भारत सरकार

GOVERNMENT OF INDIA

भारतीय पौधा किस्म जरनल

भारत के राजपत्र के समतुल्य

(नियमावली 12, पौ.कि. और कृ.अ. संरक्षण नियमावली, 2006)

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(संसद के अधिनियम द्वारा निर्मित सांविधिक निकाय)

एनएएससी काम्प्लैक्स, डीपीएसमार्ग, निकट टोडापुर गांव, नई दिल्ली–110012.

PROTECTION OF PLANT VARIETIES & FARMERS' RIGHTS AUTHORITY

(A Statutory Body created by an Act of Parliament)

NASC COMPLEX, DPS MARG, Opp. Todapur Village, New Delhi-110012.

सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA

भारतीय पौधा किस्म जरनल, खण्ड 14, अंक 12
फरवरी 08, 2021 / माघ–कृष्ण–12, शक् 1942

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February 08, 2021/Magh-Krishna-12, Saka 1942

पौधा किस्म और कृषक अधिकार संरक्षण प्राधिकरण
(संसद के अधिनियम द्वारा निर्मित सांविधिक निकाय)
एनएएससी काम्प्लैक्स, डीपीएस मार्ग, निकट टोडापुर गांव, नई दिल्ली–110 012.

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NASC Complex, DPS Marg, Opp. Todapur Village, New Delhi – 110 012.

'भारतीय पौधा किस्म जरनल' पौधा किस्म और कृषक अधिकार संरक्षण प्राधिकरण (पौ.कि. और कृ.अ.सं.प्रा.) का आधिकारिक जरनल है। पीपीवी और एफआर अधिनियम, 2001 तथा पीपीवी और एफआर नियमावली, 2003 के नियम 2 (जी) के अंतर्गत अध्यक्ष, पीपीवी और एफआरए, एनएएससी काम्प्लैक्स (द्वितीय तल), डीपीएस मार्ग, निकट टोडापुर गांव, नई दिल्ली–110012 की ओर से प्राधिकरण के रजिस्ट्रार द्वारा प्रकाशित किया जा रहा है।

Plant Variety Journal of India is the Official Journal of the Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA) published by the Registrar on behalf of the Chairperson, PPV & FRA, S-2 A Block, NASC Complex, DPS Marg, Opp. Todapur Village, New Delhi-110012 under the PPV & FR Act, 2001 and Rule 2 (g) of the PPV & FR Rules, 2003.

NAGARATHNA T K

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विषय–सूची
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Seeds sent for DUS/GOT to DUS Centres in November-2020							
Crop	**Category**				**Grand Total**	**DUS Centre-1**	**DUS Centre-2**
	New		**VCK**	**Farmer**			
	1st Year	**2nd Year**					
Linseed	-	-	-	1	**1**	CSAUA&T Kanpur	JNKVV Jabalpur
Grand Total	**-**	**-**	**-**	**1**	**1**		

F. No. PPV&FRA/Legal/02/2019
Dated:24.12.2020

PUBLIC NOTICE
(14 of 2020)

Sub: Section 19 of PPV&FR Act, 2001 read with Rules 29 (10) of PPV&FR Rules, 2003 – Submission of seeds for varieties seeking plant variety protection.

As per the provisions of the Act and DUS test guidelines, since seed is an integral part of the application being submitted for registration for protection of a variety, every applicant is required to submit seed of the candidate variety and hybrid (along with all the parents involved in the production of the hybrid as well as maintenance of male sterile parent) along with the application, as described below:

I. Category of Variety

No.	Category	Quantity (Packets)
i	New Variety (Typical or OP)	entire quantity of the seeds as per crop specific DUS test guidelines equally divided into ten packets
ii	Extant Variety Notified under Seeds Act, 1966 (Typical or OP)	one fifth quantity of the seeds as per crop specific DUS test guidelines equally divided into two packets
iii	Extant Variety of Common Knowledge (Typical or OP)	half of the the seeds as per crop specific DUS test guidelines equally divided into five packets
iv	Extant Variety as Farmer's Variety	half of the the seeds as per crop specific DUS test guidelines equally divided into five packets
v	Hybrid in the case of rows (i) to (iii)	a. Hybrid: Entire quantity of seed of the Hybrid as per crop specific DUS test guidelines, equally divided into ten packets b. Parent lines: Half the quantity of seed of each line (including maintainer line(s), if any) as per crop specific DUS guidelines, equally divided into five packets

II. Other requirements and terms

1. Properly dried seeds are to be submitted in tri-layered (12 µm outermost layer of polyester; 12 µm middle layer of aluminium foil and 250 gauge thick inner layer of polyester making the pouch leak-proof), laminated, hermetically sealed, duly numbered seed packets/pouches.

2. Each packet shall have the denomination related information either on well-stuck printed stickers that can be easily pulled off without leaving any remnants stuck or legibly written using standard water-resistant permanent marker erasable by acetone/alcohol, depicting name of the applicant, crop species, Denomination of the variety, Type (e.g.

New/Extant/Farmers) and Classification (Typical/Hybrid/Inbred/parental lines/Transgenic/others) of the variety, quantity of the seeds(in gm) in the packet, seed quality details(% of Physical purity, Germination and Moisture content as per the crop specific DUS test guideline), seed lot number of the applicant and date of harvest.

3. The seed test report shall not be more than 30 days old at the time of seed submission.

4. Applicant(s) shall use seed packets of sizes as per the following:
   a) Large size seeds(e.g., Rice, Wheat, Maize, Ground nut, Cotton etc): 20-22 cm x 15-17 cm(LxB)
   b) Medium size seeds(e.g., Sorghum, Okra, Coriander etc): 18-20 cm x 10-12 cm(LxB)
   c) Small sized seeds (e.g., Mustard, Chilli, Brinjal etc): 12-14 cm x 8-10 cm(LxB).

5. Applications along with the seed lot shall be rejected in case any extraneous material, label, labels with denomination/varietal name/mark, applicant details or any identification related to the specific variety etc are found inside the seed packets.

6. If any seed material(s) is found physically damaged, contaminated, pest/disease infected and/or treated/coated with chemical, the seed material(s) and application shall deemed to be considered as rejected. Such packets shall be sealed in the presence of a witness and applicant will be duly informed by PPV&FRA. The same can be inspected on record in the presence of authorised personnel of the Authority by the applicant/agent of the applicant by visiting the site following visit related procedures.

7. Applications not meeting the above requirements including seed quality standards shall be considered incomplete and invalid, resulting in terminating the registration process.

The above requirements are applicable for crop species having orthodox/true seeds only and have no bearing on any other seed or seed material submission related notifications issued so far.

Sd/-
(T.K. Nagarathna)
Registrar

PUBLIC NOTICE

Subject: Advertisement is given under sub-section (2) and (3) of Section 21 of the Protection of Plant Varieties and Farmers' Rights Act, 2001 and Rules 30 and 31 of PPV & FR Rules, 2003.

The passport data of each variety furnished by the applicant are herewith advertised as specified for calling objections from any persons.

The place or places where the specimen of the variety may be inspected can be obtained in writing from the Registrar of the PPV & FR Authority.

Any person may, within three months from the date of advertisement of the application(s) give notice of opposition in writing to the Registration of variety (as per Form PV-3 of the First Schedule of PPV&FR Rules, 2003). Oppositions, if any, to the Registration must be submitted, in triplicate, to the Registrar, PPV&FRA, NASC Complex, DPS Marg, New Delhi -110 012 accompanied with the fee of Rs.10,000/- (Rupees Ten Thousand Only) by way of Demand Draft drawn in favour of "PPV & FR Authority" payable at New Delhi.

*Farmer(s) are exempted from payment of any fee in proceeding under Section 44 of PPV&FR Act, 2001.

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry

1. Application No. | E2 | PG8 | 20 | 114H | filed on 07.07.2020 by **Dr. R. Ravikesavan, Prof. & Head, Dept. of Milllets, Tamil Nadu Agricultural University, Coimbatore-641003** on behalf of **Director of Research, Tamil Nadu Agricultural University, Coimbatore-641003** for **Extant (Notified)** variety of crop **Pearl millet (*Pennisetum glaucum* (L.) R. Br.)** having denomination **CO 9** has been accepted and given registration number --------- NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : CO 9
Applicant : Director of Research, TNAU
Address of the applicant : Coimbatore - 641003
Nationality of applicant : India
Application details
a. Number : | E2 | PG8 | 20 | 114H |
b. Date of receipt : 07.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Pearl millet (*Pennisetum glaucum* (L.) R. Br.)
Denomination : CO 9
Type of variety : Extant (Notified)
Classification of variety : Hybrid
Previously proposed Denomination : Not applicable
Name of parental material : ICMA 93111A x ICMA 93111B x PT 6029-30
Source of parental material : Female parent obtained from ICRISAT Patancheru, Hyderabad and maintained at TNAU and male parent developed from the germplasm collections maintained at Department of Millets, Centre for Plant Breeding & Genetics
Name of reference varieties : X7 & NH 07
Notification details : Notification no. S.O. 1708 (E), dtd. 26.07.2012

Variety description:

A. Group characteristics	**Remarks (measured values) Hybrid CO 9**	**A-line (ICMA 93111A)**	**B-line (ICMA 93111B)**	**R-line (PT 6029-30)**
Plant: Time of spike emergence (Characteristic 3)	Medium	Medium	Medium	Medium
Anther: Colour (Characteristic 9)	Purple	Yellow	Yellow	Purple
Plant: Height (Characteristic 22)	Medium	Short	Short	Short
Spike: Shape (Characteristic 23)	Candle	Candle	Candle	Candle
Seed: Colour (Characteristic 26)	Greyish yellow	Yellowish grey	Yellowish grey	Grey

Seed: Shape (Characteristic 27)	Globular	Elliptical	Elliptical	Elliptical

B. Distinct characteristic of candidate variety:
CO 9 has distinguishing characters as medium plant height and candle spike shape.

C. Distinct characteristic of reference varieties:
X7 has distinguishing characters as tall plant height and candle spike shape.
NH 07 has distinguishing characters as medium plant height and cylindrical spike shape.

D. Date of commercialization of the variety	27.06.2011

E. Agronomic & Commercial attributes of Hybrid

S. No.	**Attributes**	**Details of Hybrid CO 9**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Sutability Area in the country	Tamil Nadu
	: Time of Sowing	Kharif, Rabi & Summer
	: Irrigated/ Rainfed	Both
	: Low fertility/High fertility of soil	Both
3.	Tolerance to Disease & Pests	Highly resistant to downy mildew
4.	Tolerance to adverse Temperature/Frost/Heat & Salinity	The hybrid CO 9 is medium in stature, non lodging, suitable for rainfed during kharif and rabi seasons and also during summer under irrigation
5.	Grain Characters Physical:	
	a) Kernal Size (cm)	Bold
	b) Seed Lustre (Present/Absent)	Present
	c) Seed Colour	Greyish yellow
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	Tamil Nadu: 14.91 q/ac Zone B (all India level): 12.29 q/ac
7.	Seed Yield q/ac (Average)	Irrigated: 14.91q/ac Rainfed: 10.83 q/ac
8.	Seed: Weight (1000 seed weight in g)	13-14g
9.	Any other relevant information specific to the variety/hybrid to attain potential yield	Released for all district of Tamil Nadu except Nilgris. Recommended as a pure or mixed crop with other pulses or oilseeds under rainfed. It can also be grown as pure crop under irrigation. It response well to normal fertilizer application. It is having high tillering capacity with compact earhead. The grain of CO 9 is suitable for all food preparations with good cooking qualities. The grain is rich in Fe (8mg/100g)

Agronomic attributes of Parent-1

S. No.	**Attributes**	**Details of A-line (ICMA 93111A)**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Sutability Area in the country	Tamil Nadu
	: Time of Sowing	Kharif, Rabi & Summer
	: Irrigated/ Rainfed	Both
	: Low fertility/High fertility of soil	Both
3.	Tolerance to Disease & Pests	Resistant to downy mildew

4.	Tolerance to adverse Temperature/Frost/Heat & Salinity	The female parent ICMA 93111A is dwarf in stature, non lodging and mainly used for seed production under irrigated conditions. It can be grown in high temperature area with protective irrigation.
5.	Grain Characters Physical:	
	a) Kernal Size (cm)	Bold
	b) Seed Lustre (Present/Absent)	Present
	c) Seed Colour	Yellowish
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	-
7.	Seed Yield q/ac (Average)	Irrigated: 3.2 q/ac Rainfed: 1.2 q/ac
8.	Seed: Weight (1000 seed weight in g)	11-12 g
9.	Any other relevant information specific to the variety/hybrid to attain potential yield	Seed parent ICMA 93111A and ICMA 93111B are isogenic line, ICMA 93111B is having fertile pollen, high tillering, seed parent ICMA 93111A is maintained and multiplied by crossing with ICMA 93111B lines, ICMA 93111B maintained by selfing and open pollination in isolation.
Agronomic attributes of Parent-2		
S. No.	**Attributes**	**Details of B-line (ICMA 93111B)**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Sutability Area in the country	Tamil Nadu
	: Time of Sowing	Kharif, Rabi & Summer
	: Irrigated/Rainfed	Both
	: Low fertility/High fertility of soil	Both
3.	Tolerance to Disease & Pests	Resistant to downy mildew
4.	Tolerance to adverse Temperature/Frost/Heat & Salinity	The female parent ICMA 93111A is dwarf in stature, non lodging and mainly used for seed production under irrigated conditions. It can be grown in high temperature area with protective irrigation.
5.	Grain Characters Physical:	
	a) Kernal Size (cm)	Bold
	b) Seed Lustre (Present/Absent)	Present
	c) Seed Colour	Yellowish
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	-
7.	Seed Yield q/ac (Average)	Irrigated: 3.2 q/ac Rainfed: 1.2 q/ac
8.	Seed: Weight (1000 seed weight in g)	11-12 g
9.	Any other relevant information specific to the variety/hybrid to attain potential yield	Seed parent ICMA 93111A and ICMA 93111B are isogenic line, ICMA 93111B is having fertile pollen, high tillering, seed parent ICMA 93111A is maintained and multiplied by crossing with ICMA 93111B lines, ICMA 93111B maintained by selfing

		and open pollination in isolation.
Agronomic attributes of Parent-3		
S. No.	**Attributes**	**Details of R-line (PT 6029-30)**
1.	Days to maturity: Early/Medium/Late	Late
2.	Production condition: Sutability Area in the country	Tamil Nadu
	: Time of Sowing	Kharif, Rabi & Summer
	: Irrigated/ Rainfed	Both
	: Low fertility/High fertility of soil	Both
3.	Tolerance to Disease & Pests	Resistant to downy mildew
4.	Tolerance to adverse Temperature/Frost/Heat & Salinity	The male parent PT 6029-30 is medium in stature, non lodging and mainly used for seed production under irrigated conditions. It can be grown in high temperature area with protective irrigation.
5.	Grain Characters Physical:	
	a) Kernal Size (cm)	Bold
	b) Seed Lustre (Present/Absent)	Present
	c) Seed Colour	Grey
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	-
7.	Seed Yield q/ac (Average)	Irrigated: 4 q/ac Rainfed: 2 q/ac
8.	Seed: Weight (1000 seed weight in g)	13-14 g
9.	Any other relevant information specific to the variety/hybrid to attain potential yield	Pollen parent and able to restore the fertility upon crossing with female male sterile line ICMA 93111A and compact ear head type.
Figure 1		***DUS Characteristics of CO 9**

2. Application No. | E9 | TA12 | 20 | 142 | filed on 29.07.2020 by **Director, ICAR-VPKAS, Almora, Uttarakhand-263601** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **VL Gehun 3004 (VL 3004)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : VL Gehun 3004 (VL 3004)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : | E9 | TA12 | 20 | 142 |
b. Date of receipt : 29.07.2020
c. Date of acceptance : --

Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : VL Gehun 3004 (VL 3004)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : HD 2844 and PBW 486
Source of parental material : Female parent HD 2844 from IARI New Delhi and male parent PBW 486 from NGSN 2004-05
Name of reference varieties : VL Gehun 907 & UP 2565
Notification details : Notification no. S.O. 1498(E), dtd. 01.04.2019

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf: Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Early
Plant length (Characteristic 14)	Long
Awn or scurs: Presence (Characteristic 18)	Awns present
Outer glume: Pubescence (Characteristic 23)	Absent
Ear: Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi-hard

B. Distinct characteristics of candidate variety:

VL Gehun 3004 (VL 3004) has distinguishing characters as intermediate plant growth habit, green foliage colour, strong flag leaf waxiness of sheet and strong flag leaf waxiness of blade.

C. Distinct characteristics of reference varieties:

VL Gehun 907 has distinguishing characters as semi erect plant growth habit, dark green foliage colour, weak flag leaf waxiness of sheet and weak flag leaf waxiness of blade.

UP 2565 has distinguishing characters as semi erect plant growth habit, dark green foliage colour, medium flag leaf waxiness of sheet and medium flag leaf waxiness of blade.

D. Date of commercialization of the variety	23.10.2019

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: Early/Medium/Late	Early
2	Production condition: Suitability Area in the Country	Uttarakhand plains
	: Time of Sowing	Late sown
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility
3	Fertilizer requirement (N:P:K) kg/acre	-
4	Tolerance to Disease & Pests	Resistance to yellow and brown rusts
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-

6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.65 cm Present Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	19.75 q/ac
8	Seed Yield q/ha (Average)	16-17.2 q/ac
9	Seed: Weight (1000 seed weight in g)	38-40g
10	Any other relevant information specific to the variety/hybrid	Nil
Figure 2		***DUS Characteristics of VL Gehun 3004 (VL 3004)**

3. Application No. | E10 | TA13 | 20 | 143 | filed on 29.07.2020 by **Director, ICAR-VPKAS, Almora, Uttarakhanda-263601** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **VL 953 (VL Gehun 953)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : VL 953 (VL Gehun 953)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : | E10 | TA13 | 20 | 143 |
b. Date of receipt : 29.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : VL 953 (VL Gehun 953)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : VW 0185 and DORADE 5
Source of parental material : VW 0185 genetic stock developed at ICAR-VPKAS, Almora and DORADE 5 pick up from 10th FAAWON 2000-01
Name of reference varieties : VL Gehun 907 and UP 2572
Notification details : Notification no. S.O. 3540(E) dtd. 22.11.2016

Variety description:

A. Group characteristics	**Remarks (measured values)**

Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Medium
Plant length (Characteristic 14)	Long
Awn or scurs : Presence (Characteristic 18)	Awns present
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi-hard

B. Distinct characteristics of candidate variety:

VL 953 (VL Gehun 953) has distinguishing characters as green foliage colour, long ear length (excluding awns and scurs), straight lower glume shaller shape (as for 25) and large seed size (weight of 1000 grains).

C. Distinct characteristics of reference varieties:

UP 2572 has distinguishing characters as dark green foliage colour, long ear length (excluding awns and scurs), sloping lower glume shaller shape (as for 25) and medium seed size (weight of 1000 grains).

VL Gehun 907 has distinguishing characters as dark green foliage colour, medium ear length (excluding awns and scurs), elevated lower glume shaller shape (as for 25) and large seed size (weight of 1000 grains).

D. Date of commercialization of the variety	29.10.2015

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: Early/Medium/Late	Medium
2	Production condition: Suitability Area in the Country	Uttarakhand hills and plains
	: Time of Sowing	Timely sown
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility
3	Fertilizer requirement (N:P:K:) kg/acre	-
4	Tolerance to Disease & Pests	Resistance to yellow and brown rusts
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.55 cm Present Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	Hills: 14.88 q/ac Plains: 20.17 q/ac
8	Seed Yield q/ac (Average)	Hills: 12-13.2 q/ac Plains: 17.90 q/ac
9	Seed: Weight (1000 seed weight in g)	Hills: 46-48 g Plains: 46-48 g
10	Any other relevant information specific to the variety/hybrid	Nil

Figure 3	***DUS Characteristics of VL 953 (VL Gehun 953)**

4. Application No. | E11 | TA14 | 20 | 144 | filed on 29.07.2020 by **Director, ICAR-VPKAS, Almora, Uttarakhanda-263601** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **VL Gehun 2014 (VL 2014)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : VL Gehun 2014 (VL 2014)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : | E11 | TA14 | 20 | 144 |
b. Date of receipt : 29.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : VL Gehun 2014 (VL 2014)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : Raj 4132 and AKAW 4006
Source of parental material : Raj 4132 taken from YCSN 2006-07 and AKAW 4006 taken from YCSN 2005-06
Name of reference varieties : VL Gehun 907 and UP 2572
Notification details : Notification no. S.O. 1498(E) dtd. 01.04.2019

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Early
Plant length (Characteristic 14)	Long
Awn or scurs : Presence (Characteristic 18)	Awns present
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi-hard
B. Distinct characteristics of candidate variety: **VL Gehun 2014 (VL 2014)** has distinguishing characters as green foliage colour, early time of ear emergence (first spikelet visible on 50% of ears), medium ear length (excluding awns and scurs), straight lower glume Shaller shape (as for 25), ovate grain shape and large seed size (weight of 1000 grains).	

C. Distinct characteristics of reference varieties:

VL Gehun 907 has distinguishing characters as dark green foliage colour, medium time of ear emergence (first spikelet visible on 50% of ears), long ear length (excluding awns and scurs), sloping lower glume Shaller shape (as for 25), ovate grain shape and medium seed size (weight of 1000 grains).

UP 2572 has distinguishing characters as dark green foliage colour, medium time of ear emergence (first spikelet visible on 50% of ears), medium ear length (excluding awns and scurs), elevated lower glume Shaller shape (as for 25), oblong grain shape and large seed size (weight of 1000 grains).

D. Date of commercialization of the variety	-

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: Early/Medium/Late	Early
2	Production condition: Suitability Area in the Country	Uttarakhand plains
	: Time of Sowing	Timely sown
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility
3	Fertilizer requirement (N:P:K:) kg/acre	-
4	Tolerance to Disease & Pests	Resistance to yellow and brown rusts
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.50 cm Present Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	22.7 q/ac
8	Seed Yield q/ac (Average)	20-20.8 q/ac
9	Seed: Weight (1000 seed wt. in g)	40-45g
10	Any other relevant information specific to the variety/hybrid	Nil
Figure 4		***DUS Characteristics of VL Gehun 2014 (VL 2014)**

5. Application No. | E12 | TA15 | 20 | 145 | filed on 29.07.2020 by **Director, ICAR-VPKAS, Almora, Uttarakhanda-263601** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **VL Gehun 967 (VL 967)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : VL Gehun 967 (VL 967)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : India
Application details
a. Number : E12 | TA15 | 20 | 145
b. Date of receipt : 29.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : VL Gehun 967 (VL 967)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : SHARP/3/PRL/SARAJ/TSAI/EE#5/5/VEE/ LIRNIBOWI3IBCNI4IKAUZ#4
Source of parental material : CIMMYT
Name of reference varieties : VL Gehun 907 and UP 2572
Notification details : Notification no. S.O. 1498(E) dtd. 01.04.2019

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Medium
Plant length (Characteristic 14)	Long
Awn or scurs : Presence (Characteristic 18)	Awns present
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi-hard

B. Distinct characteristics of candidate variety:
VL Gehun 967 (VL 967) has distinguishing characters as green foliage colour, long ear length (excluding awns and scurs), straight lower glume shaller shape (as for 25), ovate grain shape and large seed size (weight of 1000 grains).

