In,20
7.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	PDM-139	In,25
8.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	PusaVishal	In,24
9.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	SML-668	In,38
10.	GreenGram	<i>Vigna radiata</i> (L.)	Ambérique	RMG-268	In,10
11.	Lentil	<i>culinaris</i> Medic	Lentille	Noori	In,25
12.	Pea	<i>Pisum sativum</i> (L)	Pois fourrager	Rachna : Syn KPMR-10	In,16
13.	Pea	<i>Pisum sativum</i> (L)	Pois fourrager	KPMR-400	In,16
14.	Rai	<i>Brassica juncea</i> (Linn) czern & coss	Moutarde brune	Maya	In,16
15.	Red Gram	<i>Cajanus cajan</i> (L)	Pois cajan	ICPL-85063	In,42
16.	Red Gram	<i>Cajanus cajan</i> (L)	Pois cajan	ICPL-87119	In,27
17.	Red Gram	<i>Cajanus cajan</i> (L)	Pois cajan	BSMR-736	In,4
18.	Soybean	<i>Glycine max</i>	Soja	JS-335	In,39
19.	Soybean	<i>Glycine max</i>	Soja	Jawahar: Syn JS-93-05	In,28

<b><u>II. Crucifer Seed and Other Oil Or Fibre Species Seed</u></b>					
20.	Cotton	<i>Gossypium spp.</i>	Cotonnier	Bunny	b,In,35
21.	Cotton	<i>Gossypium spp.</i>	Cotonnier	PKVHY-3	In,18
22.	Cotton	<i>Gossypium spp.</i>	Cotonnier	PKVHY-4	b,In,18
23.	Cotton	<i>Gossypium spp.</i>	Cotonnier	ARCHH-3028	In, 47
24.	Cotton	<i>Gossypium spp.</i>	Cotonnier	ARCHH-8188	In, 47
25.	Cotton	<i>Gossypium spp.</i>	Cotonnier	BUNNY	In, 35
26.	Cotton	<i>Gossypium spp.</i>	Cotonnier	Mallika	In, 35
27.	Groundnut	<i>Arachis Hypogiiia</i>	Arachide	TMV-2	In, 37
28.	Groundnut	<i>Arachis Hypogiiia</i>	Arachide	TG-26	In, 13,18
29.	Groundnut	<i>Arachis Hypogiiia</i>	Arachide	Amber	In,16
30.	Groundnut	<i>Arachis Hypogiiia</i>	Arachide	Prakash	In,16
31.	Mustard	<i>Brassica juncea</i> (Linn) czern & coss	Moutarde brune	Pusa Bold	In,24
32.	Safflower	<i>Carthamus tinctorius L.</i>	Carthame	Nari-6	In,34
33.	Safflower	<i>Carthamus tinctorius L.</i>	Carthame	Sharda	In,36
34.	Sunflower	<i>Helianthus annuus L.</i>	Tournesol	DK-3849	In, 46
35.	Sunflower	<i>Helianthus annuus L.</i>	Tournesol	SH-491	In, 46
<b><u>III. Cereal Seed</u></b>					
36.	Bajra	<i>Pennisetum americanum</i> (L.) Leek	Millet perlé, Mil pénicillaire	HHB-67	b,In,23
37.	Bajra	<i>Pennisetum americanum</i> (L.) Leek	Millet perlé, Mil pénicillaire	GHB-558	In,21
38.	Bajra	<i>Pennisetum americanum</i> (L.) Leek	Millet perlé, Mil pénicillaire	Raj-171	In,10
39.	Barley	<i>Hordeum vulgare L.</i>	Orge	K-551	In,16
40.	Barley	<i>Hordeum vulgare L.</i>	Orge	K-409	In,16
41.	Barley	<i>Hordeum vulgare L.</i>	Orge	N.Barley-3	b,In,31
42.	Barley	<i>Hordeum vulgare L.</i>	Orge	RD-2552	In,10
43.	Paddy	<i>Oryza sativa L.</i>	Riz	BPT-5204	In,3

44.	Paddy	<i>Oryza sativa</i> L.	Riz	BPT-3291	In,3
45.	Paddy	<i>Oryza sativa</i> L.	Riz	MTU-7029	In,6
46.	Paddy	<i>Oryza sativa</i> L.	Riz	Chaitanya	In,6
47.	Paddy	<i>Oryza sativa</i> L.	Riz	MTU-2077	In,6
48.	Paddy	<i>Oryza sativa</i> L.	Riz	MTU-1010	In,6
49.	Paddy	<i>Oryza sativa</i> L.	Riz	NLR-145	In,5
50.	Paddy	<i>Oryza sativa</i> L.	Riz	WGL-20471	b,In,2
51.	Paddy	<i>Oryza sativa</i> L.	Riz	IR-64	In,14,17
52.	Paddy	<i>Oryza sativa</i> L.	Riz	RGL-2537	In,1
53.	Paddy	<i>Oryza sativa</i> L.	Riz	RGL-2538	In,1
54.	Paddy	<i>Oryza sativa</i> L.	Riz	RNRM-7	In,9
55.	Paddy	<i>Oryza sativa</i> L.	Riz	Pusa- RH-10	b,In,24
56.	Paddy	<i>Oryza sativa</i> L.	Riz	KRH-2	b,In,43
57.	Paddy	<i>Oryza sativa</i> L.	Riz	Narendradhan-97	In,31
58.	Rice	<i>Oryza sativa</i> L.	Riz	US 312	In, 49
59.	Rice	<i>Oryza sativa</i> L.	Riz	ARHH 7434	In, 46
60.	Rice	<i>Oryza sativa</i> L.	Riz	Sonam	In, 46
61.	Rice	<i>Oryza sativa</i> L.	Riz	Motigold	In, 35
62.	Rice	<i>Oryza sativa</i> L.	Riz	Sonal	In, 35
63.	Rice	<i>Oryza sativa</i> L.	Riz	NPH 8899	In, 35
64.	Rice	<i>Oryza sativa</i> L.	Riz	GK 5003	In, 50
65.	Rice	<i>Oryza sativa</i> L.	Riz	KSL 210011	In, 51
66.	Rice	<i>Oryza sativa</i> L.	Riz	KSL 120014	In, 51
67.	Rice	<i>Oryza sativa</i> L.	Riz	KSL 120007	In, 51
68.	Rice	<i>Oryza sativa</i> L.	Riz	KSL - 333	In, 51
69.	Rice	<i>Oryza sativa</i> L.	Riz	SPS - 14	In, 51
70.	Rice	<i>Oryza sativa</i> L.	Riz	Rasika selection	In, 51

71.	Rice	<i>Oryza sativa</i> L.	Riz	Komal - 101	In, 51
72.	Rice	<i>Oryza sativa</i> L.	Riz	US – 382	In, 49
73.	Rice	<i>Oryza sativa</i> L.	Riz	Frontline Gold RH-1531	In, 46
74.	Rice	<i>Oryza sativa</i> L.	Riz	NPH-924-1	In, 35
75.	Rice	<i>Oryza sativa</i> L.	Riz	PNPH - 24	In, 35
76.	Rice	<i>Oryza sativa</i> L.	Riz	KPH-199	In, 48
77.	Rice	<i>Oryza sativa</i> L.	Riz	KPH-272	In, 48
78.	Rice	<i>Oryza sativa</i> L.	Riz	KPH-371	In, 48
79.	Wheat	<i>Triticum astivum</i>	Blé tendre	PBW-373	In,38
80.	Wheat	<i>Triticum astivum</i>	Blé tendre	PBW-343	In,38
81.	Wheat	<i>Triticum astivum</i>	Blé tendre	Raj-3765	In,10
82.	Wheat	<i>Triticum astivum</i>	Blé tendre	GW-322	In,22
83.	Wheat	<i>Triticum astivum</i>	Blé tender	Raj-3077	In,10
84.	Wheat	<i>Triticum astivum</i>	Ble tendre	Kedar	In, 47
85.	Pearl Millet	<i>Pennisetum glaucum</i> (L.)	Millet perle, Mil penecillaire	MLBH-504	In, 46
86.	Pearl Millet	<i>Pennisetum glaucum</i> (L.)	Millet perle, Mil penecillaire	Pratap (NBH-77)	In, 35
87.	Pearl Millet	<i>Pennisetum glaucum</i> (L.)	Millet perle, Mil penecillaire	KPMH-1 (Kaveri Superboss)	In, 48
88.	Pearl Millet	<i>Pennisetum glaucum</i> (L.)	Millet perle, Mil penecillaire	NBH 4903	In, 35
89.	Pearl Millet	<i>Pennisetum glaucum</i> (L.)	Millet perle, Mil penecillaire	KBH 1952	In, 48

<b><u>IV. Maize and Sorghum Seed</u></b>					
90.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSV-15	In,33
91.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSH-17	b,In,33
92.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSH-18	b,In,28
93.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, Sorgho fourrager	CSH-16	b,In,33
94.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, sorgho fourrager	KSH-950	In, 48
95.	Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, sorgho fourrager	NSH-54	In, 35
96.	Forage Sorghum	<i>Sorghum bicolor</i> (L.)	Sorgho grain, sorgho fourrager	MFSH-4	In, 52
97.	Maize	<i>Zea Mays</i> L.	Maïs	PusaEarly-2	b,In,24
98.	Maize	<i>Zea mays</i> L.	Mais	INDRA – 17 (KDMH – 017)	In, 51
99.	Maize	<i>Zea mays</i> L.	Mais	NMH – 731	In, 35
100.	Maize	<i>Zea mays</i> L.	Mais	NMH – 920	In, 35
101.	Maize	<i>Zea mays</i> L.	Mais	NMH – 777	In, 35
102.	Maize	<i>Zea mays</i> L.	Mais	NMH – 4040	In, 35
103.	Maize	<i>Zea mays</i> L.	Mais	KMH-218 Plus	In, 48
104.	Maize	<i>Zea mays</i> L.	Mais	KMH-3669 (25K60)	In, 48
105.	Maize	<i>Zea mays</i> L.	Mais	KMH-3426	In, 48
106.	Maize	<i>Zea mays</i> L.	Mais	KMH-3712	In, 48
107.	Maize	<i>Zea mays</i> L.	Mais	KMH-548	In, 48
108.	Maize	<i>Zea mays</i> L.	Mais	KMH-128 (2181)	In, 48
109.	Maize (Sweet Corn)	<i>Zea mays</i> L.	Mais	Misthi	In, 35

**MAINTAINER NAMES AND ADDRESS'S FOR ELIGIBLE CROP VARIETIES OFFERED UNDER OECD SEED SCHEMES FROM INDIA BY NUMBER**

<b>Sl. No.</b>	<b>Maintainer Names and Address by NUMBER</b>
1.	Agriculture Research Station, Andhra Pradesh Agriculture University Ragolu-532484 Srikakulam District, Andhra Pradesh, India.
2.	Agriculture Research Station, Andhra Pradesh Agriculture University, Warangal- 506 007, Andhra Pradesh, India
3.	Andhra Pradesh Agricultural University, Rice Research Unit, Agricultural College, Bapatlla, Andhra Pradesh, India.
4.	Agriculture Research Station, Badanapur-431202, Distt. Jalna, Maharashtra, India.
5.	Agricultural Research Station, Nellore-524 004, Andhra Pradesh, India.
6.	Agriculture Research Station. Andhra Pradesh Agriculutre University, Maruteru- 534122, Andhra Pradesh, India.
7.	Agriculture Research Station, Mandor, Jodhpur, Rajasthan, India.
8.	Agharkar Research Institute, Pune, Maharashtra, India.
9.	Agricultrual Research Institute, Rice Section, Andhra Pradesh Agriculture University, Rajendranagar, Hyderabad, Andhra Pradesh, India.
10.	Agriculture Research Station, Rajasthan Agriculture University, Durgapur, Jaipur, Rajasthan, India.
11.	Agriculture Research Station, Rajasthan Agriculture University, Sriganga nagar-335 001, India.
12.	Associated Agricultural Development Foundation, C/o Indian Agrcultural Research Institute, Pusa, New Delhi – 110012, India.
13.	Bhabha Atomic Research Center, Trombay, Mumbai – 400065, Maharashtra, India.
14.	Central Rice Research Institute, Cuttack, Orrisa, India.
15.	Chaudhry Sarwan Kumar Himanchal Pradesh Krishi Vishvavidyala, Palampur- 176 062, Himachal Pradesh, India.
16.	Chandra Shekhar Azad University, Kanpur-208 002, Uttar Pradesh, India.
17.	Directorate of Rice Research, Rajendranagar, Hyderabad, Andhra Pradesh, India.
18.	Dr. Punjabrao Krishi Vidhyapeeth, Akola, Maharashtra, India
19.	Fruit Research Station, Himayat Bagh, Aurangabad, Maharashtra, India.
20.	Govind Ballabhbhai Pant Agriculture University & Technology, Pantnagar- 263145, Uttarakhand, India.
21.	Gujrat Agriculture University, Millet Research Station, Jamnagar- 361 006, Gujarat, India.
22.	Gujrat Agriculture University, Wheat Research Station, Vijapur- 382870, Gujarat, India.

23.	Haryana Agriculture University, HISSAR, Haryana, India.
24.	Indian Agriculture Research Institute, Pusa, New Delhi -110012, India.
25.	Indian Institute of Pulses Research, Kanpur -208024, Uttar Pradesh, India.
26.	Indian Institute of Horticulture Research Hessaraghatta Lake Post, Bangalore- 560 089, Karnataka, India.
27.	International Crops Research Institute for Semi-Arid Tropics (ICRISAT), Hyderabad, Andhra Pradesh, India.
28.	Jawaharlal Nehru Krishi Vishwa Vidhyalaya, College of Agriculture, Indore-452001, Madhya Pradesh, India.
29.	Konkan Krishi Vidhya Peeth, Wakawali, Deepoli, Maharashtra, India.
30.	Mahatama Phule Agriculture University, Rahuri – 413 722, Distt. Ahmednagar, Maharashtra, India.
31.	Narendra Dev University of Agriculture & Technology, Kumar Gang, Faizabad, Uttar Pradesh, India.
32.	National Horticultural Research and Development Foundation, Chitegaon Phata, Nashik-Aurangabad Highway, Post: Darna Sangvi, Taluka: Niphad, District: Nashik (Maharashtra) PIN: 422001, India.
33.	National Research Centre for Sorghum, RajendraNagar, Hyderabad- 500 030, Andhra Pradesh, India.
34.	Nimbkar Agriculture Research Station, NARI, P.O. Box-44, Phaltan- 415 523, Maharashtra, India.
35.	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, Andhra Pradesh, India.
36.	Oilseed Research Station, Latur, Maharashtra, India.
37.	Oil Seeds Research Station, Tamilnadu Agriculture University, Erayanur Village (PO), Tindivanam-604 001, Tamil Nadu, India.
38.	Punjab Agriculture University, Ludhiana, Punjab, India.
39.	RAK College of Agriculture, Sehore, Madhya Pradesh, India.
40.	Regional Agriculture Research Station, Acharya N.G. Ranga Agril. University, Palem-509 215, Rajendranagar, Andhra Pradesh, India.
41.	Regional Agriculture Research Station, Jagtial -505 327, Andhra Pradesh, India.
42.	Regional Agriculture Research Station, Acharya N.G. Ranga Agril. University, Lam, Guntur, Andhra Pradesh, India
43.	Regional Research Station, University of Agriculture Science, VC Farm, Mandya-571 405, Karnataka, India.
44.	Regional Agriculture Research Station, Nandyal- 518 503 , Andhra Pradesh, India
45.	Vegetable Research Station, Kalyanpur, Chandra Shekhar Azad University of Agriculture & Technology, Kanpur-208 024, India
46.	Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.
47.	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.

48.	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.
49.	Seed Works International Private Limited, #437, Avenue 4, Banjara Hills, Hyderabad – 500034, Andhra Pradesh, India.
50.	Ganga Kaveri Seeds Private Limited, 1406, Babukhan Estate, Bashirbhad, Hyderabad-500 001, Andhra Pradesh, India.
51.	Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.
52	Maharashtra Hybrid Seeds Company Limited, Resham Bhavan, 4 <sup>th</sup> Floor, 78 Veer Nariman Road, Mumbai – 400 020, Maharashtra, India.

**MORPHOLOGICAL DESCRIPTION OF ELIGIBLE CROP VARIETIES PARENTS / HYBRIDS OFFERED FOR OECD SEED SCHEMES**

S.No.		Crop (with botanical detail)	Variety	Morphological Description of Crop Parents/Hybrids	Morphological Description of Crop Varieties
<b><u>I. Grass and Legume Seed</u></b>					
I.	1.	Black Gram [ <i>Vigna mungo</i> (L) Hepper]	KU-300 Shekher)-2	-	Plant height 40-45 cm. , semi-erect plant , broad leaves with light green Foliage , long hairy brownish pods ,and greenish bold seed .Days of flowering -32-35 days , maturity-66- 84 days, flower of colour –deep yellow ,flower shape-keel type , flower size –big , anther colour –reddish yellow , plant height – (medium 40-45 cm.), no. of primary branches / plant -3, & secondary branches / plant -7-8 ,Pod character – long ,hairy and dark green, blackish after ripening , no. of seed / pod -7, Seed colour – green, 1000 –seed weight)-44 gm. Protein- 23%Maturity-65-88 days
	2.	Black gram [ <i>Vigna mungo</i> (L) Hepper]	Tau-2	-	Plant height- 30-33 cms. <b><u>Distinguishing morphological character:</u></b> Intermediate in growth between T-9 and TAU-1. Bushy stem pigmented. Pods are having few or no hairs (scales). Leaflets are triangular in shape as in TAU-1. Flowering time-40 days.100 seed wt.- 4.3 gm, bold seeded. Seed colour black. Leaflet shape – Triangular., Leaflet size – Broad., Foliage colour – Dark green., Growth – Bushy, Flowering pattern – Indeterminate.,  <b><u>Pod characters</u></b> Pod size – Bold, Kernel nature – Not applicable., Constriction – Not applicable, Reticulation – Not applicable, Shelling out turn – Not applicable.  <b><u>Kernel character</u></b> Size – Bold., Colour – Ediate in growth between T-9 and TAU-1. Smooth or sparce hairy leave triangular in shape.

II.	3.	Cow Pea [ <i>Vigna unguiculata</i> (L) Walp]	Sweta (No.- 998)	-	Very leafy (L/S ratio 0.7), More number of broad leaves (100 to 110), Remains green from flowering to late pod formation stage without deterioration in forage quality and yield. Mid late in flowering (70 to 75 days for 50 % Flowering) <b><u>Identifiable and distinguishable morphological characters</u></b> Dark Green Colour. More number of broad leaves compared to E.C. 4216 & Russian Giant. Seed coat colour – Brick red. Creeping nature- Produces vines. Maturity – 70-75 days 50 % flowering (Midlate)
	4.	Cow Pea [ <i>Vigna unguiculata</i> (L) Walp]	DFC-1 (Konkan fodder cowpea- I)	-	Distinguishing Morphological character- Brownish strips on surface of pods, non striped pods also occasionally present, Seed with mosaic spotting. Duration: Days to 50% flowering (for fodder), Kharif: 60-65 days, Rabi: 75-80 days Seed to seed-100 days. Plant height- Kharif: 180-200 cm, Rabi: 75-100, No. of branching/ plant- 4 to 5, foliage%- 47, Colour of leaves- Dark green, No. of pods/ plant- 10-12, Pod length- 15-20 cm, No. of leaves/ plant- 30-35, No. of seeds/ plant- 10-12, Colour of pods- White and brownish scattered strips on the surface. 100 seed wt.-14 gm.
III.	5.	French Bean ( <i>Phaseolus vulgaris</i> L.)	Arka Komal Bush type (Sel-9)	-	Plant height- 50 cms <b><u>Distinguishing morphological characters</u></b> Pods tender, green long, straight, flat and fleshy. Seeds are buff or brownish buff, oblong and bold. Maturity- 65-70 days seed to seed.
IV.	6.	Green Gram [ <i>Vigna radiata</i> (L.)]	Pant Moong-4	-	Leaves large, green with purple splashes on petiole, Podding from 4 <sup>th</sup> to 6 <sup>th</sup> node. Growth habit- erect, shape- ovate, colour- green, stem colour- green, Immature Pod colour- green, mature pod colour- Black, Days to maturity- 71, Plant height- 54.4 cm, Pod length- 6.4 cm, Seed colour- Dull green, 100- seed wt- 3.0 gm.
	7.	Green Gram [ <i>Vigna radiata</i> (L.)]	PDM-139 (Samrat)	-	Plant height- 30-50 cms, erect dwarf, small leaflet, Profuse podding pods long brownish black shining green medium bold, attractive seed with luster, maturity- 60 -65 days, maturity group- early.
	8.	Green Gram [ <i>Vigna radiata</i> (L.)]	Pusa Vishal	-	Plant height- 44.3 cm, Range- 43-46 cms. Profused long pods initially green in colour and blackish at maturity with bold seed.

					<p>Growth habit- Determinate, erect and early.  Leaf characters- Simple compound- compound, Shape of the leaf panicle- ovate, colour- green, pubescent glabrous- pubescent, stem colour- green, Flower colour- cream, pod colour- light brown, seed colour- green shining, Days to 50% flowering -35-40 days (summer)  Days to maturity- 60-65 days (summer),  Plant height- 44.5 cm, No. of primary branches- 3-4 no., Pod per plant- 20-25 No., No. of seed/ plant-12-13, Maturity- 65-70 days in spring and 60-65 days in summer.</p>
	9.	Green gram [ <i>Vigna radiate</i> (L) Wilczek]	SML-668	-	<p>Average Plant height- 44.6 cm, Distinguishing morphological character- Broad an dark green leaves pod bearing at the top of the plant. Pods are long and drooping nature. Colour of pods at maturity is dark brown. It bears on an average 416 pods/ plant and each pod contains 10.4 seeds. 100 seed wt- 5.7 gm</p>
	10.	Green gram [ <i>Vigna radiate</i> (L) Wilczek]	<b>RMG-268</b>	-	<p><b>Distinguishing morphological character-</b> Pods with blunt tips leaves remain green ever after the maturity of pods, Maturity- 64-73 days.  Plant height- 35-70 cm.,</p>
V.	11.	<b>Lentil</b> ( <i>Lens culinaris</i> Medic.)	Noori (IPL-81)	<p><b>K-75</b> - Bold seeded semi- spreading, dark green and foliage.  <b>PL639</b>- Small seeded semi- spreading, green foliage</p>	<p>Semi- spreading, deep green foliage, non tendrillous, seeds bold. Pubescence on leaf, Moderate stem colour- Purple, Flower colour- Blue , Seed shape- Lens shape, seed colour- grey mottled, Colour of cotyledon – Pink, Days to flowering- 71 days, Days To Maturity- 113 days, 100 seed wg.-2.74 gm.</p>
VI.	12.	Pea ( <i>Pisum sativum</i> L.)	Rachna (KPMR-10)	-	<p>Plant height 150-165 cm, erect ,light green stem and foliage , pods long (6.10 to 7 cm) with 4.6 seeds per pod , seeds unblemished white , round , smooth and bold (21 g/100 seeds) protein content 22.75 %.</p>
	13.	Pea ( <i>Pisum sativum</i> L.)	KPMR- 400 (Indra)	<p><b>Female (Rachna)</b>-Plant height-130-150 cms,  Distinguishing morphological characters- light green foliage tall, long internodes ,Maturity-65-75, seeding of flowering-70-75 days ,seed to seed -125-130 days  Reaction major diseases –powdery mildew resistant  Reaction major pests-low pod borer damage</p>	<p>Plant height -50-55 cm.  Early maturity ,plant dwarf &amp; vigorous pods very long ,dark green foliage and bold seed ,  Growth habit –semi spreading, vigorous ,leaf-leafless ,dark green ,tendrils present , Flower colour-white ,pod colour at maturity –straw ,seed shape-round –smooth ,seed colour-white ,Days to flower-65-70 ,test weight-20-22 gm/100 seed ,days to maturity -115-120</p>

				<p><b>Male (HFP-4)</b>  Plant height-45-55 cms, Distinguishing morphological characters- Dark green foliage leaf less dwarf with short internodes ,seeding of flowering-70-75 days ,seed to seed -125-135 days  Reaction major diseases –powdery mildew resistant  Reaction major pests-low pod borer damage</p>	
VII.	14.	Rai [ <i>Brassica juncea</i> (Linn) czern & coss]	Maya (RK 9902)	-	Distinguishing morphological character- Plant medium tall, mordantly branched, plant vigorous, seed bold in size and black in colour, siliqua beaded and open type and brownish in colour at the time of maturity. Days to flowering-50 days, maturity days-130-135 days, plant height- Medium tall 165-170 cm, 1000 seed wt.-5.0-5.5 gm. Oil content- 39-40%
VIII	15.	Red Gram ( <i>Cajanus cajan</i> )	ICPL-85063 (Laxmi)	-	Plant height-160 cm in Kharif and 120 cm in rabi season, Growth habit- Semi spreading, Stem colour- Green, Leaf shape- Broad elliptic, Leaf hairiness, Glabrous, Day to 50% flowering in kharif 120 days and in rabi 85 days, Base Flower colour- yellow, Second flower colour- Colour of streaks on dorsal side of the vexillum is purple, Pattern Of Streaks-Spares streaks, Flowering pattern –Indeterminate, Seed per pod-3-4, main colour of pod is mixed with green and purple, pod form- flat, pod hairiness, glabrous, Seed colour pattern- Plain, Base seed colour- reddish- brown, seed shape- oval, 100 seed wg.-9.90 gm.
	16.	Red gram ( <i>Cajanus cajan</i> (L)Mill sp) (Tur)	ICPL-87119 (Asha)	-	Plant height – Mean: 178 cm. Range: 140-227 cm. Distinguishing morphological characters – Semi- spreading and indeterminate growth habit. Flower colour yellow, back of Vexillum red veined. Maturity – 115 days to 50 % flowering (range 110-124 days), 172 days (range 140-199) in Central Zone and 160 days (range 160-202) in South Zone. Maturity group – Medium - duration
	17.	Red gram ( <i>Cajanus cajan</i> (L)Mill sp) (Tur)	BSMR-736	-	Distinguishing morphological character-Plant height-175-190cm.,growth habit-spreading ,flowering pattern-indeterminate, flower colour-yellow ,seed per pod (Nos)3.50-4.01,Testa colour-Brown,100 seed wt.-10.30-11.80 gm., Maturity in no. of days-180-185.
IX.	18.	Soybean ( <i>Glycine max</i> )	JS-335 (Jawahar Soybean 335)	-	Plants 46 cm tall, semi-determinate spares pubescence on leaves stem & pods, Seed yellow, rounds with Black hylum, leaves dark green flowers purple.

					<p><b>Two identifiable and distinguishable morphological characters</b>  Sparse pubescence on leaves stem and pods. Leaves dark green at flowering.  <b>Maturity</b>-99 days(Early)</p>
	19.	Soybean ( <i>Glycine max</i> )	Jawahar Soya-93-05 (JS-93-05SSSS)	-	<p>Plant height-55-60 cm. Lanceolate leaves , four seeded pods, glabrous stem , violet flower ,yellow seeds , black hilum , Growth habit-semi determinate , days to flower initiation -36-38, days to maturity -90-95, leaf surface –smooth , flower colour-violet , pods per plant -45-55 , seeds per pods -2-4 , seed colour –Yellow , hilum colour –Black ,100 seed weight -10-12 g. ,oil % 17.5-19.0 , Protein % 41-42, germination % -90-95, maturity -90-95 days.</p>
<b>II. Crucifer Seed and Other Oil Or Fibre Species Seed</b>					
X.	20.	Cotton ( <i>Gossypium spp.</i> )	Bunny (NCHH-145)	<p><b>Female (NC-71)</b>  Genetic Background-G.Hirsutum  Plant type- Bushy, plant hg.- 100-140 cm, leaves-broad, small to medium,= light green hairy. No. of moopodia- 1-3, no. of sympodia-10-15 flower petal-white, pollen- white, Bolls- small to medium, oval mostly 4 loculed, about 3 gm/ boll, seeds- fuzzy, maturity-140-150 days, Ginning%-35-36.</p> <p><b>Male (NC-99)</b>  Genetic Background-G.Hirsutum  Plant type- Open, erect, tall stem hairy, plant hg.- 140-160 cm, leaves- broad, medium to large, dark green, slightly hairy. No. of moopodia- 1-2, no. of sympodia-12-15(short sympodia), flower petal- white, pollen-yellow, Bolls- Big, oval mostly 4 loculed, about 5-6 gm/ boll, seeds- fuzzy, maturity-150-156 days, Ginning%-35.</p>	<p>Plan hg.- 120-125 cm (medium height with bushy plant habit).  Distinguishing morphological characters- Bushy with open growth at base, sturdy stem with 3-4 monopodia and 10-15 sympodia, Stem- green and hairy, pigmented at bottom, Leaves- medium broad, hairy, dark green 3-5 shallow lobed glanded and nectarines present, Flower-Petal cream, petal spot absent, pollen yellow. Bolls-weight- 5-6 gm., Seeds- Fuzzy. Maturity-150-160 days</p>
	21.	Cotton ( <i>Gossypium spp.</i> )	PKV HY-3 (CAHH-468)	<p><b>Hybrid- CAHH- 468 -</b> Species-G.hirsutum, plant habit-open type(sympodial) Height -110-120 (irri), 85 to 90 (rainfed) ,leaf colour-green , petal colour –pale yellow ,eye spot-present, Ginning%-36.5 to 37.5%, Duration of crop-165 to 175 days</p>	<p>Plant height-110-120 cm. (Irrigated ) 85-90 cm. (Rain fed) 3 to 5 broad lobes with shallow cut dense hairy leaves .Having reddish green stem and petiole , flower sulphur colour with prominent purple eye spot . Anther buff coloured, pollen buff, boll medium, ovate pointed at end.</p>

			<p><b>CAK-32 A(Female)</b>- Species-G.hirsutum, plant habit- semi erect (sympodial) Height -125-150 ,leaf colour-pale green , petal colour – yellow ,eye spot-present, Ginning%-36.37, Duration of crop-170 to 180 days</p> <p><b>D -286-1R (Male)</b>- Species-G.hirsutum, plant habit- Open Height -100-120, Leaf colour-green , petal colour – whitish cream ,eye spot-absent, Ginning%-35 to 36%, Duration of crop-190 to 200 days</p> <p><b>AK-32 B (Maintainer)</b> - Species-G.hirsutum, Plant habit- semi erect (sympodial) Height -125-150 leaf colour-pale green, petal colour – yellow, eye spot- present, Ginning%-36 to 37%, Duration of crop-170 to 180 days.</p>	
22.	Cotton ( <i>Gossypium</i> <i>spp.</i> )	PKV HY-4 (CAHH-8)	<p><b>Female parent</b></p> <p><b>CAK- 23 A</b> Plant habit- Erect type, Plant height- 100-120 cm, Leaf colour- Dark Green, Leaf hairiness- Light hairy, Leaf nectarines- Present, Leaf lobes- 3-5, Days to I<sup>ST</sup> flower- 65-70 days, Petal colour- PaleYellow flower with small petal yellow, Anther colour- Yellow Petal spot- Absent, Bracts- Serrated, Boll shape-Round, Boll wt.(gm)- 3.0-3.5 gm, Seed Index (gm)- 8.9gm, Fuzziness- White fuzzy, Ginning(%)- 34-35 2.5% span length (mm)- 33-34 mm, Duration of crop-180-200 days</p> <p><b>Maintainer parent Ak-23 B</b> Plant habit- Erect type, Plant height-100-120 cm Leaf colour- Dark Green, Leaf hairiness- Light hairy Leaf nectarines- Present, Leaf lobes- 3-5, Days to I<sup>ST</sup> flower- 65-70 days, Petal colour- PaleYellow flower with small petal yellow, Anther colour- Yellow, Petal spot- Absent, Bracts- Serrated, Boll shape-Round, Boll wt.(gm)- 3.0-3.5 gm, Seed Index (gm)- 8.9gm, Fuzziness-</p>	<p>Plant height- 90-100 cm</p> <p><b>Distinguishing morphological characters-</b> Plant habit- Open type, Leaf colour- Dark Green, Leaf hairiness- Light hairy, Leaf nectarines- Present, Leaf lobes- 3-5, Days to I<sup>ST</sup> flower- 55-60 days, Petal colour- Light Yellow, Anther colour- Yellow, Petal spot- Absent, Bracts- Serrated, Boll shape-Oval, Boll wt.(gm)- 4.0- 4.5 gm, Seed Index (gm)- 9-10, Fuzziness- White fuzzy, Ginning(%)- 35.5-36.5%, 2.5% span length (mm)- 29-30 mm, Duration of crop- 150-160 days in rainfed, 170-180 (irrigated), Maturity (range in days) in rainfed condition- Seedling to 50% flowering -65-70 days, First boll bursting-110-115 days, Maturity group- 160-170 days Maturity (range in days) in irrigated condition- Seedling to 50% flowering -70-75 days, First boll bursting-115-120 days, Maturity group-180-190 days</p> <p><b>Two identifiable and distinguishable morphological characteristics of the variety</b> 3 to 5 broad lobes with shallow cut light hairy and dark green coloured leaves having reddish light brown stem and petiole. Flower light yellow with yellow anthers (Being a CMS based no F2 hybrid seed be grown)</p>

			<p>White fuzzy, Ginning(%)- 34-35, 2.5% span length (mm)- 33-34 mm, Duration of crop-180-200 days</p> <p><b>Male parent AKH-07 R</b></p> <p>Plant habit- Erect type, Plant height-60-80 cm, Leaf colour- Green less hairy present, Leaf hairiness- Light hairy, Leaf nectarines- Present, Leaf lobes- 3-5, Days to 1<sup>ST</sup> flower- 55-60 days, Petal colour- Cream, Anther colour- Cream, Petal spot- Absent, Bracts- Serrated, Boll shape-Round, Boll wt.(gm)- 2.5-3.0 gm, Seed Index (gm)- 8.9gm,</p> <p>Fuzziness- Dull fuzzy, Ginning(%)- 37-38, 2.5% span length (mm)- 22-23mm, Duration of crop-150-160 days</p>	
23.	Cotton ( <i>Gossypium</i> <i>spp.</i> )	ARCHH- 3028	<p><b>Female</b></p> <p>Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Medium, Plant growth habit : Semi-spreading, Flower petal colour : Cream, Glower pollen colour : Cream, Flower stigma : Embedded, Boll shape : Ovate, Boll prominence of tip : Pointed, Boll weight : 4.1 g.</p> <p><b>Fiber Properties</b></p> <p>Ginning out turn : 31-32, Fiber length (mm) : 25-26, Fiber strength (g/tex) : 22-23, MIC : –, Maturity (%) : 85 – 90, Uniformity : 48-49, Seed Index : 10 – 11 g.</p> <p><b>Male</b></p> <p>Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Sparse, Plant growth habit : Semi-spreading, Flower petal colour : Cream, Flower pollen colour : Yellow, Flower stigma : Embedded, Boll shape : Round, Boll prominence of tip : Blunt, Boll weight : 4.8 g.</p> <p><b>Fiber Properties</b></p> <p>Ginning out turn : 29-30, Fiber length (mm) : 31-32, Fiber strength (g/tex) : 23-24, MIC : 3.5 – 3.9, Maturity (%) : 80 – 85, Uniformity : 45-46, Seed Index : 9 – 10 g.</p>	<p>Leaf Appearance – Flat, Leaf Shape – Palmate (Normal), Leaf Hairiness – Sparse, Plant : Growth habit – Spreading, Flower Petal colour – Cream, Pollen colour – Yellow, Stigma – Embedded, Boll Shape – Roundish Ovate, Boll Prominence of tip – Pointed, Boll Weight : 4.8-5.0 g.</p> <p><b>Fiber Properties</b></p> <p>Ginning out turn (%) – 31, Fiber Length (mm) : 29.3, Fiber Strength (g/tex) : 24, Fiber Micronaire value : 4.2, Fiber Maturity (%) : 87, Fiber Uniformity (%) : 49, Seed Index (100 seed wt in gram) : 11.2</p>

24.	Cotton ( <i>Gossypium spp.</i> )	ARCHH-8188	<p><b>Female</b> Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Medium, Plant growth habit : Semi-spreading, Flower petal colour : Yellow, Glower pollen colour : Cream, Flower stigma : Exerted, Boll shape : Ovate, Boll prominence of tip : Pointed, Boll weight : 5.2 g.</p> <p><b>Fiber Properties</b> Ginning out turn : 35-36, Fiber length (mm) : 26-27, Fiber strength (g/tex) : 22-23, MIC : 3.9 – 4.7, Maturity (%) : 85 – 90, Uniformity : 47-48, Seed Index : 9.5 – 10.5 g.</p> <p><b>Male</b> Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Sparse, Plant growth habit : Semi-spreading, Flower petal colour : Cream, Glower pollen colour : Yellow, Flower stigma : Embedded, Boll shape : Round, Boll prominence of tip : Blunt, Boll weight : 4.8 g.</p> <p><b>Fiber Properties</b> Ginning out turn : 29-30, Fiber length (mm) : 31-32, Fiber strength (g/tex) : 23-24, MIC : 3.5 – 3.9, Maturity (%) : 80-85, Uniformity: 45-46, Seed Index: 9-10 g.</p>	<p>Leaf Appearance – Flat, Leaf Shape – Palmate (Normal), Leaf Hairiness – Medium, Plant Growth habit – Semi-spreading, Flower Petal colour – Yellow, Pollen colour – Yellow, Stigma – Exerted, Boll Shape – Ovate, Boll Prominence of tip – Pointed, Boll : Weight of seed : 5.5 g.</p> <p><b>Fiber Properties</b> Ginning out turn (%) : 33.5, Fiber Length (mm) : 30.5, Fiber Strength (g/tex) : 23.5, Fiber Micronaire value : 4.1, Fiber Maturity (%) : 85, Fiber Uniformity (%) : 49.5, Seed Index (100 seed wt in gram) : 10.5</p>
25.	Cotton ( <i>Gossypium spp.</i> )	BUNNY	<p><b>Female</b> Plant type – Bushy, Medium height hairy, Plant height : 110-140 cm, Leaves – Broad small to Medium light green hairy, No. of Monopodia : 1-3, No. of Sympodia : 10-15, Flower – Petal-White, Petal spot absent, Pollen-White, Bolls- Small to medium, Oval mostly 4 loculed, about 3 g/boll. Seeds – Fuzzy, Days to 50% flowering : 50-55, Maturity : 140-150 days, early to male by 10 days, Ginning percentage : 35.0 - 36.0, 2.5% span length : 26-27 mm</p>	<p>Hypocotyl Pigmentation – Present, Leaf colour – Green, Leaf Pubescence – Medium, Leaf appearance – Flat, Leaf gossypol glands – Present, Leaf nectaries – Present, Leaf petiole pigmentation – Present, Leaf Shape – Normal, Plant : Stem Hairines – Medium, Stem Pigmentation – Present, Plant Height (cm) – Tall, Plant growth habit – Semi Spreading, Bract type – Normal, Time of flowering (50% of plant with at least one open flower) – Medium, Petal colour – Cream, Petal spotting – Absent, Position of stigma – Exerted, Flower filament colouration – Absent, Pollen colour – Yellow, Male sterility – Absent, Boll bearing habit – Solitary, Boll colour – Green, Boll shape (longitudinal section) – Ovate, Boll surface – Smooth, Boll prominence of tip – Blunt, Boll opening – Open, Boll Weight of seed cotton / boll –</p>

			<p><b>Male</b> Plant type – Open erect, tall stem, hairy, Plant height : 140-160 cm, Leaves – Broad, Medium to large, dark green, slightly hairy, No. of Monopodia : 1-2, No. of Sympodia : 12-15 (short sympodia), Flower – Petal-white, petal spot absent, Pollen Yellow, Bolls – Big oval mostly 4 loculed, about 5-6 g/boll. Seeds – Fuzzy, Days to 50% flowering : 60-65, Maturity : 150-160 days, later than female by 10 days, Ginning percentage : 35.0, 2.5% span length : 32-33 mm.</p>	<p>Large, Seed : Fuzz – Medium, Fuzz colour – White, Seed : size (100 seed wt.) – Bold, Ginning (Percentage) – Medium, Fibre colour – White, Fibre length (2.5% span length) – Long, Fibre strength – Medium, Fibre fineness (micronaire value) – Fine, Fibre uniformity (%) – Good, Fibre : Maturity (%) – Good.</p>
26.	Cotton ( <i>Gossypium spp.</i> )	Mallika	<p><b>Female</b> Plant height: 130-160 cm, Plant type: open, tall, stem hairy, Leaves: Medium to large, green Nectares present, No. of Monopodia: 2-4, No. of sympodia: 17-18, Flower: Petal-Cream, Petal spot-Absent, Pollen-Cream, Bolls: Medium, Conical, Mostly 4 loculed about 4-5 g/boll, Seeds: Fuzzy, Days to 50% flowering: 62-66, Maturity: 155-160 days, Ginning (%): 33.0-35.0, 2.5 % span length in mm: 26-27 mm, Reaction to diseases: Tolerant to bacterial blight, Reaction to major pests: Tolerant to Jassids, Agronomic features: Adaptive, high yielding Moderately drought Tolerant, seed rate 2 kg/ha, Reaction to stresses: Moderately tolerant to drought.</p> <p><b>Male</b> Plant height: 140-160 cm, Plant type: open, erect, tall, stem hairy, short sympodia, Leaves: Broad, Medium to large, dark green, slightly hairy, No. of Monopodia: 1-2, No. of sympodia: 15-16, Flower: Petal-Cream, Petal spot-Absent, Pollen-Cream, Bolls: Big, oval, Mostly 4 loculed about 6-7 g/boll, Seeds: Fuzzy, Days to 50% flowering: 60-65, Maturity: 155-160 days, Ginning (%): 35.0, 2.5 % span length in mm: 32-33 mm, Reaction to diseases: Tolerant to grey mildew, bacterial</p>	<p>Hypocotyl Pigmentation – Present, Leaf colour – Green, Leaf Pubescence – Medium, Leaf appearance – Flat, Leaf gossypol glands – Present, Leaf nectaries – Present, Leaf petiole pigmentation – Present, Leaf Shape – Normal, Stem Hairines – Medium, Stem Pigmentation – Present, Plant Height – Very Tall, Plant growth habit – Semi Spreading, Bract type – Normal, Time of flowering (50% of plant with at least one open flower) – Medium, Petal colour – Cream, Petal spotting – Absent, Position of stigma – Exerted, Filament colouration – Absent, Pollen colour – Yellow, Male sterility – Absent, Boll bearing habit – Solitary, Boll colour – Green, Boll shape (longitudinal section) – Ovate, Boll surface – Smooth, Boll prominence of tip – Pointed, Boll opening – Open, Boll Weight of seed cotton / boll – Very Large, Seed Fuzz – Dense, Seed Fuzz colour – Grey, Seed size (100 seed wt.) – Very Bold, Ginning – High, Fibre colour – White, Fibre length (2.5% span length) – Extra Long, Fibre strength – Medium, Fibre fineness (micronaire value) – Fine, Fibre uniformity – Excellent, Fibre Maturity – Good.</p>

				blight an alternaria leaf spot, Reaction to major pests: Tolerant to White fly, Agronomic features: Erect growth, strong stem (non-lodging), responsiveness to higher fertilizer dosage seed rate:0.75 kg/ha, Reaction to stresses: Can withstand excess rainfall.	
XI.	27.	Ground nut, ( <i>Arachis Hypogiiia</i> , L.) (Moongphali)	TMV-2	-	Main axis erect, lateral branches usually four and Oblique starting from the very base of the plant, secondary branches rarely present. Stem thick, round at base and angular above, hairy with white hairs and spreading, inter-node 3-4 cm long, light green in the upper portion and with purple tinge at lower portion. Leaves stipulate with long acuminate stipules, leaf lets oblong to elliptic, big, light green in colour. Pods small, 1-2 seeded with shallow to deep construction, distinct beak; shell very thin with prominent veins. Kernels small, rounded, plumpy, light rose and non-dormant.
	28.	Ground nut, ( <i>Arachis Hypogiiia</i> , L.) (Moongphali)	TG-26	-	Growth habit- Semi dwarf, Branching pattern- sequential, Plant height and breadth- 42 cm & 53 cm, Pigmentation- Green with light purple shade. No. of primary branch 8 and secondary branch- 2,  <b><u>Leaf character-</u></b> Size –small, shape- roundish/ oblong, Colour- DARK Green, Flower Colour- Orange yellow, Seeds per pod- 2 and occasionally 3 seeded Pod length- 24.5 mm, Pod breadth- 10.5 mm, Seed length- 12.20 mm, Breadth- 8 mm, 100 seed wt. 29 -34 gm, Seed colour- Light Fleshy, Harvest index- 55 <sup>^</sup> , Maturity- 105- 120 days.
	29.	Ground nut, ( <i>Arachis Hypogiiia</i> , L.) (Moongphali)	Amber (CSMG-84-1)	-	Plant height- 35-40 cm. <b><u>Distinguishing morphological character-</u></b> It has a marker gene with rose variegated kernel colour with prominent whiteness so the maintenance of purity of seed is easy. Foliage remains dark green till to maturity which is an additional advantage for utilizing it as succulent nutritive green fodder. Spreading in habit with profuse branching. Reticulated, constricted and biseeded pods.  <b><u>Maturity-</u></b> 130-135 days.