C. Distinct characteristics of reference varieties:
VL Gehun 907 has distinguishing characters as dark green foliage colour, long ear length (excluding awns and scurs), sloping lower glume shaller shape (as for 25), ovate grain shape and medium seed size (weight of 1000 grains).
UP 2572 has distinguishing characters as dark green foliage colour, medium ear length (excluding awns and scurs), elevated lower glume shaller shape (as for 25), oblong grain shape and large seed size (weight of 1000 grains).

D. Date of commercialization of the variety	18.10.2019

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the	Uttarakhand hills

	Country	
	: Time of Sowing	Timely sown
	: Irrigated/Rainfed	Rainfed organic
	: Low fertility/High fertility of Soil	Low fertility
4.	Tolerance to Disease & Pests	Resistance to yellow and brown rusts
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.69 cm Present Amber
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	9.20 q/ac
8.	Seed Yield q/ha (Average)	7.6-8 q/ac
9.	Seed: Weight (1000 seed weight in g)	45-48g
10.	Any other relevant information specific to the variety/hybrid	Nil
Figure 5		***DUS Characteristics of VL Gehun 967 (VL 967)**

6. Application No. | E16 | TA19 | 20 | 151 | filed on 27.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, New Delhi-110012** on behalf of **Director, ICAR-Indian Agricultural Research Institute, Regional Station, Shimla-171004** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **Central Wheat HS-562** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ----------NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Central Wheat HS-562
Applicant : Director ICAR-Indian Agricultural Research Institute
Address of the applicant : ICAR-IARI, Regional Station, Shimla-171004.
Nationality of applicant : India
Application details
a. Number : | E16 | TA19 | 20 | 151 |
b. Date of receipt : 27.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : Central Wheat HS-562
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : OASIS/SKAUZ//4*BCN/3/2*PASTOR

Source of parental material : A selection from 28th ESWYT (Selected at NBPGR, New Delhi from CIMMYT material during 2007-08)
Name of reference varieties : HS507, VL907 & VL804
Notification details : Notification no. S.O. 2238(E) dtd. 29.06.2016

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Medium
Plant length (Characteristic 14)	Medium
Awn or scurs : Presence (Characteristic 18)	Awns present
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi hard

B. Distinct characteristics of candidate variety:
Central Wheat HS-562 has distinguishing characters as green foliage colour, drooping plant flag leaf attitude and medium awn attitude.

C. Distinct characteristics of reference varieties:
HS507 has distinguishing characters as green foliage colour, semi erect plant flag leaf attitude and spreading awn attitude.
VL907 has distinguishing characters as dark green foliage colour, erect plant flag leaf attitude and appressed awn attitude.
VL804 has distinguishing characters as green foliage colour, semi erect plant flag leaf attitude and medium awn attitude.

D. Date of commercialization of the variety	15.11.2016

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Northern hill zone (Himachal Pradesh, Jammu & Kashmir, Uttarakhand, Assam, Mizoram, Meghalaya, Manipur, Arunachal Pradesh, Tripura and Nagaland)
	: Time of Sowing	Last week of October to 15th November
	: Irrigated/Rainfed	Irrigation and rainfed
	: Low fertility/High fertility of Soil	Low fertility
3.	Tolerance to Disease & Pests	Possess field resistance to yellow and brown rusts. Possess race specific adult plant resistance to yellow and brown rust.
4.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Consistently performed under rainfed situations.
5.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.07 cm Present Amber
6.	Zone Wise Yield Potential (Average) per acre	9.4 q/ac (rainfed condition)

	(q/Acre)	9.92 q/ac (irrigated condition)
7.	Seed Yield q/ha (Average)	14.4 q/ac (rainfed condition) 21.08 q/ac (irrigated condition)
8.	Seed: Weight (1000 seed weight in g)	43 g
9.	Any other relevant information specific to the variety/hybrid	-
Figure 6		***DUS Characteristics of Central Wheat HS-562**

7. Application No. | E17 | TA20 | 20 | 152 | filed on 27.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, New Delhi-110012** on behalf of **Director, ICAR-Indian Agricultural Research Institute, Regional Station, Shimla-171004** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **Pusa Kiran (HS-542)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ----------NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Pusa Kiran (HS-542)
Applicant : Director ICAR-Indian Agricultural Research Institute
Address of the applicant : ICAR-IARI, Regional Station, Shimla -171004
Nationality of applicant : India
Application details
a. Number : | E17 | TA20 | 20 | 152 |
b. Date of receipt : 27.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : Pusa Kiran (HS-542)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : MILAN/KAUZ//PRINIA/3/BABAX
Source of parental material : Selection from 23rd SAWSN AT IIWBR (DWR) karnal
Name of reference varieties : VL 829 & HPW251
Notification details : Notification no. S.O. 268(E) dtd. 28.01.2015

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Medium
Plant length (Characteristic 14)	Medium
Awn or scurs : Presence (Characteristic 18)	Awns present
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White

Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi hard
B. Distinct characteristics of candidate variety: **Pusa Kiran (HS-542)** has distinguishing characters as medium grain germ width and semi hard grain hardness.	
C. Distinct characteristics of reference varieties: **VL829** has distinguishing characters as narrow grain germ width and semi hard grain hardness. **HPW251** has distinguishing characters as narrow grain germ width and hard grain hardness.	
D. Date of commercialization of the variety	03.12.2013
E. Agronomic and commercial attributes	

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Northern hill zone (Himachal Pradesh, Jammu & Kashmir, Uttarakhand, Assam, Mizoram, Meghalaya, Manipur, Arunachal Pradesh, Tripura and Nagaland)
	: Time of Sowing	1st October - 10th October
	: Irrigated/Rainfed	Rainfed
	: Low fertility/High fertility of Soil	Low fertility
3.	Tolerance to Disease & Pests	Possess race specific adult plant resistance to yellow, brown and black rusts.
4.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Suitable under rainfed situations
5.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.06 cm Present Amber
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	7.88 q/ac (under rainfed condition)
7.	Seed Yield q/ha (Average)	13.16 q/ac (under rainfed condition)
8.	Seed: Weight (1000 seed weight in g)	44 g
9.	Any other relevant information specific to the variety/hybrid	-
Figure 7		***DUS Characteristics of Pusa Kiran (HS-542)**

8. Application No. | E1 | SB 1 | 20 | 103 | filed on 07.07.2020 by **Dr. R. Ravikesavan, Prof. & Head, Department of Milllets, Tamil Nadu Agricultural University, Coimbatore-641003** on behalf of **Dr. K. S. Subramanian, Director of Research, Tamil Nadu Agricultural University, Coimbatore-641003** for **Extant (Notified)** variety of crop **Sorghum (*Sorghum bicolor* (L.) Moench)** having denomination **CO 30** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : CO 30
Applicant : Dr. K.S. Subramanian, Director of Research
Address of the applicant : Tamil Nadu Agricultural University, Coimbatore-641003
Nationality of applicant : Indian
Application details
a. Number : E1 | SB 1 | 20 | 103
b. Date of receipt : 07.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum (*Sorghum bicolor* (L.) Moench)
Denomination : CO 30
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : APK 1 and TNS 291
Source of parental material : Own germplasm
Name of reference varieties : CO 26
Notification details : Notification no. S.O. 1708(E), dtd. 26.07.2012

Variety description:

A. Group characteristics	**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum	Grain & Forage
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)	Kharif, Rabi & Summer irrigated
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)	Early
Plant: Total height at maturity (Characteristic 14)	High
Panicle: Shape (Characteristic 21)	Symmetric
Grain: Colour after threshing (Characteristic 26)	White
B. Distinct characteristics of candidate variety: **CO 30** has distinguishing character as early plant time to 50% flowering (50% of the plants with 50% anthesis).	
C. Distinct characteristics of reference variety: **CO 26** has distinguishing character as medium plant time to 50% flowering (50% of the plants with 50% anthesis).	
D. Date of commercialization of the variety	16.06.2010
E. Agronomic and commercial attributes	

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Early
2.	Production condition: Suitability Area in the Country	Tamil Nadu
	: Time of Sowing	Kharif, Rabi & Summer
	: Irrigated/Rainfed	Both
	: Low fertility/High fertility of Soil	Both
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	

<table>
<tr><td>4.</td><td>Tolerance to Disease & Pests</td><td colspan="3">Moderately resistant to shootfly, stem borer, resistant to downy mildew and moderately resistant to grain mould</td></tr>
<tr><td>5.</td><td>Tolerance to adverse Temperature/Frost/Heat & Salinity</td><td colspan="3">Sorghum CO 30 is tall growing non-lodging variety suitable for rainfed during kharif and rabi season and also during summer under irrigation</td></tr>
<tr><td>6.</td><td>Grain Characters
Physical:
a) Kernal Size (cm)
b) Seed Lustre (Present/Absent)
c) Seed Colour</td><td colspan="3">

Medium
Present
White</td></tr>
<tr><td rowspan="4">7.</td><td rowspan="4">Zone Wise Yield Potential (Average) per acre (q/Acre)</td><td>Zone</td><td>Grain yield q/ac</td><td>Fodder yield q/ac</td></tr>
<tr><td>Zone I</td><td>25.88</td><td>62.38</td></tr>
<tr><td>Zone II</td><td>16.34</td><td>50.93</td></tr>
<tr><td>Zone III</td><td>16.45</td><td>78.91</td></tr>
<tr><td rowspan="3">8.</td><td rowspan="3">Seed Yield q/ha (Average)</td><td>Ecosystem</td><td>Grain yield q/ac</td><td>Fodder yield q/ac</td></tr>
<tr><td>Rainfed</td><td>11.30</td><td>28.29</td></tr>
<tr><td>Irrigated</td><td>13.60</td><td>37.60</td></tr>
<tr><td>9.</td><td>Seed: Weight (100 seed weight in g)</td><td colspan="3">2.83 g</td></tr>
<tr><td>10.</td><td>Any other relevant information specific to the variety/hybrid</td><td colspan="3">Released for all district of Tamil Nadu except Nilgris, recommended as a pure or mixed crop with other pulses or oilseeds under rainfed. It can also be grown as pure crop under irrigation. The grain of CO 30 is white in colour suitable for all food preparations with good cooking qualities. The grain is rich in protein (9.79%) and fiber (1.6%). The stover quality is also good with high protein and less lignin (5.73%) and high dry matter digestibility (49.30%).</td></tr>
<tr><td colspan="2">Figure 8</td><td colspan="3">*DUS Characteristics of CO 30</td></tr>
</table>

9. Application No. | E4 | SB 4 | 20 | 117 | filed on 12.06.2020 by **Dr. Bharat K. Davda, Research Scientist (Sorghum), Main Sorghum Research Centre, Athwa Farm, Ghod Dod Road, Navsari Agricultural University, Surat-395007** on behalf of **Navsari Agricultural University, Navsari, Gujarat-396450** for **Extant (Notified)** variety of crop **Sorghum (*Sorghum bicolor* (L.) Moench)** having denomination **SR-2917 (GNJ-1)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : SR-2917 (GNJ-1)
Applicant : Navsari Agricultural University

Address of the applicant : Navsari, Gujarat- 396450
Nationality of applicant : Indian
Application details
a. Number : E4 | SB 4 | 20 | 117
b. Date of receipt : 12.06.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum (*Sorghum bicolor* (L.) Moench)
Denomination : SR-2917 (GNJ-1)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : SRT-27-4A and SR 444
Source of parental material : Own germplasm
Name of reference varieties : CSV-20
Notification details : Notification no. S.O. 1379 (E), dtd. 27.03.2018

Variety description:

A. Group characteristics	**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum	Grain Sorghum
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)	Kharif
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)	Medium
Plant: Total height at maturity (Characteristic 14)	Tall
Panicle: Shape (Characteristic 21)	Border in upper part
Grain: Colour after threshing (Characteristic 26)	Yellow white

B. Distinct characteristics of candidate variety:
SR-2917 (GNJ-1) has distinguishing characters as white leaf mid rib colour (5th fully developed leaf), long stigma length, short anther length and yellow white glume colour.

C. Distinct characteristics of reference variety:
CSV-20 has distinguishing characters as yellow green leaf mid rib colour (5th fully developed leaf), medium stigma length, medium anther length and grayed orange glume colour.

D. Date of commercialization of the variety	26.05.2017

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Gujarat
	: Time of Sowing	Kharif season
	: Irrigated/Rainfed	Rainfed
	: Low fertility/High fertility of Soil	High fertility of soil
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	
4.	Tolerance to Disease & Pests	Not tested
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Not tested
6.	Grain Characters Physical: a) Kernal Size (cm)	 0.38 cm

	b) Seed Lustre (Present/Absent) c) Seed Colour	Absent Pearly white
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	13.95 q/ac (South Gujarat) 15.67 q/ac (North Gujarat) 7.77 q/ac (Middle Gujarat)
8.	Seed Yield q/ha (Average)	13.72 q/ac
9.	Seed: Weight (100 seed weight in g)	2.60g
10.	Any other relevant information specific to the variety/hybrid	-
Figure 9		***DUS Characteristics of SR-2917 (GNJ-1)**

10. Application No. | E1 | AH1 | 20 | 51 | filed on 22.05.2020 by **Dr. Niranjana Murthy, Professor & Scheme Head, AICRN on Potential Crops, University of Agricultural Sciences, GKVK Campus, Banglore-560065** for **Extant (Notified)** variety of crop **Grain amaranth (*Amaranthus hypocondricus*)** having denomination **KBGA-1** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KBGA-1
Applicant : Dr. Niranjana Murthy
Address of the applicant : Professor & Scheme Head, AICRN on Potential Crops, University of Agricultural Sciences, GKVK Campus, Banglore-560065
Nationality of applicant : Indian
Application details
a. Number : | E1 | AH1 | 20 | 51 |
b. Date of receipt : 22.05.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Grain amaranth (*Amaranthus hypocondricus*)
Denomination : KBGA-1
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : IC-41998
Source of parental material : NBPGR New Delhi
Name of reference variety : Suvarna
Notification details : Notification no. S.O. 2805 (E), dtd. 25.08.2017

Variety description:

A. Group characteristics	**Remarks (measured values)**
Seedling: anthocyanin coloration of hypocotyls (characteristic 1)	Present

Leaf blade: presence of blotch (characteristic 4)	Present
Inflorescence: colour (characteristic 7)	Purple
Inflorescence: shape (characteristic 13)	Erect
Seed: colour (characteristic 18)	Creamish

B. Distinct characteristics of candidate variety:

KBGA-1 has distinguishing characters as purple inflorescence colour, lax inflorescence compactness and short plant height.

C. Distinct characteristics of reference variety:

Suvarna has distinguishing characters as yellowish green inflorescence colour, dense inflorescence compactness and medium plant height.

D. Date of commercialization of the variety	23.02.2013

E. Agronomic and commercial attributes

S.No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Early
2.	Production condition: Suitability Area in the Country	Central dry zone (zone V) Southern dry zone (zone VI)
	: Time of Sowing	June -August
	: Irrigated/Rainfed	Both
	: Low fertility/High fertility of Soil	Both
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	
4.	Tolerance to Disease & Pests	Tolerant to leaf spot, phyllody & rust and tolerant to sucking & chewing pest
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Tolerant to temperature up to certain extant (40-45^{o} C)
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.11 cm Present Creamish
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	Zone V 4.5-5.5 q/ac Zone VI 4.8-5.6 q/ac
8.	Seed Yield q/ha (Average)	4.8-5.6 q/ac
9.	Seed: Weight (100 seed weight in g)	8.63g
10.	Any other relevant information specific to the variety/hybrid	The grain amaranth variety is grown primarily for grain purpose. At early stage (25-30 days), it can also be used for leaf purpose as leafy vegetable.
Figure 10		***DUS Characteristics of KBGA-1**

11. Application No. | E1 | HV1 | 20 | 27 | filed on 26.02.2020 by **Director, ICAR-Indian Institute of Wheat and Barley Research, Karnal (Haryana)-132001** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Barley (*Hordeum vulgare* L.)** having denomination **Karan Maltsona (DWRB 160)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Karan Maltsona (DWRB 160)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : E1 | HV1 | 20 | 27
b. Date of receipt : 26.02.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Barley (*Hordeum vulgare* L.)
Denomination : Karan Maltsona (DWRB 160)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : DWRB62/DWRB73[DWRB:62 BK9808/RD2552][DWRB73:PL710/DWR17]
Source of parental material : Own germplasm
Name of reference varieties : DWRB 101 and RD2849
Notification details : Notification no. S.O. 99 (E), dtd. 06.01.2020

Variety description:

A. Group characteristics	**Remarks (measured values)**
Stem: Basal pigmentation (Characteristic 2)	Absent
Auricle: Anthocyanin pigmentation (Characteristic 3)	Absent
Spike emergence (Characteristic 7)	Late
Spike type (row number) (Characteristic 8)	Two row
Plant height (Characteristic 20)	Short
Spike density (Characteristic 25)	Intermediate
Grain hullness (Characteristic 26)	Covered (hulled)
Grain: colour (Characteristic 27)	Yellow

B. Distinct characteristics of candidate variety:
Karan Maltsona (DWRB 160) has distinguishing characters as semi erect flag leaf attitude, late spike emergence, semi erect spike attitude and wide flag leaf breadth.

C. Distinct characteristics of reference varieties:
DWRB 101 and **RD2849** have distinguishing characters as erect flag leaf attitude, medium spike emergence, erect spike attitude and medium flag leaf breadth.

D. Date of commercialization of the variety	18.11.2019

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	IR-TS, NWPZ
	: Time of Sowing	10th November - 25th November

	: Irrigated/Rainfed	-
	: Low fertility/High fertility of Soil	-
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	
4.	Tolerance to Disease & Pests	Resistant to yellow rust
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 9.9 cm - Yellow
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	29.99 q/ac
8.	Seed Yield q/ha (Average)	21.49 q/ac
9.	Seed: Weight (100 seed weight in g)	6.4g
10.	Any other relevant information specific to the variety/hybrid	Karan Maltsona (DWRB 160) is two rowed malt barley
Figure 11		***DUS Characteristics of Karan Maltsona (DWRB 160)**

12. Application No. | E1 | AE3 | 19 | 175 | filed on 21.11.2019 by **Dr. V. S. Supe, National Agricultural Research Project, Ganeshkhind, Pune (Maharashtra)-411007** on behalf of **Mahatma Phule Krishi Vidyapeeth, District Ahmednagar (Maharashtra)-413722** for **Extant (Notified)** variety of crop **Okra (*Abelmoschus esculentus* (L.) Moench.)** having denomination **Phule Vimukta GKOK-S-4 (GKOS-12-5)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Phule Vimukta GKOK-S-4 (GKOS-12-5)
Applicant : Mahatma Phule Krishi Vidyapeeth
Address of the applicant : District Ahmednagar (Maharashtra)-413722
Nationality of applicant : Indian
Application details
a. Number : | E1 | AE3 | 19 | 175 |
b. Date of receipt : 21.11.2019
c. Date of acceptance : --
Crop (taxonomical lineage) : Okra (*Abelmoschus esculentus* (L.) Moench.)
Denomination : Phule Vimukta GKOK-S-4 (GKOS-12-5)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : Selection from land race

Source of parental material : Own germplasm
Name of reference varieties : Phule Utkarsha, Arka Anamika & Mahyco Hybrid No. 10
Notification details : Notification no. S.O. 4868 (E), dtd. 14.09.2018

Variety description:

A. Group characteristics	**Remarks (measured values)**
Stem: Colour (Characteristic 1)	Green & Red
Leaf blade: Depth of lobing (Characteristic 3)	Deep
Stem: Number of nodes at first flowering (upto and including the first flowering node) (Characteristic 4)	Few
Fruit: Colour (Characteristic 17)	Green
Fruit: Number of locules (Characteristic 24)	<6
Plant: Number of branches (Characteristic 25)	Few

B. Distinct characteristics of candidate variety:
Phule Vimukta GKOK-S-4 (GKOS-12-5) has distinguishing characters as medium stem intensity of green colour and strong fruit constriction of basal part.

C. Distinct characteristics of reference varieties:
Phule Utkarsha, Arka Anamika and **Mahyco Hybrid No. 10** have distinguishing characters as light stem intensity of green colour and weak fruit constriction of basal part.

D. Date of commercialization of the variety	14.07.2016

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Maharashtra
	: Time of Sowing	Kharif: June-July Summer: 1st fortnight of February
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility of Soil
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K: 48:24:24 kg/ac
4.	Tolerance to adverse Temperature/Frost/ & Heat- Sensitive/Tolerance	NA
5.	Tolerance to Water Stagnation: Sensitive/Tolerant	NA
6.	Resistance/Tolerance to Pest/s	Tolerant to jassids, white fly, fruit & shoot borer
7.	Staking & pruning Practices	NA
8.	Winter–Spring cropping seasons Type	Kharif & Summer
9.	Fruit Yield q/ ac	82.44 q/ac
10.	Fruit Yield/plant (kg/ac)(average)	82.4 q/ac
11.	Fruit quality and Fruit firmness	Excellent fruit quality with tender fruits
12.	Fruit Picking Schedule	Average 23 picking at alternate days
13.	Transport Potential (Days)	4-5 days
14.	Unique Selling Propositions and Optimal Shelf-Life (Days)	Dark green fruits, tender to without seediness and shelf life 4-5 days
15.	Any other relevant information specific to the variety/hybrid	51-52 days to produce, green colour of fruit with attractive shinning, 11.01 cm

		fruit length, minimum fruit tenderness, palmately lobed leaf type, no. of locules five and plant height 165-170 cm.
Figure 12		***DUS Characteristics of Phule Vimukta GKOK-S-4 (GKOS-12-5)**

13. Application No. | E2 | SB2 | 20 | 107 | filed on 07.07.2020 by **Dr. E. Murugan, Prof. & Head, Agricultural Research Station, Kovilpatti, TNAU, Tamil Nadu-628501** on behalf of **Director of Research, Tamil Nadu Agricultural University, Coimbatore-641003** for **Extant (Notified)** variety of crop **Sorghum (*Sorghum bicolor* (L.) Moench)** having denomination **K 12** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- ------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : K 12
Applicant : Director of Research, TNAU
Address of the applicant : Coimbatore-641003
Nationality of applicant : Indian
Application details
a. Number : | E2 | SB 2 | 20 | 107 |
b. Date of receipt : 07.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum (*Sorghum bicolor* (L.) Moench)
Denomination : K 12
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : SPV 772 and S 35-29
Source of parental material : SPV 772 from MPUA&T, Udaipur, Rajasthan and S 35-29 from MAU Parbhani, Mahatashtra
Name of reference varieties : K 8 and CSV 17
Notification details : Notification no. S.O. 1379(E), dtd. 27.03.2018

Variety description:

A. Group characteristics	**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum	Grain and forage
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)	Kharif, Rabi & Summer
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)	Early
Plant: Total height at maturity (Characteristic 14)	Tall

Panicle: Shape (Characteristic 21)		Symmetric		
Grain: Colour after threshing (Characteristic 26)		Greyed white		
B. Distinct characteristics of candidate variety: **K 12** has distinguishing characters as stigma anthocyanin colouration absent, medium neck of panicle visible length above sheath and medium glume length.				
C. Distinct characteristics of reference varieties: **K 8** has distinguishing characters as stigma anthocyanin colouration present, very short neck of panicle visible length above sheath and short glume length. **CSV 17** has distinguishing characters as present stigma anthocyanin colouration, short neck of panicle visible length above sheath and short glume length.				
D. Date of commercialization of the variety		27.03.2018		
E. Agronomic and commercial attributes				
S. No.	**Attributes**	**Details**		
1.	Days to maturity: Early/Medium/Late	Early		
2.	Production condition: Suitability Area in the Country	Tamil Nadu		
	: Time of Sowing	Kharif, Rabi & Summer		
	: Irrigated/Rainfed	Both		
	: Low fertility/High fertility of Soil	Both		
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K: 16:8:0 kg/ac FYM-50q/ac		
4.	Tolerance to Disease & Pests	Moderately resistant to shootfly and stem borer and resistant to downy mildew		
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Sorghum K 12 is tolerant to drought and non lodging variety & it is suitable for rainfed during kharif and rabi seasons and also suitable for summer irrigated tract of Tenkasi region		
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 Medium Present White		
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	-		
8.	Seed Yield q/ha (Average)	Ecosystem	Grain yield (q/ac)	Fodder yield (q/ac)
		Rainfed	12.49	47.6
		Irragated	23.20	67.6
9.	Seed: Weight (100 seed weight in g)	2.88 g		
10.	Any other relevant information specific to the variety/hybrid	Released for cultivation in rainfed vertisol tracts of southern districts of Tamil Nadu and also suitable for summer irrigated tract of Tenkasi region. Recommended as a pure or mixed crop with other pulse under rainfed condition. It can be also grown as pure crop under irrigation. The grain of K 12 is creamy white in colour suitable for food preparations with good cooking, popping and flaking characters. The grain is rich in protein (9.58%) and fiber		

		(1.17%). The stover quality is also good with high protein (8.71%) and high dry matter digestibility (53.3%).
Figure 13		***DUS Characteristics of K 12**

14. Application No. | E1 | EL6 | 20 | 108 | filed on 07.07.2020 by **Dr. N. Tamilselvan, Prof. & Head, Regional Research stattion, Paiyur, District-Krishinagiri 635112** on behalf of **Director of Research, Tamil Nadu Agricultural University, Coimbatore-641003** for **Extant (Notified)** variety of crop **Finger millet (*Eleusine coracana* (L.) Gaertn.)** having denomination **Paiyur (Ra) 2** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Paiyur (Ra) 2
Applicant : Director of Research, TNAU
Address of the applicant : Coimbatore-641003
Nationality of applicant : Indian
Application details
a. Number : | E2 | EL6 | 20 | 108 |
b. Date of receipt : 07.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Finger millet (*Eleusine coracana* (L.) Gaertn.)
Denomination : Paiyur (Ra) 2
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : VL 145 and Selection 10
Source of parental material : VL 145 from ICAR-VPKAS, Almora and Selection 10 local collection from Paiyur
Name of reference varieties : GPU 28 and CO 15
Notification details : Notification no. S.O. 2187 (E), dtd. 27.08.2009

Variety description:

A. Group characteristics	**Remarks (measured values)**
Kharif , Summer or Rabi Adaptation	Kharif
Plant: Pigmentation at leaf juncture (Characteristic 2)	-
Days to 50% flowering (Characteristic 4)	Late
Ear: Shape (Characteristic 10)	Compact
Finger: Branching (Characteristic 11)	Absent
Seed: Colour (Characteristic 22)	Light brown
B. Distinct characteristics of candidate variety: **Paiyur (Ra) 2** has distinguishing characters as days to 50% flowering late, short to medium ear head length (cm) and medium 1000 grain weight.	
C. Distinct characteristics of reference varieties:	

GPU 28 has distinguishing characters as days to 50% flowering medium, short to medium ear head length (cm) and medium 1000 grain weight. **CO 15** has distinguishing characters as days to 50% flowering late, long ear head length (cm) and high 1000 grain weight.		
D. Date of commercialization of the variety		20.04.2009
E. Agronomic and commercial attributes		
S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Tamil Nadu
	: Time of Sowing	June-July, September-October and April-May
	: Irrigated/Rainfed	Both
	: Low fertility/High fertility of Soil	Low fertility of soil
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K: 16:8:8 kg/ac FYM 3q/ac
4.	Tolerance to Disease & Pests	Moderately tolerant to blast
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Moderately tolerant to high temperature & Salinity
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.2 cm Absent Light brown
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	10.14 q/ac
8.	Seed Yield q/ha (Average)	10.62 q/ac
9.	Seed: Weight (100 seed weight in g)	0.29g
10.	Any other relevant information specific to the variety/hybrid	-
Figure 14		***DUS Characteristics of Paiyur (Ra) 2**

15. Application No. | E6 | SB6 | 20 | 173 | filed on 29.07.2020 by **Dr. C. Babu, Prof. & Head, Dept. of Forage Crops, Centre for Plant Breeding & Genetics, Tamil Nadu Agricultural University, Coimbatore-641003** on behalf of **Director of Research, Tamil Nadu Agricultural University, Coimbatore-641003** for **Extant (Notified)** variety of crop **Sorghum (*Sorghum bicolor* (L.) Moench)** having denomination **Fodder Sorghum CO 31 (TNFS 0952)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ----------NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Fodder Sorghum CO 31 (TNFS 0952)
Applicant : Director of Research, TNAU
Address of the applicant : Coimbatore-641003
Nationality of applicant : Indian

Application details

a. Number : E6 | SB6 | 20 | 173

b. Date of receipt : 27.07.2020

c. Date of acceptance : --

Crop (taxonomical lineage) : Sorghum (*Sorghum bicolor* (L.) Moench)

Denomination : Fodder Sorghum CO 31 (TNFS 0952)

Type of variety : Extant (Notified)

Classification of variety : Typical

Previously proposed Denomination : Not applicable

Name of parental material : CO (FS) 29

Source of parental material : CO (FS) 29 is an inter specific hybrid derivative from a cross between *Sorghum bicolor* and *S. sudanense*

Name of reference varieties : CO (FS) 29

Notification details : Notification no. S.O. 1379 (E), dtd. 27.03.2018

Variety description:

A. Group characteristics	**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum	Forage Sorghum
Season of adaptation: Kharif (Rainy season)/Rabi (Post rainy season)	Kharif
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)	Medium
Plant: Total height at maturity (Characteristic 14)	Tall
Panicle: Shape (Characteristic 21)	Pyramidal
Grain: Colour after threshing (Characteristic 26)	Greyed red

B. Distinct characteristics of candidate variety:
Fodder Sorghum CO 31 (TNFS 0952) has distinguishing character as greyed red grain colour after threshing.

C. Distinct characteristics of reference variety:
CO (FS) 29 has distinguishing character as black grain colour after threshing.

D. Date of commercialization of the variety	11.01.2014

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Late
2.	Production condition: Suitability Area in the Country	-
	: Time of Sowing	Kharif
	: Irrigated/Rainfed	Under irrigated conditions in garden land
	: Low fertility/High fertility of Soil	All type of soil with good drainage
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K: 36:16:16 kg/ac FYM 100q/ac
4.	Tolerance to Disease & Pests	Generally free from pest and disease
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent)	 - Present

	c) Seed Colour	Greyed red
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	Green fodder yield: 768 q/ac
8.	Seed Yield q/ha (Average)	4 q/ac
9.	Seed: Weight (1000 seed wt. in g)	52g
10.	Any other relevant information specific to the variety/hybrid	-
		***DUS Characteristics of Fodder Sorghum CO 31 (TNFS 0952)**

16. Application No. | E6 | TA9 | 20 | 137 | filed on 22.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, Pusa campus, New Delhi-110012** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **Pusa Wheat 1621 (HI 1621)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA ----------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Pusa Wheat 1621 (HI 1621)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : | E6 | TA9 | 20 | 137 |
b. Date of receipt : 22.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : Pusa Wheat 1621 (HI 1621)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : W15.92/4/PASTOR//HXL 7573/2*BAU/3/WBLL1
Source of parental material : Selection from international nursery 2013-14 (3rd stress adaptive traits yield nursery-9404)
Name of reference varieties : WR 544 & DBW 14
Notification details : Notification no. S.O. 99(E) dtd. 06.01.2020

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Early
Plant length (Characteristic 14)	Medium
Awn or scurs : Presence (Characteristic 18)	-
Outer glume : Pubescence (Characteristic 23)	Absent

Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi hard

B. Distinct characteristics of candidate variety:

PUSA Wheat 1621 (HI 1621) has distinguishing characters as erect plant growth habit, semi erect flag leaf attitude, strong flag leaf waxiness of sheath and medium flag leaf Waxiness of blade.

C. Distinct characteristics of reference varieties:

WR 544 and **DBW 14** have distinguishing characters as semi erect plant growth habit, drooping flag leaf attitude, medium flag leaf waxiness of sheath and flag leaf waxiness of blade absent.

D. Date of commercialization of the variety	19.11.2019

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: Early/Medium/Late	Early
2	Production condition: Suitability Area in the Country	NWPZ & NEPZ
	: Time of Sowing	1st January - 15th January
	: Irrigated/Rainfed	-
	: Low fertility/High fertility of Soil	Flat fertile soil
3	Fertilizer requirement (N:P:K:) kg/acre	N:P:K: 48:24:16 kg/ac
4	Tolerance to Disease & Pests	Resistant to stripe & leaf rust under artificial inoculations and good level of resistant to leaf blight, karnal bunt, head scab, loose smut and flag smut.
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 - - Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	NWPZ- 18.44 q/ac NEPZ- 16.28 q/ac
8	Seed Yield q/ha (Average)	NWPZ- 14.8 q/ac NEPZ- 11.32 q/ac
9	Seed: Weight (1000 seed weight in g)	38-40 g
10	Any other relevant information specific to the variety/hybrid	-
Figure 15		***DUS Characteristics of PUSA Wheat 1621 (HI 1621)**

17. Application No. | E7 | TA10 | 20 | 138 | filed on 22.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, Pusa campus, New Delhi- 110012** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **Pusa Wheat 1620 (HI**

1620) the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety	: Pusa Wheat 1620 (HI 1620)
Applicant	: Indian Council of Agricultural Research
Address of the applicant	: Krishi Bhawan, New Delhi-110001
Nationality of applicant	: Indian
Application details	
a. Number	: E7 | TA10 | 20 | 138
b. Date of receipt	: 22.07.2020
c. Date of acceptance	: --
Crop (taxonomical lineage)	: Bread wheat (*Triticum aestivum* L.)
Denomination	: Pusa Wheat 1620 (HI 1620)
Type of variety	: Extant (Notified)
Classification of variety	: Typical
Previously proposed Denomination	: Not applicable
Name of parental material	: NAC/TH.AC//3*PVN/3/MIRLO/BUC/4/2 *PASTOR/5/KACHU/6/KACHU
Source of parental material	: Selection from international nursery 2013-14 (21st Semi arid wheat yield trial-349)
Name of reference varieties	: WH 1142 & HD 3043
Notification details	: Notification no. S.O. 1498(E) dtd. 01.04.2019

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Medium
Plant length (Characteristic 14)	Medium
Awn or scurs : Presence (Characteristic 18)	-
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi hard
B. Distinct characteristics of candidate variety: **PUSA Wheat 1620 (HI 1620)** has distinguishing characters as medium flag leaf hairs on auricles, semi erect flag leaf attitude, strong ear waxiness and medium flag leaf width.	
C. Distinct characteristics of reference varieties: **WH 1142** has distinguishing characters as flag leaf hairs on auricles absent, drooping flag leaf attitude, strong ear waxiness and broad flag leaf width. **HD 3043** has distinguishing characters as medium flag leaf hairs on auricles, semi erect flag leaf attitude, medium ear waxiness and medium flag leaf width.	
D. Date of commercialization of the variety	29.10.2019
E. Agronomic and commercial attributes	

S. No.	**Attributes**	**Details**

1	Days to maturity: Early/Medium/Late	Medium late
2	Production condition: Suitability Area in the Country	Restricted irrigation condition of NWPZ
	: Time of Sowing	25th October - 10th November
	: Irrigated/Rainfed	-
	: Low fertility/High fertility of Soil	Flat fertile soil
3	Fertilizer requirement (N:P:K:) kg/acre	N:P:K: 32:16:8 kg/ac
4	Tolerance to Disease & Pests	Resistant to stripe & leaf rust, leaf blight, karnal bunt, head scab and flag smut.
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 - - Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	19.64 q/ac
8	Seed Yield q/ha (Average)	24.72 q/ac
9	Seed: Weight (1000 seed weight in g)	40-50g
10	Any other relevant information specific to the variety/hybrid	-
Figure 16		***DUS Characteristics of PUSA Wheat 1620 (HI 1620)**

18. Application No. | E3 | TD3 | 20 | 140 | filed on 22.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, Pusa campus, New Delhi- 110012** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Durum wheat (*Triticum durum* Desf.)** having denomination **Pusa Wheat 8802 (HI 8802)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- ------ NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Pusa Wheat 8802 (HI 8802)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : | E3 | TD3 | 20 | 140 |
b. Date of receipt : 22.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Durum wheat (*Triticum durum* Desf.)
Denomination : Pusa Wheat 8802 (HI 8802)
Type of variety : Extant (Notified)

Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : HI 8627 & HI 8653
Source of parental material : Parental material are indigenous and developed at IARI
Name of reference varieties : AKDW 2997-16 & UAS 446
Notification details : Notification no. S.O. 99(E) dtd. 06.01.2020

Variety description:

A. Group characteristics	**Remarks (measured values)**
Coleoptile : Anthocyanin colouration (Characteristic 1)	Absent
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Ear: Time of emergence (first spikelet visible on 50% of ears) (Characteristic 7)	Early
Plant: Height (Characteristic 15)	Medium
Awn colour (Characteristic 21)	Black
Outer glume : Pubescence (Characteristic 23)	Absent
Ear colour (Characteristic 24)	Dull White
Grain colouration with phenol (Characteristic 32)	None
Seasonal Type (Characteristic 39)	Spring

B. Distinct characteristics of candidate variety:

Pusa Wheat 8802 (HI 8802) has distinguishing characters as strong peduncle waxiness, short ear length (excluding awns and scurs), very long awns length, eliptical grain shape and wide grain germ width.

C. Distinct characteristics of reference varieties:

AKDW 2997-16 has distinguishing characters as weak peduncle waxiness, short ear length (excluding awns and scurs), long awns length, ovate grain shape and medium grain germ width.

UAS 446 has distinguishing characters as medium peduncle waxiness, medium ear length (excluding awns and scurs), medium awns length, oblong grain shape and nerrow grain germ width.

D. Date of commercialization of the variety	19.11.2019

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: Early/Medium/Late	Medium and Early
2	Production condition: Suitability Area in the Country	-
	: Time of Sowing	25th October -10th November
	: Irrigated/Rainfed	-
	: Low fertility/High fertility of Soil	Flat fertile soil
3	Fertilizer requirement (N:P:K:) kg/acre	N:P:K: 32:16:8 kg/ac
4	Tolerance to Disease & Pests	Resistant to stripe & leaf rust, karnal bunt, loose smut, flag smut and foot rot
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6	Grain Characters Physical: a) Kernal Size (cm)	 -

	b) Seed Lustre (Present/Absent) c) Seed Colour	- Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	14.4 q/ac
8	Seed Yield q/ha (Average)	11.64 q/ac
9	Seed: Weight (1000 seed weight in g)	40-45g
10	Any other relevant information specific to the variety/hybrid	-
Figure 17		***DUS Characteristics of Pusa Wheat 8802 (HI 8802)**

19. Application No. | E8 | TA11 | 20 | 141 | filed on 22.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, Pusa campus, New Delhi- 110012** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Bread wheat (*Triticum aestivum* L.)** having denomination **Pusa Wheat 1628 (HI 1628)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- ------ NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Pusa Wheat 1628 (HI 1628)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : | E8 | TA11 | 20 | 141 |
b. Date of receipt : 22.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread wheat (*Triticum aestivum* L.)
Denomination : Pusa Wheat 1628 (HI 1628)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : FRET*2/4/SNI/TRAP#1/3/KAUZ*2 /TRAP//KAUZ/5/PFAU/WEAVER//BRAMBLING
Source of parental material : Selection from international nursery 2012-13 (44th international bread wheat screening nursery-1014)
Name of reference varieties : WH 1142 and HD 3043
Notification details : Notification no. S.O. 99(E) dtd. 06.01.2020

Variety description:

A. Group characteristics	**Remarks (measured values)**
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent

Time of ear emergence (Characteristic 7)	Very late
Plant length (Characteristic 14)	Medium
Awn or scurs : Presence (Characteristic 18)	-
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Semi hard

B. Distinct characteristics of candidate variety:

Pusa Wheat 1628 (HI 1628) has distinguishing characters as medium flag leaf hairs on auricles, weak ear waxiness and medium flag leaf width.

C. Distinct characteristics of reference varieties:

WH 1142 has distinguishing characters as flag leaf hairs on auricles absent, strong ear waxiness and broad flag leaf width.

HD 3043 has distinguishing characters as medium flag leaf hairs on auricles, medium ear waxiness and medium flag leaf width.

D. Date of commercialization of the variety	19.11.2019

E. Agronomic and commercial attributes

S. No.	Attributes	Details
1	Days to maturity: Early/Medium/Late	Medium and Late
2	Production condition: Suitability Area in the Country	Restricted irrigation condition of NWPZ
	: Time of Sowing	25th October - 10th November
	: Irrigated/Rainfed	Restricted Irrigation
	: Low fertility/High fertility of Soil	Flat fertile soil
3	Fertilizer requirement (N:P:K:) kg/acre	N:P:K: 32:16:8 kg/ac
4	Tolerance to Disease & Pests	Resistant to leaf blight, karnal bunt, and flag smut.
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 - Present Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	26.04 q/ac
8	Seed Yield q/ha (Average)	20.16 q/ac
9	Seed: Weight (1000 seed weight in g)	41.97g
10	Any other relevant information specific to the variety/hybrid	-
Figure 18		***DUS Characteristics of Pusa Wheat 1628 (HI 1628)**

20. Application No. | E1 | CC1 | 20 | 110 | filed on 07.07.2020 by **Professor and Head, Department of Pulses, Tamil Nadu Agricultural University, Coimbatore-641003** on behalf of **Director of Research, Tamil Nadu Agricultural University, Coimbatore-641003** for **Extant (Notified)** variety of crop **Pigeon pea (*Cajanus cajan* (L.) Millsp.)** having denomination

Red gram (Pigeon pea) CO 9 (CRG 2012-25) the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number --------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Red gram (Pigeon pea) CO 9 (CRG 2012-25)
Applicant : Director of Research, TNAU
Address of the applicant : Coimbatore-641003
Nationality of applicant : Indian
Application details
a. Number : E1 | CC1 | 20 | 110
b. Date of receipt : 07.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Pigeon pea (*Cajanus cajan* (L.) Millsp.)
Denomination : Red gram (Pigeon pea) CO 9 (CRG 2012-25)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : CO 6 and IC 525427
Source of parental material : CO 6 from ICRISAT and IC 525427 from Own germplasm
Name of reference varieties : CO 6 and CO 8
Notification details : Notification no. S.O. 3220 (E), dtd. 05.09.2019

Variety description:

A. Group characteristics	**Remarks (measured values)**
Time of flowering (Characteristic 3)	Medium
Plant: Growth habit (Characteristic 4)	Indeterminate
Stem: Colour (Characteristic 5)	Green
Pod: Waxiness (Characteristic 12)	Absent
Seed: Colour (Characteristic 18)	Brown

B. Distinct characteristics of candidate variety:
Red gram (Pigeon pea) CO 9 (CRG 2012-25) has distinguishing characters as brown seed colour and large seed size.

C. Distinct characteristics of reference varieties:
CO 6 has distinguishing characters as brown seed colour and medium seed size.
CO 8 has distinguishing characters as cream seed colour and large seed size.

D. Date of commercialization of the variety	05.09.2019

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: Early/Medium/Late	Medium
2	Production condition: Suitability Area in the Country	Tamil Nadu

	: Time of Sowing	July-August
	: Irrigated/Rainfed	Irrigated and Rainfed
	: Low fertility/High fertility of Soil	Low fertility and high fertility of Soil
3	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	Rainfed: NPK-5:10:5 kg/ac Irrigated: NPK-10:20:10 kg/ac
4	Tolerance to adverse Temperature/Frost/ &Heat- Sensitive/Tolerance	Drought tolerant
5	Resistance/Tolerance to Pest/s	Moderate tolerant to wilt, SMD, maruca and pod fly
6	The best growing season to attain the potential yield (zonewise)	July-August
7	Number of Pods per Plant (average)	250-550 pods/pl
8	Zone Wise Yield Potential (Average) per acre (q/Acre)	South zone-6.8 q/ac
9	Seed yield q/acre (average)	6.8 q/ac
10	Any other relevant information specific to the variety/hybrid (Low/Medium/High Water Use Efficiency Type)	Long duration
Figure 19		*DUS Characteristic of Red gram (Pigeon pea) CO 9 (CRG 2012-25)

21. Application No. | E3 | SB3 | 20 | 116 | filed on 12.06.2020 by **Dr. Bharat K. Davda, Research Scientist (Sorghum), Main Sorghum Research Station, Navsari Agricultural University, Athwa Farm, Ghod Dod Road, Surat, Gujarat (India)-395007** on behalf of **Navsari Agricultural University, Navsari, Gujarat (India)-395450** for **Extant (Notified)** variety of crop **Sorghum (*Sorghum bicolor* (L.) Moench)** having denomination **Gujarat Fodder Sorghum-6 (GFS-6) (SRF 347)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ----------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Gujarat Fodder Sorghum-6 (GFS-6) (SRF 347)
Applicant : Navsari Agricultural University
Address of the applicant : Navsari, Gujarat (India)-395450
Nationality of applicant : Indian
Application details
a. Number : | E3 | SB3 | 20 | 116 |
b. Date of receipt : 12.06.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum (*Sorghum bicolor* (L.) Moench)
Denomination : Gujarat Fodder Sorghum-6 (GFS-6) (SRF 347)
Type of variety : Extant (Notified)

Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : GJ-41 x IC-2312
Source of parental material : GJ-41 from own germplasm and IC-2312 from ICRISAT
Name of reference varieties : CSV-21 F
Notification details : Notification no. S.O. 3220(E) dtd. 05.09.2019

Variety description:

A. Group characteristics	**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum	Fodder sorghum
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)	Kharif season
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)	Late
Plant: Total height at maturity (Characteristic 14)	Tall
Panicle: Shape (Characteristic 21)	Symmetric
Grain: Colour after threshing (Characteristic 26)	Yellow white

B. Distinct characteristics of candidate variety:
Gujarat Fodder Sorghum-6 (GFS-6) (SRF 347) has distinguishing characters as white leaf mid rib colour (5th fully developed leaf), lemma arista formation absent and greyed yellow glume colour.