	30.	Ground nut, ( <i>Arachis Hypogiia</i> , L.) ( Moongphali)	Prakash CSMG-884	-	<p>Biseeded bold pods with prominent reticulation, Semi –spreading in habit with dark green leaves, Light rose Kernel colour with elongated Shape. Plant height and breadth -20-25 cm. Pigmentation-green ,number of primary branch -4 - 6 ,and secondary branch -6 - 8 ₂</p> <p><b>Leaf character – size –medium , shape –ovate to oblong , colour – dark green ,</b>  <b>Flower colour – yellow ,</b> <u>Pod and seed character –</u> pods setting lose , pod beak ,distinct, pod construction - medium ,pod reticulation – prominent ,ridge –distinct , seed/ pod –biseeded , pod length- 3.4 cm. ,pod breadth -1.50 cm. , 100 seed weight – 65 gm. ,seed colour –light rose colour, shelling % -71.  Maturity -115-120 days. Oil content – 49% , Shelling 67%</p>
XII.	31.	Mustard ( <i>Brassica juncea</i> (Linn) <i>czern &amp; coss</i> ) (Raya)	Pusa Bold	-	<p>Plant Height- 170-180 cm. with semi compact- branching. Plant erects but bends on maturity due to heavily laden pads. Leaves medium in size, medium green in colour with varying no. of lobes and terminal lobe is acute. Flowers cruciferous with yellow petals. Unripe pods green ripened pods golden brown, straw colour, 5-7 cm. in length with 13-18 seeds/ pod. Seeds blackish brown, round and bold (6-7 gm/1000 seeds), Oil content-42%.</p>
XIII	32.	Safflower ( <i>Carthamus tinctorius</i> L.)	Nari-6	-	<p>Plant hg.-75-85 cm, Distinguishing morphological characters- Non- spiny, corolla yellowish to pale orange in bloom turning to red on drying. White, shiny seeds with thin hull. Growth habit- Bushy, stem colour- whitish green, colour of upper stem leaves- Dark green, leaf hairiness- smooth, Days to first flower-70, Days to 50% flowering-86, pollen colour- yellow, avg. 1000 seed wt.- 42.10 gm. , Maturity- seed to seed- 117-137 days and seeding/ transplanting to flowering- 68-76 days.</p>
	33.	Safflower ( <i>Carthamus tinctorius</i> L.)	Sharda	-	<p>The variety Sharda is having orange red flower colour, medium capsules size with appressed 6-7 primary branches with higher no. of seeds/ capsules and bold seed size. The plant height is 70-75 cm. and matures in 120-123 days.</p> <p><b><u>Two identifiable and distinguishable morphological Characteristics</u></b>  The variety is having at the time of initiation of the flowering, flower colour is yellow and becomes red and full flowering.  The variety is having 6-7 appressed primary branches.</p>

34.	Sunflower ( <i>Helianthus annuus</i> L.)	DK-3849	<p><b><u>Female</u></b>  Hypocotyl anthocyanin coloration – Strong, Leaf anthocyanin coloration on margin of young leaves – absent, Time of flowering – Medium, Leaf size – Medium, Leaf shape – Lanceolate, Leaf colour – Medium green, Leaf blistering – Medium, Leaf fineness of serration – Coarse, Leaf angle of lateral veins –Acute, Leaf height of the tip of the blade compared to insertion of petiole (at 2/3 height of plants) – Medium, Leaf angle between lower part of petiole and stem – Medium, Leaf hairiness – Sparse, Leaf petiole pigmentation – Absent, Stem hairiness at the top – Strong, Stem pigmentation – Absent, Stem number of leaves on main stem – High, Ray flowers number – Many, Ray flower shape – Elongated, Ray flower colour – Yellow, Disk flower colour –Yellow, Disk flower anthocyanin colouration of stigma – Weak, Disk flower pollen colour – White, Head number of bracts on the back – Many, Bract shape – Rounded, Bract anthocyanin colouration – Absent, Head attitude – Half turned down, Head diameter – Small, Head shape of grain side – Flat, Plant height – Tall, Seed length – Medium, Seed : shape – Elongate, Seed base colour – Black, Seed motting – Absent, Seed stripes – Present, Seed colour of stripes – Grey.</p> <p><b><u>Male</u></b>  Hypocotyl anthocyanin coloration – Strong, Leaf anthocyanin coloration on margin of young leaves – Absent, Time of flowering – Medium, Leaf size – Medium, Leaf shape – Rounded, Leaf colour – Light green, Leaf blistering – Medium, Leaf fineness of serration – Medium, Leaf angle of lateral veins – Nearly right angle, Leaf height of the tip of the blade compared to insertion of petiole (at 2/3 height of</p>	Hypocotyl anthocyanin coloration during seedling emergence stage – Strong, Leaf anthocyanin coloration on margin of young leaves – Absent, Leaf size-length & width – Large, Leaf Shape – Lanceolate, Leaf colour – Dark green, Leaf fineness of serration – Coarse, Leaf hairiness – Sparse, Leaf Petiole pigmentation – Absent, Stem hairiness at the top – Strong, Stem pigmentation-Absent, Stem number of leaves on main stem – High, Time of 50% flowering : 62 days, Ray flowers number & colour – Many and Yellow, Disk flower Colour – Yellow, Disk flower anthocyanin colouration of stigma – Weak, Disk flower Pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Elongated, Bract anthocyanin colouration – Absent, Head attitude at maturity – Turned down, Head diameter – Large, Head shape of grain side – Flat, Plant height base of the plant at ground level to the point of attachment of capitulum at maturity – Very tall, Plant branching & type of branching – Absent, Seed length, shape & Mottling – Medium, Ovoid elongate & Absent, Seed colour of stripes – Grey, Crop duration (Seed to Seed) : 94 days, Hull percent age (100 seeds) : 28, Seed weight (100 seeds) : 3.8 g.
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			plants) – Medium, Leaf angle between lower part of petiole and stem – Medium, Leaf hairiness – Sparse, Leaf petiole pigmentation – Present, Stem hairiness at the top – Medium, Stem pigmentation – Medium, Stem number of leaves on main stem – Medium, Ray flowers number – Many, Ray flower shape – Elongated, Ray flower colour – Pale Yellow, Disk flower colour – Purple, Disk flower anthocyanin colouration of stigma – Medium, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Elongated, Bract anthocyanin colouration – Absent, Plant : natural position of closest lateral head to the central head (end of flowering) Branched – Below, Head attitude – Half turned down, Head diameter – Small, Head shape of grain side – Flat, Plant height – Medium, Plant branching – Present, Plant : type of branching – Fully branched, Seed length – Short, Seed shape – Elongated, Seed base colour – Black, Seed motting – Absent, Seed stripes – Absent, Seed colour of stripes – Black.	
35.	Sunflower ( <i>Helianthus annuus</i> L.)	SH-491	<b>Female</b> Hypocotyl anthocyanin coloration – Strong, Leaf anthocyanin coloration on margin of young leaves – Absent, Time of flowering – Early, Leaf Size – Small, Leaf shape –Rounded, Leaf colour – Light green, Leaf blistering – Strong, Leaf fineness of serration – Medium, Leaf angle of lateral veins – Nearly right, Leaf height of the tip of the blade compared to insertion of petiole (at 2/3 height of plants) – Very high, Leaf angle between lower part of petiole and stem – Small, Leaf hairiness – Sparse, Leaf petiole pigmentation – Absent, Stem hairiness at the top – Strong, Stem pigmentation –Absent, Stem number of leaves on main stem –High, Ray flowers number – Medium, Ray flower shape – Elongated, Ray flower	Hypocotyl anthocyanin coloration – Medium, Leaf anthocyanin coloration on margin of young leaves – Absent, Time of flowering – Early, Leaf Size – Medium, Leaf shape – Cordate, Leaf colour – Dark green, Leaf blistering – Medium, Leaf fineness of serration – Coarse, Leaf angle of lateral veins – Nearly right angle, Leaf height of the tip of the blade compared to insertion of petiole (at 2/3 height of plants) –High, Leaf angle between lower part of petiole and stem – Medium, Leaf hairiness – Sparse, Leaf petiole pigmentation – Absent, Stem hairiness at the top –Strong, Stem pigmentation –Absent, Stem number of leaves on main stem –High, Ray flowers number – Many, Ray flower shape – Elongated, Ray flower colour – Yellow, Disk flower colour – Purple, Disk flower anthocyanin colouration of stigma – Medium, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Rounded, Bract anthocyanin colouration – Absent, Head attitude – Half turned down, Head diameter – Large, Head shape of grain

			<p>colour – Pale Yellow, Disk flower colour – Yellow, Disk flower anthocyanin colouration of stigma – Absent, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Rounded, Bract anthocyanin colouration – Absent, Head attitude – Half turned down, Head diameter – Small, Head shape of grain side – Flat, Plant height – Tall, Seed length –Medium, Seed shape – Ovoid Elongate, Seed base colour – Black, Seed mottling – Absent, Seed stripes – Present, Seed colour of stripes – Brown.</p> <p><b><u>Male</u></b>  Hypocotyl anthocyanin coloration – Strong, Leaf anthocyanin coloration on margin of young leaves – Absent, Time of flowering – Early, Leaf Size – Small, Leaf shape – Cardate, Leaf colour – Light green, Leaf blistering –Absent, Leaf fineness of serration – Medium, Leaf angle of lateral veins – Nearly right angle, Leaf height of the tip of the blade compared to insertion of petiole (at 2/3 height of plants) –Medium, Leaf angle between lower part of petiole and stem – Small, Leaf hairiness –Dense, Leaf petiole pigmentation – Present, Stem hairiness at the top – Strong, Stem pigmentation –Absent, Stem number of leaves on main stem – Medium, Ray flowers number – Medium, Ray flower shape – Elongated, Ray flower colour – Pale Yellow, Disk flower colour –Purple, Disk flower anthocyanin colouration of stigma – Medium, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Elongated, Bract : anthocyanin colouration – Absent, Plant natural position of closest lateral head to the central head (end of flowering) Branched – Below, Head attitude – Half turned down, Head diameter – Small, Head : shape of</p>	<p>side – Flat, Plant height – Very Tall, Plant branching –Absent, Seed length –Medium, Seed shape – Elongated, Seed weight (100 seeds) – Medium, Seed base colour – Black, Seed mottling – Absent, Seed stripes – Present, Seed colour of stripes – Brown, Hull percent (100 seeds) – Medium.</p>
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			grain side – Flat, Plant height – Medium, Plant branching – Present, Plant type of branching – fully branched, Seed length – Short, Seed shape – Ovoid Elongate, Seed base colour – Grey, Seed mottling – Present, Seed stripes – Present, Seed colour of stripes – Grey.		
<b>III. Cereal Seed</b>					
XIV	36.	Bajra ( <i>Pennisetum americanum</i> (L.) Leek)	HHB-67	<p><b>Female- MS 843A:</b> Plant height (cm) – Dwarf (70-100), Tillering – High (Non synchronous tillering of wider spacing), Stem Thickness – Medium thick, Leaf : (a) size &amp; shape – Medium, medium broad, Colour – Dard green Length – Medium (19 cm), Girth – Thick loose, Grain size – Bold, 50%flowering -40-55 days.</p> <p><b>Male- H77/833-2:</b> Plant height (cm) – Medium Dwarf (100-160), Tillering – High with high nodal tillers, Stem Thickness – Thin, Leaf : (a) size &amp; shape –Small, narrow &amp; thin Colour –Lightgreen, Length –Small Thin (13 cm), Girth – Thin dense loose, Grain size – Small, 50%flowering -40-52 days.</p>	<p>Plant height – Medium</p> <p><b><u>Distinguishing morphological character-</u></b> Thin stem, medium narrow leaves typical conical earhead, medium bold seed size and extra early in maturity.</p> <p><b>Maturity-</b> 42 + 2DAYS (Seed to 50% flowering) 60+2 days (Seed to seed).</p>
	37.	Bajra ( <i>Pennisetum americanum</i> (L.) Leek)	GHB-558 (MH-946)	<p><b>Female (MS-94555A)</b> Plant height- 80-90 cm., Node pigmentation and pubescence- Present, No. of effective tillers- 4-6, Anther colour- violet, Head shape- Conical, Head Length- Medium, Head compactness- Lose, Bristles- 9.2 mm, Grain shape- Globular, Colour- Brownish, Days to 50% flowering- 47-52, Maturity- 71-76 days.</p> <p><b>Male (J-2290)</b> Plant height- 150- 160 cm., Node pigmentation and pubescence- Absent, No. of effective tillers- 5-6, Anther colour- Yellow, Head shape- Conical, Head Length- Medium, Head compactness- Lose, Bristles- 9.6 mm, Grain shape- Globular, Colour- Grey, Days to 50% flowering- 52-57, Maturity- 76-81 days.</p>	<p>Plant hg.-200-210 cm. <b><u>Distinguishing morphological character</u></b> :- Basal pigmentation- Purple, Ear head shape- Conical, Leaf size- Broad, Anther colour- cream, Panicle shape- Conical, Days to 50% flowering- 48-52 days, Maturity- 75-80 days, Head length- 22-26 cm, Head girth11-13 cm, Head exertion- Complete, Effective tillers/ Plant- 3-5, Basal pigmentation- Light purple, Node pigmentation- Absent, Node pubescence- Present, Leaf sheath pubescence- Absent, Head Compact, Bristle- Absent, Glume colour- Light purple, Grain colour- Brownish grey, shape- Obovate.</p>

	38.	Bajra ( <i>Pennisetum americanum</i> (L.) Leek)	Raj-171	-	Plant Height – 170-200 cm., <b>Distinguishing morphological characters</b> – Long, medium thick compact cylindrical head, tapering toward tip., <b>Maturity</b> – 80-85 days. Maturity group – Medium.
XV.	39.	Barley ( <i>Hordeum vulgare</i> L. Common name-Jau)	K-551 (Ritambhara)	-	Plant- semi erect with waxy bloom, broad dark green leaves, spike and mid long mid dense with long and serrated awns, light yellow in colour, kernel very bold light yellow, growth habit- semi- erect, Av. Plant hg.-92 cm, ear colour at maturity-light yellow, grain colour- light yellow, texture hard, shape- bold and medium long, Av. 1000 grain wt- 46-49 gm, maturity- 120-125 days.
	40.	Barley ( <i>Hordeum vulgare</i> L.) (Jau)	K-409 (Priti)	-	Plant height –Medium tall .Distinguishing morphological characteristics- Broad an dark- green leaves, spike mid- long, mid- dense, semi smooth awns. Bold well developed bright yellow kernel, threshability easy non-shattering, maturity- 109-112 days, semi bold well- developed, bright yellow colour, 1000 grain wt.- 38-40 gm.
	41.	Barley ( <i>Hordeum vulgare</i> L.) (Jau)	N. Barley-3 (NDB-1020)	<b>Female (K 425):</b> Plant height- 90 cm. Medium dwarf, 50% flowering in 78 days and maturity-115 days <b>Male (Jyoti):</b> Plant Height-105cm, Tall, Semi spready, 50% flowering in 87 days and maturity in 125 days	Plant height -70-73 cm, Distinguishing morphological characteristics – dwarf, erect, early maturing ,hulled barley, wax coating on leaves and peduncle , maturity -110-115days ,Protein content-110-12.45%, Insoluble carbohydrate- 7.2%, Maturity -110-115 days
	42.	Barley ( <i>Hordeum vulgare</i> L.) (Jau)	RD-2552	-	Growth habit –erect, Foliage colour (Boot stage )-Dark green, Leaf width (booth stage)-intermediate, Average days to heading -73 (61-85), Average days to maturity-120 (106-130), Average plant height-85 (75-94), Ear colour at maturity-light yellow ,glum shoulder-elevated ,glume beak-acute, Grain-colour-yellow, Texture-medium hard ,slightly netted, cheeks-medium narrow,shape-43.5 (42-45), Maturity group-128 days
XVI	43.	Paddy, ( <i>Oryza sativa</i> L.) ( Dhan)	BPT-5204 (Samba Mahsuri)	-	Plant Height – Dwarf to medium tall <b>Distinguishing morphological charactors</b> – Habit : Erect, non-lodging,open type of canopy Foliage : Dark green erect short leaves late senescence boot leaf erect, Fluorescence: Erect or slightly drooping exsertion complete. Glume colour at maturity: Straw colour. kernel colour: white translucent, Grain classification : Fine (Medium slender,

					<b>Two identifiable Distinguishing morphological characters</b> -Dwarf to medium tall, erect, non-lodging open type of canopy with dark green erect short leaves. The inflorescence erect slightly drooping with complete exertion. Maturity group – Late duration (Seed to Seed) (140-150) days.
44.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	BPT-3291 (Sona Mahsuri)	-		Plants dwarf, close tillering and uniform flowering panicle compact and well exerted, glumes of dirty brown colour, Grains long slender with translucent kernels.
45.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	MTU-7029 (IET-5656) (Swarna)	-		Plants Semi Dwarf- (95-100 Cm.) with profuse tillering, medium long panicles, foliage dark green on ripening. Grains short bold. . Kernals white, Translucent without abdominal white. Days to 50% flowering 125 days
46.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	Chaitanya (IET-9265)	-		Description of Variety – Chaitanya variety is a semi-dwarf type with all plant parts green in colour its glumes are straw in colour Rice is classified as medium and slender. It is tolerant of brown plant hopper. Its maturity duration is 150 days. <b>Two identifiable and distinguishable morphological characteristics of the variety-</b> Grain is straw in colour and classified as fine. All parts of the plant are green in colour., Maturity group – Late (150 days)
47.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	MTU-2077 (Krishnaveni)	-		Krishnaveni (MTU 2077) is a long duration (150 days) and semi dwarf type with all plant parts green in colour. Rice is classified medium slender. It is tolerant to BPH. <b>Two identifiable and distinguishable morphological characteristics of the variety-</b> Grain is brown in colour. All parts of the plant are green in colour Maturity Group – Late (150 days)
48.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	MTU-1010 (Cottondorasana halu)	-		Plant height- 108 cm. <b>Distinguishing morphological characters-</b> Semi dwarf with medium tillering, green foliage grain straw glumed, long slender. Habit- Erect, Internode- Green, Leaf sheath- Green, Juncture- white, Auricle- Green, Septum- Green, Leaf blade- Green non- pigmented, Flag

				leaf- Non- pigmented, Erect, Exertion- Good, Awnless, Panicle- Compact , Lemma and Palea-Green, Rice colour- White, translucent, Maturity days to 50% flowering- 90 days, Maturity days- 120
49.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	NLR-145	-	Plant height-80-85cm., <b><u>Distinguishing morphological charactors</u></b> Habit-Sami-dwarf, compact, with erect flag leaf, No. of ear bearing tillers-16/ hill, Straw strength-Non-lodging, Internode thickness-6.8 mm, <b><u>Pigmentation</u></b> , Leaf sheath-Green, Leaf blade-Green, Internode-Pale green, Glumes-Straw colour, Apiculus-Straw colour <b><u>Panicle characters:</u></b> Panicle length-22.0 cm, No. of grains/ panicle-130, Panicle density-5.9 grains/ cm, Nature of panicle-Drooping at maturity, Panicle exertion-Awnless, Sterility-Few basal spikelets sterile. <b><u>Grain characters:</u></b> Kernel colour – White, Scent – Non-Scented, Nature of Kernel – Translucent, Size of the grain – Length mm : 9.06, Breadth mm : 2.58 L/B ratio : 3.51, 1000 grain weight – 24.1 g, Texture of Kernel – Translucent , <b><u>Size of kernel –</u></b> Length mm: 8.18, Breadth mm : 2.43, L/B ratio: 3.36. <b><u>Maturity:</u></b> Seed to flowering – 110 days, Seed to flowering – 80 days, Transplanting to flowering – 140 days. <b><u>Describe at least two identifiable and distinguishable morphological characteristics of the variety.</u></b> – Erect flag leaf, panicles concealed within leaf canopy. Long and slender, straw coloured grain. Profuse tillering habit..
50.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	WGL-20471 (Paddy ERRA Mallelu)	<b><u>BC 5-55</u></b> BC 5-55 is derivative of TN 1/Basmati 370. It is of 118 days duration. With medium tillering and erect plant type. The grain is long slender, translucent with no abdominal white <b><u>W. 12708</u></b> W. 12708 is a promising donor for resistance to gallmidge and a derivative of IR 8/W. 1263. It is of 135 days duration with anthocyanin pigmentation at the base of plant, leaf margins and glume tip. The grains are coarse with dark brown glumes and red pericarp.	Rice variety ERRA MALLELU is a semi-dwarf, semi-compact, medium tillering plant type with erect leaves, all parts green in colour and grain ripening to slight brown colour. The kernel is long slender with abdominal white absent. Its duration to maturity is 120 days. Erra Mallelu is highly resistajnt to gallmidge. <b><u>Two identifiable and distinguishable morphological characteristics:</u></b> Grain light brown in colour and classified as long slender. It is early maturing and gallmidge resistant. All plant parts are green in colour. <b><u>Maturity-</u></b> Early maturing (118- 120 days.)

51.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	IR-64 (IET-9671)	-	Plant Height- Semi dwarf measuring about 100cm. <b><u>Distinguishing morphological charactors</u></b> Erect wiyh dark green leaves, profuse and compact tillering long slender grain straw colour husk. <b><u>Maturity-</u></b> 90-95 days to 50% flowering. 120-125 days for seed to seed. Maturity group- Early.
52.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	RGL-2537 (Sri kakulam Sannalu)	-	Plant Height- Intermediate tall of 110 to 120 cms height. Habit-Intermediate tall, Compact tillering. No. of ear bearing tillers- 8-10 no./ hill. Straw strength- Non lodging. Leaf sheath, Leaf blade and Internodes -Green. Glumes and Apicules –Straw. Panicle length- 23.5 cms x 26.5 cms, No. of grainds/ panicle- 120 to 140 No., Panicle density- 5 grains/ cm. Nature of panicle- Semi- drooping. Panicle excertion- complete. Awing- Awnless. Kernel colour- White. Grain of length- 8.627 mm, Breadh-2.385 and L/ B ratio: 3.617 mm. Maturity- Seed to flowering – 125 to 130 days , Transplanting to flowering- 95 to 100 Days. Seed to Seed 155 to 160 days, Distinguishable characters- 1. Intermediate tall of 110 to 120 cm height with drooping ear head and lengthy flag leaf at maturity. 2. Pale green colour leaf foliage 3. Normally does not lodge at maturity
53.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	RGL-2538 (Vasundhara)	-	Plant height –erect, semi dwarf 100-105 cm, Tillering ability –medium 12-15 no. ,foliage-light green ,leaf sheath-green ,grain type-long slender length-6.90,breadth-1.83, length & breadth ratio-3.77 .Medium maturity with 130-135 days total duration in kharif season . Semi –Dwarf, attains the height of 100-105 cm in kharif season. Flag leaf is short and erect and ear heads droop at maturity. Long slender straw glumed grains.
54.	Paddy, ( <i>Oryza sativa</i> L.) ( Dhan)	RNRM-7	-	Plant height- 80-90 cm <b><u>Distinguishable morphological characters-</u></b> Ear bearing tillers- 13/ hill, Growth habit- Compact, erect plant type, Pigmentation- Absent Hairness on leaves- Normal Boot leaf- Erect, Panicle type- Compact drooping, Panicle length- 21.0 cm, No. of grains/ panicle- 150-180 grains/ panicle, Awnless, Kernel shape- Medium slender Kernel colour- White translucent Duration- Kharif- 135 days, Rabi- 150 days, Two identifiable &

					distinguishable morphological characters- 1. Semi dwarf, profuse tillering with medium slender grains. 2- Beak of the grain slightly curved one side but straight at other side.
55.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	Pusa- RH-10	<p><b>Female parent- (Pusa 6 A):</b> Plant height- 85 cm, No. of effective tillers 8-10, Leaf characteristics-short, narrow, erect &amp; dark green leaf. Days of 50% flowering -90-95. Panicle length-27 cm, Panicle exertion-20 cm. Grain type-Long slender ,fine and aromatic ,1000 grain weight-18 gm.,out crossing-45%, No. of spikelets /panicle-165.</p> <p><b>Male Parent (PRR-78):</b>Plant height- 105 cm, No. of effective tillers 8-10, Leaf characteristics-dark green and droopy leaf with medium length and width. Days of 50% flowering -92-97. Penicle length-30 cm, Panicle exertion-Full. Grain type-Extra long slender, and aromatic, 1000 grain weight-26 gm, No. of spikelets / panicle-270.</p>		Plant height- 90-110 cm, <b><u>Distinguishing morphological characters-</u></b> Dark green erect flag leaf, long slender fine grains without wans, Plant type- semi dwarf, No. of tillers/ plant- 10-12,No. of panicles/sq.m- 400, Days to 50% flowering- 88-90 days, 1000 grain wt. - 6.74 gm., Hulling recovery-81%, Milling recovery-67%, Head rice recovery-53-43%, Maturity- 120-125 days
56.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	KRH-2 (Karnataka Rice Hybrid 2)	<p><b><u>IR 58025 A</u></b> 1.Invariably anthers white in colour .but some time one of the six anther is yellow in colour (inspite of its spikelet a sterile) 2.Tendancy for awning present .3.spikelets are sterile. 4. Semi Dwarf 5.Grain type long slender. <b><u>IR 58025 B</u></b> 1. Anthers are Yellow in colour. 2. Tendency for awning present 3.Spikelet are fertile 4.semidwarf 6. Long slender, <b><u>KMR -31</u></b>. Anthers are Yellow in colour. 2. Awns absent 3.Spike let are fertile 4.semitall 5.Long bold 6. Long slender</p>		Plant height 100 cm. grain type –long slender , plant type –semi tall , Days to 50% flowering -90-95 days ,Days to maturity -135 days (seeding to harvest)
57.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	Narendra dhan- 97 (IET 9210)	-		Plant Height- 75-80 cm.  <b><u>Distinguishing morphological characters</u></b> Short tipped tendency, Stigma white. <b><u>Maturity-</u></b> Days to 50% flowering -65-70 days, Seed to seed – 90-95 days. Maturity group- Early.

58.	Rice ( <i>Oryza sativa</i> L.)	US 312		Plant height : 105 cm, Plant type – Erect and sturdy stem, No. of tillers : 16-18, No. of panicles / m <sup>2</sup> : 302, Days to 50% flowering : 98, Panicle type – Dense and long, Panicle exertion : 100 % (2 cm above flag leaf), Awns – Absent, Apiculus colour – Green, Kernel length (mm) : 6.10, Kernel breadth (mm) : 2.02, L/B ratio : 2.95, Grain Chalkiness – VOC, Kernel appearance – Semi translucent, Milling recovery % : 72.1, Head rice recovery : 70, Alkali value : 5, Amylose content : 23.14 % intermediate.
59.	Rice ( <i>Oryza sativa</i> L.)	ARHH 7434	<p><b>Female</b> Duration (Days) : 132-139, Plant habit : Erect, Plant height : 90 cm, Leaf sheath : Green, Leaf blade : Medium, Leaf colour : Dark Green, Flag leaf angle : Erect, Flowering (days) : 98-102, Panicle length : 20-22 cm, Panicle exertion : partly exerted, Grain type : Long slender, Grain test weight : 20.9 g.</p> <p><b>Male</b> Duration (Days) : 138-144, Plant habit : Erect, Plant height : 105 cm, Leaf sheath : Green, Leaf blade : Broad, Leaf colour : Dark Green, Flag leaf angle : Erect, Flowering (days) : 92-96, Panicle length : 24-28 cm, Panicle exertion : Well exerted, Grain type : Long slender, Grain test weight : 25.7 g.</p>	Very strong plant type, Medium height, More effective tillers, Well exerted panicles, More No of fertile spikelets, Long slender attractive grains with very Good cooking quality, Medium duration (120-130 Day after sowing), Tolerant to Blast, Neck blast and Brown Plant Hopper.
60.	Rice ( <i>Oryza sativa</i> L.)	Sonam		Dwarf, Erect and Strong Plants, Profused tillering ability, Medium long, Compact, straight and well exerted panicle, Short slender, awnless, attractive golden yellow coloured grains, Non-shattering, easily threshable and wide adaptability, High head rice recovery, Very good cooking quality, Medium duration, Good yield potential in small grain category.
61.	Rice ( <i>Oryza sativa</i> L.)	Motigold		<p>Coleptile colour – Colour less, Basal Leaf Sheath colour – Green, Leaf intensity of green colour – Medium, Leaf anthocyanin colouration – Absent, Leaf sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present,</p> <p>Leaf Anthocyanin colouration of auricles – Colour less, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule –</p>

				<p>Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf Length of blade – Medium, Leaf width of Blade – Medium, Culm Attitude – Semi Erect, Time of heading (50 % of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet density of pubescence of lemma – Weak, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Thick, Stem Length (excluding floating rice) – Short, Stem anthocyanin colouration of nodes – Absent, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Medium, Flag Leaf attitude of blade (late observation) – Erect,</p> <p>Panicle : Curvature of main axis – Semi Straight, Panicle Number per plant – Medium, Spikelet Colour of tip of lemma – Brown, Lemma and Palea colour – Brown furrows on straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle attitude of branches – Erect to semi erect, Panicle exertion – Mostly exerted, Time Maturity – Medium, Leaf senescence – Medium, Sterile Lemma colour – Straw, Grain weight of 1000 fully developed grains – Low, Grain Length – Short, Grain Width – Very Narrow, Grain Phenol reaction of lemma – Present, Decorticated grain Length – Medium, Decorticated grain width – Narrow, Decorticted grain Shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm content of amylose – Medium, Decordicated grain aroma – Absent.</p>
62.	Rice ( <i>Oryza sativa</i> L.)	Sonal		<p>Coleptile colour – Colour less, Basal Leaf Sheath colour – Green, Leaf intensity of green colour – Medium, Leaf anthocyanin colouration – Absent, Leaf sheath : anthocyanin colouration – Absent, Leaf Auricles – Present, Leaf Anthocyanin colouration of auricles – Colour less, Leaf collar – Present, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf Length of blade – Medium, Leaf width of Blade – Medium, Culm Attitude – Semi Erect, Time of heading (50 % of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet density of pubescence of lemma – Weak,</p>

					<p>Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Thick, Stem Length (excluding floating rice) – Very Short, Stem anthocyanin colouration of nodes – Absent, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Medium, Flag Leaf attitude of blade (late observation) – Erect, Panicle Curvature of main axis – Semi Straight, Panicle Number per plant – Medium, Spikelet Colour of tip of lemma – White, Lemma and Palea colour – Straw, Panicle awns – Absent, Panicle colour of awns (late observation) – Yellowish white, Panicle presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle attitude of branches – Erect to semi erect, Panicle exertion – Well exerted,</p> <p>Time Maturity (days) – Medium, Leaf senescence – Late, Sterile Lemma colour – Straw, Grain weight of 1000 fully developed grains – Low, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Short, Decorticated grain width – Narrow, Decorticated grain Shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm content of amylose – Medium, Decorticated grain aroma – Absent.</p>
63.	Rice ( <i>Oryza sativa</i> L.)	NPH 8899	<b>Female</b> Coleptile colour – Color less, Basal Leaf sheath colour – Green, Leaf intensity of green colour – Medium, Leaf anthocyanin colouration – Absent, Leaf sheath anthocyanin colouration – Absent, Leaf pubescence of blade surface – Medium, Leaf Auricles – present, Leaf Anthocyanin colouration of auricles – Color less, Leaf Collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf length of blade – Medium, Leaf width of Blade – Medium, Culm : Attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet	<p>Coleptile colour – Color less, Basal Leaf sheath colour – Green, Leaf intensity of green colour – Dark, Leaf anthocyanin colouration – Absent, Leaf sheath anthocyanin colouration – Absent, Leaf pubescence of blade surface – Medium, Leaf Auricles – present, Leaf Anthocyanin colouration of auricles – Color less, Leaf Collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf length of blade – Medium, Leaf width of Blade – Broad, Culm : Attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet density of pubescence of lemma – Absent, Male sterility – Absent, Lemma : Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem</p>	

			<p>density of pubescence of lemma – Absent, Male sterility – Present, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spilelet colour of stigma – White, Stem Thcikness – Medium, Stem length (excluding floating rice) – Short, Stem anthocyanin colouration of nodes – Absent, Stem intensity of anthocyanin colouration of nodes – Weak, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Medium, Flang Leaf attitude of blade (late observation) – Erect, Panicle curvature of main axis – Drooping, Panicle Number per plant – Few, Spikelet colour of tip of lemma – White, Lemma and palea colour – Straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle secondary branching – Strong, Panicle attitude of branches – Semi Erect to Spreading, Panicle exsertion – Mostly Exerted, Time maturity – Medium, Leaf senescence – Late, Sterile Lemma colour – Straw, Grain Weight of 1000 fully developed grains – Medium, Grain Length – Medium, Grain width – Narrow, Grain Phenol reaction of lemma – Absent, Decorticated grain Length – Medium, Decorticated grain width – Medium, Decorticated grain shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm presence of amylose – Present, Endoperm content of amylose – Medium, Decordicated grain aroma – Absent.</p> <p><b><u>Male</u></b>  Coleptile colour – Color less, Basal Leaf sheath colour – Green, Leaf intensity of green colour – Dark, Leaf anthocyanin colouration – Absent, Leaf sheath anthocyanin colouration – Absent, Leaf pubescence of</p>	<p>Thcikness – Thick, Stem length (excluding floating rice) – Very Short, Stem anthocyanin colouration of nodes – Absent, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Medium, Flang Leaf attitude of blade (late observation) – Erect, Panicle curvature of main axis – Drooping, Panicle Number per plant – Few, Spikelet colour of tip of lemma – White, Lemma and palea colour – Straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle secondary branching – Strong, Panicle attitude of branches – Semi Erect, Panicle exsertion – Well Exerted, Time maturity – Medium, Leaf senescence – Late, Sterile Lemma colour – Straw, Grain Weight of 1000 fully developed grains – Low, Grain Length – Very Short, Grain width – Very Narrow, Decorticated grain Length – Medium, Decorticated grain width – Narrow, Decorticated grain shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm presence of amylose – Present, Endoperm content of amylose – Medium, Decordicated grain aroma – Absent.</p>
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			<p>blade surface – Medium, Leaf Auricles – present, Leaf Anthocyanin colouration of auricles – Color less, Leaf Collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf length of blade – Short, Leaf width of Blade – Medium, Culm Attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Semi Erect, Spikelet density of pubescence of lemma – Absent, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spilelet colour of stigma – White, Stem Thcikness – Thick, Stem length (excluding floating rice) – Short, Stem anthocyanin colouration of nodes – Absent, Stem intensity of anthocyanin colouration of nodes – Weak, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Short, Flang Leaf attitude of blade (late observation) – Semi Erect, Panicle curvature of main axis – Drooping, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea colour – Straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle secondary branching – Strong, Panicle attitude of branches – Semi Erect to Spreading, Panicle exsertion – Well Exerted, Time maturity – Medium, Leaf senescence – Late, Sterile Lemma colour – Straw, Grain Weight of 1000 fully developed grains – Low, Grain Length – Very Short, Grain : width – Very Narrow, Grain Phenol reaction of lemma – Absent, Decorticated grain Length – Short, Decorticated grain width – Narrow, Decorticated grain shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm</p>	
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				presence of amylose – Present, Endosperm content of amylose – Medium, Decorticated grain aroma – Absent.	
64.	Rice ( <i>Oryza sativa</i> L.)	GK 5003	<p><b>Female</b> Plant height (cm) : 85-90, Plant type : Semi-dwarf, No. of tillers / plant : 12-16, No. of panicles / sq.m. : 280-300, Days to flowering : 82-86, Panicle type : Intermediate, Panicle exertion (%) : 85, Awning : Partly awned, Apiculus colour : Green, 1000-grain weight (g) : 20, Kernel length (mm) : 7.26, Kernel breadth (mm) : 1.96, L/B ratio : 3.70, Grain type : LS, Milling recovery : 67, Head rice recovery : 56, Husk colour : Straw, Anther type : White, Shrivelled, Pollen : Sterile, Stigma colour : Pale green.</p> <p><b>Male</b> Plant height (cm) : 95-100, Plant type : Semi-dwarf, No. of tillers / plant : 13-15, No. of panicles / sq.m. : 280-300, Days to flowering : 88-95, Panicle type : Intermediate, Panicle exertion (%) : 100, Awning : Awnless, Apiculus colour : Green, 1000-grain weight (g) : 18, Kernel length (mm) : 5.76, Kernel breadth (mm) : 2.20, L/B ratio : 2.62, Grain type : MB, Milling recovery : 76, Head rice recovery : 64, Husk colour : Gold and gold furrows, Anther type : Yellow, plumpy, Pollen : Fertile, Stigma colour : Pale green.</p>	Plant height (cm) : 100-106, In Leaf colour – Green, 50 % flowering (days) – Kharif : 90-95, Anther colour and type – yellow colour and plumpy, Panicle emergence (days) : 95-100.	<p><b>Ear Head</b> Shape – Compact, Awned – Absent, Glume colour – straw colour, Seed shape – Long Slender (LS), Grain quality – Fine, Seed colour – Straw, Dormancy – Non-dormant, Photo sensitivity – Non-sensitive, Shattering – Non-shattering, Lodging – Non lodging, Maturity (days) : 120-125, DUMS – Semi erect, broad and long flag leaf, Long Slender grains.</p>
65.	Rice ( <i>Oryza sativa</i> L.)	KSL 210011	<p><b>A Line</b> Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Light, Leaf Anthocyanin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocyanin coloration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Weak, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : Colourless, Leaf</p>	Coleoptile colour – Colorless, Leaf intensity of green colour – Medium, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (38), Leaf Width of Balde (cm) – Medium (1.2), Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days – Medium (99), Lemma Anthocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Thick, Stem Length (cm) excluding panicles – Very short, Panicle : Length of main axis (cm) – Medium,	

			<p>Collar : Present, Leaf Anthocyanin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : White, Leaf Length blade (cm) : Medium (43), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : Medium (102), Flag leaf Attitude of blade (early observation) : Erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Present, Lemma anthocyanin colouration of keel : Absent or weak, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : White, Stem thickness (mm) : Thick, Stem Length (cm) excluding panicles : Very short (43), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : Long, Flag leaf Attitude of blade (late observation) : Erect, Panicle Curvature of main axis : Semi-Straight, Panicle Number per plant : Few, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.4, Panicle Distribution of awns : Tips only, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Partially Exerted, Time of maturity (days) : Medium (130), Leaf Senescence : Medium, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 22, Grain Length (mm) : 9.9, Grain Width (mm) : 2.23, Decorticated grain length (mm) : 6.84, Decorticated grain Width (mm) : 2.03, Decorticated grain Shape (in lateral view) : Long</p>	<p>Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Lemma and palea Colour – Straw, Panicle Awns – Present, Panicle Colour of awns – Yellowish white, Panicle length of longest awns (cm) – 1, Panicle Distribution of awns – Tips only, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well exerted, Time of maturity (days) – Medium (130), Grain Weight of 1000 fully developed grains (gm) : 25, Grain Length (mm) : 10.14, Grain Width (mm) : 2.41, Decorticated grain length (mm) : 8.51, Decorticated grain Width (mm) : 1.99, Decorticated grain Shape (in lateral view) – Extra long slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Present.</p>
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			<p>slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>B Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Weak, Leaf Auricles : Present, Leaf Anthocynin coloration of auricles : Colourless, Leaf Collar : Present, Leaf Anthocynin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : White, Leaf Length blade (cm) : Medium (43), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : Medium (101), Flag leaf Attitude of blade (early observation) : Erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent or weak, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : White, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : Very short (67), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : Long, Flag leaf Attitude of blade (late observation) : Semi-erect, Panicle Curvature of main axis : Deflexed, Panicle Number per plant : Medium, Spikelet Color of tip of</p>	
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			<p>lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 1.2, Panicle Distribution of awns : Tips only, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Well Exerted, Time of maturity (days) : Medium (124), Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 24, Grain Length (mm) : 9.65, Grain Width (mm) : 2.01, Decorticated grain length (mm) : 7.45, Decorticated grain Width (mm) : 2.17, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>R Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Weak, Leaf Auricles : Present, Leaf Anthocynin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocynin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : Absent, Leaf Length blade (cm) : 54, Leaf Width of Blade (cm) : 1.3, Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : 94, Flag leaf Attitude of blade (early observation) : Erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Absent, Lemma</p>	
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				<p>anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : 73, Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : 25, Flag leaf Attitude of blade (late observation) : Semi-erect, Panicle Curvature of main axis : Straight, Panicle Number per plant : 15, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 1, Panicle Distribution of awns : Tips only, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Most Exerted, Time of maturity (days) : 124, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 28, Grain Length (mm) : 11.24, Grain Width (mm) : 2.04, Decorticated grain length (mm) : 8.59, Decorticated grain Width (mm) : 1.89, Decorticated grain Shape (in lateral view) : Extra long slender, Decorticated grain color : Light brown, Gelatinization temperature : High, Decorticated grain aroma : Present.</p>	
66.	Rice ( <i>Oryza sativa</i> L.)	KSL 120014	<p><b>A Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of</p>	<p>Coleoptile colour – Colorless, Leaf intensity of green colour – Light, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Long (59), Leaf Width of Balde (cm) – Broad (2.3), Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days – Late (114), Lemma Antocyanin colouration of apex – Absent, Spikelet Colour</p>	

			<p>blade surface : Absent, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocyanin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : Absent, Leaf Length blade (cm) : 46 (Long), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : 100, Flag leaf Attitude of blade (early observation) : Semi erect, Spikelet Density of pubescence of Lemma : Weak, Male sterility : Present, Lemma anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : 55 (very short), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : 22 (Medium), Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Straight, Panicle Number per plant : 11 (Medium), Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.3, Panicle Distribution of awns : Upper half, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Partially Exert, Time of maturity (days) : 128, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 22 (Medium), Grain Length (mm) : 10.24, Grain Width (mm) : 2.06, Decorticated grain length</p>	<p>of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Very short (86), Panicle Length of main axis (cm) – Long (29), Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium (13), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well exerted, Time of maturity (days) – Late (145), Grain Weight of 1000 fully developed grains (gm) : 25, Grain Length (mm) : 10.09, Grain Width (mm) : 2.18, Decorticated grain length (mm) : 7.37, Decorticated grain Width (mm) : 2.04, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.</p>
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			<p>(mm) : 6.96, Decorticated grain Width (mm) : 1.83, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>B Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, Leaf Anthocyanin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocyanin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Absent, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocyanin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : Absent, Leaf Length blade (cm) : 46 (Long), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : 98, Flag leaf Attitude of blade (early observation) : Semi erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : 59, Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : 24 (Medium),  Flag leaf Attitude of blade (late observation) : Semi</p>	
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			<p>erect, Panicle Curvature of main axis : Semi straight, Panicle Number per plant : 10, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.3, Panicle Distribution of awns : Upper half, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Well exerted, Time of maturity (days) : 125, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 23, Grain Length (mm) : 10.23, Grain Width (mm) : 2.04, Decorticated grain length (mm) : 7.08, Decorticated grain Width (mm) : 1.87, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>R Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Light, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Medium, Leaf Auricles : Present, Leaf Anthocynin coloration of auricles : colourless, Leaf Collar : Present, Leaf Anthocynin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : White, Leaf Length blade (cm) : 50 (Long), Leaf Width of Blade (cm) : 1.6 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Semi-erect, Time of heading (50% of plants with panicles) in days : Medium (109), Flag leaf</p>	
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				<p>Attitude of blade (early observation) : Erect, Spikelet Density of pubescence of Lemma : Weak, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent or weak, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : white, Stem thickness (mm) : Thick, Stem Length (cm) excluding panicles : Very short (75), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : Long, Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Semi straight, Panicle Number per plant : Medium, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Absent, Panicle Color of awns : NA, Panicle Length of longest awns (cm) : NA, Panicle Distribution of awns : NA, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Mostly exerted, Time of maturity (days) : Medium (136), Leaf Senescence : Medium, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 29, Grain Length (mm) : 9.66, Grain Width (mm) : 2.29, Decorticated grain length (mm) : 7.34, Decorticated grain Width (mm) : 2.42, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : High, Decorticated grain aroma : Absent.</p>	
67.	Rice ( <i>Oryza sativa</i> L.)	KSL 120007	<b>A Line</b> Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath:	Coleoptile colour – Colorless, Leaf intensity of green colour – Medium, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Very Strong, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (38), Leaf Width of Balde (cm) – Medium (1.2), Culm Attitude	