C. Distinct characteristics of reference variety:
CSV-21F has distinguishing characters as yellow green leaf mid rib colour (5th fully developed leaf), lemma arista formation present and greyed purple glume colour.

D. Date of commercialization of the variety	15.02.2020

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Late
2.	Production condition: Suitability Area in the Country	Gujarat
	: Time of Sowing	15th June - 15th July
	: Irrigated/Rainfed	Rainfed
	: Low fertility/High fertility of Soil	-
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K: 48:24:0 kg/ac FYM 40q/ac
4.	Tolerance to Disease & Pests	Moderate resistant to leaf disease (leaf blight and anthracnose)
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	-
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 - Absent Yellow white
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	Green fodder yield 128-140 q/ac Dry fodder yield 40-44 q/ac
8.	Seed Yield q/ha (Average)	-
9.	Seed: Weight (1000 seed weight in g)	22.5g

10.	Any other relevant information specific to the variety/hybrid	It is suitable for green as well as dry fodder
Figure 20		***DUS Characteristics of Gujarat Fodder Sorghum-6 (GFS-6) (SRF 347)**

22. Application No. | E4 | TD4 | 20 | 174 | filed on 11.08.2020 by **Dr. P.L. Patil, Director of Research, University of Agricultural Sciences, Dharwad, 580007** for **Extant (Notified)** variety of crop **Durum wheat (*Triticum durum* Desf.)** having denomination **UAS-466** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : UAS-466
Applicant : Dr. P.L. Patil, Director of Research,
Address of the applicant : University of Agricultural Sciences, Dharwad-58000
Nationality of applicant : Indian
Application details
a. Number : E4 | TD4 | 20 | 174
b. Date of receipt : 11.08.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Durum wheat (*Triticum durum* Desf.)
Denomination : UAS-466
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : Amruth/Bijaga yellow & AKDW 2997-16
Source of parental material : Amruth/Bijaga yellow from own germplasm and AKDW 2997-16 from Agricultural college MPKV Rahuri
Name of reference varieties : HI 8627 & AKDW 2997-16
Notification details : Notification no. S.O.99(E), dtd. 06.01.2020

Variety description:

A. Group characteristics	**Remarks (measured values)**
Coleoptile : Anthocyanin colouration (Characteristic 1)	Absent
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Ear: Time of emergence (first spikelet visible on 50% of ears) (Characteristic 7)	Very early
Plant: Height (Characteristic 15)	Medium
Awn colour (Characteristic 21)	Dull white
Outer glume : Pubescence (Characteristic 23)	Absent
Ear colour (Characteristic 24)	Dull white
Grain colouration with phenol (Characteristic 32)	None

Seasonal Type (Characteristic 39)		Spring
B. Distinct characteristics of candidate variety: **UAS-466** has distinguishing characters as intermediate plant growth habit, green foliage colour, erect plant flag leaf attitude, medium flag leaf width and parallel sides ear shape in profile.		
C. Distinct characteristics of reference varieties: **HI 8627** has distinguishing characters as semi erect plant growth habit, dark green foliage colour, semi erect plant flag leaf attitude, narrow flag leaf width and tapering ear shape in profile. **AKDW 2997-16** has distinguishing characters as erect plant growth habit, dark green foliage colour, erect plant flag leaf attitude, medium flag leaf width and parallel sides ear shape in profile.		
D. Date of commercialization of the variety		06.01.2020
E. Agronomic and commercial attributes		
S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	CZ
	: Time of Sowing	1st November-10th November
	: Irrigated/Rainfed	Restricted Irrigation
	: Low fertility/High fertility of Soil	High fertility of soil
3.	Resistance/Tolerance to Pest/s	Resistant to leaf and stem rust
4.	Tolerance to adverse Temperature/Frost/ & Heat- Sensitive/Tolerance	NA
5.	Grain Characters Physical: a) Kernal size b) Seed Lusture (Present/Absent) c) seed colour	 0.8 x 0.4 cm Present Amber
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	24.8 q/ac
7.	Seed yield q/acre (average)	15.36 q/ac
8.	Seed weight (1000 seed weight in g)	43.2g
9.	Any other relevant information specific to the variety/hybrid	-
Figure 21		***DUS Characteristics of UAS-466**

23. Application No. | E2 | TD2 | 17 | 152 | filed on 06.03.2017 by **Director, ICAR-Indian Institute of Wheat and Barley Research, Karnal (Haryana)-132001** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop **Durum wheat (*Triticum durum* Desf.)** having denomination **MPO (JW) 1255** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA----------on----------NA--------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : MPO (JW) 1255
Applicant : Indian Council of Agricultural Research

Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : E2 | TD2 | 17 | 152
b. Date of receipt : 06.03.2017
c. Date of acceptance : --
Crop (taxonomical lineage) : Durum wheat (*Triticum durum* Desf.)
Denomination : MPO (JW) 1255
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : ALTAR 84/STINT//SILVER 45/3
Source of parental material : Selection from international nursery
Name of reference varieties : HD 4672 and HI 8627
Notification details : Notification no. S.O. 2238(E), dtd. 29.06.2016

Variety description:

A. Group characteristics	**Remarks (measured values)**
Coleoptile : Anthocyanin colouration (Characteristic 1)	Absent
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Ear: Time of emergence (first spikelet visible on 50% of ears) (Characteristic 7)	Medium
Plant: Height (Characteristic 15)	Long
Awn colour (Characteristic 21)	Dull white
Outer glume : Pubescence (Characteristic 23)	Absent
Ear colour (Characteristic 24)	Dull white
Grain colouration with phenol (Characteristic 32)	-
Seasonal Type (Characteristic 39)	Spring

B. Distinct characteristics of candidate variety:
MPO (JW) 1255 has distinguishing characters as erect plant growth habit and dull white awn colour.

C. Distinct characteristics of reference varieties:
HD 4672 has distinguishing characters as semi erect plant growth habit and black awn colour.
HI 8627 has distinguishing characters as semi erect plant growth habit and dull white awn colour.

D. Date of commercialization of the variety	29.06.2016

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Madhya Pradesh
	: Time of Sowing	-
	: Irrigated/Rainfed	Rainfed and restricted irrigation
	: Low fertility/High fertility of Soil	Low to medium fertility
3.	Resistance/Tolerance to Pest/s	Resistant to black and brown rust
4.	Tolerance to adverse Temperature/Frost/ &Heat- Sensitive/Tolerance	-

5.	Grain Characters Physical: a) Kernal size (cm) b) Seed Lusture (Present/Absent) c) seed colour	 - Present Amber
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	13.96 q/ac (Under rainfed condition) 18.2 q/ac (Under restricted irrigated condition)
7.	Seed yield q/acre (average)	8.52 q/ac (Under rainfed condition) 13.52 q/ac (Under restricted irrigated condition)
8.	Seed weight (1000 seed weight in g)	53g
9.	Any other relevant information specific to the variety/hybrid	-
Figure 22		***DUS Characteristics of MPO (JW) 1255**

24. Application No. | E14 | TA17 | 20 | 149 | filed on 27.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, New Delhi-110012** for **Extant (Notified)** variety of crop **Bread Wheat (*Triticum aestivum* L.)** having denomination **PUSA WHEAT 3237 (HD 3237)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ----------NA--------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : PUSA WHEAT 3237 (HD 3237)
Applicant : Director, ICAR-Indian Agricultural Research Institute
Address of the applicant : Pusa Campus, New Delhi-110012
Nationality of applicant : India
Application details
a. Number : | E14 | TA17 | 20 | 149 |
b. Date of receipt : 27.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread Wheat (*Triticum aestivum* L.)
Denomination : PUSA WHEAT 3237 (HD 3237)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : HD 3016 and HD 2967
Source of parental material : Own germplasm
Name of reference varieties : HD 3118 and HD 3086
Notification details : Notification no. S.O. 1498(E) dtd. 01.04.2019

Variety description:

A. Group characteristics	**Remarks (measured values)**

Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Late
Plant length (Characteristic 14)	Long
Awn or scurs : Presence (Characteristic 18)	Awns present
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Hard

B. Distinct characteristics of candidate variety:

PUSA WHEAT 3237 (HD 3237) has distinguishing characters as medium ear density and long ear length (excluding awns and scurs).

C. Distinct characteristics of reference varieties:

HD 3118 and **HD 3086** have distinguishing characters as dense ear density and short ear length (excluding awns and scurs).

D. Date of commercialization of the variety	20.10.2018

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Northern western plains zone (NWPZ): Punjab, Harayana, Delhi, Rajasthan (except Kota & Udaipur divisions), western Uttar Pradesh (except Jhansi division), part of J&K (Kathua district), parts of HP (Unadistrict & Paonta valley) and Uttrakhand (Tarai region)
	: Time of Sowing	25th October - 5th November
	: Irrigated/Rainfed	Restricted irrigation
	: Low fertility/High fertility of Soil	High fertility
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K 36:24:16 kg/ac
4.	Tolerance to Disease & Pests	The proposed variety HD 3237 has shown a very high level of resistance against stripe and leaf rust. It has also shown moderate resistance against leaf blight, powdery mildew, karnal bunt and flag smut.
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Tolerant to heat and drought
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 Length & width: 0.7 cm & 0.31 cm Present Amber
7.	Zone Wise Yield Potential (Average) per acre (q/Acre)	19.35 q/ac
8.	Seed Yield q/ha (Average)	19.35 q/ac
9.	Seed: Weight (1000 seed weight in g)	42g
10.	Any other relevant information specific to the variety/hybrid	-
Figure 23		***DUS Characteristics of Pusa Wheat 3237 (HD 3237)**

25. Application No. | E7 | VM8 | 20 | 170 | filed on 29.07.2020 by **Dr. M. Arumugam Pillai, Prof. and Head, Department of Plant Breeding and Genetics, Agricultural College and Research Institute, Killikulam - 628252** on behalf of **Director of Research, Tamil Nadu Agricultural University, Coimbatore-641003** for **Extant (Notified)** variety of crop **Blackgram (*Vigna mungo* (L.) Hepper)** having denomination **Blackgram KKM 1** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Blackgram KKM 1
Applicant : Director of Research, TNAU
Address of the applicant : Coimbatore-641003
Nationality of applicant : Indian
Application details
a. Number : E7 | VM8 | 20 | 170
b. Date of receipt : 29.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Blackgram (*Vigna mungo* (L.) Hepper)
Denomination : Blackgram KKM 1
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : COBG 643 and VBN 3
Source of parental material : Own germplasm
Name of reference varieties : ADT 3 & Blackgram ADT 6
Notification details : Notification no. S.O. 1379 (E), dtd. 27.03.2018

Variety description:

A. Group characteristics	**Remarks (measured values)**
Time of flowering (Characteristic 2)	Early
Plant: Habit (Characteristic 4)	Determinate
Pod: Pubescence (Characteristic 14)	Present
Seed: Lusture (Characteristic 19)	Dull
Seed: Size (weight of 100 seeds) (Characteristic 21)	Medium
B. Distinct characteristics of candidate variety: **Blackgram KKM 1** has distinguishing characters as plant growth habit semi erect and medium plant height.	
C. Distinct characteristics of reference varieties: **ADT 3** has distinguishing characters as plant growth habit erect and medium plant height. **Blackgram ADT 6** has distinguishing characters as plant growth habit semi erect and short plant height.	
D. Date of commercialization of the variety	27.03.2018

E. Agronomic and commercial attributes		
S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	65-70 days
2.	Production condition: Suitability Area in the Country	-
	: Time of Sowing	Kharif & Summer
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	Moderate
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	Urea: Super phosphate: MOP-27:156:21 kg/ac
4.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Not reported
5.	Tolerance to Disease & Pests	Moderately tolerance to YMV
6.	The best growing season to attain the potential yield (zonewise)	Kharif & Summer
7.	Number of Pods per Plant (average)	45-50 pod/pl
8.	Zone Wise Yield Potential (Average) per acre (q/Acre)	2.43 q/ac
9.	Seed yield q/acre (average)	2.43 q/ac
10.	Any other relevant information specific to the variety/hybrid (Low/Medium/High Water Use Efficiency Type)	-
Figure 24		***DUS Characteristics of Black gram KKM 1**

26. Application No. | E2 | TD2 | 20 | 139 | filed on 22.07.2020 by **Director, ICAR-Indian Agricultural Research Institute, Pusa campus, New Delhi- 110012** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of crop Durum wheat (*Triticum durum* Desf.) having denomination **PUSA WHEAT 8805 (HI 8805)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA ----------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : PUSA WHEAT 8805 (HI 8805)
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : | E2 | TD2 | 20 | 139 |
b. Date of receipt : 22.07.2020
c. Date of acceptance : --
Crop (taxonomical lineage) : Durum wheat (*Triticum durum* Desf.)
Denomination : PUSA WHEAT 8805 (HI 8805)
Type of variety : Extant (Notified)
Classification of variety : Typical

Previously proposed Denomination : Not applicable

Name of parental material : IWP 5070/HI 8638//HI 8663

Source of parental material : Parental materials are indigenous and developed at IARI

Name of reference varieties : AKDW 2997-16 & UAS 446

Notification details : Notification no. S.O. 99(E) dtd. 06.01.2020

Variety description:

A. Group characteristics	**Remarks (measured values)**
Coleoptile : Anthocyanin colouration (Characteristic 1)	Absent
Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Ear: Time of emergence (first spikelet visible on 50% of ears) (Characteristic 7)	Very early
Plant: Height (Characteristic 15)	Medium
Awn colour (Characteristic 21)	Dull White
Outer glume : Pubescence (Characteristic 23)	Absent
Ear colour (Characteristic 24)	Dull White
Grain colouration with phenol (Characteristic 32)	None
Seasonal Type (Characteristic 39)	Spring

B. Distinct characteristics of candidate variety:

PUSA WHEAT 8805 (HI 8805) has distinguishing characters as very early ear time of emergence (first spikelet visible on 50% of ears), strong flag leaf waxiness of sheath, weak flag leaf waxiness of blade, strong ear waxiness and strong peduncle waxiness.

C. Distinct characteristics of reference varieties:

AKDW 2997-16 has distinguishing characters as medium ear time of emergence (first spikelet visible on 50% of ears), medium flag leaf waxiness of sheath, weak flag leaf waxiness of blade, weak ear waxiness and weak peduncle waxiness.

UAS 446 has distinguishing characters as late ear time of emergence (first spikelet visible on 50% of ears), strong flag leaf waxiness of sheath, absent flag leaf waxiness of blade, absent ear waxiness and medium peduncle waxiness.

D. Date of commercialization of the variety	19.11.2019

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: Early/Medium/Late	Medium and Early
2	Production condition: Suitability Area in the Country	Maharashtra, Karnataka and plains of Tamil Nadu
	: Time of Sowing	25th October - 10th November
	: Irrigated/Rainfed	Restricted Irrigation
	: Low fertility/High fertility of Soil	Flat fertile soil
3	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K 32:16:8 kg/ac
4	Tolerance to Disease & Pests	Resistant to stripe & leaf rust, karnal bunt, loose smut, foot rot, and better resistant to flag smut than all the check and qualifying varieties
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	-

6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 - Present Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	14.16 q/ac
8	Seed Yield q/ha (Average)	12.16 q/ac
9	Seed: Weight (1000 seed weight in g)	44.44g
10	Any other relevant information specific to the variety/hybrid	-
Figure 25		***DUS Characteristics of Pusa Wheat 8805 (HI 8805)**

27. Application No. | E7 | TA56 | 17 | 1917 | filed on 11.10.2017 by **Dr. S. S. Dodake, Wheat Specialist, Agricultural Research Station, Niphad-422303** on behalf of **Mahatma Phule Krishi Vidyapeeth, Rahuri-413722, District-Ahmednagar, Maharashtra (India)** for **Extant (Notified)** variety of crop **Bread Wheat (*Triticum aestivum* L.)** having denomination **PHULE SAMADHAN (NIAW 1994)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ---------- on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : PHULE SAMADHAN (NIAW 1994)
Applicant : Mahatma Phule Krishi Vidyapeeth
Address of the applicant : Rahuri-413722, District- Ahmednagar, Maharashtra (India)
Nationality of applicant : Indian
Application details
a. Number : | E7 | TA56 | 17 | 1917 |
b. Date of receipt : 11.10.2017
c. Date of acceptance : --
Crop (taxonomical lineage) : Bread Wheat (*Triticum aestivum* L.)
Denomination : PHULE SAMADHAN (NIAW 1994)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : NIAW 34 and PBW 435
Source of parental material : IIWBR (former DWR) Karnal
Name of reference varieties : NIAW 34 and MACS 6222
Notification details : Notification no. S.O. 2238(E) dtd. 29.06.2016

Variety description:

A. Group characteristics	**Remarks (measured values)**

Flag leaf : Anthocynin coloration of auricle (Characteristic 4)	Absent
Time of ear emergence (Characteristic 7)	Early
Plant length (Characteristic 14)	Short
Awn or scurs : Presence (Characteristic 18)	Awns present
Outer glume : Pubescence (Characteristic 23)	Absent
Ear : Colour (Characteristic 24)	White
Season type (Characteristic 37)	Spring
Grain hardness (Characteristic 38)	Hard

B. Distinct characteristics of candidate variety:

PHULE SAMADHAN (NIAW 1994) has distinguishing characters as green foliage colour, erect plant flag leaf attitude and long ear length (excluding awns and scurs).

C. Distinct characteristics of reference varieties:

NIAW 34 has distinguishing characters as dark green foliage colour, erect plant flag leaf attitude and medium ear length (excluding awns and scurs).

MACS 6222 has distinguishing characters as dark green foliage colour, semi erect plant flag leaf attitude and medium ear length (excluding awns and scurs).

D. Date of commercialization of the variety	17.05.2016

E. Agronomic and commercial attributes

S. No.	Attributes	Details
1	Days to maturity: Early/Medium/Late	Medium
2	Production condition: Suitability Area in the Country	-
	: Time of Sowing	-
	: Irrigated/Rainfed	-
	: Low fertility/High fertility of Soil	-
3	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K 48:24:16 kg/ac (under timely sown irrigated condition) N:P:K 32:16:16 kg/ac (under late sown irrigated condition)
4	Tolerance to Disease & Pests	Resistant to black & brown rust and aphids
5	Tolerance to adverse Temperature/Frost/Heat & Salinity	Resistant to lodging and non shattering
6	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 - - Amber
7	Zone Wise Yield Potential (Average) per acre (q/Acre)	-
8	Seed Yield q/ha (Average)	18.44 q/ac (under timely sown irrigated condition) 17.69 q/ac (under late sown irrigated condition)
9	Seed: Weight (100 seed weight in g)	43g (under timely sown irrigated condition) 30g (under late sown irrigated

		condition)
10	Any other relevant information specific to the variety/hybrid	-
Figure 26		***DUS Characteristics of PHULE SAMADHAN (NIAW 1994)**

28. Application No. | E26 | CA43 | 16 | 508 | filed on 17.05.2016 by **Dr. R. R. Acharya, I/c Research Scientist (Vegetable) & Unit Head, Main Vegetable Research Station, AAU, Anand, Ta & District Anand-388110** on behalf of **Dr. K. B. Kathiria, Director of Research and Dean P.G. Studies, AAU, Ta & District Anand-388110** for **Extant (Notified)** variety of crop **Chilli (*Capsicum annuum* L.)** having denomination **Gujarat Vegetable Chilli (GVC 111)** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Gujarat Vegetable Chilli (GVC 111)
Applicant : Anand Agricultural University
Address of the applicant : Dr. K.B. Kathiria, Director of Research & Dean, P.G. Studies, AAU, Ta & District Anand-388110
Nationality of applicant : Indian
Application details
a. Number : | E26 | CA43 | 16 | 508 |
b. Date of receipt : 17.05.2016
c. Date of acceptance : --
Crop (taxonomical lineage) : Chilli (*Capsicum annuum* L.)
Denomination : Gujarat Vegetable Chilli (GVC 111)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : Jwala
Source of parental material : Own germplasm
Name of reference varieties : Pusa Jwala
Notification details : Notification no. S.O. 597(E) dtd. 25.04.2006

Variety description:

A. Group characteristics	**Remarks (measured values)**
Plant : Habit (Characteristic 2)	Semi upright
Flower/Fruit : Orientation (characteristic 24)	Semi drooping
Fruit : Fruit bearing habit (characteristic 25)	1 (solitary)
Fruit : Colour (at mature green fruit stage on plants) (characteristic 26)	Green
Fruit : Shape in longitudinal section (characteristic 30)	Narrowly triangular

Fruit : Colour (at ripe fruit stage on plants) (characteristic 37)	Red
Fruit : Shape at base (characteristic 41)	Acute
Fruit : Shape at apex (characteristic 42)	Acute

B. Distinct characteristics of candidate variety:

Gujarat Vegetable Chilli (GVC 111) has distinguishing characters as semi drooping flower/fruit orientation and medium fruit intensity of colour (at mature unripe stage).

C. Distinct characteristics of reference variety:

Pusa Jwala has distinguishing characters as drooping flower/fruit orientation and light fruit intensity of colour (at mature unripe stage).