			<p>Anthocyanin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Absent, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocyanin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : Absent, Leaf Length blade (cm) : 46 (Long), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : 100, Flag leaf Attitude of blade (early observation) : Semi-erect, Spikelet Density of pubescence of Lemma : Weak, Male sterility : Present, Lemma anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : Very short (55), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : 22 (Medium), Flag leaf Attitude of blade (late observation) : Semi-erect, Panicle Curvature of main axis : Straight, Panicle Number per plant : 11 (Medium), Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.3, Panicle Distribution of awns : Upper half, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Partially Exerted, Time of maturity (days) : 128, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains</p>	<p>– Erect, Time of heading (50% of plants with panicles) in days – Early (86), Lemma Anthocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Thick, Stem Length (cm) excluding panicles – Very short (55), Panicle Length of main axis (cm) – Medium (21), Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium (12), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle : Exertion – Mostly exerted, Time of maturity (days) – Early (115), Grain Weight of 1000 fully developed grains (gm) : 24, Grain Length (mm) : 9.29, Grain Width (mm) : 2.44, Decorticated grain length (mm) : 6.44, Decorticated grain Width (mm) : 2.15, Decorticated grain Shape (in lateral view) – Long bold, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.</p>
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			<p>(gm) : 22 (Medium), Grain Length (mm) : 10.24, Grain Width (mm) : 2.06, Decorticated grain length (mm) : 6.96, Decorticated grain Width (mm) : 1.83, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>B Line</b></p> <p>Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Absent, Leaf Auricles : Present, Leaf Anthocynin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocynin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : Absent, Leaf Length blade (cm) : 46 (Long), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : 98, Flag leaf Attitude of blade (early observation) : Semi-erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : 59, Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of</p>	
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			<p>internodes : Absent, Panicle Length of main axis (cm) : 24 (Medium), Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Semi straight, Panicle Number per plant : 10, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.3, Panicle Distribution of awns : Upper half, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Well exerted, Time of maturity (days) : 125, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 23, Grain Length (mm) : 10.23, Grain Width (mm) : 2.04, Decorticated grain length (mm) : 7.08, Decorticated grain Width (mm) : 1.87, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>R Line</b></p> <p>Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Absent, Leaf Auricles : Absent, Leaf Anthocynin coloration of auricles : Clourless, Leaf Collar : Present, Leaf Anthocynin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : White, Leaf Length blade (cm) : Medium (44), Leaf Width of Blade (cm) : 1.3</p>	
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			<p>(Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : Medium (97), Flag leaf Attitude of blade (early observation) : Semi-erect, Spikelet Density of pubescence of Lemma : Strong, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent or very weak, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : White, Stem thickness (mm) : Thick, Stem Length (cm) excluding panicles : Very short (64), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : Short, Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Deflexed, Panicle Number per plant : Few, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Absent, Panicle Color of awns : NA, Panicle Length of longest awns (cm) : NA, Panicle Distribution of awns : NA, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Well exerted, Time of maturity (days) : Early (120), Leaf Senescence : Medium, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 21, Grain Length (mm) : 7.69, Grain Width (mm) : 2.9, Decorticated grain length (mm) : 5.37, Decorticated grain Width (mm) : 2.39, Decorticated grain Shape (in lateral view) : Short bold, Decorticated grain color : Light brown, Gelatinization temperature : High medium, Decorticated grain aroma : Absent.</p>	
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68.	Rice ( <i>Oryza sativa</i> L.)	KSL - 333		<p>Coleoptile colour – Colorless, Leaf intensity of green colour – Light, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (42), Leaf Width of Balde (cm) – Medium (1.3), Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days – Medium (110), Lemma Anthocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Very short (80), Panicle Length of main axis (cm) – Medium (25), Panicle Curvature of main axis – Semi Straight, Panicle Number per plant – Medium (14), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well exerted, Time of maturity (days) – Medium-Late (138), Grain Weight of 1000 fully developed grains (gm) – Medium (24), Grain Length (mm) : 9.10, Grain Width (mm) : 2.02, Decorticated grain length (mm) : 7.10, Decorticated grain Width (mm) : 1.90, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.</p>
69.	Rice ( <i>Oryza sativa</i> L.)	SPS - 14		<p>Coleoptile colour – Colorless, Leaf intensity of green colour – Light, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Long (63), Leaf Width of Balde (cm) – Medium (1.2), Culm : Attitude – Erect, Time of heading (50% of plants with panicles) in days : 109, Lemma : Anthocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Short (66), Panicle Length of main axis (cm) : 26, Panicle Curvature of main axis – Straight, Panicle Number per plant : 19, Lemma and palea Colour – Straw, Panicle Awns – Present, Panicle Colour of awns – Yellowish white, Panicle length of longest awns (cm) : 0.3, Panicle Distribution of awns – Tips only, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well exerted, Time of maturity (days) : 139, Grain Weight of 1000 fully developed grains (gm) : 21, Grain Length (mm) : 9.66, Grain</p>

					Width (mm) : 2.22, Decorticated grain length (mm) : 7.30, Decorticated grain Width (mm) : 2.05, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.
70.	Rice ( <i>Oryza sativa</i> L.)	Rasika selection			Coleoptile colour – Colorless, Leaf intensity of green colour – Medium, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (42.8), Leaf Width of Balde (cm) – Medium (1.46), Culm Attitude – Semi-Erect, Time of heading (50% of plants with panicles) in days : 104, Lemma Antocyanin colouration of apex – Absent, Spikelet Colour of stigma – White, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Very short (63.4), Panicle Length of main axis (cm) – Short (19.8), Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium (16), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to Semi-erect, Panicle Exertion – Well exerted, Time of maturity (days) – Medium (133), Grain Weight of 1000 fully developed grains (gm) – (Very Low) 13, Grain Length (mm) : 8.09, Grain : Width (mm) : 2.15, Decorticated grain length (mm) : 5.56, Decorticated grain Width (mm) : 1.84, Decorticated grain : Shape (in lateral view) – Medium Slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.
71.	Rice ( <i>Oryza sativa</i> L.)	Komal - 101			Coleoptile colour – Green, Leaf intensity of green colour – Dark, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Strong, Leaf Auricles – Present, Leaf Auricles coloration – Hairy & greenish, Leaf Ligule – Present, Leaf Length blade (cm) : 46, Leaf Width of Balde (cm) – Medium, Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days : 102, Lemma : Anthocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles : 76, Panicle Length of main axis (cm) : 24, Panicle Curvature of main axis – Semi Straight, Panicle Number per plant : 12, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary

					branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well, Time of maturity (days) : 123, Grain Weight of 1000 fully developed grains (gm) : 14, Grain Length (mm) : 6.90, Grain Width (mm) : 2.20, Decorticated grain length (mm) : 4.80, Decorticated grain Width (mm) : 1.90, Decorticated grain Shape (in lateral view) – Short slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.
72.	Rice ( <i>Oryza sativa</i> L.)	US – 382	<p><b>Female</b> Plant height (Average) : 85-90, Plant Type : Erect, No. of tillers : 14-16, No. of panicles / m<sup>2</sup> (Average) : 275, Days to 50% flowering (days) : 95, Panicle type : Long panicles, Panicle exertion : 72%, Awns : Present, Apiculus colour : Green, Kernel Length (mm) : 6.5, Kernel Breadth (mm) : 2, L/B ratio : 3.25, Grain Chalkiness : VOC, Kernel appearance : Semi translucent, Milling recovery % : 70, Head Rice recovery % : 68, Alkali Value : 5, Amylose Content : 23.</p> <p><b>Male</b> Plant height (Average) : 100-110, Plant Type : Erect, No. of tillers : 16-18, No. of panicles / m<sup>2</sup> (Average) : 270, Days to 50% flowering (days) : 100, Panicle type : Dense and long panicles, Panicle exertion : 100%, Awns : Absent, Apiculus colour : Green, Kernel Length (mm) : 5.8, Kernel Breadth (mm) : 2.11, L/B ratio : 2.76, Grain Chalkiness : VOC, Kernel appearance : Semi translucent, Milling recovery % : 72, Head Rice recovery % : 70, Alkali Value : 5, Amylose Content : 23.5.</p>	Plant height : 104 cm, Plant type – Erect and sturdy stem, No. of tillers : 16, No. of panicles / m <sup>2</sup> : 279, Days to 50% flowering (Average) : 94, Panicle type – Dense and long, Panicle exertion : 100 % (4 cm above flag leaf), Awns – Absent, Apiculus colour – Green, Kernel length (mm) : 6.12, Kernel breadth (mm) : 2.11, L/B ratio : 2.9, Grain Chalkiness – VOC, Kernel appearance – Semi translucent, Milling recovery % : 71.7, Head rice recovery % : 63.8, Alkali value : 4.65, Amylose content : 22.5 % intermediate.	
73.	Rice ( <i>Oryza sativa</i> L.)	Frontline Gold RH-1531	<p><b>Female</b> Plant canopy – Erect, Leaf shape – Narrow, Leaf pubescence – Glabrous, Leaf sheath color – Light green, Internode color – Green, Panicle exertion –</p>	Culm attitude – Semi Erect, Leaf shape – Medium broad, Basal Leaf sheath colour – Green, Leaf Pubescence of blade surface – Medium, Leaf Intensity of green color – Medium green, Leaf auricles – Present, Leaf Anthocyanin coloration of auricles – Colourless, Leaf shape of ligule – Split, Leaf color of ligule – White transparent, Flag Leaf attitude of blade	

			<p>Partially exerted, Apiculous color – Colorless to green, Awn presence – Fully present, Prominent at tip, Stigma color – Colorless to yellow, Anther color – Pale yellow, Anther shape – Shriveled, Days to 10% heading (Kharif) : 90-93, Grain color – Straw, Grain shape – Long slender, slightly curved back, Seed set (%) : 0-55, Plant height : 2-5% and 25-30% shorter than “B” and “R” line resp, Days of maturity (kharif) : 120-125, Plant height (cm) : 59.</p> <p><b><u>Male</u></b></p> <p>Plant canopy – Erect, Leaf shape – Broad, Leaf pubescence – Medium, Leaf sheath color – Medium dark green, Internode color – Green, Panicle exsertion – Fully exerted, Apiculous color – Colorless to green, Awn presence – Present, Stigma color – White, Anther color – Dark yellow, Anther shape – Round and plumpy, Days to 10% heading (Kharif) : 98-103, Grain color – Brown and yellow shading, Grain shape – Long slender, Seed set (%) : &gt;90, Plant height : 20-25% taller than “32B/A” line resp., Days of maturity (kharif) : 130-135, Plant height (cm) : 97.</p>	<p>(early observation) – Erect, Flag Leaf attitude of blade (late observation) – Semi Erect, Time of heading (50% of plants with heads) : 93-98 days, Lemma anthocyanin coloration of apex – Absent, Spikelet color of stigma – White, Stem length (excluding panicle) : 88 cm, Stem anthocyanin coloration of nodes – Absent, Stem anthocyanin coloration of internode – Absent, Panicle length of main axis : 25-28 cm, Panicle curvature of main axis – Deflexed, Panicle Awns – Present, Panicle Distribution of awns – Short awns on Tip only, Panicle color of awns – Yellowish white, Panicle Attitude of branches – Semi erect, Panicle exsertion – Exserted, Spikelet density of pubescence of lemma – Absent, Spikelet color of tip of lemma – Brown, Decorticated grain length – Medium (6.72 mm), Decorticated grain width – Narrow (2.21 mm), Decorticated grain shape (in lateral view) – Long slender, Decorticated grain colour – White, Decorticated grain aroma – Non aromatic, Days to maturity : 118-125, Reaction to blast – Tolerant, Reaction to BLB – Susceptible, Reaction to BPH – Tolerant.</p>
74.	Rice ( <i>Oryza sativa</i> L.)	NPH-924-1	<p><b><u>Female (NSL 2A)</u></b></p> <p>Plant height: 85 to 90 cm, Ear bearing tillers (Number) : 8 to 9, Grain size – Long slender, Photo sensitivity – Photo insensitive, Maturity : 115 to 120 days, Maturity group – Mid early, Distinguishing morphological characters – Semi dwarf, All plant parts green, hull straw, cold susceptible, Reaction to diseases – Tolerant to blast, Reaction to pests – Tolerant to brown plant hopper, Agronomic features – Responsive to fertilizer, <b>Quality – Long slender.</b></p>	<p>Plant height: 90 to 95 cm, Distinguishing Morphological characters – All plant parts green, grains medium, kernel white, Maturity : 130 days in Rabi/Boro seasons, Maturity group – Medium duration, Suitability – Rabi/Boro season in West Bengal and Assam, Disease / Pest Tolerance – Tolerant to blast, brown spot, Area of Adaptability – Irrigated areas, in rabi/boro seasons, Special Features – Tolerant to cold during vegetative stage.</p>

			<p><b><u>Male (PAB 52R)</u></b>  Plant height: 100 to 105 cm, Ear bearing tillers (Number) : 14 to 16, Grain size – Long Bold, Photo sensitivity – Photo insensitive, Maturity : 125 to 130 days, Maturity group – Medium, Distinguishing morphological characters – Semi dwarf, all plant parts green, hull straw, cold tolerance in vegetative stage, Reaction to diseases – Tolerant to blast, Reaction to pests – Tolerant to green leaf hopper, Agronomic features – Responsive to fertilizer, <b>Quality – Long Bold.</b></p>	
75.	Rice ( <i>Oryza sativa</i> L.)	PNPH - 24	<p><b><u>Female (PRN 1A)</u></b>  Plant height : 85 to 90 cm, Ear bearing tillers (Number) : 8 to 9, Grain size – Long slender, Photo sensitivity – Photo insensitive, Maturity : 110-115 days, Maturity group – Mid early, Distinguishing morphological characters – Semi dwarf, All plant parts green, hull straw, Reaction to diseases – Tolerant to blast, Reaction to pests – Tolerant to thrips, Agronomic features – Responsive to fertilizer, <b>Quality – Long slender and White Kernel.</b></p> <p><b><u>Male (PRN 24R)</u></b>  Plant height : 95 to 100 cm, Ear bearing tillers (Number) : 14 to 16, Grain size – Long bold, Photo sensitivity – Photo insensitive, Maturity : 120-125 days, Maturity group – Mid early, Distinguishing morphological characters – Semi dwarf, All plant parts green, hull strawish brown, Reaction to diseases – Tolerant to blast, Reaction to pests – Tolerant to Green Leaf Hopper, Brown Plant Hopper &amp; White Backed Plant Hopper, Agronomic features – Responsive to fertilizer, <b>Quality – Long bold.</b></p>	<p>Plant height : 85 to 90 cm, Distinguishing Morphological characters – All plant parts green, grains long slender, white kernel, Maturity : 120-125 days during Kharif, 125 to 130 days during Rabi, Maturity group – Mid early duration, Suitability – Kharif/Rabi in irrigated areas, Disease / Pest Tolerance – Tolerant to blast, brown spot, Area of Adaptability – Irrigated areas in Bihar, West Bengal and Odisha, Special Features – Tolerant to drought stress.</p>

76.	Rice ( <i>Oryza sativa</i> L.)	KPH - 199	<p><b>Female (RCM – 1017A)</b>  Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Weak, Male sterility – Present, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Semi-straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Partly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, <b>Grain weight – Low</b>, Grain Length – Medium, Grain Width – Very, Decorticated grain Length – Long, Decorticated grain Width – Narrow,</p>	<p>Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm Attitude (for floating rice only) – NA, Culm attitude – Semi erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Medium, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – yellowish, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Mostly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, <b>Grain weight – Low</b>, Grain Length – Very Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Narrow, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p>
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			<p>Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Present,</p> <p><b><u>Male (KPGOS – 516)</u></b>  Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Weak, Male sterility – Absent, Lemma Anthocyanin colouration of keel– Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Semi-straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary</p>	
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			branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Well exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Low, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Narrow, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,	
77.	Rice ( <i>Oryza sativa</i> L.)	KPH - 272	<b>Female (KCMS – 1090A)</b> Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Weak, Male sterility – Present, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem	Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Long, Leaf Width of blade – Medium, Culm attitude – Semi-erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Medium, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Long, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – Yellowish, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle

			<p>Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Partly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, <b>Grain weight – Medium</b>, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p> <p><b><u>Male (KPGOS – 722)</u></b>  Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Long, Leaf Width of blade – Medium, Culm attitude – Semi-erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf</p>	<p>Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Mostly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, <b>Grain weight – Medium</b>, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p>
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78.	Rice ( <i>Oryza sativa</i> L.)	KPH - 371	<p><b><u>Female (K-12A or KCMS – 1090A)</u></b>  Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf Anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf</p>	<p>Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf</p>

		<p>anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Weak, Male sterility – Present, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Partly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, <b>Grain weight – Medium</b>, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent</p>	<p>Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Long, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Medium, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Long, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – Yellowish, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Mostly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, <b>Grain weight – Medium</b>, Grain Length – Medium, Grain Width – Narrow, Decorticated grain Length – Long, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent</p>
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				Length – Long, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent	
XVI	79.	Wheat ( <i>Triticum astivum</i> )	PBW-373	-	Ear colour at maturity is shining white; Ear head is dense and tapering in shape. Intermediate peduncle and straw is shining at maturity. Plant height-89 cm, day to flowering- 89 days, 1000 grain wg.- 35.70 gm., straw strength-2.2 gm, grain appearance (out of 10)- 6.0, Hectoliter wg. 75.20 gm, Protein content- 11.5%, Leaves- erect, Grain- Bold, amber, hard and lustrous. Duration of crop- 140 days.
	80.	Wheat ( <i>Triticum astivum</i> )	PBW-343	-	Plant height – 96 cms, Ear colour at maturity is white shining, Duration of maturity- 142 days from seed to seed. Recommended seed rate is 40kg/acre .Medium Maturity
	81.	Wheat ( <i>Triticum astivum</i> )	Raj-3765	-	Plant hg.- 92 cm. Distinguishing morphological character- Light green, non- waxy leaves, dusty white ear colour at maturity and intermediate ear heads. Growth habit- Intermediate, Foliage colour (Boot stage)- Light green, Leaf width (Boot stage)- Intermediate, Av. Days to maturity- 81 days Ear colour at maturity- white, Ear shape- Tapering,. Awns length- Normal, Awn colour at maturity- White, Glume Shoulder- Oblique, Glume Beak- Medium, Glume pubescence- Present, Grain colour- Amber,texture- Semi hard, Cheeks- Rounded, Crease width- Narrow, Shape- Ovoid, Av. 100 grain wt. (gms)- 4.0 gm. Maturity- 117- 122 days.
	82.	Wheat ( <i>Triticum astivum</i> )	GW-322	-	Plant height- 84 cm, Maturity- 112, Grain: Colour- Amber, Texture- Semi-hard, Cheeks- Rounded. Distinguishing Morphological Characteristics: Medium long parallel ear head with dense arrangement of spikelets. Colour of awn and spikelets is dirty white at maturity. Waxiness present on flag leaf and sheath. Glume shoulder is square.

83.	Wheat ( <i>Triticum astivum</i> )	Raj-3077	-	Plant height – 76-100 cms.. <b>Distinguishing morphological characters</b> – Long and straight ears, dorsal surface, waxy and ventral surface nonwaxy glume colour white glabrous. <b>Maturity group</b> – 115-120 days (Medium- early).
84.	Wheat ( <i>Triticum astivum</i> )	Kedar		Duration : 112-118 Days, Plant Habit – Erect, Plant Height – Medium, Tillering – Profuse (Average effective tillers are 8-10), Ear Length – Medium to Long (10.5 to 11.5 cm), Ear colour – Dark Brown, Grain Size – Medium to Bold, Grain Colour – Amber coloured, Lustrous.
85.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	MLBH-504	<b><u>Female</u></b>  <b>Coleoptile pigmentation</b> : Green, Base pigmentation – Non Pigmented, Plant height (cm) : 85-95, Effective tillers : 2-3  <b>Leaf characters :-</b> Colour – Green, Pubescence – Glabrous, Size – Normal, Days to 50% flower : 48-50, Days to maturity : 78-80, Exsertion of earhead –Complete.  <b>Earhead characters :-</b> Shape – Candle, Compactness – Compact, Head length (cm) : 15-17, Anther colour – Yellow (sterile), Bristles – Absent.  <b>Grain characters:-</b> Size – Medium, Colour – Gray yellow, Shape – Globular.  <b><u>Male</u></b> Coleoptile pigmentation – Green, Base pigmentation – Non Pigmented, Plant height (cm) : 110-120, Effective tillers : 3-4	<b>Coleoptile pigmentation</b> – Green, Base pigmentation – Non Pigmented, Plant height (cm) : 170-190, Effective tillers : 2-3.  <b>Leaf characters :-</b> Colour – Green, Pubescence – Glabrous, Size – Normal, Days to 50%, flower : 46-50, Days to maturity : 78-82, Exsertion of earhead – Complete. <b>Earhead characters :-</b> Shape – Candle, Compactness – Compact, Head length (cm) : 22-24, Anther colour – Light Yellow, Bristles – Absent.  <b>Grain characters:-</b> Size – Bold, Colour – Gray, Shape – Globular.

			<p><b>Leaf characters :-</b> Colour – Green, Pubescence – Glabrous, Size – Normal, Days to 50% flower : 50-52, Days to maturity : 80-82, Exsertion of earhead –Complete.</p> <p><b>Earhead characters :-</b> Shape – Candle, Compactness – Semi-Compact, Head length (cm) : 18-20, Anther colour – Light Yellow, Bristles – Absent.</p> <p><b>Grain characters:-</b> Size – Bold, Colour – Gray, Shape – Globular.</p>	
86.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	Pratap (NBH-77)	<p><b>Female</b> Plant Height : 75-80, Distinguishing morphological characters : Well exerted semicompact panicles, Anthocyanin coloration of first leaf sheath : Present, Plant groth habit : Erect, Time of spike emergence (50% plant with atleast one spike emerged fully) : 44 days, Leaf sheath pubescence : Absent, Leaf sheath length : 12 cm, Leaf blade length : 52 cm, Leaf blade width (at widest point) : 4 cm, Spike anther colour : Brown, Plant Node pubescence : Absent, Plant Number of nodes : 5, Plant node pigmentation : Brown, Plant inter node pigmentation (between 3<sup>rd</sup> and 4<sup>th</sup> node from top) : Green, Spike exsertion : Complete, Spike length 21 cm, Spike anthocyanin pigmentation of glume : Absent, Spike bristle : Absent, Spike girth at maximum point (excluding bristles) : 1.4 cm, Spike shape : Cylindrical, Plant Number of productive tillers : 6, Plant height (excluding spike) : 80 cm, Spike tip sterility : Present, Spike density : Semi compact, Seed colour : Gray, Seed shape : Globular, Seed weight of 1000 : 9.0 gm, Days to 50% flowering : 43-46 days, Maturity (range in number of days- seed to seed) : 73-76 days.</p>	Anthocyanin coloration of first leaf sheath – Absent, Plant growth habit – Erect, Time of spike emergence (50% plant with atleast one spike emerged fully) – Early, Leaf sheath pubescence – Absent, Leaf sheath length – Medium, Leaf blade length – Medium, Leaf blade width (at widest point) – Medium, Spike anther colour – Yellow, Node pubescence – Absent, Number of nodes – Low, Node pigmentation – Red, Inter node pigmentation (between 3 <sup>rd</sup> and 4 <sup>th</sup> node from top) – Green, Spike : exsertion – Complete, Spike length – Medium, Spike anthocyanin pigmentation of glume – Absent, Spike bristle – Absent, Spike girth at maximum point (excluding bristles) – Medium, Spike shape – Conical, Number of productive tillers – Medium, Plant height (excluding spike) – Long, Spike tip sterility – Present, Spike density – Compact, Seed colour – Grey, Seed shape – Globular, Seed weight of 1000 grains – Medium.

			<p><b>Male</b>  Plant Height : 95-100, Distinguishing morphological characters : Well exerted compact panicles, Anthocyanin coloration of first leaf sheath : Absent, Plant growth habit : Erect, Time of spike emergence (50% plant with atleast one spike emerged fully) : 52 days, Leaf sheath pubescence : Absent, Leaf sheath length : 12 cm, Leaf blade length : 54 cm, Leaf blade width (at widest point) : 5 cm, Spike anther colour : Yellow, Plant Node pubescence : Absent, Plant Number of nodes : 7, Plant node pigmentation : Green, Plant inter node pigmentation (between 3<sup>rd</sup> and 4<sup>th</sup> node from top) : Green, Spike exertion : Partial, Spike length 18 cm, Spike anthocyanin pigmentation of glume : Absent, Spike bristle : Absent, Spike girth at maximum point (excluding bristles) : 2.0 cm, Spike shape : Cylindrical, Plant Number of productive tillers : 4, Plant height (excluding spike) : 100 cm, Spike tip sterility : Present, Spike density : Very compact, Seed colour : Gray, Seed shape : Globular, Seed weight of 1000 : 7.4 gm, Days to 50% flowering : 51-54 days, Maturity (range in number of days- seed to seed) : 81-84 days.</p>	
87.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	KPMH-1 (Kaveri Superboss)	<p><b>Female</b>  Anthocyanin color of 1 leaf : Present, Plant growth habit : Intermediate, Number of productive tillers / Plant : Low, Plant height : Very short, Plant number of nodes/plant : Low, Plant node pubescence : Absent, Plant node pigmentation : Green, Plant internode pigmentation : Green, Leaf Sheath length : Medium, Leaf sheath pubescence : Absent, Leaf blade length : Short, Leaf blade width : Broad, Spike time of spike emergence : Late, Spike length : Small, Spike girth : Medium, Spike exertion : Complete, Spike density : Compact, Spike tip sterility : Absent, Spike shape :</p>	<p>Anthocyanin color of 1 leaf – Present, Plant growth habit – Erect, Time to spike emergence – Late, Leaf sheath pubescence – Absent, Leaf Sheath length – Medium, Leaf blade length – Long, Leaf blade width – Broad, Spike anther color – Purple, Plant node pubescence – Absent, Number of nodes – Low, Node pigmentation – Green, Intern ode pigmentation – Green, Spike exertion – Complete, Spike length – Long, Spike Anthocyanin pigmentation of glumes – Absent, Spike bristle – Absent, Spike bristle color – Absent, Spike girth – Thick, Spike shape – Cylindrical, Number of productive tillers – Low, Plant : height (excluding spike) – Tall, Spike tip sterility – Present, Spike density – Compact, Seed color – Grey, Seed shape – Globular, Seed weight of 1000 grains – Medium.</p>

			<p>Conical, Spike anther colour : Brown, Spike anthocyanin pigmentation of glume : Absent, Spike bristles : Absent, Spike bristle colour : Absent, Seed colour : Grey, Seed shape : Globular, Seed weight of 1000 grains (g) : Bold, Agronomic score : Best.</p> <p><b>Male</b>  Anthocyanin color of 1 leaf : Present, Plant growth habit : Erect, Number of productive tillers / Plant : Low, Plant height : Medium, Plant number of nodes/plant : Low, Plant node pubescence : Absent, Plant node pigmentation : Green, Plant internode pigmentation : Green, Leaf Sheath length : Medium, Leaf sheath pubescence : Absent, Leaf blade length : Medium, Leaf blade width : Broad, Spike time of spike emergence : Very Late, Spike length : Medium, Spike girth : Thick, Spike exertion : Complete, Spike density : Compact, Spike tip sterility : Present, Spike shape : Cylindrical, Spike anther colour : Brown, Spike anthocyanin pigmentation of glume : Absent, Spike bristles : Absent, Spike bristle colour : Absent, Seed colour : Cream, Seed shape : Globular, Seed weight of 1000 grains (g) : Medium, Agronomic score : Best.</p>	
88.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	NBH 4903	<p><b><u>Female (NB-105A)</u></b>  Plant height: Short (1 to 1.5 meters), Nodal pigmentation – Green, Nodal hairs – Absent, Days to maturity: 60-65 days, Stem colour – Green, Stem thickness – Medium thick, Ear head shape – Conical, Ear head compactness – Very compact, Ear head length: 20-25 cms, Grain colour – Light gray, Grain size and shape – Bold and globular, Tillering: 3 to 4, Special features – Tolerant to downy mildew disease.</p>	<p>Plant height: 220 to 225 cm, Nodal pigmentation – Purple, Nodal hairs – Absent, Days to flower: 50 to 52 days, Stem colour – Green, Stem thickness – Thick, Ear head shape – Conical, Ear head compactness – Compact, Ear head length : 30 to 32 cm, Grain colour – attractive light gray, Grain size and shape – medium bold and globular, Tillering : 2 to 3, Special features – Tolerant to downy mildew disease, Adaptable areas – Kharif seasons of Rajasthan, Haryana, Maharashtra, Uttar Pradesh and Gujarat.</p>

			<p><b><u>Male (NB-98R)</u></b>  Plant height: Medium Tall (1.5 to 2.0 meters), Nodal pigmentation – Green, Nodal hairs – Absent, Days to maturity: 65 to 70 days, Stem colour – Green, Stem thickness – Medium thick, Ear head shape – Cylindrical, Ear head compactness – Semi compact, Ear head length: 18 to 20 cm, Grain colour – Light gray, Grain size and shape – Medium Bold, Tillering : 2 to 3, Special features – Tolerant to downy mildew disease.</p>	
89.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	KBH 1952	<p><b><u>Female (KBMS - 293)</u></b>  Plant anthocyanin color of leaf: Present, Plant growth habit – Erect, Time to spike emergence – Late, Leaf sheath pubescence – Absent, Leaf Sheath length – Medium, Leaf blade length – Medium, Leaf blade width – Medium, Anther colour – Brown, Plant node pubescence – Absent, Plant number of nodes – Low, Plant node pigmentation – Purple, Plant internode pigmentation – Red, Spike exertion – Complete, Spike length – Small, Spike anthocyanin pigmentation of glume – Absent, Spike bristles – Absent, Spike bristle colour – Absent, Spike girth – Medium, Spike shape – Conical, Plant number of productive tillers – Medium, Plant height (excluding spike) – Short, Spike tip sterility – Absent, Spike density – Compact, Seed colour – Grey, Seed shape – Globular, <b>Seed weight– Very bold.</b></p> <p><b><u>Male (KBR – 870)</u></b>  Plant anthocyanin color of leaf – Present, Plant growth habit – Erect, Spike time to spike emergence – Late, Leaf sheath pubescence – Absent, Leaf Sheath length – Medium, Leaf blade length – Medium, Leaf blade width – Medium, Anther colour – Brown, Plant node</p>	<p>Plant anthocyanin color of leaf: Absent, Plant growth habit – Erect, Time to spike emergence – Early, Leaf sheath pubescence – Absent, Leaf Sheath length – Medium, Leaf blade length – Medium, Leaf blade width – Medium, Anther colour – Yellow, Plant node pubescence – Absent, Plant number of nodes – Low, Plant node pigmentation – Purple, Plant internode pigmentation – Green, Spike exertion – Complete, Spike length – Medium, Spike anthocyanin pigmentation of glume – Absent, Spike bristles – Absent, Spike bristle colour – Absent, Spike girth – Thick, Spike shape – Conical, Plant number of productive tillers – Medium, Plant height (excluding spike) – Medium, Spike tip sterility – Absent, Spike density – Semi-compact, Seed colour – Grey, Seed shape – Globular, <b>Seed weight – Bold.</b></p>

				pubescence – Absent, Plant number of nodes – Low, Plant node pigmentation – Green, Plant internode pigmentation – Green, Spike exertion – Complete, Spike length – Small, Spike anthocyanin pigmentation of glume – Absent, Spike bristles – Absent, Spike bristle colour – Absent, Spike girth – Medium, Spike shape – Spindle, Plant number of productive tillers – Medium, Plant height (excluding spike) – Short, Spike tip sterility – Present, Spike density – Compact, Seed colour – Deep grey, Seed shape – Globular, <b>Seed weight – Bold.</b>	
<b>IV. Maize and Sorghum Seed</b>					
XVI	90.	Sorghum ( <i>Sorghum bicolor</i> (L.) Moench)	CSV-15 (SPV-946)	-	<b>Distinguishing Morphological Characters-</b> Plant tall, ear heads oblong, semi compact with upper portion slightly loose. Duration –Days to 50% flowering 72 days, seed to seed -110-112 days. Plant height -232 cm, leaf-smooth ,drooping ,midrib dull white ,Seed-medium bold roundish, Colour-white , No. of leaves /plant-10.8
	91.	Sorghum ( <i>Sorghum bicolor</i> (L.) Meench)	CSH-17 (SPH-660)	<b>MS AKMS 14A:</b> This is a kharif based Male Sterile line .It has Tan pigment, semi loose panicle ,round and white chalky seed <b>RS 673.</b> This restorer line is developed from a cross SPV 544 X K 24-1.It is a tan pigmented line with long semi compact panicle,white and round seed .	Plant height -203 cm. Distinguishing Morphological Character-Tan pigmented, enclosed internodes, panicle semi-loose and elliptical in shape, pearly white round seed and free threshing. Maturity-Seed to seed-103 days ,Days to 50% bloom-64 days
	92.	Sorghum ( <i>Sorghum bicolor</i> (L.) Meench)	CSH-18 (Hy. 960) (SPH-960)	Female –Indore Male <b>Sterile -9a (Im 9a)</b> -Plant Height-186 (Cm.), Plant Pigmentation –Tan, Leaf-Pale Green, Narrow To Medium Broad, Drooping Midrib Dull Green, Leaf Sheath Enclose Stem. Stem-Medium,Green Juicy . Ear Heads-Medium To Long Elliptical, Semi Compact Well Exserted, Long Peduncle-Medium Flag Leaf, Awn-Present, Maturity(Days –Seed To Seed)-110, Moderately resistant to all major diseases and major insect pests.	Plant Height – (Kharif) 210-215 Cm. Distinguishing Morphological Character-, Leaf- Green, Broad And Drooping, Midrib Dull Green Leaf Margin, Yellowish Green. Stem-green ,thick and juicy,nodes covered leaf sheath , which is purple at base (at lower ends of stem), Ear heads –long, elliptical semi compact upto middle with loose and pointed apex .exertion good ,long peduncle, Grain-Pearly white ,shinning ,round, medium bold ,luster present..

			<p><b>Male Indore-12</b>  Plant Height-158 (Cm.), Plant Pigmentation –Tan, Leaf-Thick dark green, Broad and, Drooping Midrib green. Stem-, Green thick Juicy nodes covered by leaf sheath which is purple at the base (at lower ends of stem). Ear Heads-Medium Elliptical , Compact exertion just neck ,short Peduncle –long &amp; broad Flag Leaf ,Awn-absent ,Maturity(Days –Seed To Seed)-110, Moderately resistant to all major diseases and major insect pests.</p>	<p>1000 grain weight (gm.)  SPH 960 (23.7)  CSH 9 (23.4) it is at par  With popular hybrid CSH 9. Maturity -110-115 days.</p>
93.	Sorghum ( <i>Sorghum bicolor</i> (L.) <i>Moench</i> )	CSH-16 (SPH-723)	<p><b><u>CMS 27A</u></b>  Plant pigment- Tan,  Plant height- 130 cm, Internode- Exposed, Colour of leaf- Dark Green, Midrib colour- Dull, Canopy-Electrophyll, Panicle exertion- Free, panicle Shape-Cylindrical, panicle compactness- semilax, size of panicle- medium, Glume colour- straw, glume covering-1/3, seed size- Bold, 100 seed weight (gm)- 3.00gm. seed colour- creamy, seed shape- flat, days to 50% flowering-67 days</p> <p><b><u>R Line C-43</u></b>  Plant pigment- Tan,  Plant height- 140 cm, Internode- Exposed, Colour of leaf- Green, Midrib colour- White, Canopy-Drooping, Panicle exertion- Free, panicle Shape-Oval, panicle compactness-semi compact, size of panicle- medium, Glume colour- straw with light red tinage at the base, glume covering-1/3, seed size- Bold&amp;shiny, 100 seed weight (gm)- 2.80gm. seed colour- pearly white, seed shape- round, days to 50% flowering-70 days</p>	<p><b><u>Distinguishable morphological characters-</u></b>  Earhead long, cylindrical, semilax and blunt at the top, seed white and pearly.  Duration- Days to 50% flowering 67 days ,  Plant pigment- Tan,  Plant height- 180 cm, Internode- Exposed, Colour of leaf- Green, Midrib colour- White, Canopy- Electrophyll, Panicle exertion- Free, panicle Shape- Cylindrical, panicle compactness- semilax, size of panicle- Long, Glume colour- straw, glume covering-1/3, seed size- Bold, 100 seed weight (gm)- 3.10gm. seed colour- pearly white, seed shape- round, days to 50% flowering-67</p>
94.	Sorghum { <i>Sorghum bicolor</i> (L.)}	KSH - 950	<p><b><u>Female (KSMS-234)</u></b>  Seedling Anthocyanin colouration of coleoptiles – Yellow green, Leaf sheath Anthocyanin colouration – Yellow green, Leaf Mid rib colour (5<sup>th</sup> fully developed</p>	<p>Seedling Anthocyanin colouration of coleoptiles – Yellow green, Leaf sheath Anthocyanin colouration – Yellow green, Leaf Mid rib colour (5<sup>th</sup> fully developed leaf) – White, Plant Time of panicle emergence (50% of the plants with 50% anthesis) – Medium, Plant :Natural height of plant</p>

			<p>leaf) – Yellow green, Plant Time of panicle emergence (50% of the plants with 50% anthesis) – Medium, Plant :Natural height of plant up to base of flag leaf – Short, Flag Leaf Yellow colouration of midrib – Absent, Lemma Arista formation – Absent, Stigma Anthocyanin colouration – Absent, Stigma yellow colouration – Present, Stigma Length – Medium, Flower with pedicel Length of flower – Long, Anther Length – Short, Anther colour of dry anther – Grayed Orange, Glumes colour – Green white, Plant total height – Medium, Stem Diameter (at lower one third height of plant) – Medium, Leaf Length of blade (the third leaf from top including flag leaf) – Long, Leaf Width of blade (the third leaf from top including flag leaf) – Broad, Panicle Length without peduncle – Medium, Panicle Length of branches (middle third of panicle) – Medium, Panicle Density at maturity (ear head compactness) – Loose, Panicle shape – Symmetric, Neck of panicle Visible length above sheath – Very short, Glumes Length – Short, Grain Threshability – Freely threshable, Caryopsis Colour after threshing – Grayed white, <b>Grain Weight – Medium</b>, Grain Shape (in dorsal view) – Circular, Grain Shape in profile view – Circular, Grain size of mark of germ – Medium, Grain Texture of endosperm (in longitudinal section) – Half vitreous, Grain Colour of vitreous albumen – Grayed yellow, Grain Luster – Non-lustrous</p> <p><b><u>Male (KSR-6192)</u></b> Seedling Anthocyanin colouration of coleoptiles – Yellow green, Leaf sheath Anthocyanin colouration – Yellow green, Leaf Mid rib colour (5<sup>th</sup> fully developed leaf) – White, Plant Time of panicle emergence (50% of the plants with 50% anthesis) – Medium, Plant</p>	<p>up to base of flag leaf – Medium, Flag Leaf Yellow colouration of midrib – Absent, Lemma Arista formation – Absent, Stigma Anthocyanin colouration – Absent, Stigma yellow colouration – Present, Stigma Length – Medium, Flower with pedicel Length of flower – Long, Anther Length – Short, Anther colour of dry anther – Grayed Orange, Glumes colour – Green white, Plant total height – Medium, Stem Diameter (at lower one third height of plant) – Medium, Leaf Length of blade (the third leaf from top including flag leaf) – Long, Leaf Width of blade (the third leaf from top including flag leaf) – Broad, Panicle Length without peduncle – Long, Panicle Length of branches (middle third of panicle) – Medium, Panicle Density at maturity (ear head compactness) – Semi-loose, Panicle shape – Symmetric, Neck of panicle Visible length above sheath – Very short, Glumes Length – Short, Grain Threshability – Freely threshable, Caryopsis Colour after threshing – Grayed white, <b>Grain Weight – Medium</b>, Grain Shape (in dorsal view) – Circular, Grain Shape in profile view – Circular, Grain size of mark of germ – Medium, Grain Texture of endosperm (in longitudinal section) – Half vitreous, Grain Colour of vitreous albumen – Grayed yellow, Grain Luster – Lustrous</p>
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			<p>:Natural height of plant up to base of flag leaf – Short, Flag Leaf Yellow colouration of midrib – Absent, Lemma Arista formation – Absent, Stigma Anthocyanin colouration – Absent, Stigma yellow colouration – Absent, Stigma Length – Short, Flower with pedicel Length of flower – Long, Anther Length – Short, Anther colour of dry anther – Grayed Orange, Glumes colour – Green white, Plant total height – Medium, Stem Diameter (at lower one third height of plant) – Medium, Leaf Length of blade (the third leaf from top including flag leaf) – Long, Leaf Width of blade (the third leaf from top including flag leaf) – Very Broad, Panicle Length without peduncle – Long, Panicle Length of branches (middle third of panicle) – Medium, Panicle Density at maturity (ear head compactness) – Semi-loose, Panicle shape – Broader in upper part, Neck of panicle Visible length above sheath – Very short, Glumes Length – Very short, Grain Threshability – Freely, Caryopsis Colour after threshing – Grayed white, <b>Grain Weight – Medium</b>, Grain Shape (in dorsal view) – Circular, Grain Shape in profile view – Circular, Grain size of mark of germ – Large, Grain Texture of endosperm (in longitudinal section) – Half vitreous, Grain Colour of vitreous albumen – Grayed yellow, Grain Luster – Non-lustrous</p>	
95.	Sorghum { <i>Sorghum bicolor</i> (L.)}	NSH - 54	<p><b><u>Female (NS-516A)</u></b> Plant total height – Medium Tall (140 to 150 cm), Days to Flower – Early (60 to 65 days), Days to maturity : 90 days, Anther colour of dry anther – Orange, Glume colour – Straw, Stem diameter – Medium (2 to 2.5 cm), Panicle length – Medium (25 to 30 cm), Panicle compactness – Semiloose, Panicle shape – Elliptical, Threshability – Freely threshable, Grain colour after threshing – White, Grain size – Bold, Grain Luster –</p>	<p>Plant total height – Tall 180 to 190 cm, Days to Flower – Medium (65 to 70), Days to maturity : 100 to 110 days, Anther colour of dry anther – Yellow, Glume colour – Straw, Stem diameter – Medium (3 to 3.5 cm), Panicle length – Long (25 to 30 cm), Panicle compactness – Semiloose, Panicle shape – Elliptical, Threshability – Freely threshable, Grain colour after threshing – White, Grain size – Bold, Grain Luster – Lustrous.</p>

			<p>Medium lustrous, Special features – Tolerant to sucking pest.</p> <p><b><u>Male (NS – 444R)</u></b>  Plant total height – Medium Tall (150 to 160 cm), Days to Flower – Medium (65 to 70 days), Days to maturity : 100 days, Anther colour of dry anther – Yellow, Glume colour – Straw, Stem diameter – Medium (2 to 3 cm), Panicle length – Medium (20 to 25 cm), Panicle compactness – Semiloose, Panicle shape – Elliptical, Threshability – Freely threshable, Grain colour after threshing – White, Grain size – Small, Grain Luster – Lustrous, Special features – Tolerant to sucking pest.</p>	
96.	Forage Sorghum { <i>Sorghum bicolor</i> (L.)}	MFSH - 4	<p><b><u>Female</u></b>  Plant type – Pigmented, Stem – Thin, Leaf traits – Medium / Drooping, Excursion – Short, Ear head – Awnless, Semi-Compact, Glume color – Red, Seed color – Chalky white, Seed shape – Almond, Time of panicle emergence (50% plants with complete panicle emergence) : 65 to 68 days, Plant total height (at maturity) : 125 to 140 cm</p> <p><b><u>Male</u></b>  Plant type – Tan, Stem – Thin, Leaf traits – Narrow / Drooping, Excursion – Long, Ear head – Awn, very loose sparse panicle, Glume color – Red, Seed color – Brown, Seed shape – Almond, Time of panicle emergence (50% plants with complete panicle emergence) : 70 to 75 days, Plant total height (at maturity) : 170 to 180 cm</p>	<p>Plant type – Pigmented, Stem – Thin, Leaf traits – Medium / Drooping, Excursion – Long, Ear head – Awn, Very loose, Glume color – Dark Red, Seed color – Dark Brown, Seed shape – Almond, Time of panicle emergence (50% plants with complete panicle emergence) : 60 to 70 days, Plant total height (at maturity) : 226 to 300 cm, Seedling anthocyanin colouration of coleoptiles – Purple, Leaf sheath anthocyanin colouration – Purple, Leaf mid rib colour (5<sup>th</sup> leaf) – Dull green, Glume anthocyanin coloration of pubescence – Absent, Colour of dry anther – Red, Stem diameter at lower one third height of plant – Small &lt; 2 cm, Panicle length without peduncle – Long 31 to 40 cm, panicle shape – Panicle broader in lower part, shattering – Low, Caryopsis colour after threshing – Dark Brown, Grain weight of 1000 grains : 16 to 25 g, Grain luster – Non lustrous.</p>

XIX.97.	Maize, ( <i>Zea Mays</i> L.), (Makka)	Pusa Early -2 (EH 203492)	<p><b>IPA 9 (Female)</b> Plant height (cm) -144-155 Leaf-light green broad, Tassel-Large with Purple glumes, Husk cover –White, Maturity (seed to seed) 86-88, Agronomic features-Highly tolerant to lodging. Responsive to high dose of fertilizer seed rate 8kg./acre.</p> <p><b>IPA 21 (Male)</b> Plant height (cm) -150-170 Leaf-dark green slightly crinkled, Tassel-Large with Purple glumes, Husk cover –White, Maturity (seed to seed) 87-90, and Agronomic features-Highly tolerant to lodging. Responsive to high dose of fertilizer seed rate 8kg./acre.</p>	<p><b>Hybrid EH (203492)</b> Plant height (cm) -180-210 Leaf-dark green broad leaf, Tassel-Large tassel, Husk cover –White, Maturity (seed to seed) 80-85, Agronomic features-Highly tolerant to lodging. Responsive to high dose of fertilizer seed rate 8kg./acre.-</p>
XX.98.	Maize ( <i>Zea mays</i> L.)	INDRA – 17 (KDMH – 017)	<p><b>Female</b> Leaf angle between blade and stem : Narrow (&lt;45), Leaf Attitude of blade : Erect, Anthocyanin coloration of brace root : Absent, Time of anthesis : 59 Days, Colour of base of glums : Absent, Anthocyanin coloration of glums : Absent, Anther Colour : Absent, Density of spikelets : Dense, Angle between main axis and lateral branches : Narrow (&lt;45), Attitude of lateral branches : Curved, Time of silk emergence (50%) : 61 Days, Anthocyanin coloration of silk : Present, Leaf Anthocyanin coloration of sheath : Present, Plant Height (cm) : 190, Plant Ear placement : High, Leaf Width of blade : Broad (&gt;9cm), Ear Length without husk ( cm) : 16-18, Ear Diameter without husk (cm) : 4 – 4.5, Ear Shape : Conico-Cylindrical, Ear Number of rows of grains : Many (14-16), Ear Type of grain : Semi flint, Ear Colour of top of grain : Yellow with cap, Shank Colour : White, Kernel Row arrangement : Straight, Kernel Shape : Indented, 1000 kernel weight (g) : 230-240, Maturity : Medium.</p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Stem Anthocyanin coloration of brace root – Present, Time of anthesis (on middle third of main axis, 50% plant) – Medium, Anthocyanin coloration at base of gloom (in middle third of main axis – Absent, Anthocyanin coloration of glooms excluding base (in middle third of main axis) – Present, Anthocyanin coloration of anthers (in middle third of main axis of fresh anthers – Absent, Density of spikelets (in middle third of main axis – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Curved, Time of silk emergence (50% plant) – Medium, Anthocyanin coloration of silk (on day of emergence) – Present, Leaf Anthocyanin coloration of sheath (below the ear) – Present, Tassel Length of main axis above lowest side of branch – Long, Hybrids and open pollinated varieties: Plant : Length (up to flag leaf) – Very long, Plant Ear placement – High, Leaf Width of blade (leaf of upper ear) – Broad, Ear Length without husk – Long, Ear Diameter without husk (in middle) – Large, Ear shape – Conico-Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/semi dent, Ear Colour of top of grain – Yellow with cap, Ear Anthocyanin coloration of glumes of cob – White, Kernel Row arrangement (middle of ear) – Straight, Kernel Poppiness – Absent,</p>

			<p><b>Male</b>  Leaf angle between blade and stem : Narrow (&lt;45),  Leaf Attitude of blade : Erect, Anthocyanin colouration of brace root : Present, Time of anthesis : 55 Days,  Colour of base of glums : Absent, Anthocyanin coloration of glums : Present, Anther Colour : Absent,  Density of spikelets : Sparse, Angle between main axis and lateral branches : Narrow (&lt;45), Attitude of lateral branches : Curved, Time of silk emergence (50%) : 57 Days, Anthocyanin coloration of silk : Present, Leaf Anthocyanin coloration of sheath : Present, Plant Height (cm) : 180, Plant Ear placement : Medium, Leaf Width of blade : Broad (&gt;9cm), Ear Length without husk ( cm) : 15-17, Ear Diameter without husk (cm) : 4 – 4.5, Ear Shape : Conico-Cylindrical, Ear Number of rows of grains : Many (14-16), Ear Type of grain : Semi flint, Ear Colour of top of grain : Orange, Shank Colour : White, Kernel Row arrangement : Straight, Kernel Shape : Indented, 1000 kernel weight (g) : 240-250, Maturity : Medium.</p>	Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large.
XXI99.	Maize ( <i>Zea mays</i> L.)	NMH – 731	<p><b>Female</b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf : Attitude of blade (on leaf just above upper ear) – Straight, Setm : Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin colouration of anthers ( in middle third of main space fresh anthers) – Absent, Density of spikelets (in middle third of main axisof fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Tassel Attitude of lateral branches (in lower third of</p>	Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Setm Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main axisof fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Strongly curved, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Hybrids and open pollinated

			<p>tassel) – Straight, Time of silk emergence (50% plants) – Late, Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Medium, Inbred lines only Plant length (up to flag leaf) – Medium, Ear placement – Low, width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Small, Ear shape – Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Round, Kernel 1000 kernel – Medium.</p> <p><b><u>Male</u></b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm : Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 0% of plants) – Medium, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Strongly curved, Time of silk emergence (50% plants)</p>	<p>varieties only Length (upto flag leaf) – Very Long, Ear placement – Medium, Width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, 1000 kernel – Large.</p>
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				<p>– Late, Ear Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Inbred lines only Plant : length (up to flag leaf) – Medium, Plant Ear placement – Low, Plant width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Small, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Medium, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Medium.</p>	
XXI	100.	Maize ( <i>Zea mays</i> L.)	NMH – 920	<p><b>Female</b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Absent, Density of spikelets (in middle third of main Space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Straight, Time of silk emergence (50% plants) – Medium, Anthocyanin colouration of silks (on day of</p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Strongly Curved, Time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Length (upto flag leaf) – Very Long, Plant Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle)</p>

			<p>emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Medium, Inbred lines only : Plant : length (up to flag leaf) – Long, Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Medium, Ear shape – Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – Light Purple, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Large.</p> <p><b><u>Male</u></b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Setm : Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Curved, Ear time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of</p>	<p>– Large, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Yellow, Ear Anthocyanin colouration of glums of cob – Light Purple, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Large.</p>
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				<p>sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Inbred lines only Plant length (up to flag leaf) – Long, Ear placement – Low, Plant width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Medium, Ear shape – Conical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Flint, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Round, Kernel 1000 kernel – Medium.</p>	
XXI	101.	Maize ( <i>Zea mays</i> L.)	NMH – 777	<p><b>Female</b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf : Attitude of blade (on leaf just above upper ear) – Straight, Setm : Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Tassel Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) Curved, Time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant)</p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Tassel Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) Curved, Time of silk emergence (50% plants) – Medium, Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Hybrids and open pollinated varieties only Length (upto flag leaf) – Very Long, Ear placement – Medium, Plant : width of blade (leaf of upper ear) – Broad, length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Orange, Ear</p>

			<p>– Absent, Tassel length of main axis above lowest side branch – Long, Inbred lines only : Plant length (up to flag leaf) – Large, Plant Ear placement – Low, Plant width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Medium, Ear shape – Conical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Flint, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Round, Kernel 1000 kernel – Medium.</p> <p><b><u>Male</u></b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Early, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Straight, Time of silk emergence (50% plants) – Early, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above</p>	<p>Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Large.</p>
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				<p>lowest side branch – Long, bred lines only : Plant length (up to flag leaf) – Medium, Plant Ear placement – Medium, Plant : width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Small, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Medium, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Yellow, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Medium.</p>	
XXI	102.	Maize ( <i>Zea mays</i> L.)	NMH 4040	<p>– <b>Female</b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Straight, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length</p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf : Attitude of blade (on leaf just above upper ear) – Drooping, Setm : Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Curved, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis aboveabove above lowest side branch – Long, Hybrids and open pollinated varieties only : Length (upto flag leaf) – Very Long, Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi</p>

			<p>of main axis above lowest side branch – Long, Hybrids and open pollinated varieties only : Length (upto flag leaf) – Very Long, Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – White, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 – Large.</p> <p><b><u>Male</u></b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf : Attitude of blade (on leaf just above upper ear) – Drooping, Setm : Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle thired of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Absent, Density of spikelets (in middle third of main space fresh anthers) – Sparse, Tassel Angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branchs (in lower third of tassel) – Strongly Curved, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (in middle of plant)</p>	<p>flint/Semi dent, Ear colour of top of grain – White, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, 1000 kernel – Large.</p>
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XXY	103.	Maize ( <i>Zea mays</i> L.)	KMH-218+	<p><b>Female</b></p> <p>Leaf Angle between blade and stem – Wide, Leaf Attitude of blade - Drooping, Stem Anthocyanin colouration of brace roots - Present, Time of anthesis – Late, anthocyanin colouration of base of glumes – Absent, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, angle between main axis and lateral branches – Wide, Attitude of lateral branches – Curved, Time of silk emergence (50% plant) – Late, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Present, Tassel length of main axis above lowest side branch – Long (&gt;30 cm), Plant length (up to flag leaf) – Medium, Ear placement – Medium, Leaf Width of blade - Broad (&gt;9 cm), Ear Length without husk – Long (&gt;15 cm), Ear diameter without husk – Large, Ear Shape – Cylindrical, Ear Number of rows of kernels – Many (&gt;14), Ear Type of grains – Semi-Dent, Ear colour of top of grain – Orange Yellow with cap,</p>	<p>Leaf Angle between blade and stem – Wide (&gt;45<sup>0</sup>), Leaf Attitude of blade - Drooping, Stem Anthocyanin colouration of brace roots – Present, Time of anthesis – Medium (50-55 days), Tassel anthocyanin colouration of base of glumes – Present, Tassel Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches – Narrow (&lt;45<sup>0</sup>), Attitude of lateral branches – Curved, Time of silk emergence (50% plant) –Medium (53-58 days), Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Present, Tassel length of main axis above lowest side branch – Long (&gt;30 cm), Plant length (tassel included) – Long (180-210 cm), Ear placement – Medium, Leaf Width of blade - Broad (&gt;9 cm), Ear Length without husk – Long (&gt;15 cm), Ear diameter without husk – Large (&gt;5 cm), Ear Shape – Conical, Ear Number of rows of kernels – Many (≥14), Ear Type of grains – Dent, Ear colour of top of grains – Yellow, Ear Colouration of glumes of cobs – White, Kernel row arrangement – Spiral, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p>

				<p>Ear Colouration of glumes of cobs – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p> <p><b>Male</b>  Leaf Angle between blade and stem – Wide, Leaf Attitude of blade - Drooping, Stem Anthocyanin colouration of brace roots - Present, Time of anthesis – Medium, anthocyanin colouration of base of glumes – Present, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches – Wide, Attitude of lateral branches – Straight, Time of silk emergence (50% plant) –Medium, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Present, Tassel length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Long, Ear placement – High, Leaf Width of blade – Medium, Ear Length without husk – Medium, Ear diameter without husk – Medium, Ear Shape – Cylindrical, Ear Number of rows of grains – Medium, Ear Type of grain – Dent, Ear colour of top of grain – Yellow with cap, Ear Colouration of glumes of cobs – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Medium.</p>	
XX	104.	Maize ( <i>Zea mays</i> L.)	KMH-3669 (25K60)	<p><b>Female</b>  Leaf Angle between blade and stem: Wide, Leaf Attitude of blade: straight, Stem anthocyanin coloration of brace roots: Present, Time of anthesis: Late, Anthocyanin coloration of base of glumes: Absent,</p>	<p>Leaf Angle between blade and stem – Wide (&gt;45<sup>0</sup>), Leaf Attitude of blade - Drooping, Stem Anthocyanin colouration of brace roots - Absent, Time of anthesis – Late (&gt;55 days), anthocyanin colouration of base of glumes – Present, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of</p>

			<p>Anthocyanin coloration of glumes excluding base: Present, Anthocyanin coloration of anthers: Absent, Density of spikelets: Sparse, Angle between main axis and lateral branches: Wide, Attitude of lateral branches: Straight, Time of silk emergence (50% plants): Late, Anthocyanin coloration of silks: Absent, Anthocyanin coloration of sheath: Absent, Tassel length of main axis above lowest side branch: Long, Plant length: Medium, Ear placement: Low, Leaf width of blade: Broad, Ear length: Long, Ear diameter without husk: Large, Ear shape: Conical, Ear number of rows of grains: Many, Ear type of grain: Dent, Ear color of top grain: Yellow, Ear color of glumes of cob: Light purple, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent, Kernel Waxiness: Absent, Kernel: Opaqueness: Absent, Kernel Shape: Indented, 1000 kernel weight: Medium.</p> <p><b><u>Male</u></b>  Leaf Angle between blade and stem: Small, Leaf Attitude of blade: Drooping, Stem Anthocyanin coloration of brace roots: Absent, Time of anthesis: Late, Anthocyanin coloration of base of glumes: Absent, Anthocyanin coloration of glumes excluding base: Present, Anthocyanin coloration of anthers: Present, Density of spikelets: Dense, Angle between main axis and lateral branches: Narrow, Attitude of lateral branches: Curved, Time of silk emergence (50% plants): Late, Anthocyanin coloration of silks: Present, Anthocyanin coloration of sheath: Absent, Tassel length of main axis above lowest side branch: Medium, Plant length: Long, Ear placement: Medium, Leaf width of blade: Broad, Ear length: Long, Ear diameter without husk: Medium, Ear shape: Conico-cylindrical, Ear number of rows of grains: Medium, Ear type of</p>	<p>spikelets – Sparse, Angle between main axis and lateral branches –Wide (&gt;45<sup>0</sup>), Attitude of lateral branches – Strongly Curved, Time of silk emergence (50% plant) –Late (&gt;58 days), Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Tassel length of main axis above lowest side branch – Long (&gt;30 cm), Plant length (tassel included) – Very Long (&gt;210 cm), Ear placement – Low, Leaf Width of blade – Broad (&gt;9 cm), Ear Length without husk – Long(&gt;15 cm), Ear diameter without husk – Medium (&gt;5 cm), Ear Shape – Conico-Cylindrical, Ear Number of rows of kernels – Many (&gt;14), Ear Type of grains – Dent, Ear colour of top of grains – Yellow, Ear Colouration of glumes of cobs – Light purple, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p>
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				grain: Semi dent, Ear color of top grain: Yellow, Ear color of glumes of cob: White, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent, Kernel Waxiness: Absent, Kernel: Opaqueness: Absent, Kernel Shape: Indented.	
XXV	105.	Maize ( <i>Zea mays</i> L.)	KMH-3426	<p><b>Female</b>  Leaf Angle between blade and stem – Small, Leaf Attitude of blade – Straight, Stem Anthocyanin colouration of brace roots - Present, Time of anthesis – Late, Anthocyanin colouration of base of glumes – Present, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches – Narrow, Attitude of lateral branches – Straight, Time of silk emergence (50% plant) – Late, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Tassel length of main axis above lowest side branch – Long (&gt;30 cm), Plant length (up to flag leaf) – Long, Ear placement – Medium, Leaf Width of blade – Broad (&gt;9 cm), Ear Length without husk – Long (&gt;15 cm), Ear diameter without husk – Large, Ear Shape – Cylindrical, Ear Number of rows of kernels – Many (&gt;14), Ear Type of grains – Flint, Ear colour of top of grain – Orange, Ear Colouration of glumes of cob – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p> <p><b>Male</b>  Leaf Angle between blade and stem – Wide, Leaf Attitude of blade – Drooping, Stem Anthocyanin</p>	<p>Leaf Angle between blade and stem – Small (&gt;45<sup>0</sup>), Leaf Attitude of blade – Straight, Stem Anthocyanin colouration of brace roots – Absent, Time of anthesis – Medium (50-55 days), anthocyanin colouration of base of glumes – Present, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches –Wide (&gt;45<sup>0</sup>), Attitude of lateral branches – Curved, Time of silk emergence (50% plant) –Medium (53-58 days), Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Tassel length of main axis above lowest side branch – Medium (20-30 cm), Plant length – Long (180-210 cm), Ear placement – Medium, Leaf Width of blade – Medium (8-9 cm), Ear Length without husk – Long(&gt;15 cm), Ear diameter without husk – Large (&gt;5 cm), Ear Shape – Conico Cylindrical, Ear Number of rows of kernels – Many (&gt;14), Ear Type of grains – Semi-Dent, Ear colour of top of grains – Yellow with cap, Ear Colouration of glumes of cob – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p>

				<p>colouration of brace roots - Absent, Time of anthesis – Medium, Anthocyanin colouration of base of glumes – Absent, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches –Wide, Attitude of lateral branches – Curved, Time of silk emergence (50% plant) –Medium, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Present, Tassel length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Medium, Ear placement – Medium, Leaf Width of blade – Narrow, Ear Length without husk – Medium, Ear diameter without husk – Medium, Ear Shape – Cylindrical, Ear Number of rows of kernels – Many, Ear Type of grain – Dent, Ear colour of top of grain – Yellow with cap, Ear Colour of glumes of cob – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Medium.</p>	
XXV	106.	Maize ( <i>Zea mays</i> L.)	KMH-3712	<p><b><u>Female</u></b></p> <p>Leaf Angle between blade and stem: Wide, Leaf Attitude of blade: Drooping, Stem anthocyanin coloration of brace roots: Present, Time of anthesis: Medium, Anthocyanin coloration of base of glumes: Absent, Anthocyanin coloration of glumes excluding base: Present, Anthocyanin coloration of anthers: Present, Density of spikelets: Sparse, Angle between main axis and lateral branches: Wide, Attitude of lateral branches: Curved, Time of silk emergence (50% plants): Medium, Anthocyanin coloration of silks: Present, Anthocyanin coloration of sheath: Present,</p>	<p>Leaf Angle between blade and stem – Small, Leaf Attitude of blade – Straight, Stem Anthocyanin colouration of brace roots – Present, Time of anthesis – Medium, Anthocyanin colouration of base of glumes – Absent, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches –Wide, Attitude of lateral branches – Curved, Time of silk emergence (50% plant) – Medium, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Long, Ear placement – Medium, Leaf Width of blade – Medium, Ear Length without husk – Medium, Ear diameter without husk – Large, Ear Shape – Cylindrical, Ear Number of rows of kernels – Many, Ear Type of grains</p>

			<p>Tassel length of main axis above lowest side branch: Long, Plant length: Medium, Ear placement: Medium, Leaf width of blade: Narrow, Ear length: Medium, Ear diameter without husk: Medium, Ear shape: Cylindrical, Ear number of rows of grains: Many, Ear type of grain: Dent, Ear color of top grain: Yellow with cap, Ear color of glumes of cob: White, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent, Kernel Waxiness: Absent, Kernel: Opacity: Absent, Kernel Shape: Indented, 1000 kernel weight: Medium.</p> <p><b><u>Male</u></b></p> <p>Leaf Angle between blade and stem: Small, Leaf Attitude of blade: Drooping, Stem Anthocyanin coloration of brace roots: Present, Time of anthesis: Late, Anthocyanin coloration of base of glumes: Absent, Anthocyanin coloration of glumes excluding base: Absent, Anthocyanin coloration of anthers: Absent, Density of spikelets: Sparse, Angle between main axis and lateral branches: Narrow, Attitude of lateral branches: Curved, Time of silk emergence (50% plants): Late, Anthocyanin coloration of silks: Present, Anthocyanin coloration of sheath: Absent, Tassel length of main axis above lowest side branch: Medium, Plant length: Long, Ear placement: Low, Leaf width of blade: Medium, Ear length: Medium, Ear diameter without husk: Medium, Ear shape: Cylindrical, Ear number of rows of grains: Many, Ear type of grain: Semi dent, Ear color of top grain: Orange with cap, Ear color of glumes of cob: White, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent, Kernel Waxiness: Absent, Kernel: Opacity: Absent, Kernel Shape: Indented, 1000 kernel weight: Medium.</p>	<p>– Semi-Dent, Ear colour of top of grains – Yellow with cap, Ear anthocyanin Colouration of glumes of cob – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opacity – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p>
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XXI	107.	Maize ( <i>Zea mays</i> L.)	KMH - 548	<p><b>Female (KML-5254)</b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Late, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Present, Tassel Anthocyanin colouration of anther (in middle third of main axis on fresh anthers) – Absent, Tassel Density of spikelet's (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Ear time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Medium, Plant Ear placement – Low, Leaf Width of blade (leaf of upper ear) – Broad, Ear length without husk – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conical, Ear number of rows of grains – Many, Ear type of grain (in middle third of ear) – Dent, Ear colour of top of grain – Yellow, Ear Anthocyanin colouration of glumes of cob – Light purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, <b>kernel weight – Medium</b></p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Late, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Present, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of anther (in middle third of main axis on fresh anthers) – Absent, Tassel Density of spikelets (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Curved, Ear time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Very long, Plant Ear placement – Medium, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conical-Cylindrical, Ear number of rows of grains – Many, Ear type of grain (in middle third of ear) – Semi-dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glumes of cob – Dark purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel weight: &gt;300 g</p>
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XX108.	Maize ( <i>Zea mays</i> L.)	KMH - 128 (2181)	<p><b>Female (KML – 2022 X5080)</b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Early, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of anthers (in middle third of main axis on fresh anthers) – Present, Tassel Density of spikelet’s (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Ear time of silk emergence (50% plants) – Early, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Medium, Plant Ear placement – Low, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Long, Ear diameter without husk (in middle) – Medium, Ear shape – Cylindrical, Ear number of rows of grains – Medium, Ear type of grain (in middle third of ear) – Dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glumes of cob – Dark purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, <b>kernel weight – Large</b></p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Early, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of anthers (in middle third of main axis on fresh anthers) – Present, Tassel Density of spikelet’s (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Ear time of silk emergence (50% plants) – Early, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Medium, Plant Ear placement – Low, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico-Cylindrical, Ear number of rows of grains – Many, Ear type of grain (in middle third of ear) – Dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glumes of cob – Light purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, <b>kernel weight – Large</b></p>
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XX	109.	Maize (Sweet Corn) ( <i>Zea mays</i> L.)	NSCH - 12 (Misthi)	<p><b><u>Female (NSCL-15)</u></b> Plant type and Leaf angle – Broad dark green leaves with wider angle to stem. Leaves are straight in attitude in lower <math>\frac{3}{4}</math> portion and tips are slightly curved, Plant height – Medium height (140 to 160 cm), Tassel type – Big tassel with more number of branches. Branches are straight and make wider angle to main rachis, Glume colour – Green, Anther colour – Yellow, Silk colour – Green, Kernel colour – Yellow, Shank colour – White.</p> <p><b><u>Male (NSCL-63)</u></b> Plant type and Leaf angle – Green Leaves with narrow angle with stem. Leaves are curved, Plant height – Slightly taller than female (160 to 180 cm), Tassel type – Big tassel with more number of branches. Branches are slightly curved, Glume colour – Green, Anther colour – Yellow, Silk colour – White, Kernel colour – Orange, Shank colour – White.</p>	<p>Plant Type – vigorous, Semi-curved leaves, Dark green leaves, Plant height – Tall (230 to 260 cm), Ear placement – Medium (100 to 110 cm), Days to Harvest Green Cobs : 75 to 80 Days in Kharif, Tassel type – Big tassel with 16 to 18 curved branches, Glumes colour – Green, Anther colour – Yellow, Silk colour – Green, Grain colour – Yellow, Grain texture – Wrinkled, Kernels at Milky Stage – Tender, Medium size, Yellow with Good Sweetness, Ear type – Long (20 to 22 cm), Conico-Cylindrical with good filling, TSS% of Kernels at Harvest : 16 to 17, Special Features – Cobs looks like Grain Corn type, Big size cobs, Good adaptability.</p>
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**BACKGROUND DETAILS OF THE ELIGIBLE CROP VARIETIES OFFERED UNDER OECD SEED SCHEMES**

S.No.	Crop (with botanical detail)	Variety	Notification Details No. & Date	Maintainers Details	Morphological Character of parent of hybrids and varieties	Morphological Description of hybrid and varieties	Agronomic feature
1	2	3	4	5	6	7	8
<b><u>I. Grass and Legume Seed</u></b>							
1.	Blackgram ( <i>Vigna mungo</i> (L) Hepper)	KU-300 (Shekher)- 2	1134 (E)- 15.11.01	Chandra Shekhar Azad., University, Kanpur-208 002, Uttar Pradesh	-	Plant height 40-45 cm. , semi-erect plant , broad leaves with light green Foliage , long hairy brownish pods ,and greenish bold seed .Days of flowering - 32-35 days , maturity-66- 84 days, flower of colour –deep yellow ,flower shape-keel type , flower size –big , anther colour –reddish yellow , plant height – (medium 40-45 cm.), no. of primary branches / plant -3, & secondary branches / plant -7-8 ,Pod character – long ,hairy and dark green, blackish after ripening , no. of seed / pod -7, Seed colour – green, 1000 –seed weight)-44 gm. Protein- 23%Maturity- 65-88 days	7378 / 2 X T-9 Suitable for normal sown conditions with already recommended agronomic practice. Average yield – 1133 kg/ ha.
2.	Black gram ( <i>Vigna mungo</i> (L) Hepper)	Tau-2	615(E)- 17.08.1993	(1).Bhabha Atomic Research Centre, Trombay, Bombay- 400 085. (2). Pulses Research Unit. Punjabrao Krishi Vidhyapeeth, Akola.	-	Plant height- 30-33 cms. <b>Distinguishing morphological character:</b> Intermediate in growth between T-9 and TAU-1. Bushy stem pigmented. Pods are having few or no hairs (scales). Leaflets are triangular in shape as in TAU-1. Flowering time-40 days.100 seed wt.- 4.3 gm, bold seeded. Seed colour black. Leaflet shape – Triangular.,	<b>Parentage with details</b> – T-9XU-196 (U-196 is a mutant of CV No. 55). <b>Recommended ecology-</b> Kharif planting in Vidarbha. Yield- 10.0 q/ha.

						<p>Leaflet size – Broad., Foliage colour – Dark green., Growth – Bushy, Flowering pattern – Indeterminate., <b>Pod characters</b> Pod size – Bold, Kernel nature – Not applicable., Constriction – Not applicable, Reticulation – Not applicable, Shelling out turn – Not applicable. <b>Kernel character</b> Size – Bold., Colour – Ediate in growth between T-9 and TAU-1. Smooth or sparse hairy leave triangular in shape.</p>	
3.	Cow Pea ( <i>Vigna unguiculata</i> (L) Walp)	Sweta (No.-998)	915(E)- 06.11.1989	Grass Breeding Scheme, M.P.A.U., Rahuri – 413 722 (Maharashtra)	-	<p>Very leafy (L/S ratio 0.7), More number of broad leaves (100 to 110), Remains green from flowering to late pod formation stage without deterioration in forage quality and yield. Mid late in flowering (70 to 75 days for 50 % Flowering) <b>Identifiable and distinguishable morphological characters</b> Dark Green Colour. More number of broad leaves compared to E.C. 4216 &amp; Russian Giant . Seed coat colour – Brick red.. Creeping nature- Produces vines. Maturity – 70-75 days 50 % flowering (Midlate)</p>	<p><b>Parentage with details of its pedigree</b> – The variety, No. 998 (Shweta) is the selection from the introductions received from the Division of Plant Introductions (NBPGR), IARI, New Delhi during 1976. Most suitable for Kharif and summer plantation. <b>Recommended ecology</b> – Western Maharashtra, both under irrigated as well as rainfed conditions. <b>Yield</b> – Commercial product – G.F.Y. – Kharif 30-35 t/ha Summer 25 to 30 t/ha. Seed – 7 to 8 qtl/ha</p>

4.	Cow Pea ( <i>Vigna unguiculata</i> (L) Walp)	DFC-1 (Konkan fodder cowpea- I)	360(E)- 01.05.1997	Konkan Krishi Vidhya Peeth, Wakawali, Deepoli, Maharashtra.	-	Distinguishing Morphological character- Brownish strips on surface of pods, non striped pods also occasionally present, Seed with mosaic spotting. Duration: Days to 50% flowering (for fodder) Kharif: 60-65 days Rabi:75-80 days Seed to seed-100 days. Plant height- Kharif: 180-200 cm Rabi:75-100 No. of branching/ plant- 4 to 5, foliage%- 47,Colour of leaves- Dark green, No. of pods/ plant-10-12, Pod length- 15-20 cm, No. of leaves/ plant- 30-35, No. of seeds/ plant- 10-12, Colour of pods- White and brownish scattered strips on the surface. 100 seed wt.-14 gm. Plant hight-50cms	Breeder Seed Production, Unit Central Experiment A selection from local germplasm of Ratnagiri Dist.,(1995), Average yield- Seed-700-800 kg/ ha., Green fodder Kharif: 230-250 q/ ha. Rabi: 200-220 q/ ha.
5.	French Bean (Rajmesh) ( <i>Phaseolus vulgaris</i> L.)	Arka Komal Bush type (Sel-9)	S.O.- 386(E)- 15.05.1990	Indian Institute of Horticulture Research, Hesaraghatta Lake P.O. Bangalore- 560 089	-	<b><u>Distinguishing morphological characters</u></b>  Pods tender, green long, straight, flat and fleshy. Seeds are buff or brownish buff, oblong and bold. Maturity- 65-70 days seed to seed.	<b><u>Parentage with details of its pedigree</u></b> A selection from Australian collection (IIHR-60). Average yield- 190 q/ ha.  <b><u>Recommended ecology-</u></b> Humid western Himalayan region: U.P. & H.P. (hilly region). Semi arid lava plateau and central high lands: Maharashtra. Humid semi-arid western ghats and Karnataka Plateau:

							Karnataka. <b>Agronomic features</b> <b>Responds</b> positively to NPK (50:80:40 kg/ ha). <b>Average yield under normal condition</b> -15000 kg/ ha.
6.	Green Gram ( <i>Vigna radiata(L.)</i> )	Pant Moong-4	662(E)- 17.09.1997	Govind Ballabh Pant Agriculture University & Technology, Pantnagar- 263145,	-	Leaves large, green with purple splashes on petiole, Podding from 4 <sup>th</sup> to 6 <sup>th</sup> node. Growth habit- erect, shape-ovate, colour- green, stem colour- green, Immature Pod colour- green, mature pod colour- Black, Days to maturity- 71, Plant height- 54.4 cm, Pod length- 6.4 cm, Seed colour- Dull green, 100- seed wt- 3.0 gm.	T-44 (Moong bean) x UPU-2 (Black gram), Suitable ecology is kharif season in pure cropping. Average yield-629 kg/ ha.
7.	Green Gram ( <i>Vigna radiata(L.)</i> )	PDM-139 (Samrat)	1134(E)- 15.11.2001	Indian Institute of Pulses Research, Kanpur -208024 (U.P.) in 2001	-	Plant height- 30-50 cms, erect dwarf, small leaflet, Profuse podding pods long brownish black shining green medium bold, attractive seed with luster, maturity-60 -65 days, maturity group-early.	ML.2019 x ML 5 Yield – 10-12 qts/ ha.
8.	Green Gram ( <i>Vigna radiata(L.)</i> )	Pusa Vishal	92(E)- 02.02.2001	Division of Genetics, Indian Agriculture research Institute, New Delhi- 110012.	-	Plant height- 44.3 cm, Range- 43-46 cms. Profused long pods initially green in colour and blackish at maturity with bold seed. Growth habit- Determinate, erect and early. Leaf characters- Simple compound-compound, Shape of the leaf panicle-ovate, colour- green, pubescent glabrous- pubescent, stem colour- green, Flower colour- cream, pod colour- light brown, seed colour- green shining, Days to 50% flowering -35-40 days (summer)	Selection from NM-92 and AVRDC line NO lodging, No shattering occurs if harvested at proper time and if it does not rain at harvesting time, suit able for spring / summer.

						Days to maturity- 60-65 days (summer), Plant height- 44.5 cm, No. of primary branches- 3-4 no., Pod per plant-20-25 No., No. of seed/ plant-12-13, Maturity- 65-70 days in spring and 60-65 days in summer.	
9.	Green gram ( <i>Vigna radiate</i> (L) Wilczek)	SML-668	283(E)- 12.03.2003	Department of Plant Breeding, Punjab Agriculture University, Ludhiana.	-	Average Plant height- 44.6 cm, Distinguishing morphological character- Broad an dark green leaves pod bearing at the top of the plant. Pods are long and drooping nature. Colour of pods at maturity is dark brown. It bears on an average 416 pods/ plant and each pod contains 10.4 seeds. 100 seed wt- 5.7 gm	Introduction and selection from AVRDC line NM 94. Average grain yield 1133 kg/ ha. Average seed yield 1000-1050 kg/ ha.
10.	Green gram ( <i>Vigna radiate</i> (L) Wilczek)	RMG-268	425(E)- 08.06.1999	Rajasthan Agriculture University, Agriculture Research Station- Durgapur, Jaipur	-	<b>Distinguishing morphological character-</b> Pods with blunt tips leaves remain green ever after the maturity of pods, Maturity- 64-73 days. Plant height- 35-70 cm.,	288-8/ J-781 Yield- 8-9 q/ ha.
11.	<b>Lentil</b> ( <i>Lens culinaris</i> Medic.)	Noori (IPL-81)	92 (E)- 02.02.2001	Indian Institute of Pulse Research, Kanpur-208 024, U.P.	<b>K-75</b> - Bold seeded semi- spreading, dark green and foliage. <b>PL639</b> - Small seeded semi- spreading, green foliage	Semi- spreading, deep green foliage, non tendrillous, seeds bold. Pubescence on leaf, Moderate stem colour- Purple, Flower colour- Blue , Seed shape- Lens shape, seed colour- grey mottled, Colour of cotyledon – Pink, Days to flowering- 71 days, Days To Maturity- 113 days, 100 seed wg.-2.74 gm.	K 75 x PL 639 Suitable for rainfed and irrigated condition. Seed rate- 40-50Kg / ha, spacing- row to row- 22.5 cm, fertilizer- 20 kg N: 40 Kg P <sub>2</sub> O <sub>5</sub> : 20 Kg S/ ha. Sowing time- 15 Oct- 15 Nov., Irrigation- one (45 days) if no rain. Avg. Yield- 1245 kg/ ha.

12.	Pea ( <i>Pisum sativum L.</i> )	Rachna (KPMR-10)	S.O. 371(E) 29.05.82	Chandra Shekhar Azad, University of Agriculture &Technology, Kanpur, Uttar Pradesh	-	Plant height 150-165 cm, erect ,light green stem and foliage , pods long (6.10 to 7 cm) with 4.6 seeds per pod , seeds unblemished white , round , smooth and bold (21 g/100 seeds) protein content 22.75 %.	A derivated of the cross between T-163 X T-10. Duration of crop 120-125 days and yield 20-25 qtl / ha.
13.	Pea ( <i>Pisum sativum L.</i> )	KPMR-400 (Indra)	1134(E)- 05.11.2001	Chandra Shekhar Azad, University of Agriculture & Technology, Kanpur, Uttar Pradesh	<b>Female (Rachna)-</b> Plant height-130-150 cms, Distinguishing morphological characters- light green foliage tall, long internodes ,Maturity-65-75,seeding of flowering-70-75 days ,seed to seed -125-130 days Reaction major diseases –powdery mildew resistant Reaction major pests- low pod borer damage  <b>Male (HFP-4)</b> Plant height-45-55 cms, Distinguishing morphological characters- Dark green foliage leaf less dwarf with short internodes ,seeding of flowering-70-75 days ,seed to seed -125-135 days Reaction major diseases –powdery	Plant height -50-55 cm. Early maturity ,plant dwarf & vigorous pods very long ,dark green foliage and bold seed , Growth habit –semi spreading, vigorous ,leaf-leafless ,dark green ,tendrils present , Flower colour-white ,pod colour at maturity –straw ,seed shape-round –smooth ,seed colour-white ,Days to flower-65-70 ,test weight-20-22 gm/100 seed ,days to maturity -115-120	Rachna X HFP4 Average yield under normal condition -2007 kg / ha (over years in CZ)

					mildew resistant Reaction major pests- low pod borer damage		
14.	Rai/Sarso ( <i>Brassica juncea</i> (Linn) <i>czern &amp; coss</i> )	Maya (RK 9902)	283(E)- 12.03.2003	Chandra Shekhar Azad, University of Agriculture & Technology, Kanpur, Uttar Pradesh	-	Distinguishing morphological character- Plant medium tall, mordantly branched, plant vigorous, seed bold in size and black in colour, siliqua beaded and open type and brownish in colour at the time of maturity.  Days to flowering-50 days, maturity days-130-135 days, plant height- Medium tall 165-170 cm, 1000 seed wt.-5.0-5.5 gm. Oil content- 39-40%	Varuna x KRV-11, Oil yield - 829.8 kg/ ha, Yield- 2500-2900 kg/ ha. Fertilizer responsive, tolerant to lodging, suitable for normal sown responsiveness, suitable for early and late sowing situation under irrigated condition.
15.	Red Gram ( <i>Cajanus cajan</i> )	ICPL- 85063 (Laxmi)	92(E)- 02.02.2001	Regional Agriculture Research Station, Lam, Guntur Andhra Pradesh.	-	Plant height-160 cm in Kharif and 120 cm in rabi season, Growth habit- Semi spreading, Stem colour- Green, Leaf shape- Broad elliptic, Leaf hairiness, Glabrous, Day to 50% flowering in kharif 120 days and in rabi 85 days, Base Flower colour- yellow, Second flower colour- Colour of streaks on dorsal side of the vexillum is purple, Pattern Of Streaks-Spares streaks, Flowering pattern –Indeterminate, Seed per pod-3-4, main colour of pod is mixed with green and purple, pod form- flat, pod hairiness, glabrous, Seed colour pattern- Plain, Base seed colour- reddish- brown, seed shape- oval, 100 seed wg.-9.90 gm.	<b>Parentage with details its pedigree-</b> BDN -1 X (T.21 X JA275)  Yield (seed)- 1800-2000 kg/ ha
16.	Red gram ( <i>Cajanus cajan</i> (L)Mill sp) (Tur)	ICPL- 87119 (Asha)	615 (E)- 17.08.1993	<b>Sponsored by</b> Directorate of Pulses Research, Kanpur-208 204 Uttar Pradesh.	-	Plant height – Mean: 178 cm. Range: 140-227 cm. Distinguishing morphological characters – Semi- spreading and indeterminate growth habit. Flower colour yellow, back of Vexillum red	<b>Parentage with details of its pedigree –</b> C 11XICP 1-6, ICPX 78143-WB-WB-WB- WB-W27-B, <b>Recommended ecology –</b> Latitude : 12 <sup>0</sup> N to 22 <sup>0</sup> N

				<b><u>Agency responsible For maintaining Breeder seed</u></b>  International Crop Research Institute for Semi Arid Tropics, Hyderabad		veined. Maturity – 115 days to 50 % flowering (range 110-124 days) 172 days (range 140-199) in Central Zone and 160 days (range 160-202) in South Zone. Maturity group – Medium – duration	Longitude : 75 <sup>0</sup> E to 80 <sup>0</sup> E Rainfall : 500-1300mm <b>Soils:</b> Vertisol and Alfisol. <b>Average yield under normal conditions</b> – 1800-2500 Kg/ha.
17.	Red gram ( <i>Cajanus cajan</i> (L)Mill sp) (Tur)	BSMR-736	1(E)-01.01.1996	Agriculture Research Station, Badanapur-431202, Distt.Jalna.	-	Distinguishing morphological character-Plant height-175-190cm.,growth habit-spreading ,flowering pattern-indeterminate, flower colour-yellow ,seed per pod (Nos)3.50-4.01,Testa colour-Brown,100 seed wt.-10.30-11.80 gm., Maturity in no. of days-180-185.	Derivative of the three way cross (ICP 7217 XNo 148) X BDN 1) Average yield-Rainfed - 1200-1400 kg/ha Irrigated-1800-2000 Kg/ha.
18.	Soybean ( <i>Glycine max</i> )	JS-335 (Jawahar Soybean 335)	636(E)02.09.1994	RAK College of Agriculture, Sehore, Madhya Pradesh	-	Plants 46 cm tall, semi-determinate spars pubescence on leaves stem & pods, Seed yellow, rounds with Black hylum, leaves dark green flowers purple.  <b><u>Two identifiable and distinguishable morphological characters</u></b> Sparse pubescence on leaves stem and pods. Leaves dark green at flowering.  <b>Maturity</b> -99 days(Early)	<b>Parentage with details its pedigree</b> -JS 78-77 (Kalitur x P.S. 73-22) x 71-05. Tolerant to stem fly suitable for early sowing under rainfed and irrigated conditions. Suitable for double cropping, suitable for shallow light to moderate & heavy deep black soil. Yield – (Seed) 25-30 Qtls/ha.
19.	Soybean ( <i>Glycine max</i> )	Jawahar Soya-93-05 (JS-93-05SSSS)	937(E)-04.09.2002	<b><u>Agency Responsible for Maintaining</u></b>  Jawahar Lal Nehru Krishi Vishwa Vidhyalaya , Jabalpur	-	Plant height-55-60 cm. Lanceolate leaves , four seeded pods, glabrous stem , violet flower ,yellow seeds , black hilum , Growth habit-semi determinate , days to flower initiation -36-38, days to maturity -90-95, leaf surface –smooth , flower colour-violet , pods per plant - 45-55 , seeds per pods -2-4 , seed colour –Yellow , hilum colour –Black ,100	Secondary selection from PS 73-22 Under rainfed and irrigated conditions. Early maturity group 90-95 days. Average yield under normal condition -20-25 q/het.

						seed weight -10-12 g. ,oil % 17.5-19.0 , Protein % 41-42, germination % -90-95, maturity -90-95 days.	
<b>II. Crucifer Seed and Other Oil Or Fibre Species Seed</b>							
20.	Cotton ( <i>Gossypium spp.</i> )	Bunny (NCHH-145)	1134(E)- 15.11.2001	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.	<p><b>Female (NC-71)</b> Genetic Background- G.Hirsutum Plant type- Bushy, plant hg.- 100-140 cm, leaves- broad, small to medium,= light green hairy. No. of moopodia-1-3, no. of sympodia-10-15 flower petal- white, pollen- white, Bolls- small to medium, oval mostly 4 loculed, about 3 gm/ boll, seeds- fuzzy, maturity-140-150 days, Ginning%-35-36.</p> <p><b>Male (NC-99)</b> Genetic Background- G.Hirsutum Plant type- Open, erect, tall stem hairy, plant hg.- 140-160 cm, leaves- broad, medium to large, dark green, slightly hairy. No. of moopodia-1-2, no. of sympodia-12-15(short sympodia), flower petal- white, pollen- yellow, Bolls- Big, oval mostly 4 loculed, about 5-6 gm/ boll, seeds- fuzzy, maturity-150-156 days, Ginning%-35.</p>	Plan hg.- 120-125 cm (medium height with bushy plant habit). Distinguishing morphological characters- Bushy with open growth at base, sturdy stem with 3-4 monopodia and 10-15 sympodia, Stem- green and hairy, pigmented at bottom, Leaves- medium broad, hairy, dark green 3-5 shallow lobed glanded and nectarines present, Flower-Petal cream, petal spot absent, pollen yellow. Bolls-weight- 5-6 gm., Seeds- Fuzzy. Maturity-150-160 days	NC 71 x NC 99, A trial to find out optimum agronomic requirement was conducted for two years during 1999-2000-2001.it was found that the spacing of 120 cm x 60 cm recorded higher yield of 2507 kg/ ha. As compared to the spacing 105 cm X 60 cm. which recorded yield of 2218 kg/ ha. Application of 120 Sg/ N/ ha has given the max. Yield of 2504 kg/ ha as compared to 90 kg/ ha which has given 2320 kg/ ha. Therefore, the hybrid can be recommended for cultivation with spacing of 120 x 60cm and nitrogenous fertilizer application @ 120 kg/ ha. Average yield under normal condition- 24 to 30q of seed cotton/ha. Average yield under optimum management condition- 30 to 35q of seed cotton/ha

21.	Cotton ( <i>Gossypium spp.</i> )	PKV HY-3 (CAHH-468)	1(E)-01.01.1996	Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra	<p><b>Hybrid- CAHH- 468</b> Species-G.hirsutum, plant habit- open type(sympodial) Height -110-120 (irri), 85 to 90 (rainfed) ,leaf colour- green , petal colour –pale yellow ,eye spot-present Ginning%-36.5 to 37.5% Duration of crop-165 to 175 days <b>CAK-32 A(Female)-</b> Species-G.hirsutum, plant habit- semi erect (sympodial) Height -125-150 ,leaf colour-pale green , petal colour – yellow ,eye spot-present Ginning%-36.37, Duration of crop-170 to 180 days <b>D -286-1R (Male)-</b> Species-G.hirsutum, plant habit- Open Height -100-120, Leaf colour- green , petal colour – whitish cream ,eye spot- absent, Ginning%-35 to 36%, Duration of crop- 190 to 200 days <b>AK-32 B (Maintainer) -</b> Species-G.hirsutum, Plant habit- semi erect (sympodial) Height -125-150 leaf colour-pale green, petal colour – yellow, eye spot- present</p>	<p>Plant height-110-120 cm. (Irrigated ) 85-90 cm. (Rain fed) 3 to 5 broad lobes with shallow cut dense hairy leaves .Having reddish green stem and petiole , flower sulphur colour with prominent purple eye spot . Anther buff coloured, pollen buff, boll medium, ovate pointed at end.</p>	<p>Non lodging, Drought tolerant with comparative better with stand under long droughty season as compared to other hybrids except PKV Hy-2, responds well to fertilizer and irrigation, Suitable for pre monsoon as well as regular monsoon planting, Seed rate in rainfaid condition- 2.5 kg/ ha., Seed rate in irrigated condition- 3.5 kg/ ha., Distance in irrigated condition-120 x 90 cms, in rainfaid condition- 90 x 60 cm. Suitable for cotton growing tract under rainfed and irrigated condition, Yield in rainfed- 1500 to 2000 kg / ha. Irrigated- 2000- 2500 kg/ ha.</p>
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					Ginning%-36 to 37% Duration of crop-170 to 180 days.		
22.	Cotton ( <i>Gossypium spp.</i> )	PKV HY-4 (CAHH-8)	92(E)-02.02.2001	Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra	<p><b>Female parent</b> <b>CAK- 23 A</b> Plant habit- Erect type Plant height- 100-120 cm Leaf colour- Dark Green Leaf hairiness- Light hairy Leaf nectarines- Present Leaf lobes- 3-5 Days to 1<sup>ST</sup> flower- 65-70 days Petal colour- PaleYellow flower with small petal yellow Anther colour- Yellow Petal spot- Absent, Bracts- Serrated, Boll shape-Round Boll wt.(gm)- 3.0-3.5 gm Seed Index (gm)- 8.9gm, Fuzziness- White fuzzy, Ginning(%)- 34-35 2.5% span length (mm)- 33-34 mm, Duration of crop-180-200 days</p> <p><b>Maintainer parent Ak-23 B</b> Plant habit- Erect type Plant height-100-120 cm Leaf colour- Dark Green Leaf hairiness- Light hairy Leaf nectarines- Present Leaf lobes- 3-5, Days to 1<sup>ST</sup> flower- 65-70 days,</p>	<p>Plant height- 90-100 cm <b>Distinguishing morphological characters-</b> Plant habit- Open type Leaf colour- Dark Green Leaf hairiness- Light hairy Leaf nectarines- Present Leaf lobes- 3-5 Days to 1<sup>ST</sup> flower- 55-60 days Petal colour- Light Yellow Anther colour- Yellow Petal spot- Absent Bracts- Serrated Boll shape-Oval Boll wt.(gm)- 4.0- 4.5 gm Seed Index (gm)- 9-10, Fuzziness- White fuzzy, Ginning(%)- 35.5- 36.5% 2.5% span length (mm)- 29-30 mm, Duration of crop- 150-160 days in rainfed, 170-180 (irrigated), Maturity (range in days) in rainfed condition- Seedling to 50% flowering - 65-70 days First boll bursting-110-115 days Maturity group- 160-170 days Maturity (range in days) in irrigated condition- Seedling to 50% flowering - 70-75 days First boll bursting-115-120 days Maturity group- 180-190 days</p>	<p>State &amp; year of release- Maharashtra in 1996. Parentage with details of its pedigree- Female- CAK-23 A (Male sterile) AK-23 B(Maintainer) Male- AKH-07 R (Restorer) Suited for Cotton growing tract of Maharashtra under rainfed &amp; irrigated conditions. <b>Method to overcome of synchronization-</b> Since this hybrid is based on CMS line there is no problem of seed production for hand pollination. Use of B line is to be made for maintaining A line be pollinated by the pollen grains of R male fertile line. For continuous supply of male line flowers the R line is to be sown at the time of sowing of female A line and ½ the male parent 10 days after the sowing of female Am line. Yield in rainfed condition- 15 to 20 qtls. of seed cotton/ha Yield in irrigated condition- 25 to 30 qtls. of seed cotton/ha</p>