D. Date of commercialization of the variety	-

E. Agronomic attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Middle Gujarat
	: Time of Sowing	July and August
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	Both
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	N:P:K 40:20:20 kg/ac
4.	Tolerance to adverse Temperature/Frost/ & Heat- Sensitive/Tolerance	Tolerance
5.	Tolerance to Water Stagnation: Sensitive/Tolerant	Tolerance
6.	Resistance/Tolerance to Pest/s	Tolerance
7.	Staking & pruning Practices	-
8.	Winter – spring cropping seasons Type	Kharif-Rabi
9.	Fruit Yield q/ ac	48.4 q/ac (avg.) 74 q/ac (max.)
10.	Fruit Yield/plant	600-700g/pl
11.	Fruit quality and Fruit firmness	Fruits are attractive due to green shinning colour, elongated straight, compact and larger thick fruit.
12.	Fruit Picking Schedule	Total 5 picking (7-10 days interval)
13.	Transport Potential (Days)	Up to 4 days
14.	Unique Selling Propositions and Optimal Shelf-Life (Days)	Up to 6 days
15.	Any other relevant information specific to the variety/hybrid	Fruits of this variety contain higher capsaicin (1.35 mg/g), ascorbic acid (156 mg/100g), have less weight loss, more shelf life and maintain their luster with fresh pedicel after 144 hours of harvesting.
Figure 27		***DUS Characteristics of Gujarat Vegetable Chilli (GVC 111)**

29. Application No. | N12 | AE20 | 11 | 148 | filed on 15.02.2011 by **Dr. M. Ganesh, Coordinator (R&D), Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Ltd., #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Okra (*Abelmoschus esculentus* (L.) Moench.)** having denomination **KOL 1147** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KOL 1147
Applicant : Kaveri Seed Company Ltd.
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : | N12 | AE20 | 11 | 148 |
b. Date of receipt : 15.02.2011
c. Date of acceptance : --
Crop (taxonomical lineage) : Okra (*Abelmoschus esculentus* (L.) Moench.)
Denomination : KOL 1147
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KAE-23 and KAE-15
Source of parental material : Own germplasm
Name of reference varieties : Kashi Lalima and VROR-159

Variety description:

A. Group characteristics	**Remarks (measured values)**
Stem: Colour (Characteristic 1)	Green
Leaf blade: Depth of lobing (Characteristic 3)	Shallow
Stem: Number of nodes at first flowering (upto and including the first flowering node) (Characteristic 4)	Few
Fruit: Colour (Characteristic 17)	Green
Fruit: Number of locules (Characteristic 24)	<6
Plant: Number of branches (Characteristic 25)	Few
B. Distinct characteristics of candidate variety: **KOL 1147** has distinguishing characters as green stem colour and stem intensity of green colour light.	
C. Distinct characteristics of reference varieties: **Kashi Lalima** and **VROR-159** have distinguishing characters as red stem colour and stem intensity of green colour dark.	
D. Date of commercialization of the variety	-
E. Agronomic and commercial attributes	

S. No.	Attributes	Details
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Except coastal areas, suitable for all India cultivation
	: Time of Sowing	Kharif: June-July Summer: January-February
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility
3.	Fertilizer requirement to attain potential yield (N:P:K:) kg/acre	-
4.	Tolerance to adverse Temperature/Frost/ &Heat- Sensitive/Tolerance	Moderately tolerant to heat
5.	Tolerance to Water Stagnation: Sensitive/Tolerant	Sensitive to water stagnation
6.	Resistance/Tolerance to Pest/s	Not claimed any pest tolerance
7.	Staking & pruning Practices	Not required
8.	Winter – spring cropping seasons Type	Not recommended
9.	Fruit Yield q/ ac	56-58 q/ac
10.	Fruit Yield/plant (kg/ha)(average)	0.235 kg/pl
11.	Fruit quality and Fruit firmness	Dark green fruit colour, smooth and spineless fruit
12.	Fruit Picking Schedule	Every alternate day
13.	Transport Potential (Days)	1-2 days
14.	Unique Selling Propositions and Optimal Shelf-Life (Days)	Excellent fruit quality characters, moderately tolerant to okra leaf curl virus and high yield potential
15.	Any other relevant information specific to the variety/hybrid	-
		***DUS Characteristics of KOL 1147**

30. Application No. | F11 | SB11 | 17 | 541 | filed on 27.03.2017 by **Director of Research Services, Jawaharla Nehru Krishi Vishwavidyalaya, Jabalpur- 482004, Madhya Pradesh** on behalf of **Shri Nirpat Singh, Village Mahuadol, Block Pabai, District Panna, Madhya Pradesh- 488446** for Famer's variety of crop **Sorghum (*Sorghum bicolor* L.)** having denomination **Jhundi Jwar Nirpat** has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Jhundi Jwar Nirpat
Applicant : Shri Nirpat Singh
Address of the applicant : Village Mahuadol, Block, Pabai, Dist: Panna, Madhya Pradesh- 488446
Nationality of applicant : Indian
Application details
a. Number : | F11 | SB11 | 17 | 541 |

b. Date of receipt : 27.03.2017
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum **(***Sorghum bicolor* L.)
Denomination : Jhundi Jwar Nirpat
Type of variety : Famer
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of reference varieties : M 35-1 and Swathi

Variety description:

A. Group characteristics		**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum		-
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)		-
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)		Early
Plant: Total height at maturity (Characteristic 14)		Medium
Panicle: Shape (Characteristic 21)		Symmetric
Grain: Colour after threshing (Characteristic 26)		Yellow white
B. Distinct characteristics of candidate variety: **Jhudi Jwar Nirpat** has distinguishing character as non-lustrous grain lustre.		
C. Distinct characteristics of reference varieties: **M 35-1** and **Swathi** have distinguishing character as lustrous grain lustre.		
D. Date of commercialization of the variety		-
E. Agronomic and commercial attributes		
S. No.	**Attributes**	**Details**
1.	Days to maturity: early/medium/late	Medium
2.	Production condition: suitability area in the country	Bundelkhand region
	: Time of sowing	Last week of June
	: Irrigated/rainfed	Rainfed
	: Low fertility/high fertility soil	Low fertility
3.	Tolerance to adverse temperature/frost/heat & salinity	Tolerance to water stress
4.	Tolerance to Disease & Pests	Yes, tolerance
5.	Grain Character Physical: Kernal size (cm) Seed Lustre (Present/Absent) Seed colour	 0.27 cm Present White
6.	Zone Wise Yield Potential (Average) per acre (q/Acre)	14 q/ac
7.	Seed yield q/acre (average)	13-14 q/ac
8.	Seed: weight (100 seed weight in g)	3g
9.	Any other relevant information specific to the variety/hybrid (Low/Medium/High Water Use Efficiency Type)	Suitable for Chapati

Figure 28	***DUS Characteristics of Jhundi Jwar Nirpat**

31. Application No. | F6 | SB6 | 17 | 328 | filed on 23.03.2017 by **Director of Research Services, Jawaharla Nehru Krishi Vishwavidyalaya, Jabalpur- 482004, Madhya Pradesh** on behalf of **Shri Anantram Yadav, Village Nimha, Block Ajaygadh, District Panna, Madhya Pradesh** for Famer's variety of crop **Sorghum (*Sorghum bicolor* L.)** having denomination **Safed Bhundi** has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Safed Bhundi
Applicant : Shri Anantram Yadav
Address of the applicant : Village Nimha, Block Ajaygadh, District Panna, Madhya Pradesh
Nationality of applicant : Indian
Application details
a. Number : | F6 | SB6 | 17 | 328 |
b. Date of receipt : 23.03.2017
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum (*Sorghum bicolor* L.)
Denomination : Safed Bhundi
Type of variety : Famer
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of reference varieties : M 35-1 and Swathi

Variety description:

A. Group characteristics	**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum	-
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)	-
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)	Medium
Plant: Total height at maturity (Characteristic 14)	Medium
Panicle: Shape (Characteristic 21)	Symmetric
Grain: Colour after threshing (Characteristic 26)	Greyed orange
B. Distinct characteristics of candidate variety: **Safed Bhundi** has distinguishing characters as absent lemma arista formation and semi loose panicle density at maturity (ear head compactness).	
C. Distinct characteristics of reference varieties: **M 35-1** and **Swathi** has distinguishing characters as present lemma arista formation and compact panicle density at maturity (ear head compactness).	
D. Date of commercialization of the variety	-
E. Agronomic and commercial attributes	

S.No.	Attributes	Details
1	Days to maturity: early/medium/late	Medium
2	Production condition: suitability area in the country	Bundelkhand region
	: Time of sowing	Last week of June
	: Irrigated/rainfed	Rainfed
	: Low fertility/high fertility soil	Low fertility
3	Tolerance to adverse temperature/frost/heat & salinity	Tolerance to moisture stress
4	Tolerance to Disease & Pests	Yes, tolerance
5	Grain Character Physical: Kernal size (cm) Seed Lustre (Present/Absent) Seed colour	 0.28 cm Present White
6	Zone Wise Yield Potential (Average) per acre (q/Acre)	12 q/ac
7	Seed yield q/acre (average)	10-12 q/ac
8	Seed: weight (100 seed weight in g)	3g
9	Any other relevant information specific to the variety/hybrid (Low /Medium/High Water Use Efficiency Type)	Suitable for Chapati
Figure 29		***DUS Characteristics of Safed Bhundi**

32. Application No. | F2 | SB28 | 17 | 1060 | filed on 30.03.2017 by **Director of Research Services, Jawaharla Nehru Krishi Vishwavidyalaya, Jabalpur- 482004, Madhya Pradesh** on behalf of **Shri Bablu, S/o Nahar Singh, Village Suthiya, Block Parasiya, District Chhindwara, Madhya Pradesh** for Famer's Variety of crop **Sorghum (*Sorghum bicolor* L.)** having denomination **Jwar Kutki** has been accepted and given registration number ---------NA ---------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Jwar Kutki
Applicant : Shri Bablu
Address of the applicant : Village Suthiya, Block Parasiya, District Chhindwara, Madhya Pradesh
Nationality of applicant : Indian
Application details
a. Number : | F2 | SB28 | 17 | 1060 |
b. Date of receipt : 30.03.2017
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum (*Sorghum bicolor* L.)
Denomination : Jwar Kutki
Type of variety : Famer
Classification of variety : Typical

Previously proposed Denomination : Not applicable

Name of reference varieties : M 35-1, Swathi and JJ 741

Variety description:

A. Group characteristics		**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum		-
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)		-
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)		Medium
Plant: Total height at maturity (Characteristic 14)		Medium
Panicle: Shape (Characteristic 21)		Panicle broader in lower part
Grain: Colour after threshing (Characteristic 26)		Yellow orange
B. Distinct characteristics of candidate variety: **Jwar Kutki** has distinguishing character as panicle broader in lower part panicle shape.		
C. Distinct characteristics of reference varieties: **M 35-1, Swathi** and **JJ 741** have distinguishing character as symmetric panicle shape.		
D. Date of commercialization of the variety		-
E. Agronomic and commercial attributes		
S. No.	**Attributes**	**Details**
1	Days to maturity: early/medium/late	Medium
2	Production condition: suitability area in the country	-
	: Time of sowing	15th July - 25th July
	: Irrigated/rainfed	Irrigated
	: Low fertility/high fertility soil	Low fertility
3	Tolerance to adverse temperature/frost/heat & salinity	Frost & heat tolerance
4	Tolerance to Disease & Pests	Tolerance to pest
5	Grain Character Physical: Kernal size (cm) Seed Lustre (Present/Absent) Seed colour	 - - -
6	Zone Wise Yield Potential (Average) per acre (q/Acre)	-
7	Seed yield q/acre (average)	1.6 q/ac
8	Seed: weight (100 seed weight in g)	-
9	Any other relevant information specific to the variety/hybrid (Low/Medium/High Water Use Efficiency Type)	Good cooking quality and fortified to iron, calcium and zinc.
Figure 30		***DUS Characteristics of Jwar Kutki**

33. Application No. | F15 | SB15 | 17 | 739 | filed on 28.03.2017 by **Director of Research Services, Jawaharla Nehru Krishi Vishwavidyalaya, Jabalpur- 482004, Madhya Pradesh** on behalf of **Shri Gajpal Dhurve, S/o Shyam Singh, Village Karanpipariya, Block Junnardev,**

District Chhindwara, Madhya Pradesh for Famer's Variety of crop **Sorghum (*Sorghum bicolor* L.)** having denomination **Gajpal Jowar** has been accepted and given registration number --------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : Gajpal Jowar
Applicant : Shri Gajpal Dhurve,
Address of the applicant : Village Karanpipariya, Block Junnardev, District Chhindwara, Madhya Pradesh
Nationality of applicant : Indian
Application details
a. Number : F15 | SB15 | 17 | 739
b. Date of receipt : 28.03.2017
c. Date of acceptance : --
Crop (taxonomical lineage) : Sorghum **(***Sorghum bicolor* L.)
Denomination : Gajpal Jowar
Type of variety : Famers
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of reference varieties : M 35-1 and Swathi

Variety description:

A. Group characteristics	**Remarks (measured values)**
Type of sorghum: Grain/Forage/Sweet sorghum	-
Season of adaptation: Kharif (Rainy season)/Rabi (Post-rainy season)	-
Plant: Time to 50% flowering (50% of the plants with 50% anthesis) (Characteristic 3)	Medium
Plant: Total height at maturity (Characteristic 14)	Medium
Panicle: Shape (Characteristic 21)	Symmetrical
Grain: Colour after threshing (Characteristic 26)	Yellow white
B. Distinct characteristics of candidate variety: **Gajpal Jowar** has distinguishing character as medium grain size of mark of germ.	
C. Distinct characteristics of reference varieties: **M 35-1** and **Swathi** have distinguishing character as large grain size of mark of germ.	
D. Date of commercialization of the variety	-

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1	Days to maturity: early/medium/late	Long
2	Production condition: suitability area in the country	-
	: Time of sowing	20th June - 25th June
	: Irrigated/rainfed	Rainfed
	: Low fertility/high fertility soil	Low fertility and high fertility

3	Tolerance to adverse temperature/frost/heat & salinity	Heat tolerance
4	Tolerance to Disease & Pests	-
5	Grain Character Physical: Kernal size (cm) Seed Lustre (Present/Absent) Seed colour	 - - -
6	Zone Wise Yield Potential (Average) per acre (q/Acre)	-
7	Seed yield q/acre (average)	6 q/ac
8	Seed: weight (100 seed weight in g)	-
9	Any other relevant information specific to the variety/hybrid (Low/Medium/High Water Use Efficiency Type)	Multiple resistant
Figure 31		***DUS Characteristics of Gaipal Jowar**

34. Application No. | N7 | AE15 | 11 | 143 | filed on 15.02.2011 by **Ms. Anuradha Verma, Manager Research Operations, Kaveri Seed Company Ltd, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Ltd, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Okra (*Abelmoschus esculentus* (L.) Moench.)** having denomination **KOL 1163** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety	: KOL 1163
Applicant	: Kaveri Seed Company Ltd,
Address of the applicant	: #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant	: Indian
Application details	
a. Number	: N7 | AE15 | 11 | 143
b. Date of receipt	: 15.02.2011
c. Date of acceptance	: --
Crop (taxonomical lineage)	: Okra (*Abelmoschus esculentus* (L.) Moench.)
Denomination	: KOL 1163
Type of variety	: New
Classification of variety	: Typical
Previously proposed Denomination	: Not applicable
Name of parental material	: KAE-44 and KAE-84
Source of parental material	: Own germplasm
Name of reference varieties	: Arka Abhay and Kashi Leela

Variety description:

A. Group characteristics	**Remarks (measured values)**
Stem: Colour (Characteristic 1)	Green
Leaf blade: Depth of lobing (Characteristic 3)	Deep
Stem: Number of nodes at first flowering (Characteristic 4)	Few
Fruit: Colour (Characteristic 17)	Green
Fruit: Number of locules (Characteristic 24)	<6
Plant: Number of branches (Characteristic 25)	Few

B. Distinct characteristics of candidate variety:
KOL 1163 has distinguishing characters as large flower length and seed hairiness present.

C. Distinct characteristics of reference varieties:
Arka Abhay and **Kashi Leela** have distinguishing characters as medium flower length and seed hairiness absent.

D. Date of commercialization of the variety	-

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Except coastal areas, suitable for all India cultivation
	: Time of Sowing	Summer: January - February Kharif: June - July
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility
3.	Tolerance to adverse Temperature/Frost/ &Heat- Sensitive/Tolerance	Moderately tolerant to heat
4.	Tolerance to Water Stagnation: Sensitive/Tolerant	Sensitive to water stagnation
5.	Resistance/Tolerance to Pests	Not claimed any pest tolerance
6.	Staking & pruning Practices	Not required
7.	Winter – spring cropping seasons Type	Not recommended
8.	Fruit Yield q/ha	145-155 q/ac
9.	Fruit Yield/plant (kg)(average)	235 g/pl
10.	Fruit quality and Fruit firmness	Dark green fruit colour, smooth and spineless fruits
11.	Fruit picking Schedule	Every alternate day
12.	Transport Potential (Days)	Good for long distance transportation
13.	Unique Selling Propositions and Optimal shelf-Life (Days)	1-2 days
14.	Any other relevant information specific to the variety/hybrid	Acceptable fruit quality characters, moderately tolerant to okra leaf curl virus and high yield
		***DUS Characteristics of KOL 1163**

35. Application No. | N9 | AE17 | 11 | 145 | filed on 15.02.2011 by **Ms. Anuradha Verma, Manager Research Operations, Kaveri Seed Company Ltd, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Ltd, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety

of crop **Okra (*Abelmoschus esculentus* (L.) Moench.)** having denomination **KOL 1155** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KOL 1155
Applicant : Kaveri Seed Company Ltd,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : N9 | AE17 | 11 | 145
b. Date of receipt : 15.02.2011
c. Date of acceptance : --
Crop (taxonomical lineage) : Okra (*Abelmoschus esculentus* (L.) Moench.)
Denomination : KOL 1155
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KAE-10 and KAE-8
Source of parental material : Own germplasm
Name of reference varieties : VRO3 and SB-8 (Kashi Kranti)

Variety description:

A. Group characteristics	**Remarks (measured values)**
Stem: Colour (Characteristic 1)	Green
Leaf blade: Depth of lobing (Characteristic 3)	Medium
Stem: Number of nodes at first flowering (Characteristic 4)	Many
Fruit: Colour (Characteristic 17)	Green
Fruit: Number of locules (Characteristic 24)	<6
Plant: Number of branches (Characteristic 25)	Medium

B. Distinct characteristics of candidate variety:
KOL 1155 has distinguishing characters as flower petal base colour (purple) inside only and blunt fruit shape of apex.

C. Distinct characteristics of reference varieties:
VRO3 and **SB-8 (Kashi Kranti)** have distinguishing characters as flower petal base colour (purple) both sides and acute fruit shape of apex.

D. Date of commercialization of the variety	-

E. Agronomic and commercial attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	85-90 DAS
2.	Production condition: Suitability Area in the Country	
	: Time of Sowing	Central zone: May - August

		Western Zone: May - July Southern zone: February - August Western dry: May - August Gujarat Plain: February - August
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	Medium to high fertility of soil
3.	Tolerance to adverse Temperature/Frost/ & Heat- Sensitive/Tolerance	Sensitive
4.	Tolerance to Water Stagnation: Sensitive/Tolerant	Sensitive
5.	Resistance/Tolerance to Pests	Tolerant
6.	Staking & pruning Practices	Not required
7.	Winter – spring cropping seasons Type	Spring
8.	Fruit Yield q/ha	175 q/ac
9.	Fruit Yield/plant (kg)(average)	250g/pl
10.	Fruit quality and Fruit firmness	Green medium long pod
11.	Fruit picking Schedule	Day by day
12.	Transport Potential (Days)	Good for long distance transportation
13.	Unique Selling Propositions and Optimal shelf-Life (Days)	Easy picking, 2-3 days shelf life
14.	Any other relevant information specific to the variety/hybrid	No yellow ring and no seed bulging on pod
		***DUS Characteristics of KOL 1155**

36. Application No. | N10 | AE18 | 11 | 146 | filed on 15.02.2011 by **Ms. Anuradha Verma, Manager: Research Operations, Kaveri Seed Company Ltd, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Ltd, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Okra (*Abelmoschus esculentus* (L.) Moench.)** having denomination **KOL 1154** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KOL 1154
Applicant : Kaveri Seed Company Ltd,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : | N10 | AE18 | 11 | 146 |
b. Date of receipt : 15.02.2011
c. Date of acceptance : --
Crop (taxonomical lineage) : Okra (*Abelmoschus esculentus* (L.) Moench.)
Denomination : KOL 1154

Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KAE-10 and KAE-8
Source of parental material : Own germplasm
Name of reference varieties : Parbhani Kranti and Azad Bhindi-1

Variety description:

A. Group characteristics		**Remarks (measured values)**
Stem: Colour (Characteristic 1)		Green
Leaf blade: Depth of lobing (Characteristic 3)		Medium
Stem: Number of nodes at first flowering (Characteristic 4)		Medium
Fruit: Colour (Characteristic 17)		Green
Fruit: Number of locules (Characteristic 24)		<6
Plant: Number of branches (Characteristic 25)		Few
B. Distinct characteristics of candidate variety: **KOL 1154** has distinguishing characters as medium leaf blade width and dark leaf blade intensity of colour between veins.		
C. Distinct characteristics of reference varieties: **Parbhani Kranti** and **Azad Bhindi-1** have distinguishing characters as large leaf blade width and medium leaf blade intensity of colour between veins.		
D. Date of commercialization of the variety		-
E. Agronomic and commercial attributes		
S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	85-90 DAS
2.	Production condition: Suitability Area in the Country	
	: Time of Sowing	Central zone: May - August Western Zone: May - July Southern zone: February - August Western dry: May - August Gujarat Plain: February - August
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	Medium to high fertility of soil
3.	Tolerance to adverse Temperature/Frost/ & Heat-Sensitive/Tolerance	Sensitive
4.	Tolerance to Water Stagnation: Sensitive/Tolerant	Sensitive
5.	Resistance/Tolerance to Pests	Tolerant
6.	Staking & pruning Practices	Not required
7.	Winter – spring cropping seasons Type	Spring
8.	Fruit Yield q/ ha	175 q/ac
9.	Fruit Yield/plant (kg)(average)	250g/pl
10.	Fruit quality and Fruit firmness	Green medium long pod
11.	Fruit picking Schedule	Every alternate day
12.	Transport Potential (Days)	Good for long distance transportation
13.	Unique Selling Propositions and Optimal shelf-Life (Days)	Easy picking, 2-3 days shelf life

14.	Any other relevant information specific to the variety/hybrid	No yellow ring and no seed bulging on pod
		***DUS Characteristics of KOL 1154**

37. Application No. | N28 | PG28 | 10 | 170 | filed on 21.06.2010 by **Dr. M. Ganesh, Coordinator (R&D), Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Pearl Millet (*Pennisetum glaucum* (L.) R. Br.)** having denomination **KBR 882** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KBR 882
Applicant : Kaveri Seed Company Limited,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : | N28 | PG28 | 10 | 170 |
b. Date of receipt : 21.06.2010
c. Date of acceptance : --
Crop (taxonomical lineage) : Pearl Millet (*Pennisetum glaucum* (L.) R.Br.)
Denomination : KBR 882
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KBR 882 x KBR 882
Source of parental material : Own germplasm
Name of reference varieties : H77/833-2

Variety description:

A. Group characteristics	**Remarks (measured values)**
Plant: Time of spike emergence (Characteristic 3)	Very late
Anther: Colour (Characteristic 9)	Yellow
Plant Height (Characteristic 22)	Medium
Spike: Shape (Characteristic 23)	Lanceolate
Seed: Colour (Characteristic 26)	Deep grey
Seed: Shape (Characteristic 27)	Globular
B. Distinct characteristics of candidate variety: **KBR 882** has distinguishing character as lanceolate spike shape.	
C. Distinct characteristics of reference variety: **H77/833-2** has distinguishing character candle spike shape.	