					<p>Petal colour- PaleYellow flower with small petal yellow, Anther colour- Yellow, Petal spot- Absent, Bracts- Serrated Boll shape-Round, Boll wt.(gm)- 3.0-3.5 gm, Seed Index (gm)- 8.9gm, Fuzziness- White fuzzy, Ginning(%)- 34-35, 2.5% span length (mm)- 33-34 mm, Duration of crop-180-200 days</p> <p><b><u>Male parent AKH-07 R</u></b></p> <p>Plant habit- Erect type Plant height-60-80 cm Leaf colour- Green less hairy present, Leaf hairiness- Light hairy, Leaf nectarines- Present Leaf lobes- 3-5, Days to 1<sup>ST</sup> flower- 55-60 days, Petal colour- Cream, Anther colour- Cream, Petal spot- Absent Bracts- Serrated, Boll shape-Round, Boll wt.(gm)- 2.5-3.0 gm, Seed Index (gm)- 8.9gm, Fuzziness- Dull fuzzy, Ginning(%)- 37-38 2.5% span length (mm)- 22-23mm, Duration of crop-150-160 days</p>	<p><b><u>Two identifiable and distinguishable morphological characteristics of the variety</u></b></p> <p>3 to 5 broad lobes with shallow cut light hairy and dark green coloured leaves having reddish light brown stem and petiole. Flower light yellow with yellow anthers (Being a CMS based no F2 hybrid seed be grown)</p>
23.	Cotton ( <i>Gossypium spp.</i> )	ARCHH-3028	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.	<p><b>Female</b></p> <p>Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Medium, Plant growth habit : Semi-spreading,</p>	<p>Leaf Appearance – Flat, Leaf Shape – Palmate (Normal), Leaf Hairiness – Sparse, Plant : Growth habit – Spreading, Flower Petal colour – Cream, Pollen colour – Yellow, Stigma – Embedded, Boll Shape – Roundish</p>	

				<p>Flower petal colour : Cream, Glower pollen colour : Cream, Flower stigma : Embedded, Boll shape : Ovate, Boll prominence of tip : Pointed, Boll weight : 4.1 g.</p> <p><b>Fiber Properties</b> Ginning out turn : 31-32, Fiber length (mm) : 25-26, Fiber strength (g/tex) : 22-23, MIC : –, Maturity (%) : 85 – 90, Uniformity : 48-49, Seed Index : 10 – 11 g.</p> <p><b>Male</b> Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Sparse, Plant growth habit : Semi-spreading, Flower petal colour : Cream, Flower pollen colour : Yellow, Flower stigma : Embedded, Boll shape : Round, Boll prominence of tip : Blunt, Boll weight : 4.8 g.</p>	<p>Ovate, Boll Prominence of tip – Pointed, Boll Weight : 4.8-5.0 g.</p> <p><b>Fiber Properties</b> Ginning out turn (%) – 31, Fiber Length (mm) : 29.3, Fiber Strength (g/tex) : 24, Fiber Micronaire value : 4.2, Fiber Maturity (%) : 87, Fiber Uniformity (%) : 49, Seed Index (100 seed wt in gram) : 11.2</p>	
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					<p><b>Fiber Properties</b>  Ginning out turn : 29-30, Fiber length (mm) : 31-32, Fiber strength (g/tex) : 23-24, MIC : 3.5 – 3.9, Maturity (%) : 80 – 85, Uniformity : 45-46, Seed Index : 9 – 10 g.</p>	
24.	Cotton ( <i>Gossypium spp.</i> )	ARCHH-8188	Ankur Seeds Private Limited, Nagpur, Maharashtra, India.	<p><b>Female</b>  Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Medium, Plant growth habit : Semi-spreading, Flower petal colour : Yellow, Glower pollen colour : Cream, Flower stigma : Exerted, Boll shape : Ovate, Boll prominence of tip : Pointed, Boll weight : 5.2 g.</p> <p><b>Fiber Properties</b>  Ginning out turn : 35-36, Fiber length (mm) : 26-27, Fiber strength (g/tex) : 22-23, MIC :</p>	<p>Leaf Appearance – Flat, Leaf Shape – Palmate (Normal), Leaf Hairiness – Medium, Plant Growth habit – Semi-spreading, Flower Petal colour – Yellow, Pollen colour – Yellow, Stigma – Exerted, Boll Shape – Ovate, Boll Prominence of tip – Pointed, Boll : Weight of seed : 5.5 g.</p> <p><b>Fiber Properties</b>  Ginning out turn (%) : 33.5, Fiber Length (mm) : 30.5, Fiber Strength (g/tex) : 23.5, Fiber Micronaire value : 4.1, Fiber Maturity (%) : 85, Fiber Uniformity (%) : 49.5, Seed Index (100 seed wt in gram) : 10.5</p>	

					<p>3.9 – 4.7, Maturity (%) : 85 – 90, Uniformity : 47-48, Seed Index : 9.5 – 10.5 g.</p> <p><b>Male</b> Leaf appearance : Flat, Leaf Shape : Palmate, Leaf hairiness : Sparse, Plant growth habit : Semi-spreading, Flower petal colour : Cream, Glower pollen colour : Yellow, Flower stigma : Embedded, Boll shape : Round, Boll prominence of tip : Blunt, Boll weight : 4.8 g.</p> <p><b>Fiber Properties</b> Ginning out turn : 29-30, Fiber length (mm) : 31-32, Fiber strength (g/tex) : 23-24, MIC : 3.5 – 3.9, Maturity (%) : 80 – 85, Uniformity : 45 – 46, Seed Index : 9 – 10 g.</p>	
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25.	Cotton ( <i>Gossypium spp.</i> )	BUNNY		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401., India.	<p><b>Female</b> Plant type – Bushy, Medium height hairy, Plant height : 110-140 cm, Leaves – Broad small to Medium light green hairy, No. of Monopodia : 1-3, No. of Sympodia : 10-15, Flower – Petal-White, Petal spot absent, Pollen-White, Bolls- Small to medium, Oval mostly 4 loculed, about 3 g/boll. Seeds – Fuzzy, Days to 50% flowering : 50-55, Maturity : 140-150 days, early to male by 10 days, Ginning percentage : 35.0 - 36.0, 2.5% span length : 26-27 mm</p> <p><b>Male</b> Plant type – Open erect, tall stem, hairy, Plant height : 140-160 cm, Leaves – Broad, Medium to large, dark green, slightly hairy,</p>	<p>Hypocotyl Pigmentation – Present, Leaf colour – Green, Leaf Pubescence – Medium, Leaf appearance – Flat, Leaf gossypol glands – Present, Leaf nectaries – Present, Leaf petiole pigmentation – Present, Leaf Shape – Normal, Plant : Stem Hairines – Medium, Stem Pigmentation – Present, Plant Height (cm) – Tall, Plant growth habit – Semi Spreading, Bract type – Normal, Time of flowering (50% of plant with at least one open flower) – Medium, Petal colour – Cream, Petal spotting – Absent, Position of stigma – Exerted, Flower filament colouration – Absent, Pollen colour – Yellow, Male sterility – Absent, Boll bearing habit – Solitary, Boll colour – Green, Boll shape (longitudinal section) – Ovate, Boll surface – Smooth, Boll prominence of tip – Blunt, Boll opening – Open, Boll Weight of seed cotton / boll – Large, Seed : Fuzz – Medium, Fuzz colour – White, Seed : size (100 seed wt.) – Bold, Ginning (Percentage) – Medium, Fibre colour – White, Fibre length (2.5% span length) – Long, Fibre strength – Medium, Fibre fineness (micronaire value) – Fine, Fibre uniformity (%) – Good.</p>	Recommended spacing 120 x 60 cm and nitrogenous fertilizer application 120 kg/hectare, Maturity 150-160 days
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					No. of Monopodia : 1-2, No. of Sympodia : 12-15 (short sympodia), Flower – Petal-white, petal spot absent, Pollen Yellow, Bolls – Big oval mostly 4 loculed, about 5-6 g/boll. Seeds – Fuzzy, Days to 50% flowering : 60-65, Maturity : 150-160 days, later than female by 10 days, Ginning percentage : 35.0, 2.5% span length : 32-33 mm.	
26.	Cotton ( <i>Gossypium spp.</i> )	Mallika		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, India.	<b>Female</b> Plant height: 130-160 cm, Plant type: open, tall, stem hairy, Leaves: Medium to large, green Nectares present, No. of Monopodia: 2-4, No. of sympodia: 17-18, Flower: Petal-Cream, Petal spot-Absent, Pollen-Cream, Bolls: Medium, Conical, Mostly 4 loculed about 4-5 g/boll, Seeds: Fuzzy, Days to 50% flowering: 62-66,	Hypocotyl Pigmentation – Present, Leaf colour – Green, Leaf Pubescence – Medium, Leaf appearance – Flat, Leaf gossypol glands – Present, Leaf nectaries – Present, Leaf petiole pigmentation – Present, Leaf Shape – Normal, Stem Hairines – Medium, Stem Pigmentation – Present, Plant Height – Very Tall, Plant growth habit – Semi Spreading, Bract type – Normal, Time of flowering (50% of plant with at least one open flower) – Medium, Petal colour – Cream, Petal spotting – Absent, Position of stigma – Exerted,

				<p>Maturity: 155-160 days, Ginning (%): 33.0-35.0, 2.5 % span length in mm: 26-27 mm, Reaction to diseases: Tolerant to bacterial blight, Reaction to major pests: Tolerant to Jassids, Agronomic features: Adaptive, high yielding Moderately drought Tolerant, seed rate 2 kg/ha, Reaction to stresses: Moderately tolerant to drought.</p> <p><b>Male</b></p> <p>Plant height: 140-160 cm, Plant type: open, erect, tall, stem hairy, short sympodia, Leaves: Broad, Medium to large, dark green, slightly hairy, No. of Monopodia: 1-2, No. of sympodia: 15-16, Flower: Petal-Cream, Petal spot-Absent, Pollen-Cream, Bolls: Big, oval, Mostly 4 loculed about 6-7 g/boll, Seeds: Fuzzy, Days to 50% flowering:</p>	<p>Filament colouration – Absent, Pollen colour – Yellow, Male sterility – Absent, Boll bearing habit – Solitary, Boll colour – Green, Boll shape (longitudinal section) – Ovate, Boll surface – Smooth, Boll prominence of tip – Pointed, Boll opening – Open, Boll Weight of seed cotton / boll – Very Large, Seed Fuzz – Dense, Seed Fuzz colour – Grey, Seed size (100 seed wt.) – Very Bold, Ginning – High, Fibre colour – White, Fibre length (2.5% span length) – Extra Long, Fibre strength – Medium, Fibre fineness (micronaire value) – Fine, Fibre uniformity – Excellent, Fibre Maturity – Good.</p>	
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					60-65, Maturity: 155-160 days, Ginning (%): 35.0, 2.5 % span length in mm: 32-33 mm, Reaction to diseases: Tolerant to grey mildew, bacterial blight an alternaria leaf spot, Reaction to major pests: Tolerant to White fly, Agronomic features: Erect growth, strong stem (non-lodging), responsiveness to higher fertilizer dosage seed rate:0.75 kg/ha, Reaction to stresses: Can withstand excess rainfall.		
27.	Ground nut, ( <i>Arachis Hypogia</i> , L.) (Moongphali)	TMV-2	440 (E)-21.08.1975	Oil Seeds Research Station, Tamilnadu Agriculture University, Erayanur Village(PO), Tindivanam-604 001, Tamil Nadu.	-	Main axis erect, lateral branches usually four and Oblique starting from the very base of the plant, secondary branches rarely present. Stem thick, round at base and angular above, hairy with white hairs and spreading, inter-node 3-4 cm long, light green in the upper portion and with purple tinge at lower portion. Leaves stipulate with long acuminate stipules, leaf lets oblong to elliptic, big, light green in colour. Pods small, 1-2 seeded with shallow to deep construction, distinct beak; shell very thin with prominent veins. Kernels small, rounded, plumpy, light rose and non-dormant.	<b>Parentage with details its pedigree-</b> Developed by mass selection from Gudiatham Bunch. Released in 1940 in Tamilnadu, A bunch type variety Oil content-49.4%. Duration of crop-105 days and yield of crop-10-25 qts/ ha.

28.	Ground nut, ( <i>Arachis Hypogiia</i> , L.) (Moongphali)	TG-26	1(E)- 01.01.1996	<p><b>Sponsored by</b> Nuclear Agriculture Division, Bhabha Atomic Research Centre, Trombay, Bombay- 400065</p> <p><b>Agency responsible for Maintaining breeder seed</b></p> <p>1 <a href="#">BARC, Bombay</a> 2 <a href="#">GAU, Junagadh</a> 3 <a href="#">PKV, Akola</a> 4 <a href="#">MPKV, Jalgaon</a> 5 <a href="#">APAU, Jagtial</a></p>	-	<p>Growth habit- Semi dwarf, Branching pattern- sequential, Plant height and breadth- 42 cm &amp; 53 cm, Pigmentation- Green with light purple shade. No. of primary branch 8 and secondary branch- 2, <b>Leaf character-</b> Size –small, shape- roundish/ oblong, Colour- DARK Green, Flower Colour- Orange yellow, Seeds per pod- 2 and occasionally 3 seeded Pod length- 24.5 mm, Pod breadth- 10.5 mm, Seed length- 12.20 mm, Breadth- 8 mm, 100 seed wt. 29 -34 gm, Seed colour- Light Fleshy, Harvest index- 55<sup>^</sup>, Maturity- 105- 120 days.</p>	<p><b>Parentage with details its pedigree-</b>BARCG-1 (an induced mutant of JL-24) x TG- 23 (selection from cross TGS-2 x TGE-1) Irrigated Rabi/ summer ground nut growing area. Spacing- 30 x 10 cm, Plant population 3.3 lacs plant/ ha, Basal Fertilizer doses- 20N: 40-60 P<sub>2</sub>O 5: 20 K<sub>2</sub>O Kg/ ha. Gypsum dose- 400 kg / ha at peak flowering Seed rate- 100 kg seeds / ha. Average yield under normal condition- 2425 Kg/ ha, (Pods- rabi season).</p>
29.	Ground nut, ( <i>Arachis Hypogiia</i> , L.) (Moongphali)	Amber (CSMG- 84-1)	615(E)- 17.08.1993	<p><b>Sponsored By</b> Groundnut Research Station, Mainpuri Uttar Pradesh</p> <p><b>Agency responsible for maintaining breeder's seed</b></p> <p>Chandra Shekhar Azad University of Agriculture and Technology, Kanpur- 208 002 Uttar Pradesh.</p>	-	<p>Plant height- 35-40 cm.</p> <p><b>Distinguishing morphological character-</b> It has a marker gene with rose variegated kernel colour with prominent whiteness so the maintenance of purity of seed is easy. Foliage remains dark green till to maturity which is an additional advantage for utilizing it as succulent nutritive green fodder. Spreading in habit with profuse branching. Reticulated, constricted and biseeded pods. <b>Maturity- 130-135 days.</b></p>	<p><b>Parentage with details its pedigree-</b> Selection from MA-10.</p> <p><b>Recommended Ecology-</b> Varied environmental condition of zone-I. <b>Average yield under normal condition-</b> 2500- 3000 Kg/ ha.</p>

30.	Ground nut, ( <i>Arachis Hypogiia</i> , L.) (Moongphali)	Prakash CSMG- 884	425(E)- 08.06.1999	Chandra Shekhar Azad, University, Kanpur- 208 002 Uttar Pradesh	-	<p>Biseeded bold pods with prominent reticulation, Semi –spreading in habit with dark green leaves, Light rose Kernel colour with elongated Shape.</p> <p>Plant height and breadth -20-25 cm. Pigmentation-green ,number of primary branch -4 - 6 ,and secondary branch -6 - 8 ,</p> <p><b>Leaf character – size –medium , shape –ovate to oblong , colour –dark green ,</b></p> <p><b>Flower colour – yellow , Poda and seed character – pods setting loose , pod beak ,distinct, pod construction - medium ,pod reticulation – prominent ,ridge – distinct , seed/ pod –biseeded , pod length- 3.4 cm. ,pod breadth -1.50 cm. , 100 seed weight – 65 gm. ,seed colour – light rose colour, shelling % -71. Maturity -115-120 days. Oil content – 49% , Shelling 67%</b></p>	<p><b>Parentage with details its pedigree-</b>Developed from the Kaushal and Chandra</p> <p>Yield Pod- 2281 kg/ ha. Kernal 1540 kg / ha ,</p>
31.	Mustard ( <i>Brassica juncea</i> (Linn) czern & coss) (Raya)	Pusa Bold	S.O.- 295(E)- 09.04.1985	Indian Agriculture Research Institute, New Delhi	-	<p>Plant Height- 170-180 cm. with semi compact- branching. Plant erects but bends on maturity due to heavily laden pads. Leaves medium in size, medium green in colour with varying no. of lobes and terminal lobe is acute. Flowers cruciferous with yellow petals. Unripe pods green ripened pods golden brown, straw colour, 5-7 cm. in length with 13-18 seeds/ pod. Seeds blackish brown, round and bold (6-7 gm/1000 seeds), Oil content-42%.</p>	<p>A derivative of the cross Varuna x BIC-1780, released in 1984 Central Sub Committee o crop standards, Notification and release of variety for eastern zone of India. Duration of crop-110-145 days and yield of crop-18 qt/ ha.</p>

32.	Safflower ( <i>Carthamus tinctorius</i> L.)	Nari-6	92(E)-02.02.2001	Nimbkar Agriculture Research Station, NARI, P.O. Box-44, Phaltan-415 523, Maharashtra.	-	Plant hg.-75-85 cm, Distinguishing morphological characters- Non-spiny, corolla yellowish to pale orange in bloom turning to red on drying. White, shiny seeds with thin hull. Growth habit- Bushy, stem colour- whitish green, colour of upper stem leaves- Dark green, leaf hairiness- smooth, Days to first flower-70, Days to 50% flowering-86, pollen colour- yellow, avg. 1000 seed wt.- 42.10 gm. , Maturity- seed to seed- 117-137 days and seeding/transplanting to flowering- 68-76 days.	Non-lodging and non-shattering, responsive to fertilizer and time of sowing, recommended for sowing. Average yield- 1024 kg/ ha.
33.	Safflower ( <i>Carthamus tinctorius</i> L.)	Sharda	615(E)-17.08.1993)	Oil Seed Research Station, Latur Maharashtra.	-	The variety Sharda is having orange red flower colour, medium capsules size with appressed 6-7 primary branches with higher no. of seeds/ capsules and bold seed size. The plant height is 70-75 cm. and matures in 120-123 days. <b><u>Two identifiable and distinguishable morphological Characteristics</u></b> The variety is having at the time of initiation of the flowering, flower colour is yellow and becomes red and full flowering. The variety is having 6-7 appressed primary branches.	<b>Parentage with details its pedigree-</b> Selection from germplasm No. 168. The variety thrives well in the residual moisture condition during rabi. For this condition optimum time is last week of September to second week of October. Yield- Commercial Product-1000- 1200 kg/ ha. Seed- 1000 Kg/ ha.
34.	Sunflower ( <i>Helianthus annuus</i> L.)	DK-3849		Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.	<b>Female</b> Hypocotyl anthocyanin coloration – Strong, Leaf anthocyanin coloration on margin of young leaves – absent, Time of flowering – Medium,	Hypocotyl anthocyanin coloration during seedling emergence stage – Strong, Leaf anthocyanin coloration on margin of young leaves – Absent, Leaf size-length & width – Large, Leaf Shape – Lanceolate, Leaf colour – Dark green, Leaf fineness of serration – Coarse, Leaf hairiness – Sparse, Leaf	Time of 50% flowering – 62 days, Crop duration (Seed to Seed) – 94 days,

				<p>Leaf size – Medium, Leaf shape – Lanceolate, Leaf colour – Medium green, Leaf blistering – Medium, Leaf fineness of serration – Coarse, Leaf angle of lateral veins – Acute, Leaf height of the tip of the blade compared to insertion of petiole (at 2/3 height of plants) – Medium, Leaf angle between lower part of petiole and stem – Medium, Leaf hairiness – Sparse, Leaf petiole pigmentation – Absent, Stem hairiness at the top – Strong, Stem pigmentation – Absent, Stem number of leaves on main stem – High, Ray flowers number – Many, Ray flower shape – Elongated, Ray flower colour – Yellow, Disk flower colour – Yellow, Disk flower anthocyanin colouration of stigma – Weak, Disk flower pollen colour – White, Head number of bracts</p>	<p>Petiole pigmentation – Absent, Stem hairiness at the top – Strong, Stem pigmentation-Absent, Stem number of leaves on main stem – High, Time of 50% flowering : 62 days, Ray flowers number &amp; colour – Many and Yellow, Disk flower Colour – Yellow, Disk flower anthocyanin colouration of stigma – Weak, Disk flower Pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Elongated, Bract anthocyanin colouration – Absent, Head attitude at maturity – Turned down, Head diameter – Large, Head shape of grain side – Flat, Plant height base of the plant at ground level to the point of attachment of capitulum at maturity – Very tall, Plant branching &amp; type of branching – Absent, Seed length, shape &amp; Mottling – Medium, Ovoid elongate &amp; Absent, Seed colour of stripes – Grey, Crop duration (Seed to Seed) : 94 days, Hull percent age (100 seeds) : 28, Seed weight (100 seeds) : 3.8 g.</p>	
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				<p>on the back – Many,  Bract shape – Rounded,  Bract anthocyanin  colouration – Absent,  Head attitude – Half  turned down, Head  diameter – Small, Head  shape of grain side –  Flat, Plant height –  Tall, Seed length –  Medium, Seed : shape –  Elongate, Seed base  colour – Black, Seed  motting – Absent, Seed  stripes – Present, Seed  colour of stripes –  Grey.</p> <p><b><u>Male</u></b></p> <p>Hypocotyl anthocyanin  coloration – Strong,  Leaf anthocyanin  coloration on margin  of young leaves –  Absent, Time of  flowering – Medium,  Leaf size – Medium,  Leaf shape – Rounded,  Leaf colour – Light  green, Leaf blistering –  Medium, Leaf fineness  of serration – Medium,  Leaf angle of lateral  veins – Nearly right  angle, Leaf height of  the tip of the blade</p>	
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					<p>             compared to insertion of petiole (at 2/3 height of plants) – Medium, Leaf angle between lower part of petiole and stem – Medium, Leaf hairiness – Sparse, Leaf petiole pigmentation – Present, Stem hairiness at the top – Medium, Stem pigmentation – Medium, Stem number of leaves on main stem – Medium, Ray flowers number – Many, Ray flower shape – Elongated, Ray flower colour – Pale Yellow, Disk flower colour – Purple, Disk flower anthocyanin colouration of stigma – Medium, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Elongated, Bract anthocyanin colouration – Absent, Plant : natural position of closest lateral head to the central head (end of flowering) Branched           </p>	
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					<p>– Below, Head attitude  – Half turned down,  Head diameter – Small,  Head shape of grain  side – Flat, Plant height  – Medium, Plant  branching – Present,  Plant : type of  branching – Fully  branched, Seed length –  Short, Seed shape –  Elongated, Seed base  colour – Black, Seed  motting – Absent, Seed  stripes – Absent, Seed  colour of stripes –  Black.</p>	
35.	Sunflower ( <i>Helianthus annuus</i> L.)	SH-491		Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.	<p><b>Female</b>  Hypocotyl anthocyanin  coloration – Strong,  Leaf anthocyanin  coloration on margin of  young leaves – Absent,  Time of flowering –  Early, Leaf Size –  Small, Leaf shape –  Rounded, Leaf colour –  Light green, Leaf  blistering – Strong,  Leaf fineness of  serration – Medium,  Leaf angle of lateral  veins – Nearly right,  Leaf height of the tip of  the blade compared to</p>	<p>Hypocotyl anthocyanin coloration –  Medium, Leaf anthocyanin coloration  on margin of young leaves – Absent,  Time of flowering – Early, Leaf Size –  Medium, Leaf shape – Cordate, Leaf  colour – Dark green, Leaf blistering –  Medium, Leaf fineness of serration –  Coarse, Leaf angle of lateral veins –  Nearly right angle, Leaf height of the  tip of the blade compared to insertion of  petiole (at 2/3 height of plants) –High,  Leaf angle between lower part of  petiole and stem – Medium, Leaf  hairiness – Sparse, Leaf petiole  pigmentation – Absent, Stem hairiness  at the top –Strong, Stem pigmentation –  Absent, Stem number of leaves on main  stem –High, Ray flowers number –</p>

				<p>insertion of petiole (at 2/3 height of plants) – Very high, Leaf angle between lower part of petiole and stem – Small, Leaf hairiness – Sparse, Leaf petiole pigmentation – Absent, Stem hairiness at the top –Strong, Stem pigmentation –Absent, Stem number of leaves on main stem –High, Ray flowers number – Medium, Ray flower shape – Elongated, Ray flower colour – Pale Yellow, Disk flower colour – Yellow, Disk flower anthocyanin colouration of stigma – Absent, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Rounded, Bract anthocyanin colouration – Absent, Head attitude – Half turned down, Head diameter – Small, Head shape of grain side – Flat, Plant height – Tall, Seed length – Medium, Seed shape –</p>	<p>Many, Ray flower shape – Elongated, Ray flower colour – Yellow, Disk flower colour – Purple, Disk flower anthocyanin colouration of stigma – Medium, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Rounded, Bract anthocyanin colouration – Absent, Head attitude – Half turned down, Head diameter – Large, Head shape of grain side – Flat, Plant height – Very Tall, Plant branching –Absent, Seed length – Medium, Seed shape – Elongated, Seed weight (100 seeds) – Medium, Seed base colour – Black, Seed mottling – Absent, Seed stripes – Present, Seed colour of stripes – Brown, Hull percent (100 seeds) – Medium.</p>	
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					<p>Ovoid Elongate, Seed base colour – Black, Seed mottling – Absent, Seed stripes – Present, Seed colour of stripes – Brown.</p> <p><b><u>Male</u></b></p> <p>Hypocotyl anthocyanin coloration – Strong, Leaf anthocyanin coloration on margin of young leaves – Absent, Time of flowering – Early, Leaf Size – Small, Leaf shape – Cardate, Leaf colour – Light green, Leaf blistering – Absent, Leaf fineness of serration – Medium, Leaf angle of lateral veins – Nearly right angle, Leaf height of the tip of the blade compared to insertion of petiole (at 2/3 height of plants) – Medium, Leaf angle between lower part of petiole and stem – Small, Leaf hairiness – Dense, Leaf petiole pigmentation – Present, Stem hairiness at the top – Strong, Stem pigmentation –</p>	
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					<p>Absent, Stem number of leaves on main stem – Medium, Ray flowers number – Medium, Ray flower shape – Elongated, Ray flower colour – Pale Yellow, Disk flower colour – Purple, Disk flower anthocyanin colouration of stigma – Medium, Disk flower pollen colour – Yellow, Head number of bracts on the back – Many, Bract shape – Elongated, Bract : anthocyanin colouration – Absent, Plant natural position of closest lateral head to the central head (end of flowering) Branched – Below, Head attitude – Half turned down, Head diameter – Small, Head : shape of grain side – Flat, Plant height – Medium, Plant branching – Present, Plant type of branching – fully branched, Seed length – Short, Seed shape – Ovoid Elongate, Seed base</p>	
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					colour – Grey, Seed mottling – Present, Seed stripes – Present, Seed colour of stripes – Grey.		
<b>III. Cereal Seed</b>							
36.	Bajra ( <i>Pennisetum americanum</i> (L.) Leek)	HHB-67	386(E)- 15.5.1990	<b>Sponsored by –</b> Haryana Agricultural University, Hisar – 125 004 <b>Agency responsible for maintaining breeder seed.</b> Haryana Agriculture University, Hisar – 125 004  / International Crops Research Institute For The Semi-Erid Tropics, Hyderabad	<b>Female- MS 843A</b> Plant height (cm) – Dwarf (70-100) Tillering – High (Non synchronous tillering of wider spacing) Stem Thickness – Medium thick Leaf : (a) size & shape – Medium, medium broad Colour – Dard green Length – Medium (19 cm) Girth – Thick loose, Grain size – Bold 50%flowering -40-55 days. <b>Male- H77/833-2</b> Plant height (cm) – Medium Dwarf (100- 160) Tillering – High with high nodal tillers Stem Thickness – Thin Leaf : (a) size & shape –Small, narrow & thin Colour –Lightgreen Length –Small Thin (13	Plant height – Medium <b>Distinguishing morphological character-</b> Thin stem, medium narrow leaves typical conical earhead, medium bold seed size and extra early in maturity. <b>Maturity-</b> 42 + 2DAYS (Seed to 50% flowering) 60+2 days (Seed to seed).	<b>Parentage with details of its pedigree-</b> MS 843 A x H77/833-2 <b>Recommended ecology –</b> In multiple and intr-cropping system. <b>Agronomic features-</b> Resistant to lodging and shattering, highly responsive to fertilizer suitable for early normal and late planting, normal seed rate. <b>Reaction to stresses –</b> Highly tolerant to moisture stress. <b>Average yield in normal condition-</b> 2669 kg/ha

					cm) Girth – Thin dense loose, Grain size – Small 50%flowering -40-52 days.		
37.	Bajra ( <i>Pennisetum americanum</i> (L.) Leek)	GHB-558 (MH-946)	283(E)- 12.02.2003	Gujarat Agricultural University, Millet Research Station, Jamnagar- 361 006	<p><b>Female (MS-94555A)</b> Plant height- 80-90 cm., Node pigmentation and pubescence- Present, No. of effective tillers- 4-6, Anther colour- violet, Head shape- Conical, Head Length- Medium, Head compactness- Lose, Bristles- 9.2 mm, Grain shape- Globular, Colour- Brownish, Days to 50% flowering- 47-52, Maturity- 71-76 days.</p> <p><b>Male (J-2290)</b> Plant height- 150- 160 cm., Node pigmentation and pubescence- Absent, No. of effective tillers- 5-6, Anther colour- Yellow, Head shape- Conical, Head Length- Medium, Head compactness- Lose, Bristles- 9.6 mm, Grain shape- Globular,</p>	Plant hg.-200-210 cm. <b>Distinguishing morphological character</b> :- Basal pigmentation- Purple, Ear head shape- Conical, Leaf size- Broad, Anther colour- cream, Panicle shape- Conical, Days to 50% flowering- 48-52 days, Maturity- 75-80 days, Head length- 22-26 cm, Head girth- 11-13 cm, Head exertion- Complete, Effective tillers/Plant- 3-5, Basal pigmentation- Light purple, Node pigmentation- Absent, Node pubescence- Present, Leaf sheath pubescence- Absent, Head Compact, Bristle- Absent, Glume colour- Light purple, Grain colour- Brownish grey, shape- Obovate.	MS 94555A x J 2290. The male sterile line 94555a developed at ICRISAT was subjected to selection for downy mildew resistant. Time of sowing on set of monsoon, Seed rate- 4 Kg/ha, Lodging- Highly resistant to lodging, Fertilizer responsiveness- Highly responsive to higher dose of nitrogen. Tolerant to moisture stress, suitable for rainfed condition. Average yield- 2825 to 3201 Kg/ ha.

					Colour- Grey, Days to 50% flowering- 52-57, Maturity- 76-81 days.	
38.	Bajra ( <i>Pennisetum americanum</i> (L.) Leek)	Raj-171	814(E)- 04.11.1992	Rajasthan Agril. University, ARS' Durgapur, Jaipur	-	Plant Height – 170-200 cm., <b>Distinguishing morphological characters</b> – Long, medium thick compact cylindrical head, tapering toward tip., <b>Maturity</b> – 80-85 days. Maturity group – Medium. <b>Parentage with details of its pedigree</b> - Selected lines from early gene pool (ICRISAT). <b>Recommended ecology</b> – Rainfed condition of the country <b>Average yield under normal conditions.</b> – 1934 Kg/ Ha Across zones.
39.	Barley ( <i>Hordeum vulgare</i> L.) (Jau)	K-551 (Ritambhara)	401(E)- 15.05.1998	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur, U.P-208 002	-	Plant- semi erect with waxy bloom, broad dark green leaves, spike and mid long mid dense with long and serrated awns, light yellow in colour, kernel very bold light yellow, growth habit- semi- erect, Av. Plant hg.-92 cm, ear colour at maturity-light yellow, grain colour- light yellow, texture hard, shape- bold and medium long, Av. 1000 grain wt- 46-49 gm, maturity- 120-125 days. P 464/ Jyoti, Irrigated timely sown condition of entire plains of the country for malt and brewing purposes. Av. Yield- 40-45 q/ ha.
40.	Barley ( <i>Hordeum vulgare</i> L.) (Jau)	K-409 (Priti)	92(E)- 02.02.2001	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur, Uttar Pradesh	-	Plant height –Medium tall .Distinguishing morphological characteristics- Broad an dark- green leaves, spike mid- long, mid- dense, semi smooth awns. Bold well developed bright yellow kernel, threshability easy non- shattering, maturity- 109-112 days, semi bold well- developed, bright yellow colour, 1000 grain wt.- 38-40 gm. Jyoti/ DL 85, Yield of commercial product/ seed -3500- 4000 kg/ ha.

41.	Barley ( <i>Hordeum vulgare L.</i> ) (Jau)	N. Barley-3 (NDB-1020)	937(E)— 04.09.2002	Department of Genetics and Plant Breeding, Narendra Dev University of Agriculture & Technology, Kumar gang, faizabad, Uttar Pradesh	<b>Female (K 425):</b> Plant height- 90 cm. Medium dwarf, 50% flowering in 78 days and maturity-115 days  <b>Male (Jyoti):</b> Plant Height-105cm, Tall, Semi spready, 50% flowering in 87 days and maturity in 125 days	Plant height -70-73 cm , Distinguishing morphological characteristics –dwarf, erect, early maturing ,hulled barley, wax coating on leaves and peduncle , maturity -110-115days ,Protein content-110-12.45%, Insoluble carbohydrate-7.2%, Maturity -110-115 days	K 425 /Jyoti Well suited for saline and sodic soils (PH= 8.9 -10.3 and Ece 4.0 – 4.6 dsm 1). Also promising under late sown condition. Average yields-22-32 qt / ha (av.29 qt/ha)
42.	Barley ( <i>Hordeum vulgare L.</i> ) (Jau)	RD-2552	340(E)- 03.04.2000	Rajasthan Agriculture university ,Jaipur	-	Growth habit –erect , Foliage colour (Boot stage )-Dark green, Leaf width (booth stage)-intermediate, Average days to heading -73 (61-85), Average days to maturity-120 (106-130), Average plant height-85 (75-94) Ear colour at maturity-light yellow ,glum shoulder-elevated ,glume beak-acute Grain-colour-yellow, Texture-medium hard ,slightly netted, cheeks-medium narrow,shape-43.5 (42-45), Maturity group-128 days	RD -2035 / DL-472 Average yield under normal condition is 41.0 qt/ha where as in salinity / alkanity condition it is 32.1 qt / ha.
43.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	BPT-5204 (Samba Mahsuri)	280 (E)- 13.04.1989	Andhra Pradesh Agricultural University, Rice Research Unit, Agricultural College, Bapatlla	-	Plant Height – Dwarf to medium tall  <b>Distinguishing morphological charactors –</b>  Habit : Erect, non-lodging,open type of canopy Foliage : Dark green erect short leaves late senescence boot leaf erect, Fluorescence: Erect or slightly drooping exsertion complete. Glume colour at maturity: Straw colour. kernel colour: white translucent, Grain classification : Fine (Medium slender,	Parentage with detail of its pedigree – (GEB 24 X T (N)-1 + Mahsuri Yield :Commercial product – 5.5 to 6.5 Tonnes/ha Seed – 4.5 to 5.0 tonncs/ha

						<p><b>Two identifiable Distinguishing morphological characters-</b></p> <p>Dwarf to medium tall, erect, non-lodging open type of canopy with dark green erect short leaves. The inflorescence erect slightly drooping with complete exertion. Maturity group – Late duration (Seed to Seed) (140-150) days.</p>	
44.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	BPT-3291 (Sona Mahsuri)	1566(E)- 05.11.2005	Andhra Pradesh Agricultural University, Rice Research Unit, Agricultural College, Bapatla	-	Plants dwarf, close tillering and uniform flowering panicle compact and well exerted, glumes of dirty brown colour, Grains long slender with translucent kernels.	145 days/ 70-75 q/ha. Sona x Mahsuri Released in 1982 in Andhra Pradesh
45.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	MTU- 7029 (IET- 5656) (Swarna)	2103- 12.08.1980	Agricultural Research Station, Andhra Pradesh Agricultural University. Maruteru- 534 122	-	Plants Semi Dwarf- (95-100 Cm.) with profuse tillering, medium long panicles, foliage dark green on ripening. Grains short bold. . Kernals white, Translucent without abdominal white. Days to 50% flowering 125 days	<b>Parentage with details its pedigree-</b> Vasista X Mahsuri, Released in 1982 in Andhra Pradesh also released by central sub committee on release of varieties in 1980 as Swarna. Suitable for low input of nitrogen in Krishna and godavari zone of Andhra Pradesh, Duration of crop 155 days and yield- 63.00 q/ha.
46.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	Chaitanya (IET- 9265)	280 (E)- 13.04.1989	Agricultural Research Station, Andhra Pradesh Agricultural University. Maruteru- 534 122	-	Description of Variety – Chaitanya variety is a semi-dwarf type with all plant parts green in colour its glumes are straw in colour Rice is classified as medium and slender. It is tolerant of brown plant hopper. Its maturity duration is 150 days.	<b>Parentage with details its pedigree-</b> Sowbhagya/ ARC-5984. Yield – (Grain) 7000 kg/ha

						<p><b>Two identifiable and distinguishable morphological characteristics of the variety-</b>  Grain is straw in colour and classified as fine.  All parts of the plant are green in colour.,  Maturity group – Late (150 days)</p>	
47.	Paddy, ( <i>Oryza sativa L.</i> ) ( Dhan)	MTU-2077 (Krishnaveni)	639 (E)- 17.08.1990	Agricultural Research Station, Maruteru – 534122, Andhra Pradesh Agricultural University.	-	<p>Krishnaveni (MTU 2077) is a long duration (150 days) and semi dwarf type with all plant parts green in colour. Rice is classified medium slender. It is tolerant to BPH.  <b>Two identifiable and distinguishable morphological characteristics of the variety-</b> Grain is brown in colour.  All parts of the plant are green in colour  Maturity Group – Late (150 days)</p>	<p><b>Parentage with details its pedigree-</b>Sowbagya/ARC 5984 MTU 2077 is the designation of variety. It carries IET 11380. Sowbagya is derivative of Mahsuri and Vijaya and ARC 5984 is tolerant to BPH and GM. Recommended ecology – BPH endemic and low tying areas in Andhra Pradesh, Yield(Grain)-6500 kg/ha.</p>
48.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	MTU-1010 (Cottondo rasannalu)	821(E)- 13.09.2009	Agriculture Research Station. Maruteru- 534122	-	<p>Plant height- 108 cm.  <b>Distinguishing morphological characters-</b> Semi dwarf with medium tillering, green foliage grain straw glumed, long slender.  Habit- Erect, Internode- Green, Leaf sheath- Green, Juncture- white, Auricle- Green, Septum- Green, Leaf blade- Green non- pigmented, Flag leaf- Non- pigmented, Erect, Exertion- Good, Awnless, Panicle- Compact , Lemma and Palea-Green, Rice colour- White, translucent, Maturity days to 50% flowering- 90 days, Maturity days- 120</p>	<p><b>Parentage with details its pedigree-</b>Krishnavani/ IR-64. Irrigated ecosystem for growing in rabi season of Andhra Pradesh. Yield- Commercial product- 7.4 t/ ha.(Straw), Seed- 6.7 t/ ha.</p>

49.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	NLR-145	615 (E)- 17.08.1993	Rice Breeder Agricultural Research Station, Nellore- 524 004, Andhra Pradesh	-	<p>Plant height-80-85cm.,</p> <p><b><u>Distinguishing morphological characters</u></b></p> <p>Habit-Sami-dwarf, compact, with erect flag leaf, No. of ear bearing tillers-16/hill, Straw strength-Non-lodging, Internode thickness-6.8 mm,</p> <p><b><u>Pigmentation</u></b>, Leaf sheath-Green, Leaf blade-Green, Internode-Pale green, Glumes-Straw colour, Apiculus-Straw colour</p> <p><b><u>Panicle characters:</u></b> Panicle length-22.0 cm, No. of grains/ panicle-130, Panicle density-5.9 grains/ cm, Nature of panicle-Drooping at maturity, Panicle exertion-Awnless, Sterility-Few basal spikelets sterile.</p> <p><b><u>Grain characters:</u></b> Kernel colour – White, Scent – Non-Scented, Nature of Kernel – Translucent, Size of the grain – Length mm : 9.06 Breadth mm : 2.58 L/B ratio : 3.51, 1000 grain weight – 24.1 g, Texture of Kernel – Translucent ,</p> <p><b><u>Size of kernel</u></b> – Length mm : 8.18, Breadth mm : 2.43, L/B ratio: 3.36.</p> <p><b><u>Maturity:</u></b> Seed to flowering – 110 days, Seed to flowering – 80 days, Transplanting to flowering – 140 days.</p> <p><b><u>Describe at least two identifiable and distinguishable morphological characteristics of the variety.</u></b> – Erect flag leaf, panicles concealed within leaf canopy. Long and slender, straw coloured grain. Profuse tillering habit.</p>	<p><b>Parentage with details its pedigree</b>-CICA 4/IR 625-23-3-1// Tetop.</p> <p><b><u>Agromomic Features</u></b></p> <p>Non-loading, photoinsensitive, compact and profuse tillering type,suitable tfor kharif and early rabi seasons of blast endemic areas of Southern zone. Grain long and slender with translucent kernel. Yields optimum at a fertilizer dose of 120 N, 60 P<sub>2</sub> O<sub>5,40</sub> K<sub>2</sub>O kg/ha. With stands moisture stress at vegetative stage Quality lone slender translucent kernel with 78% head rice recovery with moderate good cooking quality.</p> <p><b><u>Yield</u></b></p> <p>Commercial product-straw : 3.0 t/ha Seed-6.5-7.0 t/ha</p>
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50.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	WGL-20471 (Paddy ERRA Mallelu)	615 (E)- 17.08.1993	Agriculture Research Station, Andhra Pradesh Agriculture University, Warangal- 506 007 Andhra Pradesh.	<b>BC 5-55:</b> BC 5-55 is derivative of TN 1/Basmati 370. It is of 118 days duration. With medium tillering and erect plant type. The grain is long slender, translucent with no abdominal white <b>W. 12708:</b> W. 12708 is a promising donor for resistance to gallmidge and a derivative of IR 8/W. 1263. It is of 135 days duration with anthocyanin pigmentation at the base of plant, leaf margins and glume tip. The grains are coarse with dark brown glumes and red pericarp.	Rice variety ERRA MALLELU is a semi-dwarf, semi-compact, medium tillering plant type with erect leaves, all parts green in colour and grain ripening to slight brown colour. The kernel is long slender with abdominal white absent. Its duration to maturity is 120 days. Erra Mallelu is highly resistant to gallmidge. <b>Two identifiable and distinguishable morphological characteristics</b> Grain light brown in colour and classified as long slender. It is early maturing and gallmidge resistant. All plant parts are green in colour. <b>Maturity-</b> Early maturing (118- 120 days.)	<b>Parentage with details its pedigree- BC 5-55/ W 12708.</b> <b>Yield (in kg./ha.)-</b> Grain yield potential 6000 to 6500 kg/ha.
51.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	IR-64 (IET-9671)	527(E)- 16.08.1991	<b>Sponsored By</b> Directorate of Rice Research, Hyderabad- 500 030 Andhra Pradesh  <b>Agency responsible for maintaining Breeder's seed</b>  International Rice Research Institute, Philippines, Central Rice Research Institute, Cuttack	-	Plant Height- Semi dwarf measuring about 100cm. <b>Distinguishing morphological characters</b> Erect with dark green leaves, profuse and compact tillering long slender grain straw colour husk. <b>Maturity-</b> 90-95 days to 50% flowering. 120-125 days for seed to seed. Maturity group- Early.	<b>Parentage with details its pedigree-</b> IR 5657-35-2-1/ IR 2061465-1-5-5 Pedigree: IR 18348-36-3-3; Irrigated Ecology. Irrigated condition short season (rabi). <b>Av. yield:</b> <b>1200 to 1500 Kgs/ Ha.</b>

				and Directorate of Rice Research, Hyderabad.			
52.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	RGL-2537 (Sri kakulam Sannalu)	821 (E)-13.09.2000	Agriculture Research station, Ragolu- 532 484 Srikakulam District, Andhra Pradesh.	-	Plant Height- Intermediate tall of 110 to 120 cms height. Habit-Intermediate tall, Compact tillering. No. of ear bearing tillers- 8-10 no./ hill. Straw strength- Non lodging. Leaf sheath, Leaf blade and Internodes -Green. Glumes and Apicules -Straw. Panicle length- 23.5 cms x 26.5 cms, No. of grains/ panicle- 120 to 140 No., Panicle density- 5 grains/ cm. Nature of panicle- Semi- drooping. Panicle exertion- complete. Awing- Awnless. Kernel colour- White. Grain of length- 8.627 mm, Breadth-2.385 and L/ B ratio: 3.617 mm. Maturity- Seed to flowering – 125 to 130 days , Transplanting to flowering- 95 to 100 Days. Seed to Seed 155 to 160 days, Distinguishable characters- 1. Intermediate tall of 110 to 120 cm height with drooping ear head and lengthy flag leaf at maturity. 2. Pale green colour leaf foliage 3. Normally does not lodge at maturity	<b>Parentage with details its pedigree-</b> T-145/ CR 1014 Suitable for late planted condition of North coastal district and prakasam district especially under N.S. right canal area of Southern zone of A..P. Non lodging, fertilizer responsive up to 80 kg. n/ ha under north coastal condition. Spacing- 15 x 15 cm under north coastal conditions. High fodder values since the plant grows up to 115 to 12cms, photosensitive 6.3 t/ ha under normal transplanting conditions. 5.5 t/ ha under late transplanted condition with 60 to 70 days aged seedings.
53.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	RGL-2538 (Vasundhara )	821 (E)-13.09.2000	Agriculture Research Station , Ragolu-532484 Srikakulam District , Andhara Pradesh	-	Plant height –erect, semi dwarf 100-105 cm, Tillering ability –medium 12-15 no. ,foliage-light green ,leaf sheath-green ,grain type-long slender length-6.90,breadth-1.83, length & breadth ratio-3.77 .Medium maturity with 130-135 days total duration in kharif season . Semi –Dwarf, attains the height of 100-105 cm in kharif season. Flag leaf	<b>Parentage with details its pedigree-</b> Phalgun / IET6858 Suitable For late sowing and late transplanted condition of north coastal zone especially under tanked condition where transplantation are invariably delayed.

						is short and erect and ear heads droop at maturity. Long slender straw glumed grains.	Yield (in kg /ha -5.5 to 6.0 t/ha)
54.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	RNRM-7	92 (E)- 02.02.2001	Agriculture Research Institute, Rice section, Rajendranagar.	-	Plant height- 80-90 cm <b>Distinguishable morphological characters-</b> Ear bearing tillers- 13/ hill, Growth habit- Compact, erect plant type, Pigmentation- Absent Hairness on leaves- Normal Boot leaf- Erect, Panicle type- Compact drooping, Panicle length- 21.0 cm, No. of grains/ panicle- 150-180 grains/ panicle, Awnless, Kernel shape- Medium slender Kernel colour- White translucent Duration- Kharif- 135 days, Rabi- 150 days, Two identifiable & distinguishable morphological characters- 1. Semi dwarf, profuse tillering with medium slender grains. 2- Beak of the grain slightly curved one side but straight at other side.	<b>Parentage with details its pedigree</b> -Mutant of samba mahsuri 1991 K- Treated with Gammarays and EMS and raised M1 1992K- M 2 was studied 1993K- M 3 was studied 1993-94 R- M4 was studied RNR 7(0.3 EMS) was taken for yield trial. Yield- 6-6.5 t/ ha.
55.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	Pusa- RH-10	1134 (E)- 15.11.2001	India Agriculture Research Institute, New delhi-110 012	<b>Female parent- (Pusa 6 A)</b> Plant height- 85 cm, No. of effective tillers 8-10, Leaf characteristics- short, narrow, erect & dark green leaf. Days of 50% flowering - 90-95. Panicle length-27 cm, Panicle exertion-20 cm. Grain type-Long slender ,fine and aromatic ,1000 grain weight-18 gm.,out crossing-45%, No. of	Plant height- 90-110 cm, <b>Distinguishing morphological characters-</b> Dark green erect flag leaf, long slender fine grains without wans, Plant type- semi dwarf, No. of tillers/ plant- 10-12, No. of panicles/sq.m- 400, Days to 50% flowering- 88-90 days, 1000 grain wt. - 6.74 gm., Hulling recovery-81%, Milling recovery-67%, Head rice recovery-53-43%, Maturity- 120-125 days	<b>Parentage with details its pedigree</b> -Pusa 6A/ PRR 78. It has strong culm, profuse tillering tolerance to lodging. Pusa RH-10 has given better performance than Pusa Basmati under both normal delayed planting and at normal as well as wider spacing. This hybrid is 15-20 days early as compared to check pusa Basmati-1

					<p>spikelets /panicle-165.  <b>Male Parent (PRR-78)</b>  Plant height- 105 cm,  No. of effective tillers 8-10, Leaf characteristics-dark green and droopy leaf with medium length and width.  Days of 50% flowering - 92-97. Penicle length-30 cm, Panicle exertion-Full. Grain type-Extra long slender, and aromatic, 1000 grain weight-26 grm, No. of spikelets / panicle-270.</p>		
56.	Paddy, ( <i>Oryza sativa L.</i> ) (Dhan)	KRH-2 (Karnatak a Rice Hybrid - 2)	1(E)- 01.01.1996	Regional Research Station, VC Farm, Mandya-571 405, Karnataka	<p><b><u>IR 58025 A</u></b>  1.Invariably anthers white in colour .but some time one of the six anther is yellow in colour (inspite of its spikelet a sterile)  2.Tendency for awning present .3.spiklets are strile. 4. Semi Dwarf  5.Grain type long slender.</p> <p><b><u>IR 58025 B</u></b>  1. Anthers are Yellow in colour. 2. Tendency for awning present  3.Spikelet are fertile  4.semidwarf 6. Long slender</p>	<p>Plant height 100 cm. grain type –long slender , plant type –semi tall , Days to 50% flowering -90-95 days ,Days to maturity -135 days (seeding to harvest)</p>	<p><b>Parentage with details its pedigree-</b> IR 58025 A /KMR -3R  1. Suitable for normal planting and not suitable for sowing latter than july 2<sup>nd</sup>week 2. Does not respond more than 100 kg Nitrogen / ha 3.Seed rate 20 kg/ha 4. single seedling /hill  4.Specing 20 x 10 cms</p> <p>Yield in crop 8-9 tons/ha  Hybrid seed 1500-2000 kgs/ha.</p>

					<b>KMR -3</b> 1. Anthers are Yellow in colour. 2. Awns absent 3.Spike let are fertile 4.semitall 5.Long bold 6. Long slender			
57.	Paddy, ( <i>Oryza sativa</i> L.) (Dhan)	Narendra dhan-97 (IET 9210)	860(E)-25.11.92	Narendra University of Agriculture Technology, Faizabad Prades	Dev of and Uttar	-	Plant Height- 75-80 cm. <b>Distinguishing morphological characters</b> Short tipped tendency, Stigma white. <b>Maturity-</b> Days to 50% flowering -65-70 days, Seed to seed – 90-95 days. Maturity group- Early.	<b>Parentage with details its pedigree-</b> N 22 x Ratna. <b>Ecology:</b> Rainfed upland.
58.	Rice ( <i>Oryza sativa</i> L.)	US 312		Seed Works International Private Limited, #437, Avenue 4, Banjara Hills, Hyderabad – 500034, Andhra Pradesh, India.			Plant height : 105 cm, Plant type – Erect and sturdy stem, No. of tillers : 16-18, No. of panicles / m <sup>2</sup> : 302, Days to 50% flowering : 98, Panicle type – Dense and long, Panicle exsertion : 100 % (2 cm above flag leaf), Awns – Absent, Apiculus colour – Green, Kernel length (mm) : 6.10, Kernel breadth (mm) : 2.02, L/B ratio : 2.95, Grain Chalkiness – VOC, Kernel appearance – Semi translucent, Milling recovery % : 72.1, Head rice recovery : 70, Alkali value : 5, Amylose content : 23.14 % intermediate.	
59.	Rice ( <i>Oryza sativa</i> L.)	ARHH 7434		Ankur Seeds Private Limited, Nagpur, Maharashtra, India.		<b>Female</b> Duration (Days) : 132-139, Plant habit : Erect, Plant height : 90 cm,	Very strong plant type, Medium height, More effective tillers, Well exerted panicles, More No of fertile spikelets, Long slender attractive grains with very Good cooking quality, Medium duration	Tolerant to Blast, Neck blast and Bph.

					<p>Leaf sheath : Green,  Leaf blade : Medium,  Leaf colour : Dark Green, Flag leaf angle : Erect, Flowering (days) : 98-102, Panicle length : 20-22 cm, Panicle exertion : partly exerted, Grain type : Long slender, Grain test weight : 20.9 g.</p> <p><b>Male</b></p> <p>Duration (Days) : 138-144, Plant habit : Erect, Plant height : 105 cm, Leaf sheath : Green, Leaf blade : Broad, Leaf colour : Dark Green, Flag leaf angle : Erect, Flowering (days) : 92-96, Panicle length : 24-28 cm, Panicle exertion : Well exerted, Grain type : Long slender, Grain test weight : 25.7 g.</p>	(120-130 Day after sowing), Tolerant to Blast, Neck blast and Brown Plant Hopper.	
60.	Rice ( <i>Oryza sativa</i> L.)	Sonam		Ankur Seeds Private Limited, Nagpur, Maharashtra, India.		Dwarf, Erect and Strong Plants, Profused tillering ability, Medium long, Compact, straight and well exerted panicle, Short slender, awnless, attractive golden yellow coloured grains, Non-shattering, easily threshable and wide adaptability, High head rice	Good yield potential in small grain category

						recovery, Very good cooking quality, Medium duration, Good yield potential in small grain category.	
61.	Rice ( <i>Oryza sativa</i> L.)	Motigold		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, India.		<p>Coleptile colour – Colour less, Basal Leaf Sheath colour – Green, Leaf intensity of green colour – Medium, Leaf anthocyanin colouration – Absent, Leaf sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present,</p> <p>Leaf Anthocyanin colouration of auricles – Colour less, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf Length of blade – Medium, Leaf width of Blade – Medium, Culm Attitude – Semi Erect, Time of heading (50 % of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet density of pubescence of lemma – Weak, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Thick, Stem Length (excluding floating rice) – Short, Stem anthocyanin colouration of nodes – Absent, Stem anthocyanin colouration</p>	

						of internodes – Absent, Panicle Length of main axis – Medium, Flag Leaf attitude of blade (late observation) – Erect, Panicle : Curvature of main axis – Semi Straight, Panicle Number per plant – Medium, Spikelet Colour of tip of lemma – Brown, Lemma and Palea colour – Brown furrows on straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle attitude of branches – Erect to semi erect, Panicle exertion – Mostly exerted, Time Maturity – Medium, Leaf senescence – Medium, Sterile Lemma colour – Straw, Grain weight of 1000 fully developed grains – Low, Grain Length – Short, Grain Width – Very Narrow, Grain Phenol reaction of lemma – Present, Decorticated grain Length – Medium, Decorticated grain width – Narrow, Decorticated grain Shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm content of amylose – Medium, Decorticated grain aroma – Absent.	
62.	Rice ( <i>Oryza sativa</i> L.)	Sonal		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill),		Coleptile colour – Colour less, Basal Leaf Sheath colour – Green, Leaf intensity of green colour – Medium, Leaf anthocyanin colouration – Absent, Leaf sheath : anthocyanin colouration – Absent, Leaf Auricles – Present, Leaf	

				<p>Medchal Mandal, Ranga Reddy Distt.-501401, India.</p>		<p>Anthocyanin colouration of auricles – Colour less, Leaf collar – Present, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf Length of blade – Medium, Leaf width of Blade – Medium, Culm Attitude – Semi Erect, Time of heading (50 % of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet density of pubescence of lemma – Weak, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thcikness – Thick, Stem Length (excluding floating rice) – Very Short, Stem anthocyanin colouration of nodes – Absent, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Medium, Flag Leaf attitude of blade (late observation) – Erect, Panicle Curvature of main axis – Semi Straight, Panicle Number per plant – Medium, Spikelet Colour of tip of lemma – White, Lemma and Palea colour – Straw, Panicle awns – Absent, Panicle colour of awns (late observation) – Yellowish white, Panicle presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle attitude of branches –</p>	
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						<p>Erect to semi erect, Panicle exertion – Well exerted,</p> <p>Time Maturity (days) – Medium, Leaf senescence – Late, Sterile Lemma colour – Straw, Grain weight of 1000 fully developed grains – Low, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Short, Decorticated grain width – Narrow, Decorticated grain Shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm content of amylose – Medium, Decorticated grain aroma – Absent.</p>	
63.	Rice ( <i>Oryza sativa</i> L.)	NPH 8899		<p>Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill &amp; Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, India.</p>	<p><b>Female</b></p> <p>Coleptile colour – Color less, Basal Leaf sheath colour – Green, Leaf intensity of green colour – Medium, Leaf anthocyanin colouration – Absent, Leaf sheath anthocyanin colouration – Absent, Leaf pubescence of blade surface – Medium, Leaf Auricles – present, Leaf Anthocyanin colouration of auricles – Color less, Leaf Collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf length of blade – Medium, Leaf width of Blade – Broad, Culm : Attitude – Erect, Time of heading (50% of plants</p>		

				<p>colouration of auricles – Color less, Leaf Collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf length of blade – Medium, Leaf width of Blade – Medium, Culm : Attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet density of pubescence of lemma – Absent, Male sterility – Present, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spilelet colour of stigma – White, Stem Thcikness – Medium, Stem length</p>	<p>with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Erect, Spikelet density of pubescence of lemma – Absent, Male sterility – Absent, Lemma : Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent, Lemma anthocyanin colouration of apex – Absent, Spilelet colour of stigma – White, Stem Thcikness – Thick, Stem length (excluding floating rice) – Very Short, Stem anthocyanin colouration of nodes – Absent, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Medium, Flang Leaf attitude of blade (late observation) – Erect, Panicle curvature of main axis – Drooping, Panicle Number per plant – Few, Spikelet colour of tip of lemma – White, Lemma and palea colour – Straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle secondary branching – Strong, Panicle attitude of branches – Semi Erect, Panicle exsertion – Well Exerted, Time maturity – Medium, Leaf senescence – Late, Sterile Lemma colour – Straw, Grain Weight of 1000 fully developed grains – Low, Grain Length – Very Short, Grain width – Very Narrow, Decorticated grain Length – Medium, Decorticated grain width – Narrow, Decorticated grain shape (in lateral view) – Medium</p>	
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				<p>(excluding floating rice) – Short, Stem anthocyanin colouration of nodes – Absent, Stem intensity of anthocyanin colouration of nodes – Weak, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Medium, Flang Leaf attitude of blade (late observation) – Erect, Panicle curvature of main axis – Drooping, Panicle Number per plant – Few, Spikelet colour of tip of lemma – White, Lemma and palea colour – Straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle secondary branching – Strong, Panicle attitude of branches – Semi Erect to Spreading, Panicle exertion – Mostly Exerted, Time maturity – Medium, Leaf senescence – Late,</p>	<p>Slender, Decorticated grain colour – White, Endosperm presence of amylose – Present, Endosperm content of amylose – Medium, Decorticated grain aroma – Absent.</p>	
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				<p>Sterile Lemma colour – Straw, Grain Weight of 1000 fully developed grains – Medium, Grain Length – Medium, Grain width – Narrow, Grain Phenol reaction of lemma – Absent, Decorticated grain Length – Medium, Decorticated grain width – Medium, Decorticated grain shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm presence of amylose – Present, Endosperm content of amylose – Medium, Decorticated grain aroma – Absent.</p> <p><b><u>Male</u></b>  Coleptile colour – Color less, Basal Leaf sheath colour – Green, Leaf intensity of green colour – Dark, Leaf anthocyanin colouration – Absent, Leaf sheath anthocyanin</p>	
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					<p>colouration – Absent, Leaf pubescence of blade surface – Medium, Leaf Auricles – present, Leaf Anthocyanin colouration of auricles – Color less, Leaf Collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf shape of ligule – Split, Leaf colour of ligule – White, Leaf length of blade – Short, Leaf width of Blade – Medium, Culm Attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag Leaf attitude of blade (early observation) – Semi Erect, Spikelet density of pubescence of lemma – Absent, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma anthocyanin colouration of area below apex – Absent,</p>	
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					<p>Lemma anthocyanin colouration of apex – Absent, Spilelet colour of stigma – White, Stem Thcikness – Thick, Stem length (excluding floating rice) – Short, Stem anthocyanin colouration of nodes – Absent, Stem intensity of anthocyanin colouration of nodes – Weak, Stem anthocyanin colouration of internodes – Absent, Panicle Length of main axis – Short, Flang Leaf attitude of blade (late observation) – Semi Erect, Panicle curvature of main axis – Drooping, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea colour – Straw, Panicle awns – Absent, Panicle presence of secondary branching – Present, Panicle secondary branching – Strong, Panicle attitude</p>	
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					of branches – Semi Erect to Spreading, Panicle exertion – Well Exerted, Time maturity – Medium, Leaf senescence – Late, Sterile Lemma colour – Straw, Grain Weight of 1000 fully developed grains – Low, Grain Length – Very Short, Grain : width – Very Narrow, Grain Phenol reaction of lemma – Absent, Decorticated grain Length – Short, Decorticated grain width – Narrow, Decorticated grain shape (in lateral view) – Medium Slender, Decorticated grain colour – White, Endosperm presence of amylose – Present, Endoperm content of amylose – Medium, Decordicated grain aroma – Absent.		
64.	Rice ( <i>Oryza sativa</i> L.)	GK 5003		Ganga Kaveri Seeds Private Limited, 1406, Babukhan Estate, Bashirbhag, Hyderabad-500	<b>Female</b> Plant height (cm) : 85-90, Plant type : Semi-dwarf, No. of tillers / plant : 12-16, No. of panicles / sq.m. : 280-	Plant height (cm) : 100-106, In Leaf colour – Green, 50 % flowering (days) – Kharif : 90-95, Anther colour and type – yellow colour and plumpy, Panicle emergence (days) : 95-100.	50 % flowering (days) – Kharif : 90-95, Maturity (days) – Kharif : 120-125.

			001, Andhra Pradesh, India.	<p>300, Days to flowering : 82-86, Panicle type : Intermediate, Panicle exertion (%) : 85, Awning : Partly awned, Apiculus colour : Green, 1000-grain weight (g) : 20, Kernel length (mm) : 7.26, Kernel breadth (mm) : 1.96, L/B ratio : 3.70, Grain type : LS, Milling recovery : 67, Head rice recovery : 56, Husk colour : Straw, Anther type : White, Shrivelled, Pollen : Sterile, Stigma colour : Pale green.</p> <p><b>Male</b> Plant height (cm) : 95-100, Plant type : Semi-dwarf, No. of tillers / plant : 13-15, No. of panicles / sq.m. : 280-300, Days to flowering : 88-95, Panicle type : Intermediate, Panicle exertion (%) : 100, Awning : Awnless, Apiculus colour : Green, 1000-grain weight (g) : 18, Kernel length (mm) : 5.76,</p>	<p><b>Ear Head</b> Shape – Compact, Awned – Absent, Glume colour – straw colour, Seed shape – Long Slender (LS), Grain quality – Fine, Seed colour – Straw, Dormancy – Non-dormant, Photo sensitivity – Non-sensitive, Shattering – Non-shattering, Lodging – Non lodging, Maturity (days) : 120-125, DUMS – Semi erect, broad and long flag leaf, Long Slender grains.</p>	
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					Kernel breadth (mm) : 2.20, L/B ratio : 2.62, Grain type : MB, Milling recovery : 76, Head rice recovery : 64, Husk colour : Gold and gold furrows, Anther type : Yellow, plumpy, Pollen : Fertile, Stigma colour : Pale green.	
65.	Rice ( <i>Oryza sativa</i> L.)	KSL 210011		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.	<b>A Line</b> Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Light, Leaf Anthocyanin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocyanin coloration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Weak, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : Colourless, Leaf Collar : Present, Leaf Anthocyanin coloration of collar :	Coleoptile colour – Colorless, Leaf intensity of green colour – Medium, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (38), Leaf Width of Balde (cm) – Medium (1.2), Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days – Medium (99), Lemma Anthocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Thick, Stem Length (cm) excluding panicles – Very short, Panicle : Length of main axis (cm) – Medium, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Lemma and palea Colour – Straw, Panicle Awns – Present, Panicle Colour of awns – Yellowish white, Panicle length of longest awns (cm) – 1, Panicle

				<p>Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : White, Leaf Length blade (cm) : Medium (43), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : Medium (102), Flag leaf Attitude of blade (early observation) : Erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Present, Lemma anthocyanin colouration of keel : Absent or weak, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : White, Stem thickness (mm) : Thick, Stem Length (cm) excluding panicles :</p>	<p>Distribution of awns – Tips only, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well exerted, Time of maturity (days) – Medium (130), Grain Weight of 1000 fully developed grains (gm) : 25, Grain Length (mm) : 10.14, Grain Width (mm) : 2.41, Decorticated grain length (mm) : 8.51, Decorticated grain Width (mm) : 1.99, Decorticated grain Shape (in lateral view) – Extra long slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Present.</p>	
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					<p>Very short (43), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : Long, Flag leaf Attitude of blade (late observation) : Erect, Panicle Curvature of main axis : Semi-Straight, Panicle Number per plant : Few, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.4, Panicle Distribution of awns : Tips only, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion :</p>	
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				<p>Partially Exerted, Time of maturity (days) : Medium (130), Leaf Senescence : Medium, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 22, Grain Length (mm) : 9.9, Grain Width (mm) : 2.23, Decorticated grain length (mm) : 6.84, Decorticated grain Width (mm) : 2.03, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>B Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration</p>	
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					: Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Weak, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : Colourless, Leaf Collar : Present, Leaf Anthocyanin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : White, Leaf Length blade (cm) : Medium (43), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : Medium (101), Flag leaf Attitude of blade (early observation) : Erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Absent, Lemma anthocyanin	
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					<p>colouration of keel :  Absent or weak,  Lemma anthocyanin  colouration of area  below apex : Absent,  Lemma anthocyanin  colouration of apex :  absent, Spikelet Color  of stigma : White, Stem  thickness (mm) :  Medium, Stem Length  (cm) excluding panicles  : Very short (67), Stem  anthocyanin coloration  of nodes : Absent, Stem  Intensity of  anthocyanin  colouration of nodes :  NA, Stem anthocyanin  colouration of  internodes : Absent,  Panicle Length of main  axis (cm) : Long, Flag  leaf Attitude of blade  (late observation) :  Semi-erect, Panicle  Curvature of main axis  : Deflexed, Panicle  Number per plant :  Medium, Spikelet  Color of tip of lemma :  Yellowish, Lemma and  palea Color : Straw,  Panicle Awns : Present,  Panicle Color of awns :</p>	
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					<p>Yellowish W, Panicle  Length of longest awns  (cm) : 1.2, Panicle  Distribution of awns :  Tips only, Panicle  Presence of secondary  branching : Present,  Panicle Secondary  branching : Strong,  Panicle Attitude of  branches : Erect,  Panicle Exertion : Well  Exerted, Time of  maturity (days) :  Medium (124), Leaf  Senescence : Late,  Sterile lemma Color :  Straw, Grain Weight of  1000 fully developed  grains (gm) : 24, Grain  Length (mm) : 9.65,  Grain Width (mm) :  2.01, Decorticated  grain length (mm) :  7.45, Decorticated  grain Width (mm) :  2.17, Decorticated  grain Shape (in lateral  view) : Long slender,  Decorticated grain  color : Light brown,  Gelatinization  temperature : Medium,  Decorticated grain  aroma : Present.</p>	
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					<p><b>R Line</b>  Coleoptile color :  Colorless, Basal leaf  Sheath color : Green,  Leaf Intensity of green  color : Medium,  LeafAnthocynin  coloration : Absent,  Leaf Distribution of  anthocyanin coloration  : NA, Leaf sheath:  Anthocynin colouration  : Absent, Leaf sheath:  Intensity of  anthocyanin coloration  : NA, Leaf Pubescence  of blade surface :  Weak, Leaf Auricles :  Present, Leaf  Anthocynin coloration  of auricles : Absent,  Leaf Collar : Present,  Leaf Anthocynin  colouration of collar :  Absent, Leaf Ligule :  Present, Leaf Shape of  Ligule : Split, Leaf  Color of Ligule :  Absent, Leaf Length  blade (cm) : 54, Leaf  Width of Blade (cm) :  1.3, Culm Attitude (for  floating rice only) :  NA, Culm Attitude :  Erect, Time of heading</p>	
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					<p>(50% of plants with panicles) in days : 94,  Flag leaf Attitude of blade (early observation) : Erect,  Spikelet Density of pubescence of Lemma : Medium, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium,  Stem Length (cm) excluding panicles : 73,  Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent,  Panicle Length of main axis (cm) : 25, Flag leaf Attitude of blade (late observation) : Semi-</p>	
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					erect, Panicle Curvature of main axis : Straight, Panicle Number per plant : 15, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 1, Panicle Distribution of awns : Tips only, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Most Exerted, Time of maturity (days) : 124, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 28, Grain Length (mm) : 11.24, Grain Width (mm) : 2.04, Decorticated grain length (mm) : 8.59, Decorticated grain Width (mm) : 1.89, Decorticated	
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					grain Shape (in lateral view) : Extra long slender, Decorticated grain color : Light brown, Gelatinization temperature : High, Decorticated grain aroma : Present.	
66.	Rice ( <i>Oryza sativa</i> L.)	KSL 120014		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.	<b>A Line</b> Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, Leaf Anthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin coloration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Absent, Leaf Auricles : Present, Leaf Anthocynin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocynin	Coleoptile colour – Colorless, Leaf intensity of green colour – Light, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Long (59), Leaf Width of Balde (cm) – Broad (2.3), Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days – Late (114), Lemma Antocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Very short (86), Panicle Length of main axis (cm) – Long (29), Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium (13), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches –

				<p>colouration of collar :  Absent, Leaf Ligule :  Present, Leaf Shape of  Ligule : Split, Leaf  Color of Ligule :  Absent, Leaf Length  blade (cm) : 46 (Long),  Leaf Width of Blade  (cm) : 1.2 (Medium),  Culm Attitude (for  floating rice only) :  NA, Culm Attitude :  Erect, Time of heading  (50% of plants with  panicles) in days : 100,  Flag leaf Attitude of  blade (early  observation) : Semi  erect, Spikelet Density  of pubescence of  Lemma : Weak, Male  sterility : Present,  Lemma anthocyanin  colouration of keel :  Absent, Lemma  anthocyanin  colouration of area  below apex : Absent,  Lemma anthocyanin  colouration of apex :</p>	<p>Erect, Panicle Exertion – Well exerted,  Time of maturity (days) – Late (145),  Grain Weight of 1000 fully developed  grains (gm) : 25, Grain Length (mm) :  10.09, Grain Width (mm) : 2.18,  Decorticated grain length (mm) : 7.37,  Decorticated grain Width (mm) : 2.04,  Decorticated grain Shape (in lateral  view) – Long slender, Decorticated  grain Colour – Light brown,  Decorticated grain aroma – Absent.</p>	
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					<p>absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : 55 (very short), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : 22 (Medium), Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Straight, Panicle Number per plant : 11 (Medium), Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of</p>	
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					<p>longest awns (cm) : 0.3,  Panicle Distribution of  awns : Upper half,  Panicle Presence of  secondary branching :  Present, Panicle  Secondary branching :  Strong, Panicle Attitude  of branches : Erect,  Panicle Exertion :  Partially Exert, Time of  maturity (days) : 128,  Leaf Senescence : Late,  Sterile lemma Color :  Straw, Grain Weight of  1000 fully developed  grains (gm) : 22  (Medium), Grain  Length (mm) : 10.24,  Grain Width (mm) :  2.06, Decorticated  grain length (mm) :  6.96, Decorticated  grain Width (mm) :  1.83, Decorticated  grain Shape (in lateral  view) : Long slender,  Decorticated grain  color : Light brown,  Gelatinization</p>	
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				<p>temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>B Line</b></p> <p>Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, Leaf Anthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Absent, Leaf Auricles : Present, Leaf Anthocynin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocynin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf</p>	
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					<p>Color of Ligule :  Absent, Leaf Length  blade (cm) : 46 (Long),  Leaf Width of Blade  (cm) : 1.2 (Medium),  Culm Attitude (for  floating rice only) :  NA, Culm Attitude :  Erect, Time of heading  (50% of plants with  panicles) in days : 98,  Flag leaf Attitude of  blade (early  observation) : Semi  erect, Spikelet Density  of pubescence of  Lemma : Medium,  Male sterility : Absent,  Lemma anthocyanin  colouration of keel :  Absent, Lemma  anthocyanin  colouration of area  below apex : Absent,  Lemma anthocyanin  colouration of apex :  absent, Spikelet Color  of stigma : Absent,  Stem thickness (mm) :  Medium, Stem Length</p>	
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					<p>(cm) excluding panicles : 59, Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : 24 (Medium), Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Semi straight, Panicle Number per plant : 10, Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.3, Panicle Distribution of awns : Upper half, Panicle Presence of secondary branching :</p>	
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					Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Well exerted, Time of maturity (days) : 125, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 23, Grain Length (mm) : 10.23, Grain Width (mm) : 2.04, Decorticated grain length (mm) : 7.08, Decorticated grain Width (mm) : 1.87, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present. <b>R Line</b> Coleoptile color : Colorless, Basal leaf Sheath color : Green,	
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					<p>Leaf Intensity of green color : Light, Leaf Anthocyanin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocyanin coloration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Medium, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : colourless, Leaf Collar : Present, Leaf Anthocyanin coloration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : White, Leaf Length blade (cm) : 50 (Long), Leaf Width of Blade (cm) : 1.6 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Semi-erect, Time of heading (50% of plants with panicles) in days : Medium (109), Flag</p>	
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					<p>leaf Attitude of blade (early observation) : Erect, Spikelet Density of pubescence of Lemma : Weak, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent or weak, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : white, Stem thickness (mm) : Thick, Stem Length (cm) excluding panicles : Very short (75), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : Long, Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Semi straight, Panicle</p>	
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					<p>Number per plant :  Medium, Spikelet  Color of tip of lemma :  Yellowish, Lemma and  palea Color : Straw,  Panicle Awns : Absent,  Panicle Color of awns :  NA, Panicle Length of  longest awns (cm) :  NA, Panicle  Distribution of awns :  NA, Panicle Presence  of secondary branching  : Present, Panicle  Secondary branching :  Strong, Panicle Attitude  of branches : Erect,  Panicle Exertion :  Mostly exerted, Time  of maturity (days) :  Medium (136), Leaf  Senescence : Medium,  Sterile lemma Color :  Straw, Grain Weight of  1000 fully developed  grains (gm) : 29, Grain  Length (mm) : 9.66,  Grain Width (mm) :  2.29, Decorticated  grain length (mm) :  7.34, Decorticated  grain Width (mm) :  2.42, Decorticated  grain Shape (in lateral  view) : Long slender,</p>	
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					Decorticated grain color : Light brown, Gelatinization temperature : High, Decorticated grain aroma : Absent.	
67.	Rice ( <i>Oryza sativa</i> L.)	KSL 120007		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.	<p><b>A Line</b></p> <p>Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, Leaf Anthocyanin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocyanin coloration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence of blade surface : Absent, Leaf Auricles : Present, Leaf Anthocyanin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocyanin coloration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule :</p>	<p>Coleoptile colour – Colorless, Leaf intensity of green colour – Medium, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Very Strong, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (38), Leaf Width of Balde (cm) – Medium (1.2), Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days – Early (86), Lemma Anthocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Thick, Stem Length (cm) excluding panicles – Very short (55), Panicle Length of main axis (cm) – Medium (21), Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium (12), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle : Exertion – Mostly exerted, Time of maturity (days) – Early (115), Grain Weight of 1000 fully developed grains (gm) : 24, Grain Length (mm) : 9.29, Grain Width (mm) : 2.44, Decorticated grain length (mm) :</p>

				<p>Absent, Leaf Length blade (cm) : 46 (Long), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : 100, Flag leaf Attitude of blade (early observation) : Semi-erect, Spikelet Density of pubescence of Lemma : Weak, Male sterility : Present, Lemma anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : Absent, Stem thickness (mm) : Medium, Stem Length (cm) excluding panicles : Very short (55), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin</p>	<p>6.44, Decorticated grain Width (mm) : 2.15, Decorticated grain Shape (in lateral view) – Long bold, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.</p>	
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					<p>colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : 22 (Medium), Flag leaf Attitude of blade (late observation) : Semi-erect, Panicle Curvature of main axis : Straight, Panicle Number per plant : 11 (Medium), Spikelet Color of tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Present, Panicle Color of awns : Yellowish W, Panicle Length of longest awns (cm) : 0.3, Panicle Distribution of awns : Upper half, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Partially Exerted, Time of maturity (days) : 128, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain</p>	
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				<p>Weight of 1000 fully developed grains (gm) : 22 (Medium), Grain Length (mm) : 10.24, Grain Width (mm) : 2.06, Decorticated grain length (mm) : 6.96, Decorticated grain Width (mm) : 1.83, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>B Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin coloration : Absent, Leaf Distribution of anthocyanin coloration : NA, Leaf sheath: Anthocynin colouration : Absent, Leaf sheath: Intensity of anthocyanin coloration : NA, Leaf Pubescence</p>	
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					of blade surface : Absent, Leaf Auricles : Present, Leaf Anthocynin coloration of auricles : Absent, Leaf Collar : Present, Leaf Anthocynin colouration of collar : Absent, Leaf Ligule : Present, Leaf Shape of Ligule : Split, Leaf Color of Ligule : Absent, Leaf Length blade (cm) : 46 (Long), Leaf Width of Blade (cm) : 1.2 (Medium), Culm Attitude (for floating rice only) : NA, Culm Attitude : Erect, Time of heading (50% of plants with panicles) in days : 98, Flag leaf Attitude of blade (early observation) : Semi- erect, Spikelet Density of pubescence of Lemma : Medium, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent, Lemma anthocyanin colouration of area below apex : Absent,	
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					<p> Lemma anthocyanin  colouration of apex :  absent, Spikelet Color  of stigma : Absent,  Stem thickness (mm) :  Medium, Stem Length  (cm) excluding panicles  : 59, Stem anthocyanin  coloration of nodes :  Absent, Stem Intensity  of anthocyanin  colouration of nodes :  NA, Stem anthocyanin  colouration of  internodes : Absent,  Panicle Length of main  axis (cm) : 24  (Medium), Flag leaf  Attitude of blade (late  observation) : Semi  erect, Panicle Curvature  of main axis : Semi  straight, Panicle  Number per plant : 10,  Spikelet Color of tip of  lemma : Yellowish,  Lemma and palea Color  : Straw, Panicle Awns :  Present, Panicle Color  of awns : Yellowish W,  Panicle Length of  longest awns (cm) : 0.3,  Panicle Distribution of  awns : Upper half,  Panicle Presence of </p>	
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					<p>secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Well exerted, Time of maturity (days) : 125, Leaf Senescence : Late, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 23, Grain Length (mm) : 10.23, Grain Width (mm) : 2.04, Decorticated grain length (mm) : 7.08, Decorticated grain Width (mm) : 1.87, Decorticated grain Shape (in lateral view) : Long slender, Decorticated grain color : Light brown, Gelatinization temperature : Medium, Decorticated grain aroma : Present.</p> <p><b>R Line</b>  Coleoptile color : Colorless, Basal leaf Sheath color : Green, Leaf Intensity of green color : Medium, LeafAnthocynin</p>	
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					<p>coloration : Absent,  Leaf Distribution of  anthocyanin coloration  : NA, Leaf sheath:  Anthocynin colouration  : Absent, Leaf sheath:  Intensity of  anthocyanin coloration  : NA, Leaf Pubescence  of blade surface :  Absent, Leaf Auricles :  Absent, Leaf  Anthocynin coloration  of auricles : Clourless,  Leaf Collar : Present,  Leaf Anthocynin  colouration of collar :  Absent, Leaf Ligule :  Present, Leaf Shape of  Ligule : Split, Leaf  Color of Ligule :  White, Leaf Length  blade (cm) : Medium  (44), Leaf Width of  Blade (cm) : 1.3  (Medium), Culm  Attitude (for floating  rice only) : NA, Culm  Attitude : Erect, Time  of heading (50% of  plants with panicles) in  days : Medium (97),  Flag leaf Attitude of  blade (early  observation) : Semi-</p>	
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					erect, Spikelet Density of pubescence of Lemma : Strong, Male sterility : Absent, Lemma anthocyanin colouration of keel : Absent or very weak, Lemma anthocyanin colouration of area below apex : Absent, Lemma anthocyanin colouration of apex : absent, Spikelet Color of stigma : White, Stem thickness (mm) : Thick, Stem Length (cm) excluding panicles : Very short (64), Stem anthocyanin coloration of nodes : Absent, Stem Intensity of anthocyanin colouration of nodes : NA, Stem anthocyanin colouration of internodes : Absent, Panicle Length of main axis (cm) : Short, Flag leaf Attitude of blade (late observation) : Semi erect, Panicle Curvature of main axis : Deflexed, Panicle Number per plant : Few, Spikelet Color of	
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					tip of lemma : Yellowish, Lemma and palea Color : Straw, Panicle Awns : Absent, Panicle Color of awns : NA, Panicle Length of longest awns (cm) : NA, Panicle Distribution of awns : NA, Panicle Presence of secondary branching : Present, Panicle Secondary branching : Strong, Panicle Attitude of branches : Erect, Panicle Exertion : Well exerted, Time of maturity (days) : Early (120), Leaf Senescence : Medium, Sterile lemma Color : Straw, Grain Weight of 1000 fully developed grains (gm) : 21, Grain Length (mm) : 7.69, Grain Width (mm) : 2.9, Decorticated grain length (mm) : 5.37, Decorticated grain Width (mm) : 2.39, Decorticated grain Shape (in lateral view) : Short bold, Decorticated grain color : Light brown,	
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					Gelatinization temperature : High medium, Decorticated grain aroma : Absent.	
68.	Rice ( <i>Oryza sativa</i> L.)	KSL - 333		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.		Coleoptile colour – Colorless, Leaf intensity of green colour – Light, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (42), Leaf Width of Balde (cm) – Medium (1.3), Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days – Medium (110), Lemma Antocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Very short (80), Panicle Length of main axis (cm) – Medium (25), Panicle Curvature of main axis – Semi Straight, Panicle Number per plant – Medium (14), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well exerted, Time of maturity (days) – Medium-Late (138), Grain Weight of 1000 fully developed grains (gm) – Medium (24), Grain Length (mm) : 9.10, Grain Width (mm) : 2.02, Decorticated grain length (mm) : 7.10, Decorticated grain Width (mm) :

						1.90, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.	
69.	Rice ( <i>Oryza sativa</i> L.)	SPS - 14		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.		Coleoptile colour – Colorless, Leaf intensity of green colour – Light, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Long (63), Leaf Width of Balde (cm) – Medium (1.2), Culm : Attitude – Erect, Time of heading (50% of plants with panicles) in days : 109, Lemma : Antocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Short (66), Panicle Length of main axis (cm) : 26, Panicle Curvature of main axis – Straight, Panicle Number per plant : 19, Lemma and palea Colour – Straw, Panicle Awns – Present, Panicle Colour of awns – Yellowish white, Panicle length of longest awns (cm) : 0.3, Panicle Distribution of awns – Tips only, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well exerted, Time of maturity (days) : 139, Grain Weight of 1000 fully developed grains (gm) : 21, Grain Length (mm) : 9.66,	

						Grain Width (mm) : 2.22, Decorticated grain length (mm) : 7.30, Decorticated grain Width (mm) : 2.05, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.	
70.	Rice ( <i>Oryza sativa</i> L.)	Rasika selection		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.		Coleoptile colour – Colorless, Leaf intensity of green colour – Medium, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present, Leaf Auricles coloration – Absent, Leaf Ligule – Present, Leaf Length blade (cm) – Medium (42.8), Leaf Width of Balde (cm) – Medium (1.46), Culm Attitude – Semi-Erect, Time of heading (50% of plants with panicles) in days : 104, Lemma Antocyanin colouration of apex – Absent, Spikelet Colour of stigma – White, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles – Very short (63.4), Panicle Length of main axis (cm) – Short (19.8), Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium (16), Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to Semi-	

						erect, Panicle Exertion – Well exerted, Time of maturity (days) – Medium (133), Grain Weight of 1000 fully developed grains (gm) – (Very Low) 13, Grain Length (mm) : 8.09, Grain : Width (mm) : 2.15, Decorticated grain length (mm) : 5.56, Decorticated grain Width (mm) : 1.84, Decorticated grain : Shape (in lateral view) – Medium Slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.	
71.	Rice ( <i>Oryza sativa</i> L.)	Komal - 101		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.		Coleoptile colour – Green, Leaf intensity of green colour – Dark, Leaf sheath Anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Strong, Leaf Auricles – Present, Leaf Auricles coloration – Hairy & greenish, Leaf Ligule – Present, Leaf Length blade (cm) : 46, Leaf Width of Balde (cm) – Medium, Culm Attitude – Erect, Time of heading (50% of plants with panicles) in days : 102, Lemma : Antocyanin colouration of apex – Absent, Spikelet Colour of stigma – Absent, Stem thickness (mm) – Medium, Stem Length (cm) excluding panicles : 76, Panicle Length of main axis (cm) : 24, Panicle Curvature of main axis – Semi Straight, Panicle	Time of heading (50% of plants with panicles) in days – 102, Time of maturity (days) – 123.

						Number per plant : 12, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect, Panicle Exertion – Well, Time of maturity (days) : 123, Grain Weight of 1000 fully developed grains (gm) : 14, Grain Length (mm) : 6.90, Grain Width (mm) : 2.20, Decorticated grain length (mm) : 4.80, Decorticated grain Width (mm) : 1.90, Decorticated grain Shape (in lateral view) – Short slender, Decorticated grain Colour – Light brown, Decorticated grain aroma – Absent.	
72.	Rice ( <i>Oryza sativa</i> L.)	US – 382		Seed Works International Private Limited, #437, Avenue 4, Banjara Hills, Hyderabad – 500034, Andhra Pradesh, India.	<b>Female</b> Plant height (Average) : 85-90, Plant Type : Erect, No. of tillers : 14-16, No. of panicles / m <sup>2</sup> (Average) : 275, Days to 50% flowering (days) : 95, Panicle type : Long panicles, Panicle exertion : 72%, Awns : Present, Apiculus colour : Green, Kernel Length (mm) : 6.5, Kernel Breadth (mm) : 2, L/B ratio : 3.25, Grain Chalkiness : VOC,	Plant height : 104 cm, Plant type – Erect and sturdy stem, No. of tillers : 16, No. of panicles / m <sup>2</sup> : 279, Days to 50% flowering (Average) : 94, Panicle type – Dense and long, Panicle exertion : 100 % (4 cm above flag leaf), Awns – Absent, Apiculus colour – Green, Kernel length (mm) : 6.12, Kernel breadth (mm) : 2.11, L/B ratio : 2.9, Grain Chalkiness – VOC, Kernel appearance – Semi translucent, Milling recovery % : 71.7, Head rice recovery % : 63.8, Alkali value : 4.65, Amylose content : 22.5 % intermediate.	Resistant to Lodging and tolerance to shattering. Significant superior performance under recommended and lower doses is of nitrogen indicates its higher nitrogen use efficiency.