D. Date of commercialization of the variety		-
E. Agronomic attributes		
S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Late
2.	Production condition: Suitability Area in the Country	Telangana & Andhra Pradesh
3.	: Time of Sowing	Telangana -1st January - 31st January Andhra Pradesh -15th May - 15th June
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	Low & high fertile soils
4.	Tolerance to Disease & Pests	Tolerant to DM
5.	Tolerance to adverse Temperature/Frost/Heat & Salinity	Tolerant to adverse temperature, frost, heat & Salinity
6.	Grain Characters Physical: a) Kernal Size (cm) b) Seed Lustre (Present/Absent) c) Seed Colour	 0.23cm Present Grey
7.	Zone Wise Yield Potential (Average) per acre (q/ac)	5.15 q/ac
8.	Seed Yield q/ac (Average)	5.15 q/ac
9.	Seed: Weight (100 seed weight in g)	10.3g
10.	Any other relevant information specific to the variety/hybrid	-
		***DUS Characteristics of KBR 882**

38. Application No. | N8 | AE16 | 11 | 144 | filed on 15.02.2011 by **Dr. M. Ganesh, Coordinator (R&D), Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Okra / Lady's Figer (*Abelmoschus esculentus* (L.) Moench.)** having denomination **KOL 1162** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KOL 1162
Applicant : Kaveri Seed Company Limited,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : | N8 | AE16 | 11 | 144 |
b. Date of receipt : 15.02.2011

c. Date of acceptance : --
Crop (taxonomical lineage) : Okra/Lady's Figer (*Abelmoschus esculentus* (L.) Moench.)
Denomination : KOL 1162
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KAE-44 and KAE-87
Source of parental material : Own germplasm
Name of reference varieties : VROR-159

Variety description:

A. Group characteristics	**Remarks (measured values)**
Stem: Colour (Characteristic 1)	Green
Leaf blade: Depth of lobing (Characteristic 3)	Medium
Stem: Number of nodes at first flowering (Characteristic 4)	Medium
Fruit: Colour (Characteristic 17)	Green
Fruit: Number of locules (Characteristic 24)	<6
Plant: Number of branches (Characteristic 25)	Few
B. Distinct characteristics of candidate variety: **KOL 1162** has distinguishing characters as medium leaf blade width and green leaf blade colour between veins.	
C. Distinct characteristics of reference variety: **VROR-159** has distinguishing characters as large leaf blade width and red leaf blade colour between veins.	
D. Date of commercialization of the variety	-

E. Agronomic attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Except coastal areas of Andhra Pradesh, West Bengal, suitable for all India cultivation
	: Time of Sowing	Summer (January and February) Kharif (June and July)
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility
3.	Tolerance to adverse Temperature/Frost/ & Heat- Sensitive/Tolerance	Moderately tolerant to heat
4.	Tolerance to Water Stagnation: Sensitive/Tolerant	Sensitive to water stagnation
5.	Resistance/Tolerance to Pest/s	Not claimed any pest tolerance
6.	Staking & pruning Practices	-
7.	Winter – spring cropping seasons Type	Not recommended
8.	Fruit Yield q/ ac	62-66 q/ac
9.	Fruit Yield/plant	255 g/pl
10.	Fruit quality and Fruit firmness	Dark green, Smooth tender and spineless

		fruits
11.	Fruit Picking Schedule	Every alternate day
12.	Transport Potential (Days)	1-2 days
13.	Unique Selling Propositions and Optimal Shelf-Life (Days)	Good fruit quality characters, moderately tolerant to yellow vein mosaic and okra leaf curl virus and high yield potential
14.	Any other relevant information specific to the variety/hybrid	-
		***DUS Characteristics of KOL 1162**

39. Application No. | N6 | AE14 | 11 | 142 | filed on 15.02.2011 by **Dr. M. Ganesh, Coordinator (R&D), Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Okra / Lady's Figer (*Abelmoschus esculentus* (L.) Moench.)** having denomination **KOL 1164** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ----------NA--------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KOL 1164
Applicant : Kaveri Seed Company Limited,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : | N6 | AE14 | 11 | 142 |
b. Date of receipt : 15.02.2011
c. Date of acceptance : --
Crop (taxonomical lineage) : Okra/Lady's Figer (*Abelmoschus esculentus* (L.) Moench.)
Denomination : KOL 1164
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KAE-44 and KAE-84
Source of parental material : Own germplasm
Name of reference varieties : Prabhani Kranti and Azad Bhindi-2

Variety description:

A. Group characteristics	**Remarks (measured values)**
Stem: Colour (Characteristic 1)	Green
Leaf blade: Depth of lobing (Characteristic 3)	Medium
Stem: Number of nodes at first flowering (Characteristic 4)	Medium
Fruit: Colour (Characteristic 17)	Green

Fruit: Number of locules (Characteristic 24)	<6
Plant: Number of branches (Characteristic 25)	Medium

B. Distinct characteristics of candidate variety:
KOL 1164 has distinguishing characters as light green vein colour and acute fruit shape of apex.

C. Distinct characteristics of reference varieties:
Prabhani Kranti and **Azad Bhindi-2** have distinguishing characters as purple vein colour and blunt fruit shape of apex.

D. Date of commercialization of the variety	-

E. Agronomic attributes

S. No.	**Attributes**	**Details**
1.	Days to maturity: Early/Medium/Late	Medium
2.	Production condition: Suitability Area in the Country	Except coastal areas of Andhra Pradesh, Tamil Nadu and West Bengal, suitable for all India cultivation.
	: Time of Sowing	Summer (January and February) Kharif (June and July)
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility of Soil	High fertility
3.	Tolerance to adverse Temperature/Frost/ & Heat- Sensitive/Tolerance	Moderately tolerant to heat
4.	Tolerance to Water Stagnation: Sensitive/Tolerant	Sensitive to water stagnation
5.	Resistance/Tolerance to Pest/s	Not claimed any pest tolerance
6.	Staking & pruning Practices	-
7.	Winter – spring cropping seasons Type	Not recommended
8.	Fruit Yield q/ ac	60-64 q/ac
9.	Fruit Yield/plant	245g/pl
10.	Fruit quality and Fruit firmness	Dark green, Smooth tender and spineless fruits
11.	Fruit Picking Schedule	Every alternate day
12.	Transport Potential (Days)	1 to 2 days
13.	Unique Selling Propositions and Optimal Shelf-Life (Days)	Good fruit quality characters, moderately tolerant to yellow vein mosaic and okra leaf curl virus and high yield potential
14.	Any other relevant information specific to the variety/hybrid	-
		***DUS Characteristics of KOL 1164**

40. Application No. | N4 | SM57 | 12 | 211 | filed on 15.06.2012 by **Dr. Malathi Lakshmikumaran, Lakshmikumaran & Sridharan, B-6/10, Safdarjung Enclave, New Delhi-110029** on behalf of **Maharashtra Hybrid Seeds Company Limited, Resham Bhavan, 4th Floor, 78 Veer Nariman Road, Mumbai-400020** for **New** variety of crop **Brinjal (*Solanum melongena* L.)** having denomination **BJ 60310** has been accepted and given registration number --------NA ----------on ---------- NA --------.

The convention application no.-----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : BJ 60310
Applicant : Maharashtra Hybrid Seeds Company Limited
Address of the applicant : Resham Bhavan, 4th Floor, 78 Veer Nariman Road, Mumbai-400020
Nationality of applicant : Indian
Application details
a. Number : N4 | SM57 | 12 | 211
b. Date of receipt : 15.06.2012
c. Date of acceptance : --
Crop (taxonomical lineage) : Brinjal (*Solanum melongena* L.)
Denomination : BJ 60310
Type of variety : New
Classification of variety : Other (inbred parental line)
Previously proposed Denomination : Not applicable
Name of parental material : B-782
Source of parental material : Own germplasm
Name of reference varieties : DRNKV-02-29 and CO 2

Variety description:

A. Grouping characteristics		**Remarks (measured values)**
Fruit: Length (Characteristic 20)		Short
Fruit: Diameter (Characteristic 21)		Medium
Fruit: General shape (Characteristic 23)		Obovate
Fruit: Colour of skin at commercial harvesting (Characteristic 27)		Purple
Fruit: Stripes (Characteristic 30)		Present
Fruit: Colour of calyx (Characteristic 35)		Green
B. Distinct characteristics of candidate variety: **BJ 60310** has distinguishing character as fruit stripes present.		
C. Distinct characteristics of reference varieties: **DRNKV-02-29** and **CO 2** have distinguishing character as fruit stripes absent.		
D. Date of commercialization of the variety		-
E. Agronomic & Commercial attributes		
S. No.	**Attributes**	**Details**
1.	Growth habit (Determinate/Indeterminate)	Erect & non spiny
2.	Days to flowering/anthesis (average) (days after transplanting)	55-60 days
3.	Days to maturity (average) (days after transplanting)	70-75 days
4.	Planting material/seed material requirement	50-60g/ac
5.	Fertilizer requirement to attain potential yield and time of application	Apply FYM and 50% the recommended quantity of nitrogen and complete dose of potash and phosphorus final land preparation. Balance quantity of nitrogen is applied in two split dose as

	Organic (per acre of per plant) Inorganic (per acre of per plant) Other fertilizers (per acre of per plant)	top dressing. 400 kg Neem N:P:K 32:16:16 kg/ac -
6.	Speacing (cms) requirement to attain potential yield Row to Row Plant to Plant	 90 cm 60 cm
7.	Soil requirement to attain potential yield	BJ-60310 can be successfully taken up on different type of soils rich in organic matter in pH range of 5.5-6.6 is best suited
8.	Plant protection measures to attain potential yield	Disease: Damping off: Use raised nursery beds, avoid excess irrigation, drench nursery beds with copper oxychloride or captan (2g/l of water) or metalaxyl 35 ws (mask) @2g/l Powdery mildew: Spray wettable sulphur 80 wp (thiovit)@ 2.5g/l or dinocap 48 EC (karathane) @ 30ml/10 lit of water. Phomopsis fruit rot: Seed treatment with thiram 75 SD (seedon) @ 2g/kg of seed, spray carbendazim 50 wp (bavistin) @ 2g/l or mancozeb (2g/l of water) or zineb (dithane Z-78) @ 2g/l. Carcospora leaf spot: Spray carbendazim 50 wp (bavistin) @ 2g/l or chlorothalonil 70 wp (kavach)@ 3g/l of water. Bacrerial wilt: Follow crop rotation, grow resistant hybrids, need based drenching with streptocycline @ 0.1 g/l and copperoxychloride 50 wp (blue copper) @ 3g/l. Fusarium and verticillium wilts: Follow crop rotation, need based drenching with carbendazim 50 wp (bavistin) @ 2.5 g/l, hexaconazole 5 EC (contaf) @ 2.5 ml/l. Pests: Shoot & fruit borer: Prune drooping shoots, spray coragen (rynaxypyr)@ 0.3 ml/l or fame (flubendiamide) @ 0.2 ml/l or rimon (novaluron)@ 1 ml/l or spintor (spinosad) @ 0.75 ml/l. Ash weevil: Drench with jump (fipronil) @ 2 ml/l or monocrotophos (nuvacron) @ 2 ml/l on 10^{th} and 30^{th} day of planting by making 6 deep holes around plant base. Aphids and sucking pests: Spray oshin

		(dinotefuron) @ 1.25 g/l or ulala (flonicamid) @ 0.3 g/l or confidor (imidacloprid) @ 0.4 ml/l or asataf (acephate) @ 2g/l. Epilachna beetle: Dust carbaryl (sevin) @ 4g/l. Mites: Spray Oberon (spiromesifen) @ 0.4 ml/l or vertimec (abamectin) @ 0.5 ml/l or omite (propargite) @ 2ml/l Root knot nematodes: Apply non edible oil cakes such as castor/pongamina/neem @ 750-100 kg/ha or carbofuran (30 kg/ha) or phorate (10 kg/ha) to the soil before transplanting seedlings. Gall midge: Spray econeem @ 2ml/l or regent (fipronil) @ 2 ml/l or confidor (imidacloprid) @ 0.4ml/l. TOSPO (Peanut Bud Necrosis Virus): Virus spread by thrips spp. Raised nursery seedlings under insect proof condition by 40 mesh nylon net, remove infected plants at early stage to eradicate primary source of inoculums, regular spray with systemic insecticides to manage thrips by confidor (imidocloprid) @ 0.4 ml/l or asataf (acephate) 75 sp @ 2g/l. Little leaf of brinjal: Spread by leaf hopper-hishimonus phycitis Adopt sanitary measure including the eradication of susceptible volunteer crop plants. Removal and destruction of infected plants. Use of barrier crop. Spraying with systemic insectecides oshin (dinotefuron) @ 1.25 g/l or ulala (flonicamid) @ 0.3 g/l.
9.	Sowing window requirement to attain potential yield (zone wise)	Kharif: June-July Rabi: October-November Summer: January-February
10.	Number of irrigations requirement to attain potential yield (zone wise)	Depending on soil and weather conditions, irrigated the field once in 4-5 days for better crop growth and yield.
11.	The best growing season to attain potential yield	Kharif: June-July Rabi: October-November Summer: January-February
12.	Name of the cropping/climate zone of India in which the varietal/hybrid trials were conducted	A long and warm growing season with a mean temperature of $20\text{-}30^0$ C is most favorable for its cultivation.
13.	Any other relevant information specific to the variety/hybrid	-

Commercial attributes		Remarks
14.	Yield potential (average) per acre (q/ac)	122-127 q/ac
15.	Yield of fruits per plant (average) (kg)	18-22 kg/p
		***DUS Characteristics of BJ 60310**

41. Application No. | N20 | PG20 | 10 | 162 | filed on 21.06.2010 by **Dr. M. Ganesh, Coordinator (R&D), Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Pearl Millet (*Pennisetum glaucum* (L.) R.Br.)** having denomination **KBMS 229** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KBMS 229
Applicant : Kaveri Seed Company Limited,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : | N20 | PG20 | 10 | 162 |
b. Date of receipt : 21.06.2010
c. Date of acceptance : --
Crop (taxonomical lineage) : Pearl Millet (*Pennisetum glaucum* (L.) R.Br.)
Denomination : KBMS 229
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : 203 A and KBMF 229B
Source of parental material : Own germplasm
Name of reference varieties : 843-22B

Variety description:

A. Group characteristics	Remarks (measured values)
Plant: Time of spike emergence (Characteristic 3)	Very late
Anther: Colour (Characteristic 9)	Brown
Plant Height (Characteristic 22)	Very short
Spike: Shape (Characteristic 23)	Conical
Seed: Colour (Characteristic 26)	Grey brown
Seed: Shape (Characteristic 27)	Globular
B. Distinct characteristics of candidate variety: **KBMS 229** has distinguishing character as grey brown seed colour.	

C. Distinct characteristics of reference variety: **843-22B** has distinguishing character as grey seed colour.		
D. Date of commercialization of the variety		-
E. Agronomic attributes		
S. No.	**Attributes**	**Details**
1.	Growth habit (Determinate/Indeterminate)	Indeterminate
2.	Days of flowering/Anthesis	53 days
3.	Days to Physiological Maturity (Average)	85 days
4.	Seed rate/ac	1.5-1.75 kg
5.	Recommended Nutrition/acre schedule to attain potential yield and time of application	
	Organic (Kg/ac)	-
	Inorganic (Kg/ac)	N:P:K 12:8:6 Kg/ac
6.	Spacing (cm) required to attain potential yield	
	Row to Row	Rainfed: 50-60 cm Assured moisture: 45 cm
	Plant to Plant	12-15 cm
7.	Soil requirements to attain potential yield	Sandyloam
8.	Plant protection measures to attain potential yield	**Downy mildew**: i) Treat seed with B. pumulis-a bio agent or Apron 35 S @ 2 g a.i. per kg of seed; ii) spray Mancozeb 0.2% or Ridomil 25 WP (100 ppm) after 21 days of sowing if infection exceeds 2-5% **Ergot:** Application of Thiram 0.2% or Copper Oxychloride 0.25% thrice starting from 50% flowering **Smut:** Spray with Captafol (2ppm) followed by Zineb (2 ppm) **Rust:** Dusting of fine Sulphur @ 17 kg/ha
9.	Sowing window requirement to attain potential yield (Zone wise)	Kharif: June - July Post Rainy: September - October Summer: February - March
10.	Number of irrigations required to attain potential yield (Zone wise)	4-5
11.	The best growing season to attain potential yield (Zone wise)	Zone A: Kharif & Summer Zone B: Kharif
12.	Name the cropping/climatic zone of India in which the varietal/Hybrid trials were conducted	Zone A & B
13.	Intercultural operations	2-3 hoeing
14.	Any other relevant information specific to the variety/Hybrid	-
Commercial Attributes		
1.	Zone Wise Yield Potential (Average) (q/ac) (if applicable)	-
2.	Seed yield q/ac (Average)	Zone B: 2.4-2.8 q/ac

	***DUS Characteristics of KBMS 229**

42. Application No. | N26 | PG26 | 10 | 168 | filed on 21.06.2010 by **Dr. M. Ganesh, Coordinator (R&D), Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** on behalf of **Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Pearl Millet (*Pennisetum glaucum* (L.) R.Br.)** having denomination **KBR 672** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KBR 672
Applicant : Kaveri Seed Company Limited,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : | N26 | PG26 | 10 | 168 |
b. Date of receipt : 21.06.2010
c. Date of acceptance : --
Crop (taxonomical lineage) : Pearl Millet (*Pennisetum glaucum* (L.) R.Br.)
Denomination : KBR 672
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KBR 672 x KBR 672
Source of parental material : Own germplasm
Name of reference varieties : H77/833-2

Variety description:

A. Group characteristics	**Remarks (measured values)**
Plant: Time of spike emergence (Characteristic 3)	Very late
Anther: Colour (Characteristic 9)	Yellow
Plant Height (Characteristic 22)	Very short
Spike: Shape (Characteristic 23)	Lanceolate
Seed: Colour (Characteristic 26)	Grey
Seed: Shape (Characteristic 27)	Globular
B. Distinct characteristics of candidate variety: **KBR 672** has distinguishing characters as medium spike length and lanceolate spike shape.	
C. Distinct characteristics of reference variety: **H77/833-2** has distinguishing characters as small spike length and candle spike shape.	
D. Date of commercialization of the variety	-

E. Agronomic attributes		
S. No.	**Attributes**	**Details**
1.	Growth habit (Determinate/Indeterminate)	Indeterminate
2.	Days of flowering/Anthesis	54 days
3.	Days to Physiological Maturity (Average)	87 days
4.	Seed rate/ac	1.5-1.75 kg
5.	Recommended Nutrition/acre schedule to attain potential yield and time of application	
	Organic (Kg/ac)	-
	Inorganic (Kg/ac)	N:P:K 12:8:6 kg/ac
6.	Spacing (cm) required to attain potential yield	
	Row to Row	Rainfed: 50-60 cm Assured moisture: 45 cm
	Plant to Plant	12-15 cm
7.	Soil requirements to attain potential yield	Sandyloam
8.	Plant protection measures to attain potential yield	**Downy mildew**: i) Treat seed with *B. pumulis*-a bio agent or *Apron* 35 SD @ 2 g a.i. per kg of seed; ii) spray *Mancozeb* 0.2% or *Ridomil* 25 WP (100 ppm) after 21 days of sowing if infection exceeds 2-5% **Ergot:** Application of Thiram 0.2% or Copper Oxychloride 0.25% thrice starting from 50% flowering **Smut:** Spray with *Captafol* (2ppm) followed by *Zineb* (2 ppm) **Rust:** Dusting of fine Sulphur @ 17 kg/ha
9.	Sowing window requirement to attain potential yield (Zone wise)	Kharif: June - July Post Rainy: September - October Summer: February - March
10.	Number of irrigations required to attain potential yield (Zone wise)	4-5
11.	The best growing season to attain potential yield (Zone wise)	Zone A: Kharif & Summer Zone B: Kharif
12.	Name the cropping/climatic zone of India in which the varietal/Hybrid trials were conducted	Zone A & B
13.	Intercultural operations	2-3 hoeing
14.	Any other relevant information specific to the variety/Hybrid	-
Commercial Attributes		
1.	Zone Wise Yield Potential (Average)(q/ac) (if applicable)	-
2.	Seed yield q/ac (Average)	Zone B: 2.4-2.8 q/ac
		***DUS Characteristics of KBR 672**

43. Application No. | N29 | PG29 | 10 | 172 | filed on 21.06.2010 by **Dr. M. Ganesh, Coordinator (R&D), Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex,**

SD Road, Secunderabad-500003 on behalf of **Kaveri Seed Company Limited, #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003** for **New** variety of crop **Pearl Millet (*Pennisetum glaucum* (L.) R.Br.)** having denomination **KBR 880** the specification includes its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : KBR 880
Applicant : Kaveri Seed Company Limited,
Address of the applicant : #513-B, 5th Floor, Minerva Complex, SD Road, Secunderabad-500003
Nationality of applicant : Indian
Application details
a. Number : N29 | PG29 | 10 | 172
b. Date of receipt : 21.06.2010
c. Date of acceptance : --
Crop (taxonomical lineage) : Pearl Millet (*Pennisetum glaucum* (L.) R.Br.)
Denomination : KBR 880
Type of variety : New
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : KBR 880 and KBR 880
Source of parental material : Own germplasm
Name of reference varieties : H77/833-2

Variety description:

A. Group characteristics	**Remarks (measured values)**
Plant: Time of spike emergence (Characteristic 3)	Very late
Anther: Colour (Characteristic 9)	Purple
Plant Height (Characteristic 22)	Short
Spike: Shape (Characteristic 23)	Candle
Seed: Colour (Characteristic 26)	Grey
Seed: Shape (Characteristic 27)	Globular

B. Distinct characteristics of candidate variety:
KBR 880 has distinguishing characters as plant anthocyanin coloration of first leaf sheath present and purple spike anther colour.

C. Distinct characteristics of reference variety:
H77/833-2 has distinguishing characters as plant anthocyanin coloration of first leaf sheath absent and yellow spike anther colour.