				<p>Kernel appearance:Semi translucent, Milling recovery % : 70, Head Rice recovery % : 68, Alkali Value:5, Amylose Content:23.</p> <p><b>Male</b></p> <p>Plant height (Average):100-110, Plant Type : Erect, No. of tillers:16-18, No. of panicles / m<sup>2</sup> (Average):270, Days to 50% flowering (days):100, Panicle type : Dense and long panicles, Panicle exertion: 100%, Awns :Absent, Apiculus colour: Green, Kernel Length (mm):5.8, Kemel Breadth (mm) : 2.11, L/B ratio:2.76, Grain Chalkiness: VOC,Kernel appearance:Semi translucent, Milling recovery %:72, Head Rice recovery %:70, Alkali Value:5, Amylose Content:23.5.</p>	
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73.	Rice ( <i>Oryza sativa</i> L.)	Frontline Gold RH-1531		Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.	<p><b>Female</b> Plant canopy – Erect, Leaf shape – Narrow, Leaf pubescence – Glabrous, Leaf sheath color – Light green, Internode color – Green, Panicle exertion – Partially exerted, Apiculous color – Colorless to green, Awn presence – Fully present, Prominent at tip, Stigma color – Colorless to yellow, Anther color – Pale yellow, Anther shape – Shriveled, Days to 10% heading (Kharif) : 90-93, Grain color – Straw, Grain shape – Long slender, slightly curved back, Seed set (%) : 0-55, Plant height : 2-5% and 25-30% shorter than “B” and “R” line resp, Days of maturity (kharif) : 120-125, Plant height (cm) : 59.</p> <p><b>Male</b> Plant canopy – Erect, Leaf shape – Broad,</p>	Culm attitude – Semi Erect, Leaf shape – Medium broad, Basal Leaf sheath colour – Green, Leaf Pubescence of blade surface – Medium, Leaf Intensity of green color – Medium green, Leaf auricles – Present, Leaf Anthocyanin coloration of auricles – Colourless, Leaf shape of ligule – Split, Leaf color of ligule – White transperant, Flag Leaf attitude of blade (early observation) – Erect, Flag Leaf attitude of blade (late observation) – Semi Errect, Time of heading (50% of plants with heads) : 93-98 days, Lemma anthocyanin coloration of apex – Absent, Spikelet color of stigma – White, Stem length : 88 cm, Stem anthocyanin coloration of nodes – Absent, Stem anthocyanin coloration of internode – Absent, Panicle length of main axis : 25-28 cm, Panicle curvature of main axis – Deflexed, Panicle Awns – Present, Panicle Distribution of awns – Short awns on Tip only, Panicle color of awns – Yellowish white, Panicle Attitutde of branches – Semi erect, Panicle exertion – Exserted, Spikelet density of pubescence of lemma – Absent, Spikelet color of tip of lemma – Brown, Decorticated grain length – Medium	Time of heading (50% of plants with heads) – 93-98 days, Days to maturity – 118-125, Reaction to blast – Tolerant, Reaction to BLB – Susceptible, Reaction to BPH – Tolerant.
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					<p>Leaf pubescence – Medium, Leaf sheath color – Medium dark green, Internode color – Green, Panicle exertion – Fully exerted, Apiculous color – Colorless to green, Awn presence – Present, Stigma color – White, Anther color – Dark yellow, Anther shape – Round and plumpy, Days to 10% heading (Kharif) : 98-103, Grain color – Brown and yellow shading, Grain shape – Long slender, Seed set (%) : &gt;90, Plant height : 20-25% taller than “32B/A” line resp., Days of maturity (kharif) : 130-135, Plant height (cm) : 97.</p>	<p>(6.72 mm), Decorticated grain width – Narrow (2.21 mm), Decorticated grain shape (in lateral view) – Long slender, Decorticated grain colour – White, Decorticated grain aroma – Non aromatic, Days to maturity : 118-125, Reaction to blast – Tolerant, Reaction to BLB – Susceptible, Reaction to BPH – Tolerant.</p>	
74.	Rice ( <i>Oryza sativa</i> L.)	NPH-924-1	-	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill	<p><b><u>Female (NSL 2A)</u></b> Plant height: 85 to 90 cm, Ear bearing tillers (Number) : 8 to 9, Grain size – Long</p>	<p>Plant height: 90 to 95 cm, Distinguishing Morphological characters – All plant parts green, grains medium, kernel white, Maturity : 130 days in Rabi/Boro seasons, Maturity group – Medium duration, Suitability –</p>	<p>Plant height: 90 to 95 cm, kernel white, Maturity : 130 days in Rabi/Boro seasons, Maturity group – Medium duration, Special Features – Tolerant to cold during</p>

			<p>&amp; Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.</p>	<p>slender, Photo sensitivity – Photo insensitive, Maturity : 115 to 120 days, Maturity group – Mid early, Distinguishing morphological characters – Semi dwarf, All plant parts green, hull straw, cold susceptible, Reaction to diseases – Tolerant to blast, Reaction to pests – Tolerant to brown plant hopper, Agronomic features – Responsive to fertilizer, Quality – Long slender.</p> <p><b><u>Male (PAB 52R)</u></b></p> <p>Plant height: 100 to 105 cm, Ear bearing tillers (Number) : 14 to 16, Grain size – Long Bold, Photo sensitivity – Photo insensitive, Maturity : 125 to 130 days, Maturity group – Medium, Distinguishing morphological characters – Semi dwarf, all plant parts green, hull straw, cold</p>	<p>Rabi/Boro season in West Bengal and Assam, Disease / Pest Tolerance – Tolerant to blast, brown spot, Area of Adaptability – Irrigated areas, in rabi/boro seasons, Special Features – Tolerant to cold during vegetative stage.</p>	<p>vegetative stage.</p>
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					tolerance in vegetative stage, Reaction to diseases – Tolerant to blast, Reaction to pests – Tolerant to green leaf hopper, Agronomic features – Responsive to fertilizer, Quality – Long Bold.		
75.	Rice ( <i>Oryza sativa</i> L.)	PNPH - 24	-	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.	<b><u>Female (PRN 1A)</u></b> Plant height : 85 to 90 cm, Ear bearing tillers (Number) : 8 to 9, Grain size – Long slender, Photo sensitivity–Photo insensitive, Maturity : 110-115 days, Maturity group – Mid early, Distinguishing morphological characters – Semi dwarf, All plant parts green, hull straw, Reaction to diseases – Tolerant to blast, Reaction to pests– Tolerant to thrips, Agronomic features– Responsive to fertilizer, Quality– Long slender and White Kernel.	Plant height : 85 to 90 cm, Distinguishing Morphological characters – All plant parts green, grains long slender, white kernel, Maturity : 120-125 days during Kharif, 125 to 130 days during Rabi, Maturity group – Mid early duration, Suitability – Kharif/Rabi in irrigated areas, Disease / Pest Tolerance – Tolerant to blast, brown spot, Area of Adaptability – Irrigated areas in Bihar, West Bengal and Odisha, Special Features – Tolerant to drought stress.	Plant height : 85 to 90 cm, white kernel, Maturity : 120-125 days during Kharif, 125 to 130 days during Rabi, Maturity group – Mid early duration, Suitability – Kharif/Rabi in irrigated areas, Disease / Pest Tolerance – Tolerant to blast, brown spot.,

					<p><b><u>Male (PRN 24R)</u></b></p> <p>Plant height : 95 to 100 cm, Ear bearing tillers (Number) : 14 to 16, Grain size – Long bold, Photo sensitivity – Photo insensitive, Maturity : 120-125 days, Maturity group – Mid early, Distinguishing morphological characters – Semi dwarf, All plant parts green, hull strawish brown, Reaction to diseases – Tolerant to blast, Reaction to pests – Tolerant to Green Leaf Hopper, Brown Plant Hopper &amp; White Backed Plant Hopper, Agronomic features – Responsive to fertilizer, Quality – Long bold.</p>	
76.	Rice ( <i>Oryza sativa</i> L.)	KPH - 199	-	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.	<p><b><u>Female (RCM – 1017A)</u></b></p> <p>Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar –</p>	Time of heading (50% of plants with panicles) – Medium, Grain weight – Low, Grain Length – Very Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Narrow, Decorticated grain Shape (in

				<p>colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Weak, Male sterility – Present, Lemma Anthocyanin colouration of keel – Absent, Lemma</p>	<p>Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm Attitude (for floating rice only) – NA, Culm attitude – Semi erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Medium, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – yellowish, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Mostly exerted, Time</p>	<p>lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p>
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				<p>Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Semi-straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Partly</p>	<p>maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Low, Grain Length – Very Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Narrow, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p>	
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				<p>exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Low, Grain Length – Medium, Grain Width – Very, Decorticated grain Length – Long, Decorticated grain Width – Narrow, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Present,</p> <p><b><u>Male (KPGOS – 516)</u></b></p> <p>Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin</p>	
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					<p>colouration – Absent,  Leaf Sheath  anthocyanin  colouration – Absent,  Leaf Pubescence of  blade surface –  Medium, Leaf Auricles  – Present, Leaf  anthocyanin  colouration of auricles  – Absent, Leaf collar –  Present, Leaf  Anthocyanin  colouration of collar –  Absent, Leaf Ligule –  Present, Leaf Shape of  ligule – Split, Leaf  Colour of ligule –  White, Leaf Length of  blade – Medium, Leaf  Width of blade –  Medium, Culm attitude  – Erect, Time of  heading (50% of plants  with panicles) –  Medium, Flag leaf  Attitude of blade (early  observation) – Erect,  Spikelet Density of  pubescence of lemma –  Weak, Male sterility –  Absent, Lemma  Anthocyanin  colouration of keel–  Absent, Lemma</p>	
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					<p>Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Semi-straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Well</p>	
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					<p>exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Low, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Narrow, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent.</p>	
77.	Rice ( <i>Oryza sativa</i> L.)	KPH - 272	-	<p>Kaveri Seed Company Limited, 513-B, 5<sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.</p>	<p><b><u>Female (KCMS – 1090A)</u></b></p> <p>Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration</p>	<p>Time of heading (50% of plants with panicles) – Medium, Grain weight – Medium, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium,</p>

				<p>Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Weak, Male sterility – Present, Lemma Anthocyanin colouration of keel –</p>	<p>of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Long, Leaf Width of blade – Medium, Culm attitude – Semi-erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Medium, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Long, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – Yellowish, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Mostly exerted, Time maturity (days) – Medium, Leaf</p>	<p>Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p>
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				<p>Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle</p>	<p>Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Medium, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p>	
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				<p>Exertion – Partly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Medium, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent,</p> <p><b><u>Male (KPGOS – 722)</u></b></p> <p>Coleoptiles Colour – Green, Basal leaf Sheath colour – Green, Leaf Intensity of green</p>	
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					<p>colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Weak, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Long, Leaf Width of blade – Medium, Culm attitude – Semi-erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Medium, Male sterility – Absent, Lemma Anthocyanin</p>	
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					<p>colouration of keel – Absent, Lemma Anthocyanin</p> <p>colouration of area below apex – Absent, Lemma Anthocyanin</p> <p>colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Thick, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin</p> <p>colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Semi-straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Gold, Panicle Awns – Absent, Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to</p>	
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					<p>semi-erect, Panicle Exertion – Well exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Low, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent.</p>	
78.	Rice ( <i>Oryza sativa</i> L.)	KPH - 371	-	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad –	<p><b><u>Female (K-12A or KCMS – 1090A)</u></b></p> <p>Coleoptiles Colour – Green, Basal leaf Sheath colour – Green,</p>	<p>Time of heading (50% of plants with panicles) – Medium, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw,</p>

			500 004, Andhra Pradesh, India.	<p>Leaf Intensity of green colour – Medium, Leaf Anthocyanin colouration – Absent, Leaf Sheath anthocyanin colouration – Absent, Leaf Pubescence of blade surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Medium, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Weak, Male sterility – Present, Lemma</p>	<p>surface – Medium, Leaf Auricles – Present, Leaf anthocyanin colouration of auricles – Absent, Leaf collar – Present, Leaf Anthocyanin colouration of collar – Absent, Leaf Ligule – Present, Leaf Shape of ligule – Split, Leaf Colour of ligule – White, Leaf Length of blade – Long, Leaf Width of blade – Medium, Culm attitude – Erect, Time of heading (50% of plants with panicles) – Medium, Flag leaf Attitude of blade (early observation) – Erect, Spikelet Density of pubescence of lemma – Medium, Male sterility – Absent, Lemma Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Long, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – Yellowish, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle</p>	<p>Grain weight – Medium, Grain Length – Medium, Grain Width – Narrow, Decorticated grain Length – Long, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent</p>
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				<p>Anthocyanin colouration of keel – Absent, Lemma Anthocyanin colouration of area below apex – Absent, Lemma Anthocyanin colouration of apex – Absent, Spikelet colour of stigma – White, Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin colouration of nodes – Absent, Panicle Length of main axis – Medium, Flag leaf Attitude of blade (late observation) – Semi-erect, Panicle Curvature of main axis – Straight, Panicle Number per plant – Medium, Spikelet colour of tip of lemma – White, Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present, Panicle Secondary branching – Strong, Panicle Attitude</p>	<p>Exertion – Mostly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Medium, Grain Length – Medium, Grain Width – Narrow, Decorticated grain Length – Long, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent</p>	
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				<p>of branches – Erect to semi-erect, Panicle Exertion – Partly exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Medium, Grain Length – Short, Grain Width – Narrow, Decorticated grain Length – Medium, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Medium slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent</p> <p><b><u>Male (K-4R or KPGOS-503)</u></b></p> <p>Coleoptiles Colour – Green, Basal leaf</p>	
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					<p>Sheath colour – Green,  Leaf Intensity of green  colour – Medium, Leaf  Anthocyanin  colouration – Absent,  Leaf Sheath  anthocyanin  colouration – Absent,  Leaf Pubescence of  blade surface –  Medium, Leaf Auricles  – Present, Leaf  anthocyanin  colouration of auricles  – Absent, Leaf collar –  Present, Leaf  Anthocyanin  colouration of collar –  Absent, Leaf Ligule –  Present, Leaf Shape of  ligule – Split, Leaf  Colour of ligule –  White, Leaf Length of  blade – Medium, Leaf  Width of blade –  Medium, Culm attitude  – Erect, Time of  heading (50% of plants  with panicles) –  Medium, Flag leaf  Attitude of blade (early  observation) – Erect,  Spikelet Density of  pubescence of lemma –  Medium, Male sterility</p>	
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					<p>– Absent, Lemma Anthocyanin  colouration of keel – Absent, Lemma Anthocyanin  colouration of area below apex – Absent, Lemma Anthocyanin  colouration of apex – Absent, Spikelet colour of stigma – White,  Stem Thickness – Medium, Stem Length (excluding panicle; excluding floating rice) – Very short, Stem Anthocyanin  colouration of nodes – Absent, Panicle Length of main axis – Medium,  Flag leaf Attitude of blade (late observation) – Erect, Panicle Curvature of main axis – Semi-Straight,  Panicle Number per plant – Medium,  Spikelet colour of tip of lemma – White,  Lemma and palea Colour – Straw, Panicle Awns – Absent, Panicle Presence of secondary branching – Present,  Panicle Secondary</p>	
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					branching – Strong, Panicle Attitude of branches – Erect to semi-erect, Panicle Exertion – Well exerted, Time maturity (days) – Medium, Leaf Senescence – Medium, Sterile lemma colour – Straw, Grain weight – Medium, Grain Length – Medium, Grain Width – Narrow, Decorticated grain Length – Long, Decorticated grain Width – Medium, Decorticated grain Shape (in lateral view) – Long slender, Decorticated grain colour – White, Endosperm Presence of amylose – Present, Endosperm Content of amylose – Medium, Gelatinization temperature through alkali spreading value – Medium, Decorticated grain Aroma – Absent	
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79.	Wheat Botanical Name- <i>Triticum aestivum</i>	PBW-373	647(E)- 09.09.1997	Department of plant Breeding Punjab Agricultural University, Ludhiana.	-	Ear colour at maturity is shining white; Ear head is dense and tapering in shape. Intermediate peduncle and straw is shining at maturity. Plant height-89 cm, day to flowering- 89 days, 1000 grain wg.- 35.70 gm., straw strength-2.2 gm, grain appearance (out of 10)- 6.0, Hectoliter wg. 75.20 gm, Protein content- 11.5%, Leaves- erect, Grain- Bold, amber, hard and lustrous. Duration of crop- 140 days.	Brought from CIMMYT, Mexico, Avg. yield q/ ha.- 40.30
80.	Wheat ( <i>Triticum aestivum</i> )	PBW-343	I(E)- 01.01.1996	Department of plant Breeding PAU, Ludhiana, Punjab	-	Plant height – 96 cms, Ear colour at maturity is white shining, Duration of maturity- 142 days from seed to seed. Recommended seed rate is 40kg/acre .Medium Maturity	ND/VG/9144/KAL/BB/3/YG O”S”/4/VEE 5 ”S.” Average yield under normal conditions-22 qtl./acre
81.	Wheat ( <i>Triticum aestivum</i> )	Raj-3765	I(E)- 01.01.1996	Rajasthan Agriculture University, Agriculture Research Station, Durgapur, Jaipur	-	Plant hg.- 92 cm. Distinguishing morphological character- Light green, non- waxy leaves, dusty white ear colour at maturity and intermediate ear heads. Growth habit- Intermediate Foliage colour (Boot stage)- Light green Leaf width (Boot stage)- Intermediate, Av. Days to maturity- 81 days Ear colour at maturity- white, Ear shape- Tapering,. Awns length- Normal, Awn colour at maturity- White, Glume Shoulder- Oblique, Glume Beak- Medium, Glume pubescence- Present, Grain colour- Amber,texture- Semi hard, Cheeks- Rounded, Crease width- Narrow, Shape- Ovoid, Av. 100 grain wt. (gms)- 4.0 gm. Maturity- 117- 122 days.	HD 2402/ VL 639, Non -lodging and non- shattering variety. Av. Yield under normal condition- 4213 kg/ ha.

82.	Wheat ( <i>Triticum estivum</i> )	GW-322	937(E)- 04.09.2002	Wheat research Station, Gujrat Agriculture University, Vijapur- 382870.	-	Plant height- 84 cm, Maturity- 112, Grain: Colour- Amber, Texture- Semi- hard, Cheeks- Rounded. Distinguishing Morphological Characteristics: Medium long parallel ear head with dense arrangement of spikelets. Colour of awn and spikelets is dirty white at maturity. Waxiness present on flag leaf and sheath. Glume shoulder is square.	PBW-173 x GW-196 GW-322 is resistant to shattering having medium threshability. It is highly responsive to fertilizer application and has given highest yield under all the doses of nitrogen 90,120 and 150Kg N/ ha applied) GW 322 is highly adapted to timely as well as late showing. GW 322 has given highest yield under late showing as well as with the one two and three irrigation indicating its tolerance to terminal heat and drought respectively. Yield- 46.9 q/ ha in Central zone and 41.7 q/ ha in peninsular zone.
83.	Wheat ( <i>Triticum estivum</i> )	Raj-3077	915(E)- 06.11.1989	Agricultural Research Station, Rajasthan Agricultural University, Durgapura, Jaipur.	-	Plant height – 76-100 cms.. <b>Distinguishing morphological characters</b> – Long and straight ears, dorsal surface, waxy and ventral surface nonwaxy glume colour white glabrous. <b>Maturity group</b> – 115-120 days (Medium- early).	<b>Parentage with details of pedigree</b> – Hd 2267 X Raj 1482 / Raj 1802 <b>Recommended ecology</b> – Timely sown high fertility and irrigated conditions. <b>Reaction to stresses</b> – It performs well in stress condition. Average yield under normal conditions – 55 q/ha.
84.	Wheat ( <i>Triticum estivum</i> )	Kedar		Ankur Seeds Private Limited, Nagpur, Maharashtra, India.		Duration : 112-118 Days, Plant Habit – Erect, Plant Height – Medium, Tillering – Profuse (Average effective tillers are	Duration – 112-118 DAS in Timely sown condition, Adaptability – All wheat

						8-10), Ear Length – Medium to Long (10.5 to 11.5 cm), Ear colour – Dark Brown, Grain Size – Medium to Bold, Grain Colour – Amber coloured, Lustrous.	growing areas and seasons in India except Punjab & Haryana.
85.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	MLBH-504		Devgen Seeds and Crop Technology Private Limited, 7C, Surya Towers, 105, S.P. Road Sikandrabad – 500003, Andhra Pradesh, India.	<p><b>Female</b></p> <p><b>Coleoptile pigmentation</b> : Green, Base pigmentation – Non Pigmented, Plant height (cm) : 85-95, Effective tillers : 2-3</p> <p><b>Leaf characters :-</b> Colour – Green, Pubescence – Glabrous, Size – Normal, Days to 50% flower : 48-50, Days to maturity : 78-80, Exsertion of earhead – Complete.</p> <p><b>Earhead characters :-</b> Shape – Candle, Compactness – Compact, Head length (cm) : 15-17, Anther colour – Yellow (sterile), Bristles – Absent.</p> <p><b>Grain characters:-</b> Size – Medium, Colour – Gray yellow, Shape – Globular.</p>	<p><b>Coleoptile pigmentation</b> – Green, Base pigmentation – Non Pigmented, Plant height (cm) : 170-190, Effective tillers : 2-3.</p> <p><b>Leaf characters :-</b> Colour – Green, Pubescence – Glabrous, Size – Normal, Days to 50%, flower : 46-50, Days to maturity : 78-82, Exsertion of earhead – Complete.</p> <p><b>Earhead characters :-</b> Shape – Candle, Compactness – Compact, Head length (cm) : 22-24, Anther colour – Light Yellow, Bristles – Absent.</p> <p><b>Grain characters:-</b> Size – Bold, Colour – Gray, Shape – Globular.</p>	Days to 50%, flower – 46-50, Days to maturity – 78-82,

					<p><b>Male</b>  Coleoptile pigmentation – Green, Base pigmentation – Non Pigmented, Plant height (cm) : 110-120, Effective tillers : 3-4  <b>Leaf characters :-</b>  Colour – Green, Pubescence – Glabrous, Size – Normal, Days to 50% flower : 50-52, Days to maturity : 80-82, Exsertion of earhead –Complete.  <b>Earhead characters :-</b>  Shape – Candle, Compactness – Semi-Compact, Head length (cm) : 18-20, Anther colour – Light Yellow, Bristles – Absent.  <b>Grain characters:-</b>  Size – Bold, Colour – Gray, Shape – Globular.</p>		
86.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	Pratap (NBH-77)		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat),	<p><b>Female</b>  Plant Height : 75-80, Distinguishing morphological characters : Well exerted semicompact panicles, Anthocyanin</p>	Anthocyanin coloration of first leaf sheath – Absent, Plant growth habit – Erect, Time of spike emergence (50% plant with atleast one spike emerged fully) – Early, Leaf sheath pubescence – Absent, Leaf sheath length – Medium, Leaf blade length – Medium, Leaf blade	Non lodging, Non shattering, Resistant to drought, Excellent response to fertilizer, Suitable for medium Sown conditions, Seed rate 4-6 kg/ha., Tolerant at field level, Maturity – 75

				<p>Medchal Mandal, Ranga Reddy Distt.-501401, India.</p>	<p>coloration of first leaf sheath : Present, Plant groth habit : Erect, Time of spike emergence (50% plant with atleast one spike emerged fully) : 44 days, Leaf sheath pubescence : Absent, Leaf sheath length : 12 cm, Leaf blade length : 52 cm, Leaf blade width (at widest point) : 4 cm, Spike anther colour : Brown, Plant Node pubescence : Absent, Plant Number of nodes : 5, Plant node pigmentation : Brown, Plant inter node pigmentation (between 3<sup>rd</sup> and 4<sup>th</sup> node from top) : Green, Spike exsertion : Complete, Spike length 21 cm, Spike anthocyanin pigmentation of glume : Absent, Spike bristle : Absent, Spike girth at maximum point (excluding bristles) : 1.4 cm, Spike shape : Cylindrical, Plant Number of productive tillers : 6, Plant height</p>	<p>width (at widest point) – Medium, Spike anther colour – Yellow, Node pubescence – Absent, Number of nodes – Low, Node pigmentation – Red, Inter node pigmentation (between 3<sup>rd</sup> and 4<sup>th</sup> node from top) – Green, Spike : exsertion – Complete, Spike length – Medium, Spike anthocyanin pigmentation of glume – Absent, Spike bristle – Absent, Spike girth at maximum point (excluding bristles) – Medium, Spike shape – Conical, Number of productive tillers – Medium, Plant height (excluding spike) – Long, Spike tip sterility – Present, Spike density – Compact, Seed colour – Grey, Seed shape – Globular, Seed weight of 1000 grains – Medium.</p>	<p>to 80 days.</p>
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				<p>(excluding spike) : 80 cm, Spike tip sterility : Present, Spike density : Semi compact, Seed colour : Gray, Seed shape : Globular, Seed weight of 1000 : 9.0 gm, Days to 50% flowering : 43-46 days, Maturity (range in number of days- seed to seed) : 73-76 days.</p> <p><b>Male</b>  Plant Height : 95-100, Distinguishing morphological characters : Well exerted compact panicles, Anthocyanin coloration of first leaf sheath : Absent, Plant groth habit : Erect, Time of spike emergence (50% plant with atleast one spike emerged fully) : 52 days, Leaf sheath pubescence : Absent, Leaf sheath length : 12 cm, Leaf blade length : 54 cm, Leaf blade width (at widest point) : 5 cm, Spike anther colour : Yellow, Plant Node pubescence :</p>	
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					<p>Absent, Plant Number of nodes : 7, Plant node pigmentation : Green, Plant inter node pigmentation (between 3<sup>rd</sup> and 4<sup>th</sup> node from top) : Green, Spike exertion : Partial, Spike length 18 cm, Spike anthocyanin pigmentation of glume : Absent, Spike bristle : Absent, Spike girth at maximum point (excluding bristles) : 2.0 cm, Spike shape : Cylindrical, Plant Number of productive tillers : 4, Plant height (excluding spike) : 100 cm, Spike tip sterility : Present, Spike density : Very compact, Seed colour : Gray, Seed shape : Globular, Seed weight of 1000 : 7.4 gm, Days to 50% flowering : 51-54 days, Maturity (range in number of days- seed to seed) : 81-84 days.</p>	
87.	Pearl Millet { <i>Pennisetum glaucum</i>	KPMH-1 (Kaveri Superboss		Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex,	<p><b>Female</b> Anthocyanin color of 1 leaf : Present, Plant growth habit :</p>	<p>Anthocyanin color of 1 leaf – Present, Plant growth habit – Erect, Time to spike emergence – Late, Leaf sheath pubescence – Absent, Leaf Sheath</p>

	(L.)}	)		SD Road, Secunderabad-500 003 , Andhra Pradesh, India.	Intermediate, Number of productive tillers / Plant : Low, Plant height : Very short, Plant number of nodes/plant : Low, Plant node pubescence : Absent, Plant node pigmentation : Green, Plant internode pigmentation : Green, Leaf Sheath length : Medium, Leaf sheath pubescence : Absent, Leaf blade length : Short, Leaf blade width : Broad, Spike time of spike emergence : Late, Spike length : Small, Spike girth : Medium, Spike exertion : Complete, Spike density : Compact, Spike tip sterility : Absent, Spike shape : Conical, Spike anther colour : Brown, Spike anthocyanin pigmentation of glume : Absent, Spike bristles : Absent, Spike bristle colour : Absent, Seed colour : Grey, Seed shape : Globular, Seed weight of 1000 grains	length – Medium, Leaf blade length – Long, Leaf blade width – Broad, Spike anther color – Purple, Plant node pubescence – Absent, Number of nodes – Low, Node pigmentation – Green, Intern ode pigmentation – Green, Spike exertion – Complete, Spike length – Long, Spike Anthocyanin pigmentation of glumes – Absent, Spike bristle – Absent, Spike bristle color – Absent, Spike girth – Thick, Spike shape – Cylindrical, Number of productive tillers – Low, Plant : height (excluding spike) – Tall, Spike tip sterility – Present, Spike density – Compact, Seed color – Grey, Seed shape – Globular, Seed weight of 1000 grains – Medium.	
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					<p>(g) : Bold, Agronomic score : Best.</p> <p><b>Male</b></p> <p>Anthocyanin color of 1 leaf : Present, Plant growth habit : Erect, Number of productive tillers / Plant : Low, Plant height : Medium, Plant number of nodes/plant : Low, Plant node pubescence : Absent, Plant node pigmentation : Green, Plant internode pigmentation : Green, Leaf Sheath length : Medium, Leaf sheath pubescence : Absent, Leaf blade length : Medium, Leaf blade width : Broad, Spike time of spike emergence : Very Late, Spike length : Medium, Spike girth : Thick, Spike exertion : Complete, Spike density : Compact, Spike tip sterility : Present, Spike shape : Cylindrical, Spike anther colour : Brown, Spike anthocyanin pigmentation of glume :</p>	
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					Absent, Spike bristles : Absent, Spike bristle colour : Absent, Seed colour : Cream, Seed shape : Globular, Seed weight of 1000 grains (g) : Medium, Agronomic score : Best.	
88.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	NBH 4903	-	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medical Mandal, Ranga Reddy Distt. - 501401., India.	<b><u>Female (NB-105A)</u></b> Plant height: Short (1 to 1.5 meters), Nodal pigmentation - Green, Nodal hairs - Absent, Days to maturity: 60-65 days, Stem colour - Green, Stem thickness - Medium thick, Ear head shape - Conical, Ear head compactness - Very compact, Ear head length: 20-25 cms, Grain colour - Light gray, Grain size and shape - Bold and globular, Tillering: 3 to 4, Special features - Tolerant to downy mildew disease.	Plant height: 220 to 225 cm, Nodal pigmentation - Purple, Nodal hairs - Absent, Days to flower: 50 to 52 days, Stem colour - Green, Stem thickness - Thick, Ear head shape - Conical, Ear head compactness - Compact, Ear head length : 30 to 32 cm, Grain colour - attractive light gray, Grain size and shape - medium bold and globular, Tillering : 2 to 3, Special features - Tolerant to downy mildew disease, Adaptable areas - Kharif seasons of Rajasthan, Haryana, Maharashtra, Uttar Pradesh and Gujarat.

					<p><b><u>Male (NB-98R)</u></b></p> <p>Plant height: Medium Tall (1.5 to 2.0 meters), Nodal pigmentation – Green, Nodal hairs – Absent, Days to maturity: 65 to 70 days, Stem colour – Green, Stem thickness – Medium thick, Ear head shape – Cylindrical, Ear head compactness – Semi compact, Ear head length: 18 to 20 cm, Grain colour – Light gray, Grain size and shape – Medium Bold, Tillering : 2 to 3, Special features – Tolerant to downy mildew disease.</p>		
89.	Pearl Millet { <i>Pennisetum glaucum</i> (L.)}	KBH 1952	-	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.	<p><b><u>Female (KBMS - 293)</u></b></p> <p>Plant anthocyanin color of leaf: Present, Plant growth habit – Erect, Time to spike emergence – Late, Leaf sheath pubescence – Absent, Leaf Sheath length – Medium, Leaf blade length – Medium,</p>	Plant anthocyanin color of leaf: Absent, Plant growth habit – Erect, Time to spike emergence – Early, Leaf sheath pubescence – Absent, Leaf Sheath length – Medium, Leaf blade length – Medium, Leaf blade width – Medium, Anther colour – Yellow, Plant node pubescence – Absent, Plant number of nodes – Low, Plant node pigmentation – Purple, Plant internode pigmentation – Green, Spike exertion – Complete,	Seed colour – Grey, Seed shape – Globular, Seed weight – Bold.

				<p>Leaf blade width – Medium, Anther colour – Brown, Plant node pubescence – Absent, Plant number of nodes – Low, Plant node pigmentation – Purple, Plant internode pigmentation – Red, Spike exertion – Complete, Spike length – Small, Spike anthocyanin pigmentation of glume – Absent, Spike bristles – Absent, Spike bristle colour – Absent, Spike girth – Medium, Spike shape – Conical, Plant number of productive tillers – Medium, Plant height (excluding spike) – Short, Spike tip sterility – Absent, Spike density – Compact, Seed colour – Grey, Seed shape – Globular, Seed weight – Very bold.</p> <p><b><u>Male (KBR – 870)</u></b></p> <p>Plant anthocyanin color of leaf – Present, Plant growth habit – Erect,</p>	<p>Spike length – Medium, Spike anthocyanin pigmentation of glume – Absent, Spike bristles – Absent, Spike bristle colour – Absent, Spike girth – Thick, Spike shape – Conical, Plant number of productive tillers – Medium, Plant height (excluding spike) – Medium, Spike tip sterility – Absent, Spike density – Semi-compact, Seed colour – Grey, Seed shape – Globular, Seed weight – Bold.</p>	
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					<p>Spike time to spike emergence – Late, Leaf sheath pubescence – Absent, Leaf Sheath length – Medium, Leaf blade length – Medium, Leaf blade width – Medium, Anther colour – Brown, Plant node pubescence – Absent, Plant number of nodes – Low, Plant node pigmentation – Green, Plant internode pigmentation – Green, Spike exertion – Complete, Spike length – Small, Spike anthocyanin pigmentation of glume – Absent, Spike bristles – Absent, Spike bristle colour – Absent, Spike girth – Medium, Spike shape – Spindle, Plant number of productive tillers – Medium, Plant height (excluding spike) – Short, Spike tip sterility – Present, Spike density – Compact, Seed colour – Deep grey, Seed shape – Globular, Seed weight – Bold.</p>	
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<b>IV. Maize and Sorghum Seed</b>							
90.	Sorghum ( <i>Sorghum bicolor</i> (L.) Moench)	CSV-15 (SPV-946)	349(E)- 20.05.1996	National Research Centre For Sorghum, ICAR, Rajendranagar, Hyderabad-500030, Andhra Pradesh.	-	<b>Distinguishing Morphological Characters-</b> Plant tall, ear heads oblong, semi compact with upper portion slightly loose. Duration –Days to 50% flowering 72 days, seed to seed -110-112 days. Plant height -232 cm, leaf-smooth ,drooping ,midrib dull white ,Seed-medium bold roundish, Colour-white , No. of leaves /plant-10.8	<b>Parentage with details its pedigree-</b> A derivative of the cross (SPV 475 x SPV 462) Average yield-Grain 3600 kg /ha, green fodder 439 qtl /ha, Dry fodder -127 qtl/ha
91.	Sorghum ( <i>Sorghum bicolor</i> (L) Meench)	CSH-17 (SPH-660)	425(E)- 08.06.1999	National Research Centre For Sorghum, ICAR, Rajendranagar, Hyderabad-500030, Andhra Pradesh.	<b>MS AKMS 14A:</b> This is a kharif based Male Sterile line .It has Tan pigment, semi loose panicle ,round and white chalky seed <b>RS 673.</b> This restorer line is developed from a cross SPV 544 X K 24-1.It is a tan pigmented line with long semi compact panicle,white and round seed .	Plant height -203 cm. Distinguishing Morphological Character-Tan pigmented, enclosed internodes, panicle semi-loose and elliptical in shape, pearly white round seed and free threshing. Maturity-Seed to seed-103 days ,Days to 50% bloom-64 days	MS AKMS 14 A x RS 673. Resistant to lodging and shattering .suitable for early sowing in kharif with onset of monsoon Seed rate-8 kg/ha. Resistant to moisture stress. Average yield under normal condition- Grain yield 3362 kg /ha
92.	Sorghum ( <i>Sorghum bicolor</i> (L) Meench)	CSH-18 (Hy. 960 (SPH - 960)	1050(E)- 26.10.1999	Jawaharlal Nehru Krishi Vishwa Vidhyalaya ,College of Agriculture Indore-452001 , Madhya Pradesh	Female –Indore Male <b>Sterile -9a (Im 9a)-</b> Plant Height-186 (Cm.), Plant Pigmentation –Tan, Leaf-Pale Green, Narrow To Medium Broad, Drooping Midrib Dull Green, Leaf Sheath Enclose	Plant Height – (Kharif) 210-215 Cm. Distinguishing Morphological Character-, Leaf- Green, Broad And Drooping, Midrib Dull Green Leaf Margin, Yellowish Green. Stem- green ,thick and juicy,nodes covered leaf sheath , which is purple at base (at lower ends of stem), Ear heads –long, elliptical semi compact upto middle with loose and	Average yield under normal condition – Grain yield-4300 kg/ha Dry fodder – 129 qtl/hect.

				<p>Stem. Stem-Medium, Green Juicy .</p> <p>Ear Heads-Medium To Long Elliptical , Semi Compact Well Exserted, Long Peduncle-Medium Flag Leaf , Awn-Present , Maturity(Days –Seed To Seed)-110, Moderately resistant to all major diseases and major insect pests.</p> <p><b>Male Indore-12</b></p> <p>Plant Height-158 (Cm.), Plant Pigmentation –Tan, Leaf-Thick dark green, Broad and, Drooping Midrib green. Stem-, Green thick Juicy nodes covered by leaf sheath which is purple at the base (at lower ends of stem).</p> <p>Ear Heads-Medium Elliptical , Compact exsertion just neck , short Peduncle –long &amp; broad Flag Leaf , Awn-absent , Maturity(Days –Seed To Seed)-110, Moderately resistant to all major diseases and major insect pests.</p>	<p>pointed apex . exsertion good , long peduncle, Grain-Pearly white , shining , round, medium bold , luster present..</p> <p>1000 grain weight (gm.)</p> <p>SPH 960 (23.7)</p> <p>CSH 9 (23.4) it is at par</p> <p>With popular hybrid CSH 9. Maturity - 110-115 days.</p>	
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93.	Sorghum ( <i>Sorghum bicolor</i> (L.) Moench)	CSH-16 (SPH-723)	647(E)- 09.09.1997	National Research Centre For Sorghum, ICAR, Rajendranagar, Hyderabad- 500030, Andhra Pradesh.	<p><b><u>CMS 27A</u></b> Plant pigment- Tan, Plant height- 130 cm, Internode- Exposed, Colour of leaf- Dark Green, Midrib colour- Dull, Canopy- Electrophyll, Panicle exertion- Free, panicle Shape- Cylindrical, panicle compactness- semilax, size of panicle- medium, Glume colour- straw, glume covering- 1/3, seed size- Bold, 100 seed weight (gm)- 3.00gm. seed colour- creamy, seed shape- flat, days to 50% flowering- 67 days</p> <p><b><u>R Line C-43</u></b> Plant pigment- Tan, Plant height- 140 cm, Internode- Exposed, Colour of leaf- Green, Midrib colour- White, Canopy-Drooping, Panicle exertion- Free, panicle Shape-Oval, panicle compactness- semi compact, size of panicle- medium, Glume colour- straw with light red tinage at the base, glume covering-1/3, seed size- Bold&amp;shiny, 100</p>	<p><b><u>Distinguishable morphological characters-</u></b> Earhead long, cylindrical, semilax and blunt at the top, seed white and pearly. Duration- Days to 50% flowering 67 days , Plant pigment- Tan, Plant height- 180 cm, Internode- Exposed, Colour of leaf- Green, Midrib colour- White, Canopy- Electrophyll, Panicle exertion- Free, panicle Shape- Cylindrical, panicle compactness- semilax, size of panicle- Long, Glume colour- straw, glume covering-1/3, seed size- Bold, 100 seed weight (gm)- 3.10gm. seed colour- pearly white, seed shape- round, days to 50% flowering-67</p>	MS-24 A x C-43 Average yield- Grain- 43.08 qtls/ ha. Fodder-96.79 qtls/ ha.
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					seed weight (gm)-2.80gm. seed colour-pearly white, seed shape-round, days to 50% flowering-70 days		
94.	Sorghum { <i>Sorghum bicolor</i> (L.)}	KSH - 950	-	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.	<b>Female (KSMS-234)</b>  Seedling Anthocyanin colouration of coleoptiles – Yellow green, Leaf sheath Anthocyanin colouration – Yellow green, Leaf Mid rib colour (5 <sup>th</sup> fully developed leaf) – Yellow green, Plant Time of panicle emergence (50% of the plants with 50% anthesis) – Medium, Plant :Natural height of plant up to base of flag leaf – Short, Flag Leaf Yellow colouration of midrib – Absent, Lemma Arista formation – Absent, Stigma Anthocyanin colouration – Absent, Stigma yellow colouration – Present, Stigma Length – Medium, Flower with pedicel Length of	Seedling Anthocyanin colouration of coleoptiles – Yellow green, Leaf sheath Anthocyanin colouration – Yellow green, Leaf Mid rib colour (5 <sup>th</sup> fully developed leaf) – White, Plant Time of panicle emergence (50% of the plants with 50% anthesis) – Medium, Plant :Natural height of plant up to base of flag leaf – Medium, Flag Leaf Yellow colouration of midrib – Absent, Lemma Arista formation – Absent, Stigma Anthocyanin colouration – Absent, Stigma yellow colouration – Present, Stigma Length – Medium, Flower with pedicel Length of flower – Long, Anther Length – Short, Anther colour of dry anther – Grayed Orange, Glumes colour – Green white, Plant total height – Medium, Stem Diameter (at lower one third height of plant) – Medium, Leaf Length of blade (the third leaf from top including flag leaf) – Long, Leaf Width of blade (the third leaf from top including flag leaf) – Broad, Panicle Length without peduncle – Long, Panicle Length of branches (middle third of panicle) – Medium, Panicle Density at maturity (ear head compactness) – Semi-loose, Panicle shape – Symmetric, Neck of panicle	Grain Threshability – Freely threshable, Caryopsis Colour after threshing – Grayed white, Grain Weight – Medium, Grain Shape (in dorsal view) – Circular, Grain Shape in profile view – Circular, Grain size of mark of germ – Medium, Grain Texture of endosperm (in longitudinal section) – Half vitreous, Grain Colour of vitreous albumen – Grayed yellow, Grain Luster – Lustrous

				<p>flower – Long, Anther Length – Short, Anther colour of dry anther – Grayed Orange, Glumes colour – Green white, Plant total height – Medium, Stem Diameter (at lower one third height of plant) – Medium, Leaf Length of blade (the third leaf from top including flag leaf) – Long, Leaf Width of blade (the third leaf from top including flag leaf) – Broad, Panicle Length without peduncle – Medium, Panicle Length of branches (middle third of panicle) – Medium, Panicle Density at maturity (ear head compactness) – Loose, Panicle shape – Symmetric, Neck of panicle Visible length above sheath – Very short, Glumes Length – Short, Grain Threshability – Freely threshable, Caryopsis Colour after threshing – Grayed white, Grain</p>	<p>Visible length above sheath – Very short, Glumes Length – Short, Grain Threshability – Freely threshable, Caryopsis Colour after threshing – Grayed white, Grain Weight – Medium, Grain Shape (in dorsal view) – Circular, Grain Shape in profile view – Circular, Grain size of mark of germ – Medium, Grain Texture of endosperm (in longitudinal section) – Half vitreous, Grain Colour of vitreous albumen – Grayed yellow, Grain Luster – Lustrous</p>	
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				<p>Weight – Medium, Grain Shape (in dorsal view) – Circular, Grain Shape in profile view – Circular, Grain size of mark of germ – Medium, Grain Texture of endosperm (in longitudinal section) – Half vitreous, Grain Colour of vitreous albumen – Grayed yellow, Grain Luster – Non-lustrous</p> <p><b><u>Male (KSR-6192)</u></b></p> <p>Seedling Anthocyanin colouration of coleoptiles – Yellow green, Leaf sheath Anthocyanin colouration – Yellow green, Leaf Mid rib colour (5<sup>th</sup> fully developed leaf) – White, Plant Time of panicle emergence (50% of the plants with 50% anthesis) – Medium, Plant :Natural height of plant up to base of flag leaf – Short, Flag Leaf Yellow colouration of</p>	
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					<p>midrib – Absent,  Lemma Arista  formation – Absent,  Stigma Anthocyanin  colouration – Absent,  Stigma yellow  colouration – Absent,  Stigma Length – Short,  Flower with pedicel  Length of flower –  Long, Anther Length –  Short, Anther colour of  dry anther – Grayed  Orange, Glumes colour  – Green white, Plant  total height – Medium,  Stem Diameter (at  lower one third height  of plant) – Medium,  Leaf Length of blade  (the third leaf from top  including flag leaf) –  Long, Leaf Width of  blade (the third leaf  from top including flag  leaf) – Very Broad,  Panicle Length without  peduncle – Long,  Panicle Length of  branches (middle third  of panicle) – Medium,  Panicle Density at  maturity (ear head  compactness) – Semi-  loose, Panicle shape –</p>	
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					<p>Broader in upper part, Neck of panicle Visible length above sheath – Very short, Glumes Length – Very short, Grain Threshability – Freely, Caryopsis Colour after threshing – Grayed white, Grain Weight – Medium, Grain Shape (in dorsal view) – Circular, Grain Shape in profile view – Circular, Grain size of mark of germ – Large, Grain Texture of endosperm (in longitudinal section) – Half vitreous, Grain Colour of vitreous albumen – Grayed yellow, Grain Luster – Non-lustrous</p>		
95.	Sorghum { <i>Sorghum bicolor</i> (L.)}	NSH - 54	-	<p>Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill &amp; Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.</p>	<p><b><u>Female (NS-516A)</u></b>  Plant total height – Medium Tall (140 to 150 cm), Days to Flower – Early (60 to 65 days), Days to maturity : 90 days, Anther colour of dry anther – Orange, Glume colour – Straw, Stem diameter –</p>	<p>Plant total height – Tall 180 to 190 cm, Days to Flower – Medium (65 to 70), Days to maturity : 100 to 110 days, Anther colour of dry anther – Yellow, Glume colour – Straw, Stem diameter – Medium (3 to 3.5 cm), Panicle length – Long (25 to 30 cm), Panicle compactness – Semiloose, Panicle shape – Elliptical, Threshability – Freely threshable, Grain colour after threshing – White, Grain size – Bold, Grain Luster – Lustrous.</p>	<p>Plant total height – Tall 180 to 190 cm, Days to Flower – Medium (65 to 70), Days to maturity : 100 to 110 days, Anther colour of dry anther – Yellow, Glume colour – Straw, Stem diameter – Medium (3 to 3.5 cm), Panicle length – Long (25 to 30 cm), Panicle compactness – Semiloose, Panicle shape – Elliptical, Threshability –</p>

				<p>Medium (2 to 2.5 cm), Panicle length – Medium (25 to 30 cm), Panicle compactness – Semiloose, Panicle shape – Elliptical, Threshability – Freely threshable, Grain colour after threshing – White, Grain size – Bold, Grain Luster – Medium lustrous, Special features – Tolerant to sucking pest.</p> <p><b><u>Male (NS – 444R)</u></b></p> <p>Plant total height – Medium Tall (150 to 160 cm), Days to Flower – Medium (65 to 70 days), Days to maturity : 100 days, Anther colour of dry anther – Yellow, Glume colour – Straw, Stem diameter – Medium (2 to 3 cm), Panicle length – Medium (20 to 25 cm), Panicle compactness – Semiloose, Panicle shape – Elliptical, Threshability – Freely</p>	<p>Freely threshable, Grain colour after threshing – White, Grain size – Bold, Grain Luster – Lustrous.</p>
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					threshable, Grain colour after threshing – White, Grain size – Small, Grain Luster – Lustrous, Special features – Tolerant to sucking pest.		
96.	Forage Sorghum { <i>Sorghum bicolor</i> (L.)}	MFSH - 4	-	Maharashtra Hybrid Seeds Company Limited, Resham Bhavan, 4 <sup>th</sup> Floor, 78 Veer Nariman Road, Mumbai – 400 020, Maharashtra, India.	<p><b><u>Female</u></b></p> <p>Plant type – Pigmented, Stem – Thin, Leaf traits – Medium / Drooping, Excursion – Short, Ear head – Awnless, Semi-Compact, Glume color – Red, Seed color – Chalky white, Seed shape – Almond, Time of panicle emergence (50% plants with complete panicle emergence) : 65 to 68 days, Plant total height (at maturity) : 125 to 140 cm</p> <p><b><u>Male</u></b></p> <p>Plant type – Tan, Stem – Thin, Leaf traits – Narrow / Drooping,</p>	Plant type – Pigmented, Stem – Thin, Leaf traits – Medium / Drooping, Excursion – Long, Ear head – Awn, Very loose, Glume color – Dark Red, Seed color – Dark Brown, Seed shape – Almond, Time of panicle emergence (50% plants with complete panicle emergence) : 60 to 70 days, Plant total height (at maturity) : 226 to 300 cm, Seedling anthocyanin colouration of coleoptiles – Purple, Leaf sheath anthocyanin colouration – Purple, Leaf mid rib colour (5 <sup>th</sup> leaf) – Dull green, Glume anthocyanin coloration of pubescence – Absent, Colour of dry anther – Red, Stem diameter at lower one third height of plant – Small < 2 cm, Panicle length without peduncle – Long 31 to 40 cm, panicle shape – Panicle broader in lower part, shattering – Low, Caryopsis colour after threshing – Dark Brown, Grain weight of 1000 grains : 16 to 25 g, Grain luster – Non lustrous.	Caryopsis colour after threshing – Dark Brown, Grain weight of 1000 grains : 16 to 25 g, Grain luster – Non lustrous.