D. Date of commercialization of the variety	-

E. Agronomic attributes

S. No.	**Attributes**	**Details**
1.	Growth habit (Determinate/Indeterminate)	Indeterminate
2.	Days of flowering/Anthesis	50 days

3.	Days to Physiological Maturity (Average)	83 days
4.	Seed rate/ac	1.5-1.75 kg
5.	Recommended Nutrition/acre schedule to attain potential yield and time of application	
	Organic (Kg/ac)	-
	Inorganic (Kg/ac)	N:P:K 12:8:6 Kg/ac
6.	Spacing (cm) required to attain potential yield	
	Row to Row	Rainfed: 50-60 cm Assured moisture: 45 cm
	Plant to Plant	12-15 cm
7.	Soil requirements to attain potential yield	Sandyloam
8.	Plant protection measures to attain potential yield	**Downy mildew**: i) Treat seed with *B. pumulis*-a bio agent or *Apron* 35 SD @ 2 g a.i. per kg of seed; ii) spray *Mancozeb* 0.2% or *Ridomil* 25 WP (100 ppm) after 21 days of sowing if infection exceeds 2-5% **Ergot:** Application of Thiram 0.2% or Copper Oxychloride 0.25% thrice starting from 50% flowering **Smut:** Spray with *Captafol* (2ppm) followed by Zineb (2 ppm) **Rust:** Dusting of fine Sulphur @ 17 kg/ha
9.	Sowing window requirement to attain potential yield (Zone wise)	Kharif: June - July Post Rainy: September - October Summer: February - March
10.	Number of irrigations required to attain potential yield (Zone wise)	4-5
11.	The best growing season to attain potential yield (Zone wise)	Zone A: Kharif & Summer Zone B: Kharif
12.	Name the cropping/climatic zone of India in which the varietal/Hybrid trials were conducted	Zone A & B
13.	Intercultural operations	2-3 hoeing
14.	Any other relevant information specific to the variety/Hybrid	-
Commercial Attributes		
1.	Zone Wise Yield Potential (Average)(q/ac) (if applicable)	-
2.	Seed yield q/ac (Average)	Zone B: 2.4-2.8 q/ac
		***DUS Characteristics of KBR 880**

44. Application No. | E5 | OS430 | 13 | 1172 | filed on 06.12.2013 by **Director Research, Bihar Agricultural University, Sabour, Bhagalpur-813210** on behalf of **Bihar Agricultural University, BAU, Sabour, Dist: Bhagalpur** for **Extant (Notified)** variety of crop **Rice** (*Oryza sativa* L.) having denomination **Sabour Surbhit (RAU 3036)** the specification including its drawing and or photograph(s) of which are given below has been accepted and given registration number ---------NA ----------on----------NA-------.

The convention application no.----- NA---------- in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV&FR Authority, New Delhi – 110 012.

Passport data of the variety : Sabour Surbhit (RAU 3036)
Applicant : Bihar Agricultural University
Address of the applicant : BAU, Sabour, Dist: Bhagalpur- Bihar
Nationality of applicant : Indian
Application details
a. Number : E5 | OS430 | 13 | 1172
b. Date of receipt : 06.12.2013
c. Date of acceptance : -
Crop (Taxonomical lineage) : Rice (*Oryza sativa* L.)
Denomination : Sabour Surbhit (RAU 3036)
Type of variety : Extant
Classification of variety : Typical
Previously proposed
Denomination : Not applicable
Name of parental material : Rajendra, Suwasini
Source of parental material : Own germplasm
Name of reference varieties : VL Dhan 81, Tulasi & Prasana
Notification details : Notification no. S.O. 1007(E) dt. 30.03.2017

Variety description:

A. Grouping Characteristics	**Remark (measured values)**
Basal leaf: Sheath colour (Characteristics 2)	Green
Time of heading (50% of plants with panicles) (Characteristics 20)	Early
Stem: Length excluding panicles (Characteristics 29)	Very short
Decorticated grain: Length (Characteristics 54)	Long
Decorticated grain: Shape (in lateral view) (Characteristics 56)	Long slender
Decorticated grain: Colour (Characteristics 57)	White
Endosperm: Content of amylose (Characteristics 59)	High
Decorticated grain: Aroma (Characteristics 62)	Present

B. Distinct characteristics of candidate variety:
Sabour Surbhit (RAU 3036) has distinguishing characters as long decorticated grain length.

C. Distinct characteristics of reference varieties:
VL Dhan 81 & Prasana have distinguishing characters as medium decorticated grain length.
Tulasi has distinguishing characters as short decorticated grain length.

D. Date of commercialization of the variety	30.03.2017

E. Agronomic & Commercial attributes

S. No.	**Agronomic & Commercial attributes**	**Details**
1	Day of flowering/Anthesis (Average)	90-95
2	Day to maturity (Early/Medium/Late)	120-125
3	Production condition: Suitable area in	Medium and medium up land area of South

	country	Bihar (Zone IIIA & IIIB)
4	Time of sowing	10 -20 July
5	Irrigated/Rain-fed	Irrigated medium up land and medium land
6	Low fertility/High fertility of soils	Medium fertility soil
7	Tolerance to disease and Pest	Moderately high resistant to bacterial leaf blight, brown leaf spot and blast under field condition, moderately high tolerant to stem borer and BPH
8	Tolerance to adverse temperature/Frost/ Heat/Salinity	High degree of tolerance to drought. Resistant to lodging and shattering, fertilizer responsive, suitable for semi-late planting condition
	Grain characters physical	
	Kernel size	Kernal length 6.71 mm Kernal breadth 1.5 mm
	L/B ratio	4.47
	Seed colour	Straw
9	Grain yield per q/ac	16.19 – 18.21 q/ac
10	Seed weight (1000grain weight in gram)	13.4 g
11	Any other relevant information specific to the variety/Hybrid to attain potential yield.	The variety may fetch very high price in the market due to its strong aroma, long and superfine slender grain and very good cooking quality.
Figure 32		***DUS Characteristics of REG-2013-1172.pdf**

45. Application No. | E2 | OS40 | 16 | 2321 | filed on 16.03.2016 by **Associate Research Scientist (Rice), Main Rice Research Centre, SWMRU, Navsari Agricultural University, Navsari-396450, Gujarat** on behalf of **Navsari Agricultural University, Navsari-396450. Gujarat** for **Extant (Notified)** variety of crop Rice (*Oryza sativa* L.) having denomination **GNR-4** has been accepted and given registration number ---------NA ----------on ---------- NA ----------.

The convention application no.----------NA-----, in respect of the said variety has been filed on -----NA----------, in ---NA----------.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : GNR-4
Applicant : Navsari Agricultural University
Address of the applicant : Navsari Agricultural University Navsari-396450. Gujarat.
Nationality : Indian
Application details

a. Number : | E2 | OS40 | 16 | 232 |
b. Date of receipt : 16.03.2016
c. Date of acceptance :

Crop (taxonomical lineage) : Rice (*Oryza sativa* L.)
Denomination : GNR-4
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed
Denomination : NA
Name of parental material : NAUR-1 x Lal kada
Source of parental material : Own germplasm
Name of reference varieties : GR-11
Details of Gazette notification : S.O.3540 (E). Dated 22.11.2016

Variety Description:

A. Grouping Characteristics	**Remark (measured values)**
Basal leaf: sheath colour(Characteristics 2)	Green
Time of heading (50% of plant with panicles)(Characteristics 20)	Medium
Stem length:(excluding panicles)(Characteristics 29)	Very short
Decorticated grain: length(Characteristics 54)	Medium
Decorticated grain: shape (in lateral view) (Characteristics 56)	Medium slender
Decorticated grain: colour (Characteristics 57)	Red
Endosperm: content of amylose (Characteristics 59)	Medium
Decorticated grain: aroma (Characteristics 62)	Absent

B. Distinct characteristics of candidate variety:

GNR-4 has distinguishing character as leaf shape of ligule is acute, panicle exsertion is mostly exserted.

C. Distinct characteristics of reference variety:

GR-11 has distinguishing character as leaf shape of ligule is split, panicle exsertion is well exserted.

D. Date of commercialization of the variety	22.11.2016

E. Agronomic and commercial attributes

S. No.	**Agronomic and commercial attributes**	**Details**
1.	Days to flowering/Anthesis (Average)	105-110 days
2.	Days to Maturity (Early/Medium/Late)	135-140 days
3.	Production condition: suitable area in the country	Irrigated transplanted area of South Gujarat.
4.	Time of Sowing	1st July to 15th July
	Irrigated /Rainfed	Irrigated
	Low fertility /High fertility of Soil	High fertility of Soil
5.	Tolerance to Disease and Pests	BLB or false smut diseases & Stem borer or leaf folder insects.
6.	Tolerance to adverse Temperature/ Frost/Heat/Salinity	-
7.	Grain characters physical	
	a) Kernal size	Medium slender
	b) LB Ratio	2.70
	c) Seed colour	Straw

8.	Grain yield per q/acre	17.5-18.5 q/ac
9.	Seed: weight (1000 seed weight in g)	16.5 g
10.	Any other relevant information specific to the variety/Hybrid to attain potential yield	-
Figure 33		***DUS Characteristics of REG-2016-232.pdf**

46. Application No. | E10 | GH16 | 19 | 152 | filed on 02.12.2019 by **Project Coordinator (Cotton Improvement) AICRP on Cotton Central Institute for Cotton Research, ICAR-CICR, Regional Station, Lawley Road, Coimbatore-641003** on behalf of **Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Raja Pancham Singh Marg, Near Mela Ground, Gwalior–474002 (M.P.)** for **Extant (Notified)** variety of crop **Tetraploid Cotton (*Gossypium hirsutum* L.)** having denomination **RVK-11 (Raj Vijay Kapas-11) (IH 11)** has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. ----------NA-----, in respect of the said variety has been filed on -----NA----------, in ---NA----------.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : RVK-11 (Raj Vijay Kapas-11) (IH 11)
Applicant : Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya
Address of the applicant : Raja Pancham Singh Marg, Near Mela Ground, Gwalior-474002 (M.P.)
Nationality of applicant : Indian
Application details
a. Number : | E10 | GH16 | 19 | 152 |
b. Date of receipt : 02.12.2019
c. Date of acceptance : --
Crop (taxonomical lineage) : Tetraploid Cotton (*Gossypium hirsutum* L.)
Denomination : RVK-11 (Raj Vijay Kapas-11) (IH 11)
Type of variety : Extant (Notified)
Classification of variety : Typical
Previously proposed
Denomination : Not applicable
Name of parental material : JK 35 x Bikaneri Narma
Source of parental material : Own germplasm
Name of reference varieties : Jawahar Kapas 35
Notification details : Notification no. S.O.3220 (E). Dated 05.09.2019

Variety description:

Grouping characteristics	**Remarks (measured values)**
Leaf : Shape (Characteristic 8)	Palmate
Flower : Petal colour (Characteristic 15)	Yellow
Flower : Pollen colour (Characteristic 19)	Cream
Boll : Shape (Characteristic 23)	Ovate
Fibre : Length (Characteristic 33)	Medium long
B. Distinct characteristics of candidate variety:	

RVK-11 (Raj Vijay Kapas-11) (IH 11) has distinct character as plant growth habit is semi-spreading, boll weight of seed cotton/ boll (g) is medium.		
C. Distinct characteristics of reference variety:: **Jawahar Kapas 35** has distinct character as plant growth habit is spreading, boll weight of seed cotton/ boll (g) is small.		
D. Date of commercialization of the variety	05.09.2019	
E. Agronomic & Commercial attributes		
S. No.	**Agronomic & Commercial attributes**	**Details**
1.	Seed treatment rate (Timing/ Chemical)	Use of delinted seed treated with Carbendazim 50% WP @ 2kg seed or *Trichoderma virde* @ 5g/kg or seed dressing with Gaucho, before sowing will be useful.
2.	Growth habit (Determinate/Indeterminate)	Determinate
3.	Days to flowering/Anthesis (Average)	Medium
4.	Days to Maturity (Early /Medium/Late)	Medium
5.	Recommendation production ecology (Rainfed/Irrigated/High/Low/Fertility season)	Rainfed areas with onset of monsoon. One irrigation will be required for sustainable productivity.
6.	Fertilizer does with timing	Application of nutrients as per the regional recommendations/location specific, for rainfed cotton. Under assured rainfall conditions, apply 50% N, entire dose of P and K as basal at the time of sowing. Apply remaining 50% N as top dressing between 30 to 60 DAS in two Splits.
7.	Reaction to major Diseases/Pests	Moderately resistant to pest and diseases and can be managed by recommended plant protection measures.
8.	Quality of produce	-
9.	Fibre length	26.7 mm
	Fibre: Fineness (Micronaire value)	4.1
	Fibre: Uniformity	82.5%
	Fibre: Colour	White
10.	Yield of Lint/Acre (Average)	2.75 q/ac
11.	Yield of Kapas/Acre (Average)	7.85 q/ac
12.	Any other relevant information specific to the variety/Hybrid	-
Figure 34		***DUS Characteristics of REG-2019-152.pdf**

47. Application No. | E4 | BJ25 | 16 | 1307 | filed on 30.8.2016 by **Dr. Dhiraj Singh Director, Directorate of Rapeseed Mustard Research, Sewar, Bharatpur-321303** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of **Indian Mustard (Sarso)** (*Brassica juncea* L. Czern & Coss.) having denomination **RH 0406** has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : RH 0406
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : E4 | BJ25 | 16 | 1307
b. Date of receipt : 30.8.2016
c. Date of acceptance : --
Crop (taxonomical lineage) : Indian Mustard (Sarso) (*Brassica juncea* L. Czern & Coss.)
Denomination : RH 0406
Type of variety : Extant
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of Parental Material : RH 9608 x RH 30
Source of parental material : Own germplasm
Name of reference varieties : Varuna, Geeta
Notification details : S.O. 2817 (E), dtd. 19/09/2013

Variety description:

A. Grouping characteristics	**Remarks (measured values)**
Leaf : Number of lobes (Characteristic 3)	Present
Flower : Time of flowering (Characteristic 8)	Medium
Plant : Main shoot length (Characteristic 12)	Tall
Siliqua: Number of seeds per siliqua (Characteristic 20)	Medium
B. Distinct characteristics of candidate variety: **RH 0406** has distinguishing characters as dark green leaf, sparse leaf hairiness, long main shoot length, brown seed colour and bold seed size.	
C. Distinct characteristics of reference varieties: **Varuna** has distinguishing characters as medium green leaf, sparse leaf hairiness, medium main shoot length, dark brown seed colour and medium seed size. **Geeta** has distinguishing characters as dark green leaf, dense leaf hairiness, very long main shoot length, dark brown seed colour and medium seed size.	
D. Date of commercialization of the variety	19.09.2013
E. Agronomic and commercial attributes	

S. no.	**Agronomic attributes**	**Details**
1	Days to Maturity: Early/Medium/Late	Medium
2	Production Condition: Suitability Area in the country	
	: Time of Sowing	Timely sown in (October)
	: Irrigated/ Rainfed	Rainfed

	: Low fertility/High fertility	High
3	Resistance/Tolerance to pest/s	Less severity against foliar diseases and mustard aphids
4	Zone wise yield potential (Average) q/acre	13 q/ acre in Zone II
5	Seed yield q/acre (Average)	9.4
6	Seed colour	Brown
7	Seed weight (1000 seeds weight in g)	5.4
8	Fertilizer requirement (N:P:K) to attain potential yield	40:30:0
9	Seed: Oil content (%)	40.6
10	Any other relevant value addition information specific to the variety/Hybrid in terms of trade	--
Figure 35 & 36		***DUS characteristics of RH 0406**

48. Application No. E5 | BJ26 | 16 | 1308 filed on 30.8.2016 by **Dr. Dhiraj Singh Director, Directorate of Rapeseed Mustard Research, Sewar, Bharatpur-321303** on behalf of **Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001** for **Extant (Notified)** variety of **Indian Mustard (Sarso)** (*Brassica juncea* L. Czern & Coss.) having denomination **RH 0749** has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : RH 0749
Applicant : Indian Council of Agricultural Research
Address of the applicant : Krishi Bhawan, New Delhi-110001
Nationality of applicant : Indian
Application details
a. Number : E5 | BJ26 | 16 | 1308
b. Date of receipt : 30.8.2016
c. Date of acceptance : --
Crop (taxonomical lineage) : Indian Mustard (Sarso) (*Brassica juncea* L. Czern & Coss.)
Denomination : RH 0749
Type of variety : Extant
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of parental material : RH 781 x RH 9617
Source of parental material : Own germplasm
Name of reference variety : Varuna, Geeta
Notification details : S.O. 952 (E), dtd. 10/4/2013

Variety description:

A. Grouping characteristics	**Remarks (measured values)**

Leaf : Number of lobes (Characteristic 3)	Present
Flower : Time of flowering (Characteristic 8)	Medium
Plant : Main shoot length (Characteristic 12)	Long
Siliqua: Number of seeds per siliqua (Characteristic 20)	Medium

B. Distinct characteristics of candidate variety:

RH 0749 has distinguishing characters as dark green leaf, sparse leaf hairiness, long main shoot length, medium siliqua size, semi-appressed siliqua angle, brown seed colour and bold seed size.

C. Distinct characteristics of reference variety:

Varuna has distinguishing characters as medium green leaf, sparse leaf hairiness, medium main shoot length, medium siliqua size, open siliqua angle, dark brown seed colour and medium seed size**.**

Geeta has distinguishing characters as dark green leaf, dense leaf hairiness, very long main shoot length, medium siliqua size, semi-appressed siliqua angle, dark brown seed colour and medium seed size.

D. Date of commercialization of the variety	10.04.2013

E. Agronomic and commercial attributes

S. no.	**Agronomic attributes**	**Details**
1	Days to Maturity: Early/Medium/Late	Medium
2	Production Condition: Suitability Area in the country	
	: Time of Sowing	Timely sown in (October)
	: Irrigated/ Rainfed	Irrigated
	: Low fertility/High fertility	High
3	Resistance/Tolerance to pest/s	Less severity against foliar diseases and mustard aphids
4	Zone wise yield potential (Average) q/acre	14 q/ acre in Zone II
5	Seed yield q/acre (Average)	11.3
6	Seed colour	Brown
7	Seed weight (1000 seeds weight in g)	5.6
8	Fertilizer requirement (N:P:K) to attain potential yield	80:30:0
9	Seed: Oil content (%)	39.2
10	Any other relevant value addition information specific to the variety/Hybrid in terms of trade	--
Figure 37 & 38		*** DUS characteristics of RH 0749**

49. Application No. | F14 | BJ15 | 16 | 563 | filed on 20.5.2016 by **Rohtash Singh, S/o Rajender Singh, Village: Bawwa, PO: Bawwa, Tehsil: Kosli, Dist: Rewari, 123303, Haryana** for **Farmer** variety of **Indian Mustard (Sarso)** (*Brassica juncea* L. Czern & Coss.) having denomination **PRERNA** has been accepted and given registration number ---------NA ---------- on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : PRERNA
Applicant : Rohtash Singh
Address of the applicant : S/o Rajender Singh, Village: Bawwa, P.O: Bawwa, Tehsil: Kosli, Dist: Rewari, 123303, Haryana
Nationality of applicant : Indian
Application details
a. Number : F14 | BJ15 | 16 | 563
b. Date of receipt : 20.5.2016
c. Date of acceptance : --
Crop (taxonomical lineage) : Indian Mustard (Sarso) (*Brassica juncea* L. Czern & Coss.)
Denomination : PRERNA
Type of variety : Farmer
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of reference varieties : Pusa Bold, RH 30, Pusa Mustard 27

Variety description:

A. Grouping characteristics		**Remarks (measured values)**
Leaf : Number of lobes (Characteristic 4)		High
Flower : Time of flowering (Characteristic 8)		Late
Plant : Main shoot length (Characteristic 12)		Very long
Siliqua: Number of seeds per siliqua (Characteristic 20)		Few
B. Distinct characteristics of candidate variety: **PRERNA** has distinguishing character as siliqua angle with main shoot appressed.		
C. Distinct characteristics of reference variety: **Pusa Bold** has distinguishing character as siliqua angle with main shoot open. **RH 30** has distinguishing character as siliqua angle with main shoot open. **Pusa Mustard 27** has distinguishing character as siliqua angle with main shoot open.		
D. Date of commercialization of the variety		Not applicable
E. Agronomic and commercial attributes		
S. no.	**Attributes**	**Details**
1	Days to Maturity: Early/Medium/Late	Late (145 days)
2	Production Condition: Suitability Area in the country	Haryana, Rajasthan, Uttar Pradesh, Madhya Pradesh
	: Time of Sowing	1st to 25th of October
	: Irrigated/ Rainfed	Irrigated as well as rainfed
	: Low fertility/High fertility	Low fertility
3	Tolerance to adverse temperature/frost and heat-sensitive/tolerant	Moderately tolerant
4	Tolerance to water stagnation: stagnation/tolerant	Moderately tolerant to water stagnation
5	Resistance/Tolerance to pest/s	Tolerant
6	Seed yield q/acre (Average)	10 q/ac
7	Seed weight (1000 seeds weight in g)	4.92 g
8	Siliqua: Length (cm)	4.4 cm
9	Seed: Oil content (%) Low/Medium/High	38.9, Medium

10	Any other relevant value addition information specific to the variety/Hybrid in terms of trade	Wider adaptation
		***DUS characteristics of PRERNA**

50. Application No. F1 PN1 19 11 filed on 07.2.2019 by **Ramakanth Ramachandra Hegde, At. Hunsekoppa, PO: Kodsar, Tq: Siddapur, Distt: Uttar Kannada-581340, Karnataka** for **Farmer** variety of **Black pepper** (*Piper nigrum* L.) having denomination **SIGANDINI** has been accepted and given registration number ---------NA ----------on ---------- ------ NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : SIGANDINI
Applicant : Ramakanth Ramachandra Hegde
Address of the applicant : At. Hunsekoppa, PO: Kodsar, Tq: Siddapur, Distt: Uttar Kannada-581340, Karnataka
Nationality of applicant : Indian
Application details
a. Number : F1 PN1 19 11
b. Date of receipt : 07.2.2019
c. Date of acceptance : --
Crop (taxonomical lineage) : Black pepper (*Piper nigrum* L.)
Denomination : SIGANDINI
Type of variety : Farmer
Classification of variety : Typical
Previously proposed Denomination : Not applicable
Name of reference variety : Panniyur-1

Variety description:

A. Grouping characteristics	**Remarks (measured values)**
Plant: Shoot tip colour (Characteristic 1)	Dark purple
Leaf: Length (Characteristic 2)	Medium
Leaf: Width (Characteristic 3)	Broad
Leaf: Lamina shape (Characteristic 5)	Ovate-lanceolate
Leaf: Base shape (Characteristic 6)	Round
Leaf: Margin (Characteristic 7)	Even
Spike: Length (Characteristic 13)	Medium
Spike: Setting (Characteristic 17)	Compact
Berry: Shape (Characteristic 19)	Oval
Berry: Size (Characteristic 20)	Bold
B. Distinct characteristics of candidate variety: **SIGANDINI** has distinguishing characters as plant shoot tip dark purple, leaf base shape round,	

lateral branch pattern horizontal and spike peduncle length medium.		
C. Distinct characteristics of reference variety: **Panniyur-1** has distinguishing characters as plant shoot tip light green, leaf base shape cordate, lateral branch pattern semi erect and spike peduncle length short.		
D. Date of commercialization of the variety		Not applicable
E. Agronomic and commercial attributes		
S. no.	**Attributes**	**Details**
1	Bulk density	610 g/L
2	Piperin content	4.32% of oil
3	Oleoresin %	5.74%
4	Early harvesting	January
5	Foot rot disease	Lower incidence
6	Essential oil %	3.2
7	Fresh weight of 100 berries	19.75g
8	Dry weight of 100 berries	7.51g
9	Fresh berry yield (kg/vine)	9.25
10	Dry berry yield (kg/vine)	3.55
Figure 39, 40 & 41		***DUS characteristics of SIGANDINI**

51. Application No. | E1 | BJ1 | 16 | 70 | filed on 16.2.2016 by **Dr. Valasubramanian Ramaiah, Regulatory and Stewardship Lead (Seed & Traits), V-Ascendas, Atria Block, 12th Floor, Plot No. 17, Software Unit Layout, Madhapur, Hyderabad-500081, Telangana** on behalf of **Pioneer Overseas Corporation, V-Ascendas, Atria Block, 12th Floor, Plot No. 17, Software Unit Layout, Madhapur, Hyderabad-500081, Telangana** for **Extant VCK** variety of Indian mustard (Sarso) (*Brassica juncea* L. *Czern & Coss*) having denomination **JI0801FC** has been accepted and given registration number ---------NA ----------on ---------- NA --------.