					Excursion – Long, Ear head – Awn, very loose sparse panicle, Glume color – Red, Seed color – Brown, Seed shape – Almond, Time of panicle emergence (50% plants with complete panicle emergence) : 70 to 75 days, Plant total height (at maturity) : 170 to 180 cm		
97.	Maize, ( <i>Zea Mays</i> L.) (Makka)	Pusa Early -2 (EH 203492)	662-17.09.1997	Indian Agriculture Research Station, New Delhi -110012	<p><b>IPA 9 (Female)</b> Plant height (cm) -144-155 Leaf-light green broad, Tassel-Large with Purple glumes, Husk cover –White, Maturity (seed to seed) 86-88, Agronomic features-Highly tolerant to lodging. Responsive to high dose of fertilizer seed rate 8kg./acre.</p> <p><b>IPA 21 (Male)</b> Plant height (cm) -150-170 Leaf-dark green slightly crinkled, Tassel-Large with Purple glumes, Husk cover –White, Maturity (seed to seed) 87-90,</p>	<p><b>Hybrid Pusa Early -2</b> (EH 203492) Plant height (cm) -180-210 Leaf-dark green broad leaf, Tassel-Large tassel, Husk cover –White, Maturity (seed to seed) 80-85, Agronomic features-Highly tolerant to lodging. Responsive to high dose of fertilizer seed rate 8kg./acre.</p>	<p><b>Parentage with details its pedigree-</b> IPA 9-7 X IPA 21-10 F Inbred parent 9 was derived from population MDR -1 Inbred parent 21 has been derived from population AD -609 Duration of crop-80-85 days , Average yield in-4500 kg./ ha</p>

					and Agronomic features-Highly tolerant to lodging. Responsive to high dose of fertilizer seed rate 8kg./acre.		
98.	Maize ( <i>Zea mays</i> L.)	INDRA – 17 (KDMH – 017)		Krishidhan Seeds Private Limited, 7 <sup>th</sup> Floor, Tower – 15, Cybercity, Magarpatta City, Hadapsar, Pune – 411013, Maharashtra, India.	<b>Female</b> Leaf angle between blade and stem : Narrow (<45), Leaf Attitude of blade : Erect, Anthocyanin coloration of brace root : Absent, Time of anthesis : 59 Days, Colour of base of glums : Absent, Anthocyanin coloration of glums : Absent, Anther Colour : Absent, Density of spikelets : Dense, Angle between main axis and lateral branches : Narrow (<45), Attitude of lateral branches : Curved, Time of silk emergence (50%) : 61 Days, Anthocyanin coloration of silk : Present, Leaf Anthocyanin coloration of sheath : Present, Plant Height (cm) :	Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Stem Anthocyanin coloration of brace root – Present, Time of anthesis (on middle third of main axis, 50% plant) – Medium, Anthocyanin coloration at base of gloom (in middle third of main axis – Absent, Anthocyanin coloration of glooms excluding base (in middle third of main axis) – Present, Anthocyanin coloration of anthers (in middle third of main axis of fresh anthers – Absent, Density of spikelets (in middle third of main axis – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Curved, Time of silk emergence (50% plant) – Medium, Anthocyanin coloration of silk (on day of emergence) – Present, Leaf Anthocyanin coloration of sheath (below the ear) – Present, Tassel Length	Resistant to lodging Highly fertilizer responsive, tolerant to draught water lodging, days of maturity – 88 to 95 days.

				<p>190, Plant Ear placement : High, Leaf Width of blade : Broad (&gt;9cm), Ear Length without husk ( cm) : 16-18, Ear Diameter without husk (cm) : 4 – 4.5, Ear Shape : Conico-Cylindrical, Ear Number of rows of grains : Many (14-16), Ear Type of grain : Semi flint, Ear Colour of top of grain : Yellow with cap, Shank Colour : White, Kernel Row arrangement : Straight, Kernel Shape : Indented, 1000 kernel weight (g) : 230-240, Maturity : Medium.</p> <p><b>Male</b></p> <p>Leaf angle between blade and stem : Narrow (&lt;45), Leaf Attitude of blade : Erect, Anthocyanin colouration of brace root : Present, Time of anthesis : 55 Days, Colour of base of glums : Absent, Anthocyanin coloration</p>	<p>of main axis above lowest side of branch – Long, Hybrids and open pollinated varieties: Plant : Length (up to flag leaf) – Very long, Plant Ear placement – High, Leaf Width of blade (leaf of upper ear) – Broad, Ear Length without husk – Long, Ear Diameter without husk (in middle) – Large, Ear shape – Conico-Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/semi dent, Ear Colour of top of grain – Yellow with cap, Ear Anthocyanin coloration of glumes of cob – White, Kernel Row arrangement (middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large.</p>	
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					of glums : Present, Anther Colour : Absent, Density of spikelets : Sparse, Angle between main axis and lateral branches : Narrow (<45), Attitude of lateral branches : Curved, Time of silk emergence (50%) : 57 Days, Anthocyanin coloration of silk : Present, Leaf Anthocyanin coloration of sheath : Present, Plant Height (cm) : 180, Plant Ear placement : Medium, Leaf Width of blade : Broad (>9cm), Ear Length without husk ( cm) : 15-17, Ear Diameter without husk (cm) : 4 – 4.5, Ear Shape : Conico- Cylindrical, Ear Number of rows of grains : Many (14-16), Ear Type of grain : Semi flint, Ear Colour of top of grain : Orange, Shank Colour : White, Kernel Row arrangement : Straight,	
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					Kernel Shape :Indented, 1000 kernel weight (g) : 240-250, Maturity : Medium.	
99.	Maize ( <i>Zea mays</i> L.)	NMH – 731		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, India.	<b>Female</b> Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf : Attitude of blade (on leaf just above upper ear) – Straight, Setm : Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin colouration of anthers ( in middle third of main space fresh anthers) – Absent, Density of spikelets (in middle third of main axis of fresh anthers) – Dense,	Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Setm Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main axis of fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Strongly curved, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Hybrids and open pollinated varieties only Length (upto flag leaf) – Very Long, Ear placement – Medium, Width of blade (leaf of upper ear) –

				<p>Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Time of silk emergence (50% plants) – Late, Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Medium, Inbred lines only Plant length (up to flag leaf) – Medium, Ear placement – Low, width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Small, Ear shape – Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in</p>	<p>Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, 1000 kernel – Large.</p>	
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				<p>middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Round, Kernel 1000 kernel – Medium.</p> <p><b><u>Male</u></b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm : Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 0% of plants) – Medium, Anthocyanin</p>	
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					<p>colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin</p> <p>colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin</p> <p>colouration of anthers (in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Strongly curved, Time of silk emergence (50% plants) – Late, Ear Anthocyanin</p> <p>colouration of silks (on day of emergence) – Absent, Leaf</p>	
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					<p>Anthocyanin  colouration of sheath  (in middle of plant) –  Absent, Tassel length  of main axis above  lowest side branch –  Long, Inbred lines only  Plant : length (up to  flag leaf) – Medium,  Plant Ear placement –  Low, Plant width of  blade (leaf of upper  ear) – Medium, Ear  length without Husk (in  middle) – Medium, Ear  diameter without husk  (in middle) – Small,  Ear shape – Conico  Cylindrical, Ear  Number of rows of  grains – Medium, Ear  Type of grain (in  middle third of ear) –  Semi flint/Semi dent,  Ear colour of top of  grain – Yellow with  cap, Ear Anthocyanin  colouration of glums of  cob – White, Kernel  Row arrangement –</p>	
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					<p>Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Medium.</p>	
100.	Maize ( <i>Zea mays</i> L.)	NMH – 920		<p>Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill &amp; Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, India.</p>	<p><b>Female</b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in</p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Strongly Curved, Time of silk emergence (50% plants) –</p>

				<p>middle third of main axis) – present, Anthocyanin colouration of anthers (in middle third of main axis of fresh anthers) – Absent, Density of spikelets (in middle third of main Space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Straight, Time of silk emergence (50% plants) – Medium, Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Medium, Inbred lines</p>	<p>Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Length (upto flag leaf) – Very Long, Plant Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Yellow, Ear Anthocyanin colouration of glums of cob – Light Purple, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Large.</p>	
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				<p>only : Plant : length (up to flag leaf) – Long, Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Medium, Ear shape – Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – Light Purple, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent,</p>	
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					<p>Kernel shape – Indented, Kernel 1000 kernel – Large.</p> <p><b><u>Male</u></b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Setm : Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers (in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Sparse,</p>	
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					<p>Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Curved, Ear time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Inbred lines only Plant length (up to flag leaf) – Long, Ear placement – Low, Plant width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Medium, Ear shape – Conical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) –</p>	
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					Flint, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Round, Kernel 1000 kernel – Medium.	
101.	Maize ( <i>Zea mays</i> L.)	NMH – 777		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, India.	<b>Female</b> Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf : Attitude of blade (on leaf just above upper ear) – Straight, Setm : Anthocyanin colouration of brace roots – Absent, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Tassel Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Tassel Anthocyanin	Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Setm Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Tassel Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers ( in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) –

				<p>colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers (in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main Space fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) Curved, Time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Inbred lines only : Plant length (up to flag leaf) – Large, Plant Ear placement – Low,</p>	<p>Wide, Attitude of lateral branches (in lower third of tassel) Curved, Time of silk emergence (50% plants) – Medium, Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Hybrids and open pollinated varieties only Length (upto flag leaf) – Very Long, Ear placement – Medium, Plant : width of blade (leaf of upper ear) – Broad, length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel – Large.</p>	
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					<p>Plant width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Medium, Ear shape – Conical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Flint, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opacity – Absent, Kernel shape – Round, Kernel 1000 kernel – Medium.</p> <p><b><u>Male</u></b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) –</p>	
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					<p>Drooping, Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Early, Anthocyanin colouration at base of glume (in middle third of main axis) – Present, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers (in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space fresh anthers) – Sparse, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Straight, Time of silk emergence (50% plants) – Early, Ear Anthocyanin colouration of silks (on day of emergence) –</p>	
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					Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, bred lines only : Plant length (up to flag leaf) – Medium, Plant Ear placement – Medium, Plant : width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Small, Ear shape – Conico Cylindrical, Ear Number of rows of grains – Medium, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – Yellow, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel	
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					Waxiness – Absent, Kernel Opacity – Absent, Kernel shape – Indented, Kernel 1000 kernel – Medium.	
102.	Maize ( <i>Zea mays</i> L.)	NMH – 4040		Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla Pochampally (Vill & Panchayat), Medchal Mandal, Ranga Reddy Distt.-501401, India.	<b>Female</b> Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers (in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space	Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf : Attitude of blade (on leaf just above upper ear) – Drooping, Setm : Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Medium, Anthocyanin colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin colouration of glumes excluding base (in middle third of main axis) – present, Anthocyanin colouration of anthers (in middle third of main axis of fresh anthers) – Present, Density of spikelets (in middle third of main space fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Wide, Attitude of lateral branches (in lower third of tassel) – Curved, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Hybrids and open pollinated varieties only : Length (upto

				<p>fresh anthers) – Dense, Angle between main axis and lateral branches (in lower third of tassel) – Narrow, Attitude of lateral branches (in lower third of tassel) – Straight, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above lowest side branch – Long, Hybrids and open pollinated varieties only : Length (upto flag leaf) – Very Long, Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico Cylindrical, Ear</p>	<p>flag leaf) – Very Long, Ear placement – Medium, Plant width of blade (leaf of upper ear) – Broad, Ear length without Husk (in middle) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – White, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, 1000 kernel – Large.</p>	
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					<p>Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – White, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opacity – Absent, Kernel shape – Indented, Kernel 1000 – Large.</p> <p><b><u>Male</u></b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf : Attitude of blade (on leaf just above upper ear) – Drooping, Setm : Anthocyanin colouration of brace roots – Present, Time of anthesis (on middle third of main axis, 50% of plants) – Late, Anthocyanin</p>	
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					<p>colouration at base of glume (in middle third of main axis) – Absent, Anthocyanin</p> <p>colouration of glumes excluding base (in middle third of main axis) – Absent, Anthocyanin</p> <p>colouration of anthers (in middle third of main axis of fresh anthers) – Absent, Density of spikelets (in middle third of main space fresh anthers) – Sparse, Tassel Angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Strongly Curved, Time of silk emergence (50% plants) – Medium, Ear Anthocyanin</p> <p>colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin</p> <p>colouration of sheath (in middle of plant) – Absent, Tassel length of main axis above</p>	
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					<p>lowest side branch – Long, Inbred lines only : Plant length (up to flag leaf) – Long, Ear placement – Medium, Plant width of blade (leaf of upper ear) – Medium, Ear length without Husk (in middle) – Medium, Ear diameter without husk (in middle) – Medium, Ear shape – Cylindrical, Ear Number of rows of grains – Many, Ear Type of grain (in middle third of ear) – Semi flint/Semi dent, Ear colour of top of grain – White, Ear Anthocyanin colouration of glums of cob – White, Kernel Row arrangement – Straight, Kernel Poppiness – Absent, kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opacity – Absent, Kernel shape – Indented, 1000 kernel – Medium.</p>	
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103.	Maize ( <i>Zea mays</i> L.)	KMH-218+		Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.	<b>Female</b> Leaf Angle between blade and stem – Wide, Leaf Attitude of blade - Drooping, Stem Anthocyanin colouration of brace roots - Present, Time of anthesis – Late, anthocyanin colouration of base of glumes – Absent, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, angle between main axis and lateral branches – Wide, Attitude of lateral branches – Curved, Time of silk emergence (50% plant) – Late, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Present, Tassel length of main axis above lowest side branch – Long (>30 cm), Plant	Leaf Angle between blade and stem – Wide (>45 <sup>0</sup> ), Leaf Attitude of blade - Drooping, Stem Anthocyanin colouration of brace roots – Present, Time of anthesis – Medium (50-55 days), Tassel anthocyanin colouration of base of glumes – Present, Tassel Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches – Narrow (<45 <sup>0</sup> ), Attitude of lateral branches – Curved, Time of silk emergence (50% plant) –Medium (53-58 days), Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Present, Tassel length of main axis above lowest side branch – Long (>30 cm), Plant length (tassel included) – Long (180-210 cm), Ear placement – Medium, Leaf Width of blade - Broad (>9 cm), Ear Length without husk – Long (>15 cm), Ear diameter without husk – Large (>5 cm), Ear Shape – Conical, Ear Number of rows of kernels – Many (≥14), Ear Type of grains – Dent, Ear colour of top of grains – Yellow, Ear Colouration of glumes of cobs – White, Kernel row arrangement – Spiral, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large	Non lodging, respond to inputs, seed rate as per recommendation, moderately tolerant to stresses.
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				<p>length (up to flag leaf) (&gt;300 g).  - Medium, Ear placement - Medium, Leaf Width of blade - Broad (&gt;9 cm), Ear Length without husk - Long (&gt;15 cm), Ear diameter without husk - Large, Ear Shape - Cylindrical, Ear Number of rows of kernels - Many (&gt;14), Ear Type of grains - Semi-Dent, Ear colour of top of grain - Orange Yellow with cap, Ear Colouration of glumes of cobs - White, Kernel row arrangement - Straight, Kernel Poppiness - Absent, Kernel Sweetness - Absent, Kernel Waxiness - Absent, Kernel Opaqueness - Absent, Kernel Shape - Indented, 1000 kernel weight - Large (&gt;300 g).</p> <p><b>Male</b>  Leaf Angle between blade and stem - Wide, Leaf Attitude of blade - Drooping, Stem</p>	
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					<p>Anthocyanin  colouration of brace  roots - Present, Time of  anthesis - Medium,  anthocyanin  colouration of base of  glumes - Present,  Anthocyanin  colouration of glumes  excluding base -  Present, Anthocyanin  colouration of anthers -  Present, Density of  spikelets - Sparse,  Angle between main  axis and lateral  branches - Wide,  Attitude of lateral  branches - Straight,  Time of silk emergence  (50% plant) -Medium,  Ear Anthocyanin  colouration of silk -  Present, Leaf  Anthocyanin  colouration of sheath -  Present, Tassel length  of main axis above  lowest side branch -  Long, Plant length (up  to flag leaf) - Long,  Ear placement - High,  Leaf Width of blade -  Medium, Ear Length  without husk -</p>	
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					Medium, Ear diameter without husk – Medium, Ear Shape – Cylindrical, Ear Number of rows of grains – Medium, Ear Type of grain – Dent, Ear colour of top of grain – Yellow with cap, Ear Colouration of glumes of cobs – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Medium.	
104.	Maize ( <i>Zea mays</i> L.)	KMH-3669-25K60		Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.	<b>Female</b> Leaf Angle between blade and stem: Wide, Leaf Attitude of blade: straight, Stem anthocyanin coloration of brace roots: Present, Time of anthesis: Late, Anthocyanin coloration of base of glumes: Absent, Anthocyanin coloration of glumes excluding base:	Leaf Angle between blade and stem – Wide (>45 <sup>0</sup> ), Leaf Attitude of blade - Drooping, Stem Anthocyanin colouration of brace roots - Absent, Time of anthesis – Late (>55 days), anthocyanin colouration of base of glumes – Present, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and

				<p>Present, Anthocyanin coloration of anthers: Absent, Density of spikelets: Sparse, Angle between main axis and lateral branches: Wide, Attitude of lateral branches: Straight, Time of silk emergence (50% plants): Late, Anthocyanin coloration of silks: Absent, Anthocyanin coloration of sheath: Absent, Tassel length of main axis above lowest side branch: Long, Plant length: Medium, Ear placement: Low, Leaf width of blade: Broad, Ear length: Long, Ear diameter without husk: Large, Ear shape: Conical, Ear number of rows of grains: Many, Ear type of grain: Dent, Ear color of top grain: Yellow, Ear color of glumes of cob: Light purple, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent,</p>	<p>lateral branches –Wide (&gt;45<sup>0</sup>), Attitude of lateral branches – Strongly Curved, Time of silk emergence (50% plant) – Late (&gt;58 days), Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Tassel length of main axis above lowest side branch – Long (&gt;30 cm), Plant length (tassel included) – Very Long (&gt;210 cm), Ear placement – Low, Leaf Width of blade – Broad (&gt;9 cm), Ear Length without husk – Long(&gt;15 cm), Ear diameter without husk – Medium (&gt;5 cm), Ear Shape – Conico-Cylindrical, Ear Number of rows of kernels – Many (&gt;14), Ear Type of grains – Dent, Ear colour of top of grains – Yellow, Ear Colouration of glumes of cobs – Light purple, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p>	
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				<p>Kernel Waxiness: Absent, Kernel: Opacity: Absent, Kernel Shape: Indented, 1000 kernel weight: Medium.</p> <p><b><u>Male</u></b> Leaf Angle between blade and stem: Small, Leaf Attitude of blade: Drooping, Stem Anthocyanin coloration of brace roots: Absent, Time of anthesis: Late, Anthocyanin coloration of base of glumes: Absent, Anthocyanin coloration of glumes excluding base: Present, Anthocyanin coloration of anthers: Present, Density of spikelets: Dense, Angle between main axis and lateral branches: Narrow, Attitude of lateral branches: Curved, Time of silk emergence (50% plants): Late, Anthocyanin coloration of silks: Present, Anthocyanin coloration of sheath:</p>	
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					<p>Absent, Tassel length of main axis above lowest side branch: Medium, Plant length: Long, Ear placement: Medium, Leaf width of blade: Broad, Ear length: Long, Ear diameter without husk: Medium, Ear shape: Conico-cylindrical, Ear number of rows of grains: Medium, Ear type of grain: Semi dent, Ear color of top grain: Yellow, Ear color of glumes of cob: White, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent, Kernel Waxiness: Absent, Kernel Opacity: Absent, Kernel Shape: Indented.</p>		
105.	Maize ( <i>Zea mays</i> L.)	KMH-3426		Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.	<p><b>Female</b>  Leaf Angle between blade and stem – Small, Leaf Attitude of blade – Straight, Stem Anthocyanin colouration of brace</p>	<p>Leaf Angle between blade and stem – Small (&gt;45<sup>0</sup>), Leaf Attitude of blade – Straight, Stem Anthocyanin colouration of brace roots – Absent, Time of anthesis – Medium (50-55 days), anthocyanin colouration of base of glumes – Present, Anthocyanin</p>	<p>Non lodging, respond to inputs, seed rate as per recommendation, tolerant to stresses, Tolerant stem borer.</p>

				<p>roots - Present, Time of anthesis – Late, Anthocyanin colouration of base of glumes – Present, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches – Narrow, Attitude of lateral branches – Straight, Time of silk emergence (50% plant) – Late, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Tassel length of main axis above lowest side branch – Long (&gt;30 cm), Plant length (up to flag leaf) – Long, Ear placement</p>	<p>colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches –Wide (&gt;45<sup>0</sup>), Attitude of lateral branches – Curved, Time of silk emergence (50% plant) –Medium (53-58 days), Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Tassel length of main axis above lowest side branch – Medium (20-30 cm), Plant length – Long (180-210 cm), Ear placement – Medium, Leaf Width of blade – Medium (8-9 cm), Ear Length without husk – Long(&gt;15 cm), Ear diameter without husk – Large (&gt;5 cm), Ear Shape – Conico Cylindrical, Ear Number of rows of kernels – Many (&gt;14), Ear Type of grains – Semi-Dent, Ear colour of top of grains – Yellow with cap, Ear Colouration of glumes of cob – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p>	
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					<p>– Medium, Leaf Width of blade – Broad (&gt;9 cm), Ear Length without husk – Long (&gt;15 cm), Ear diameter without husk – Large, Ear Shape – Cylindrical, Ear Number of rows of kernels – Many (&gt;14), Ear Type of grains – Flint, Ear colour of top of grain – Orange, Ear Colouration of glumes of cob – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opacity – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p> <p><b>Male</b> Leaf Angle between blade and stem – Wide,</p>	
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					<p>Leaf Attitude of blade – Drooping, Stem Anthocyanin colouration of brace roots - Absent, Time of anthesis – Medium, Anthocyanin colouration of base of glumes – Absent, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches –Wide, Attitude of lateral branches – Curved, Time of silk emergence (50% plant) –Medium, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Present, Tassel length of main axis above</p>	
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					<p>lowest side branch–  Long, Plant length (up  to flag leaf)– Medium,  Ear placement –  Medium, Leaf Width  of blade – Narrow, Ear  Length without husk –  Medium, Ear diameter  without husk –  Medium, Ear Shape –  Cylindrical, Ear  Number of rows of  kernels – Many, Ear  Type of grain – Dent,  Ear colour of top of  grain – Yellow with  cap, Ear Colour of  glumes of cob – White,  Kernel row  arrangement– Straight,  Kernel Poppiness –  Absent, Kernel  Sweetness – Absent,  Kernel Waxiness–  Absent, Kernel  Opaqueness– Absent,  Kernel Shape –  Indented, 1000 kernel  weight – Medium.</p>	
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106.	Maize ( <i>Zea mays</i> L.)	KMH-3712		Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD Road, Secunderabad-500 003, Andhra Pradesh, India.	<p><b>Female</b></p> <p>Leaf Angle between blade and stem: Wide, Leaf Attitude of blade: Drooping, Stem anthocyanin coloration of brace roots: Present, Time of anthesis: Medium, Anthocyanin coloration of base of glumes: Absent, Anthocyanin coloration of glumes excluding base: Present, Anthocyanin coloration of anthers: Present, Density of spikelets: Sparse, Angle between main axis and lateral branches: Wide, Attitude of lateral branches: Curved, Time of silk emergence (50% plants): Medium, Anthocyanin coloration of silks: Present, Anthocyanin coloration of sheath: Present, Tassel length of main axis above lowest side branch: Long, Plant length: Medium, Ear placement: Medium, Leaf width of blade:</p>	<p>Leaf Angle between blade and stem – Small, Leaf Attitude of blade – Straight, Stem Anthocyanin colouration of brace roots – Present, Time of anthesis – Medium, Anthocyanin colouration of base of glumes – Absent, Anthocyanin colouration of glumes excluding base - Present, Anthocyanin colouration of anthers – Present, Density of spikelets – Sparse, Angle between main axis and lateral branches –Wide, Attitude of lateral branches – Curved, Time of silk emergence (50% plant) –Medium, Ear Anthocyanin colouration of silk – Present, Leaf Anthocyanin colouration of sheath – Absent, Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Long, Ear placement – Medium, Leaf Width of blade – Medium, Ear Length without husk – Medium, Ear diameter without husk – Large, Ear Shape – Cylindrical, Ear Number of rows of kernels – Many, Ear Type of grains – Semi-Dent, Ear colour of top of grains – Yellow with cap, Ear anthocyanin Colouration of glumes of cob – White, Kernel row arrangement – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent,</p>	
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				<p>Narrow, Ear length: Medium, Ear diameter without husk: Medium, Ear shape: Cylindrical, Ear number of rows of grains: Many, Ear type of grain: Dent, Ear color of top grain: Yellow with cap, Ear color of glumes of cob: White, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent, Kernel Waxiness: Absent, Kernel Opaqueness: Absent, Kernel Shape: Indented, 1000 kernel weight: Medium.</p> <p><b><u>Male</u></b></p> <p>Leaf Angle between blade and stem: Small, Leaf Attitude of blade: Drooping, Stem Anthocyanin coloration of brace roots: Present, Time of anthesis: Late, Anthocyanin coloration of base of glumes: Absent, Anthocyanin coloration of glumes excluding base: Absent, Anthocyanin coloration</p>	<p>Kernel Opaqueness – Absent, Kernel Shape – Indented, 1000 kernel weight – Large (&gt;300 g).</p>	
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					of anthers: Absent, Density of spikelets: Sparse, Angle between main axis and lateral branches: Narrow, Attitude of lateral branches: Curved, Time of silk emergence (50% plants): Late, Anthocyanin coloration of silks: Present, Anthocyanin coloration of sheath: Absent, Tassel length of main axis above lowest side branch: Medium, Plant length: Long, Ear placement: Low, Leaf width of blade: Medium, Ear length: Medium, Ear diameter without husk: Medium, Ear shape: Cylindrical, Ear number of rows of grains: Many, Ear type of grain: Semi dent, Ear color of top grain: Orange with cap, Ear color of glumes of cob: White, Kernel row arrangement: Straight, Kernel Poppiness: Absent, Kernel Sweetness: Absent,	
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					Kernel Waxiness: Absent, Kernel: Opaqueness: Absent, Kernel Shape: Indented, 1000 kernel weight: Medium.		
107.	Maize ( <i>Zea mays</i> L.)	KMH - 548	-	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.	<b><u>Female (KML-5254)</u></b>  Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Late, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Present, Tassel Anthocyanin colouration of anther (in middle third of main axis on fresh anthers) –	Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Late, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Present, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of anther (in middle third of main axis on fresh anthers) – Absent, Tassel Density of spikelets (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Curved, Ear time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Very long, Plant Ear placement –	Plant Ear placement – Medium, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico- Cylindrical, Ear number of rows of grains – Many, Ear type of grain (in middle third of ear) – Semi-dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glumes of cob – Dark purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, Kernel 1000 kernel weight: >300 g

				<p>Absent, Tassel Density of spikelet's (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Ear time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Absent, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Medium, Plant Ear placement – Low, Leaf Width of blade (leaf of upper ear) – Broad, Ear length without husk – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conical, Ear number of rows of grains – Many,</p>	<p>Medium, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conical-Cylindrical, Ear number of rows of grains – Many, Ear type of grain (in middle third of ear) – Semi-dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glumes of cob – Dark purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opacity – Absent, Kernel shape – Indented, Kernel 1000 kernel weight: &gt;300 g</p>	
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					<p>Ear type of grain (in middle third of ear) – Dent, Ear colour of top of grain – Yellow, Ear Anthocyanin colouration of glumes of cob – Light purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, kernel weight – Medium</p> <p><b><u>Male (KML-2286)</u></b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Small, Leaf Attitude of blade (on leaf just above upper ear) – Straight, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) –</p>	
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					<p>Late, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Present, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of anthers (in middle third of main axis on fresh anthers) – Absent, Tassel Density of spikelet's (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Narrow, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Ear time of silk emergence (50% plants) – Late, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length</p>	
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					of main axis above lowest side branch – Medium, Plant length (up to flag leaf) – Medium, Plant Ear placement – Medium, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Medium, Ear diameter without husk (in middle) – Large, Ear shape – Conicao Cylindrical, Ear number of rows of grains – Medium, Ear type of grain (in middle third of ear) – Semi- dent, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glumes of cob – White, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opacity – Absent, Kernel shape – Round, kernel weight – Medium	
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108.	Maize ( <i>Zea mays</i> L.)	KMH - 128 (2181)	-	Kaveri Seed Company Limited, 513-B, 5 <sup>th</sup> Floor, Minerva Complex, SD road, Secunderabad – 500 004, Andhra Pradesh, India.	<p><b><u>Female (KML – 2022 X5080)</u></b></p> <p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Early, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of anthers (in middle third of main axis on fresh anthers) – Present, Tassel Density of spikelet's (in middle third of main axis) – Sparse, Tassel angle between main axis and</p>	<p>Leaf Angle between blade and stem (on leaf just above upper ear) – Wide, Leaf Attitude of blade (on leaf just above upper ear) – Drooping, Stem Anthocyanin colouration of brace roots – Present, Tassel time of anthesis (on middle third of main axis, 50% plants) – Early, Tassel anthocyanin colouration of base of glumes (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Absent, Tassel Anthocyanin colouration of anthers (in middle third of main axis on fresh anthers) – Present, Tassel Density of spikelet's (in middle third of main axis) – Sparse, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Ear time of silk emergence (50% plants) – Early, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Medium, Plant Ear placement – Low, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Long, Ear diameter without husk (in middle) – Large, Ear shape – Conico-Cylindrical, Ear number of rows of</p>	<p>grains – Many, Ear type of grain (in middle third of ear) – Dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glumes of cob – Light purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, kernel weight – Large</p>
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				<p>lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Straight, Ear time of silk emergence (50% plants) – Early, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Absent, Tassel Length of main axis above lowest side branch – Long, Plant length (up to flag leaf) – Medium, Plant Ear placement – Low, Leaf Width of blade (leaf of upper ear) – Broad, Ear length (without husk) – Long, Ear diameter without husk (in middle) – Medium, Ear shape – Cylindrical, Ear number of rows of grains – Medium, Ear type of grain (in middle third of ear) – Dent, Ear colour of top of grain – Yellow with cap, Ear</p>	<p>grains – Many, Ear type of grain (in middle third of ear) – Dent, Ear colour of top of grain – Yellow with cap, Ear Anthocyanin colouration of glumes of cob – Light purple, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Indented, kernel weight – Large</p>	
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				<p>Anthocyanin  colouration of glumes  of cob – Dark purple,  Kernel row  arrangement (in middle  of ear) – Straight,  Kernel Poppiness –  Absent, Kernel  Sweetness – Absent,  Kernel Waxiness –  Absent, Kernel  Opaqueness – Absent,  Kernel shape –  Indented, kernel weight  – Large</p> <p><b><u>Male (KML – 5004)</u></b></p> <p>Leaf Angle between  blade and stem (on leaf  just above upper ear) –  Wide, Leaf Attitude of  blade (on leaf just  above upper ear) –  Straight, Stem  Anthocyanin  colouration of brace  roots – Present, Tassel  time of anthesis (on  middle third of main  axis, 50% plants) –  Early, Tassel  anthocyanin  colouration of base of  glumes (in middle third</p>	
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					<p>of main axis) – Present, Tassel Anthocyanin colouration of glumes excluding base (in middle third of main axis) – Present, Tassel Anthocyanin colouration of anthers (in middle third of main axis on fresh anthers) – Present, Tassel Density of spikelet's (in middle third of main axis) – Dense, Tassel angle between main axis and lateral branches (in lower third of tassel) – Wide, Tassel Attitude of lateral branches (in lower third of tassel) – Curved, Ear time of silk emergence (50% plants) – Early, Ear Anthocyanin colouration of silks (on day of emergence) – Present, Leaf Anthocyanin colouration of sheath (below the ear) – Present, Tassel Length of main axis above lowest side branch – Medium, Plant length (up to flag leaf) –</p>	
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					Short, Plant Ear placement – Low, Leaf Width of blade (leaf of upper ear) – Medium, Ear length (without husk) – Medium, Ear diameter without husk (in middle) – Large, Ear shape – Conical-Cylindrical, Ear number of rows of grains – Many, Ear type of grain (in middle third of ear) – Flint, Ear colour of top of grain – Orange, Ear Anthocyanin colouration of glumes of cob – White, Kernel row arrangement (in middle of ear) – Straight, Kernel Poppiness – Absent, Kernel Sweetness – Absent, Kernel Waxiness – Absent, Kernel Opaqueness – Absent, Kernel shape – Toothed, kernel weight – Large.		
109.	Maize (Sweet Corn) ( <i>Zea mays</i> L.)	NSCH - 12 (Misthi)	-	Nuziveedu Seeds Private Limited, Survey No. 69, Kandlakoya, Gundla	<b><u>Female (NSCL-15)</u></b> Plant type and Leaf angle – Broad dark green leaves with wider angle to stem. Leaves	Plant Type – vigorous, Semi-curved leaves, Dark green leaves, Plant height – Tall (230 to 260 cm), Ear placement – Medium (100 to 110 cm), Days to Harvest Green Cobs : 75 to 80 Days in	Plant height – Tall (230 to 260 cm), Ear placement – Medium (100 to 110 cm), Days to Harvest Green Cobs : 75 to 80 Days in Kharif,

			<p>Pochampally (Vill &amp; Panchayat), Medical Mandal, Ranga Reddy Distt. – 501401., India.</p>	<p>are straight in attitude in lower <math>\frac{3}{4}</math> portion and tips are slightly curved, Plant height – Medium height (140 to 160 cm), Tassel type – Big tassel with more number of branches. Branches are straight and make wider angle to main rachis, Glume colour – Green, Anther colour – Yellow, Silk colour – Green, Kernel colour – Yellow, Shank colour – White.</p> <p><b><u>Male (NSCL-63)</u></b> Plant type and Leaf angle – Green Leaves with narrow angle with stem. Leaves are curved, Plant height – Slightly taller than female (160 to 180 cm), Tassel type – Big tassel with more number of branches. Branches are slightly curved, Glume colour – Green, Anther colour – Yellow, Silk colour – White, Kernel colour – Orange, Shank colour – White.</p>	<p>Kharif, Tassel type – Big tassel with 16 to 18 curved branches, Glumes colour – Green, Anther colour – Yellow, Silk colour – Green, Grain colour – Yellow, Grain texture – Wrinkled, Kernels at Milky Stage – Tender, Medium size, Yellow with Good Sweetness, Ear type – Long (20 to 22 cm), Conico-Cylindrical with good filling, TSS% of Kernels at Harvest : 16 to 17, Special Features – Cobs looks like Grain Corn type, Big size cobs, Good adaptability.</p>	<p>Tassel type – Big tassel with 16 to 18 curved branches, Glumes colour – Green, Anther colour – Yellow, Silk colour – Green, Grain colour – Yellow, Grain texture – Wrinkled, Kernels at Milky Stage – Tender, Medium size, Yellow with Good Sweetness, Ear type – Long (20 to 22 cm), Conico-Cylindrical with good filling, TSS% of Kernels at Harvest : 16 to 17, Special Features – Cobs looks like Grain Corn type, Big size cobs.</p>
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### **Abbreviations used in the manual of OECD Seed Scheme**

1. OECD: Organization for Economic Co-operation and Development.
2. UPOV: International Union for Protection of New Varieties of plants.
3. ISTA: International Seed Testing Association.
4. NDA: National Designated Authority.
5. DA: Designated Authority.
6. ICAR: Indian Council of Agricultural Research.
7. DUS: Distinctness, Uniformity and Stability.
8. VCU: Value for cultivation and use.
9. CHA: Chemical Hybridizing Agent.
10. GOT: Grow Out Test
11. NSC: National Seeds Corporation Ltd.
12. SAU: State Agricultural University
13. PPV & FRA: Protection of Plant Varieties and Farmers Rights Authority
14. CMS: Cytoplasmic Male Sterility
15. ISO: Indian Standard Organization
16. DNA: Deoxyribonucleic acid

## **Glossary**

### **1. Vegetable Seed**

*Vegetable Seed* is seed of all kinds of vegetables recognised as such by the National Designated Authorities concerned.

### **2. National Designated Authority**

Authority designated by, and responsible to, the government of a participating country for the purpose of implementing these Rules and Regulations on its behalf.

### **3. Maintainer**

The person or organisation responsible for the production or maintenance of a bred variety included in a national list of varieties eligible for certification under the OECD Scheme. The *maintainer* shall ensure that the variety remains true to type throughout its full life-span. Maintenance of a variety may be shared.

### **4. Variety**

The international term variety denotes an assemblage of cultivated plants which is clearly distinguished by any characters (morphological, physiological, cytological, chemical or others) and which, when reproduced (sexually or asexually), retains its distinguishing characters.

#### *4.1 Open-pollinated variety*

An open-pollinated variety is an assemblage of cultivated plants which is clearly distinguished by any characters (morphological, physiological, cytological, chemical or other) and which, when reproduced retains its distinguishing characters.

#### *4.2 Synthetic Variety*

An open-pollinated variety obtained from specified elements. It is not homozygous but at genetic equilibrium. The number of generations of certified seed is strictly limited.

#### *4.3 Composite Variety*

The first generation produced by random mating of a large number of specified parents.

#### **4.4 Bred variety**

*A variety* which has been produced by a plant breeder as the result of breeding.

*A non hybrid variety* is an assemblage of cultivated plants which is clearly distinguished by any characters (morphological, physiological, cytological, chemical or others) and which, when reproduced, (sexually or asexually) retains its distinguishing characters.

A *hybrid variety* is an assemblage of cultivated plants which is clearly distinguished by any characters (morphological, cytological, chemical or others) and for which the maintainer has specified a particular formula for hybridisation.

### **Local Variety**

A *variety* from a defined region of origin which has been shown by official tests to have sufficient uniformity, stability and distinctness to warrant recognition but has not been produced as a result of breeding work.

### **5. Parental Material**

The smallest unit *used* by the maintainer to maintain his variety from which all seed of the variety is derived through one or more generations.

### **6. Pre-Basic Seed**

Seed of generations *preceding* Basic Seed is known as Pre-Basic Seed and may be at any generation between the parental material and the Basic Seed.

### **7. Basic Seed**

Seed which has been produced under the responsibility of the maintainer according to the generally accepted practices for the maintenance of the variety and is intended for the production of Certified Seed. It must conform to the appropriate conditions in the Scheme and the fulfilment of these conditions must be confirmed by an official examination.

### **8. Certified Seed**

Seed that is of direct descent from Basic Seed or Certified Seed of a variety and is intended for the production of either Certified Seed or of crops for purposes other than seed production. It must conform to the appropriate conditions in the Scheme and the fulfilment of these conditions must be confirmed by an official examination.

The first generation from Basic Seed is known as:

-- Certified Seed, 1st generation.

Further generations are known as:

-- Certified Seed, 2nd, 3rd, etc. generation, the appropriate generation being designated.

### **9. Standard Seed**

Seed which is declared by the supplier as being true to the variety and of satisfactory varietal purity. It must conform to the appropriate conditions in the Scheme.

### **10. Eligible species**

Only seed of *Zea mays* L. and *Sorghum* species listed in Appendix 6 can be certified under the Rules of the Scheme.

## **11. Designated Authority**

Authority designated by, and responsible to, the government of a participating country for the purpose of implementing these Rules and Directions on its behalf.

## **12. Country of Registration of a Variety**

The country of registration of a variety is the country where the variety is registered on the National Official Catalogue, following satisfactory tests for distinctness, uniformity and stability.

## **13. Hybrid Variety**

A hybrid variety is an assemblage of cultivated plants which is clearly distinguishable by any characters (morphological, physiological, cytological, chemical or others) and for which the maintainer has specified a particular formula of hybridisation.

## **14. Inbred Line**

A sufficiently distinct, uniform and stable line, obtained either by artificial self-fertilisation accompanied by selection over several successive generations or by equivalent operations.

## **15. Types of Hybrid**

### *15.1 Single cross Hybrid*

The first generation of a cross between two inbred lines.

### *15.2 Double Cross Hybrid*

The first generation of a cross between two single cross hybrids.

### *15.3 Three-Way Cross Hybrid*

The first generation of a cross between an inbred line and a single cross hybrid.

### *15.4 Top Cross Hybrid*

The first generation of a cross between an inbred line or a single cross hybrid and an open-pollinated variety.

### *15.5 Intervarietal Hybrid*

The first generation of a cross between plants grown from Basic seed of two open-pollinated varieties.

## **16. Cytoplasmic Male Sterility**

The cytoplasmic male sterility factor that occurs in both *Zea mays*, L. and *Sorghum* spp. Produces male sterility in the female seed-bearing parental line used in the production of hybrid varieties. The factor, which is centred in the cytoplasm and is maternally transmitted acts only in the absence of pollen restoring genes and results in pollen abortion.

### **17. Basic Seed (intended for the production of hybrid varieties)**

Seed which has met the appropriate conditions in the Scheme as verified by an official examination and which has been produced under the responsibility of the maintainer according to the accepted practices for the maintenance of a variety or line and is intended for the production of Certified seed of a hybrid variety. Where a cytoplasmic male sterility system is used this Basic seed category includes male sterile lines, maintainer lines and restorer lines.

### **18. Certified Seed (hybrid variety)**

Seed which is the first and only generation of hybridisation of Basic seed and is intended for the production of grain or fodder. It must conform to the appropriate conditions in the Scheme and the fulfilment of these conditions must be confirmed by an official examination. In the production of a double cross, three-way cross or top cross hybrid, Certified seed may be re-classified as Basic seed by the Designated authority for use as either a pollen parent or seed-bearing parent if the crop has met the appropriate conditions of isolation and varietal purity laid down for the Basic seed and confirmed by an official examination. The varietal purity of the hybrid variety should exclude hybrids not true to the hybrid variety, and also selfed seed and seed of other varieties.

### **19. Varietal Association of hybrid maize**

Association of certified seeds of a seed-bearing hybrid maize variety dependent on a specified pollinator with certified seeds of this pollinator which is made of one variety or a mixture of varieties; the components of the association are mechanically combined in proportions jointly determined by the persons responsible for their maintenance, such combination having been notified to the Designated Authority.

### **20. Seed-bearing hybrid variety dependent on a pollinator**

The male-sterile component within the varietal association.

### **21. Pollinator**

The component shedding pollen within the varietal certification