The convention application no. -----NA-----, in respect of the said variety has been filed on -----NA------, in ---NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is office of the Registrar, PPV & FR Authority, New Delhi – 110 012.

Passport data of the variety : JI0801FC
Applicant : Pioneer Overseas Corporation
Address of the applicant : V-Ascendas, Atria Block, 12th Floor, Plot No. 17, Software Unit Layout, Madhapur, Hyderabad-500081, Telangana
Nationality of applicant : Indian
Application details
a. Number : | E1 | BJ1 | 16 | 70 |
b. Date of receipt : 06.12.2013
c. Date of acceptance : --
Crop (taxonomical lineage) : Indian mustard (Sarso) (*Brassica juncea* L. *Czern & Coss*)
Denomination : JI0801FC
Type of variety : Extant

Classification of variety : VCK
Previously proposed Denomination : Not applicable
Name of reference varieties : Pusa bold, Varuna, Rohini

Variety description:

A. Grouping characteristics	**Remarks (measured values)**
Leaf: Number of lobes (Characteristic 4)	Low
Flower: Time of flowering (Characteristic 8)	Medium
Plant: Main shoot length (Characteristic 12)	Long
Siliqua: Number of seeds per siliqua (Characteristic 20)	Few

B. Distinct characteristics of candidate variety:
JI0801FC has distinguishing characters as low leaf lobes, short petals length, narrow petals, short siliqua, short beak of siliqua, low density of siliqua on main shoot and dark brown seeds.

C. Distinct characteristics of reference varieties:
Pusa bold has distinguishing characters as medium leaf lobes, medium petals length, petals width medium, medium siliqua, medium beak of siliqua, medium density of siliqua on main shoot and brown seeds.
Varuna has distinguishing characters as medium leaf lobes, medium petals length, petals width medium, medium siliqua, medium beak of siliqua, medium density of siliuqa on main shoot and brown seeds.
Rohini has distinguishing characters as high leaf lobes, medium petals length, petals width broad, medium siliqua, medium beak of siliqua, medium density of siliqua on main shoot and brown seeds.

D. Date of commercialization of the variety	17.09.2009

E. Agronomic and commercial attributes

S. no.	**Attributes**	**Details**
1	Days to Maturity: Early/Medium/Late	Late
2	Production Condition: Suitability Area in the country	Rajasthan, parts of Haryana, Uttar Pradesh and Madhya Pradesh
	: Time of Sowing	Winter Rabi (September-March)
	: Irrigated/Rainfed	Irrigated
	: Low fertility/High fertility	Suitable for both low & high fertile soil
3	Fertilizer requirement (N:P:K) to attain potential yield	32:21:11 Ac
4	Resistance/Tolerance to pest/s	Tolerance to White rust
5	Zone wise yield potential (Average) q/ acre, if applicable	Not applicable. The candidate variety is an inbred and not recommended for cultivation.
6	Seed yield q/acre (Average)	1200-1500 kg/ha
7	Seed weight (1000 seeds weight in g)	4.5-5.5 g
8	Seed colour	Brown
9	Seed: Oil content (%)	38-42
10	Any other relevant value addition information specific to the variety/Hybrid in terms of trade	Maintain seed rate of 1 kg/ac and spacing 45x15 cm timely follow the standard package of practice for mustard.
		***DUS characteristics of JI0801FC**

Photographs of candidate varieties notified in Plant Variety Journal of India, Vol.-14, No.-12, December 01, 2020

Pearl millet: CO 9 (REG/2020/114 H)	**Bread wheat: VL Gehun 3004 (VL 3004) (REG/2020/142)**
	
Figure 1: Candle spike shape	**Figure 2:** Green foliage colour, strong flag leaf waxiness of sheet and strong flag leaf waxiness of blade
Bread wheat: VL 953 (VL Gehun 953) (REG/2020/143)	**Bread wheat: VL Gehun 2014 (VL 2014) (REG/2020/144)**
	
Figure 3: Long ear length	**Figure 4:** Medium ear length
Bread wheat: VL Gehun 967 (VL 967) (REG/2020/145)	**Bread wheat: Central Wheat HS-562 (REG/2020/151)**
	
Figure 5: Dark green foliage colour, long ear length (excluding awns and scurs), ovate grain shape and medium seed size (weight of 1000 grains)	**Figure 6:** Foliage colour green and awn attitude medium

Bread wheat: Pusa Kiran (HS-542) (REG/2020/152)	**Sorghum: CO 30 (REG/2020/103)**
	
Figure 7: Grain germ width medium	**Figure 8:** Early plant time to 50% flowering (50% of the plants with 50% anthesis)
Sorghum: SR-2917 (GNJ-1) (REG/2020/117)	**Grain Amaranth: KBGA-1 (REG/2020/51)**
	
Figure 9: White leaf mid rib colour (5th fully developed leaf) and yellow white glume colour	**Figure 10:** Purple inflorescence colour, lax inflorescence compactness
Barley: Karan Maltsona (DWRB 160) (REG/2020/27)	**Okra: Phule Vimukta GKOK-S-4 (GKOS-12-5) (REG/2019/175)**
	
Figure 11: Flag leaf attitude semi erect	**Figure 12:** Medium stem intensity of green colour and strong fruit constriction of basal part

Sorghum: K 12 (REG/2020/107)	**Finger millet: Paiyur (Ra) 2 (REG/2020/108)**

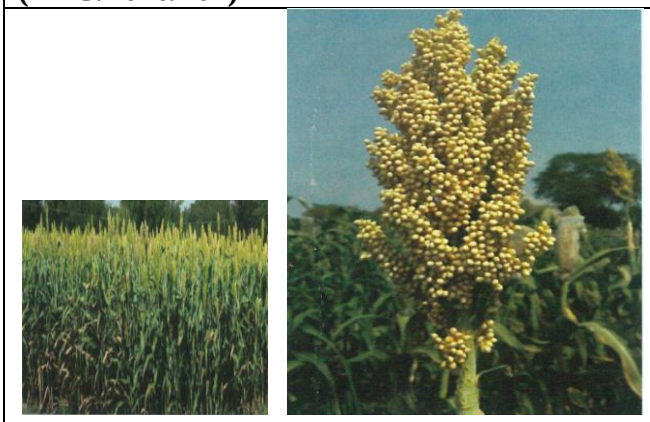
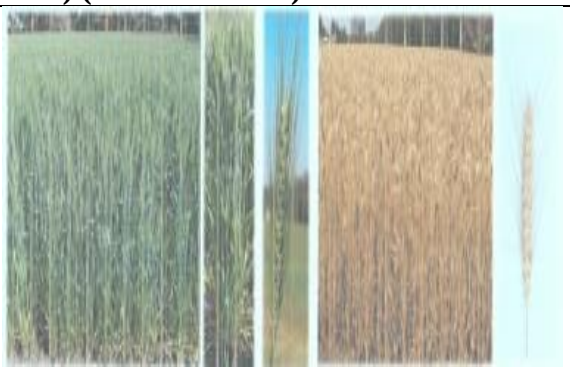



Figure 13: Stigma anthocyanin colouration absent, medium neck of panicle visible length above sheath and medium glume length	**Figure 14:** Days to 50% flowering late
Bread wheat: PUSA Wheat 1621 (HI 1621) (REG/2020/137)	**Bread wheat: PUSA Wheat 1620 (HI 1620) (REG/2020/138)**
	
Figure 15: Semi erect flag leaf attitude, strong flag leaf waxiness of sheath and medium flag leaf Waxiness of blade	**Figure 16:** Semi erect flag leaf attitude, strong ear waxiness and medium flag leaf width
Durum wheat: Pusa Wheat 8802 (HI 8802) (REG/2020/140)	**Bread wheat: Pusa Wheat 1628 (HI 1628) (REG/2020/141)**
	
Figure 17: Grain germ width wide	**Figure 18:** Medium flag leaf hairs on auricles, weak ear waxiness and medium flag leaf width

Pigeon pea: Red gram (Pigeon pea) CO 9 (CRG 2012-25) (REG/2020/110)	**Sorghum: Gujarat Fodder Sorghum-6 (GFS-6) (SRF 347) (REG/2020/116)**
	
Figure 19: Seed colour brown	**Figure 20:** White leaf mid rib colour (5th fully developed leaf)
Durum wheat: UAS-466 (REG/2020/174)	**Durum wheat: MPO (JW) 1255 (REG/2017/152)**
	
Figure 21: Green foliage colour, erect plant flag leaf attitude, medium flag leaf width	**Figure 22:** Awn colour dull white
Bread wheat: Pusa Wheat 3237 (HD 3237) (REG/2020/149)	**Blackgram: Black gram KKM 1 (REG/2020/170)**
	
Figure 23: Medium ear density and long ear length (excluding awns and scurs)	**Figure 24:** Semi erect plant growth habit and medium plant height

Durum wheat: Pusa Wheat 8805 (HI 8805) (REG/2020/139)	**Bread wheat: Phule Samadhan (NIAW-1994) (REG/2017/1917)**
	
Figure 25: Very early ear time of emergence (first spikelet visible on 50% of ears), strong flag leaf waxiness of sheath, weak flag leaf waxiness of blade, strong ear waxiness and strong peduncle waxiness	**Figure 26:** Green foliage colour, erect plant flag leaf attitude and long ear length (excluding awns and scurs)
Chilli: Gujarat Vegetable Chilli (GVC 111) (REG/2016/508)	**Sorghum: Jhundi Jwar Nirpat (REG/2017/541)**
	
Figure 27: Semi drooping flower/fruit orientation and medium fruit intensity of colour (at mature unripe stage)	**Figure 28:** Grain lustre is non-lustrous
Sorghum: Safed Bhundi (REG/2017/328)	**Sorghum: Jwar Kutk REG/2017/1060)**
	
Figure 29: Lemma arista formation absent and semi loose panicle density at maturity (ear head compactness)	**Figure 30:** Panicle broader in lower part panicle shape

Sorghum: Gajpal Jowar (REG/2017/739)	**Rice: Sabour Surbhit (RAU 3036) REG/2013/1172**

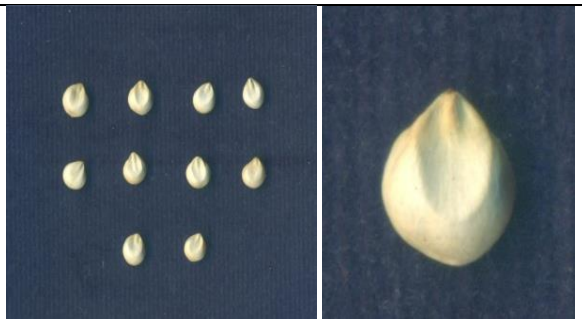
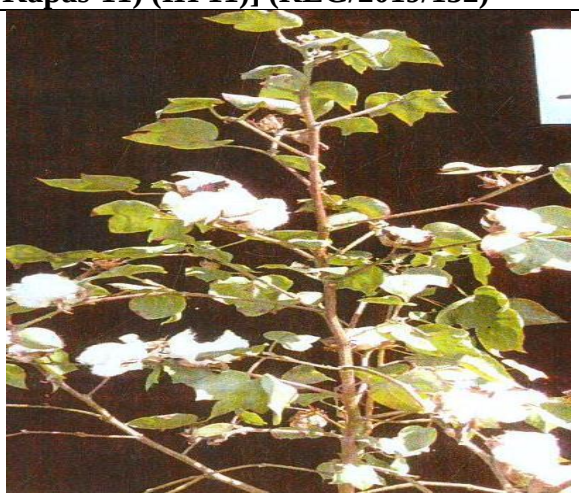



Figure 31: Medium grain size of mark of germ	**Figure 32:** Long decorticated Grain Length
Rice: GNR-4 (REG/2016/232)	**Tetraploid Cotton: [RVK-11 (Raj Vijay Kapas-11) (IH 11)] (REG/2019/152)**
	
Figure 33: Acute leaf Shape of Ligule, Mostly ExsertedPanicle Exsertion	**Figure 34:** Plant Growth Habit semi-spreading
Indian mustard: RH 0406 RH 0406 (REG/2016/1307)	**Indian mustard: RH 0406 RH 0406 (REG/2016/1307)**
	
Figure 35: Siliqua size- medium	**Figure 36:** Seed colour- brown, Seed size- bold

Indian mustard: RH 0749 (REG/2016/1308)	**Indian mustard: RH 0749 (REG/2016/1308)**
	
Figure 37: Siliqua size medium	**Figure 38:** Seed colour brown, Seed size bold
Black Pepper: Sigandini (REG/2019/11)	**Black Pepper: Sigandini (REG/2019/11)**
	
Figure 39: Plant shoot tip dark purple	**Figure 40:** Leaf base shape round
Black Pepper: Sigandini (REG/2019/11)	

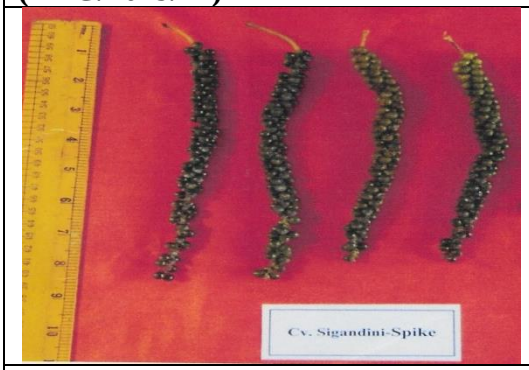



Figure 41: Spike peduncle length medium	

Guidelines for the Conduct of Test for Distinctiveness, Uniformity and Stability

On

Greater Yam

(*Dioscorea alata* L.)

Protection of Plant Varieties and Farmers Rights Authority (PPV&FRA),
Govt. Of India, New Delhi

CONTENTS

Greater Yam

(*Dioscorea alata* L.)

Introduction

Yams belong to the family *Dioscoreaceae* under Monocotyledons that include more than 600 species. Yams bring food security to 300 million people in the low-income food-deficit countries of the tropics. Yams are herbaceous climbers characterized by winged vines that twine on supports in the right hand direction. *D. alata,* the greater yam is the most widely cultivated yam species in India. It is a polyploid species that includes accessions with $2n$ = 40, 60 and 80 chromosomes. The greater yam germplasm maintained at CTCRI consists of 491 accessions comprising of land races, exotic accessions, mutants and hybrids. The leaves are large, ovate or cordate in shape. Tubers are large, varying in shape and are usually 1-3 per plant. Tuber flesh is white, cream, yellow or purplish. Many cultivars produce aerial tubers or bulbils in the leaf axils.

Greater Yam is propagated vegetatively and seed yam (whole tuber) is the ideal source of planting material. Recommended size for planting material is 200 – 250 g setts. One or two ploughing or digging of the land up to a depth of 15 – 20 cm followed by opening of pits of the size 45 x 45 x 45 cm and filling of ¾ th size of these pits with a mixture of 1 kg dry farm yard manure and top soil is the usual agronomic practice followed. Seed yams or yam setts are then planted in it and the optimum spacing recommended for yams is 90 cm X 90 cm. Application of well rotten FYM @ 10 t/ha at the time of field preparation is essential. Chemical fertilizers may be applied in the form of NPK @ 100:50:100 t/ha in two split doses. Along with the fertilizer application, weeding and earthing up also should be essentially done. As soon as the yam vine emerges, it tends to climb on any available support. Staking can be done by allowing vines trail on poles or live trees. On maturity, vines dries up and tubers are harvested eight to ten months after planting.

Fig 1: Field view of greater yam and harvested Tubers

I. Subject

These test guidelines shall apply to all varieties of Greater Yam (*Dioscorea alata* L.).

II. Planting Material required

1. The Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA) shall decide when, where and in what quantity and quality the plant material are required for testing of a variety denomination for registration under the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001. Applicants submitting such material from a country other than India shall make sure that all customs and quarantine requirements stipulated under relevant national legislations and regulations are complied with.

2. The material is to be supplied in the form of tubers. The minimum quantity of planting material, to be supplied by the applicant, should be 10 healthy tubers 750-1100g each without sprouts and any damage to the epidermal portion. The tubers shall be packed in cotton cloth bag with proper labelling.

3. The planting material supplied shall be healthy, not lacking in vigour or affected by any pest or disease and it should certify that it shall also possess the highest genetic stability in the propagated material and uniformity.

4. The plant material should not have undergone any chemical or bio-physical treatment which would affect the expression of the characteristics of the variety, unless the Registrar of the Authority has requested for such treatment. If, it has been treated, full details of the treatment must be provided.

III. Conduct of tests

1. The minimum duration of DUS tests shall normally be at least two independent similar growing seasons with two consecutive plantings, the second being a replanting with the harvested plant material of the first season or with reference to the agro climatic conditions of candidate variety.

2. The test shall normally be conducted at least at two test locations. If any essential characteristics of the candidate variety are not expressed for visual observation at these locations, the variety shall be considered for further examination at another appropriate test site (a third location) or under special test protocol on a expressed request of the applicant.

3. The field tests shall be carried out under conditions favouring normal growth and expression of all test characteristics. The size of plot shall be such that plants or parts of plants could be removed for measurement and observation without prejudicing the other observations on the standing plants until the end of the growing period.

4. Each test shall include about 25 plants in the plot size (4.5 m x 4.5 m) and planting space specified below across three replications. Separate plots for observation and for measurement can only be used, if they have been subjected to similar environmental conditions.

5. All the replications shall be sharing similar environmental conditions of the test location.

6. **Test plot design:**

Plot size	:	4.5 m X 4.5 m
Spacing	:	90 cm X 90 cm
No. of Replications	:	3
No. of plants/replication	:	25

7. Observations should not be recorded on the plants in border rows.

8. Additional test protocols for special tests shall be established by the PPV & FR Authority.

IV. Methods and observations

1. The characteristics described in the Table of characteristics shall be used for the testing of varieties for their DUS (section VII).

2. For the assessment of Distinctiveness and Stability, observations shall be made on at least 30 plants or parts of 30 plants, which shall be equally divided among three replications.

3. For the assessment of Uniformity of characteristics on the plot as a whole (visual assessment by a single observation on group of plants or parts of plants), a population standard of 1% and an acceptance probability of at least 95 % shall be applied. Number of offtypes shall not exceed one out of 75 plants.

4. For the assessment of all colour characteristics, the latest Royal Horticultural Society (RHS) colour chart shall be used.

5. Unless otherwise indicated, all observation on the plant, observations on leaf and the vine should be made before the end of the growing phase, during the full expression time preferably at about 90 days after planting or 60 days before harvest in early maturing cultivars.

6. Vine and leaf characters should be recorded as the average expression of the character observed in a group of 8 plants during maximum growing phase (90 – 180 days).

7. All observations on the tubers should be made at the time of harvest (270 – 300 days after planting).

8. The optimum stage of plant growth for assessment of each characteristic is given in the sixth column of the Table of characteristics are described below:

Growth stages	Codes
Early Growth stage (1 month after planting)	A
Active vegetative growth stage (6 months after planting)	B
Senescence/Harvesting stage (9 months after planting)	C

V. Grouping Characterstics

1. The candidate varieties for DUS testing shall be divided into groups to facilitate the assessment of Distinctiveness. The characteristics and their states which are known from experience not to vary or to vary only slightly within a variety are suitable for grouping purpose.
2. The following characteristics shall be used for grouping of greater yam varieties:

a) Petiole colour (Characteristic 4)

b) Leaf shape (Characteristic 7)

c) Tuber shape (Characteristic 15)

d) Tuber cortex colour (Characteristic 16)

e) Tuber flesh colour (Characteristic 17)

VI. Characteristics and symbols

1. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of characteristics (Section VII) shall be used.

2. States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Notes (1 to 9) shall be used to describe the state of each character for the purpose of digital data processing and these notes shall be given against the states of each characteristic. In the case of qualitative and pseudo-qualitative characteristics, all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 9 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics.

3. Legend

(*) Characteristics that shall be observed during every growing season on all varieties and shall always be included in the description of the variety, except when the state of expression of any of these characters is rendered impossible by a preceding phenological characteristic or by the environmental conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.

(+) See explanations on the Table of characteristics in section VII. It is to be noted that for certain characteristics the plant parts on which observations to be taken are given in the explanation or figure(s) for clarity and not for the colour variation.

4. Characteristics denoted with symbols QL and QN in first column of the Table of characteristics shall be indicated as:

   QL: Qualitative characteristics

   QN: Quantitative characteristics

5. Type of assessment of characteristics indicated in column seven of Table of characteristics is as follows:

   MG: Measurement by a single observation of a group of plants or parts of plants

   MS: Measurement of a number of individual plants or parts of plants

   VG: Visual assessment by a single observation of a group of plants or parts of plants

   VS: Visual assessment by observations of individual plants or parts of plants

VII. Table of characteristics

Sl.No.	Characteristic	States	Notes	Example varieties	Stage of observation	Type of Assessment
1	2	3	4	5	6	7
1 (*) (+)	Young stem colour	Green (Yellow-Green group 144)	1	Da 240	A	VS
		Purple (Red Purple group 59)	3	Sree Neelima		
2 (*) (+)	Young fully open leaf colour	Yellowish (Yellow Green group N144)	1	Da 22	A	VS
		Dark green (Green group 137)	3	Da 240		
		Light Brown (Grey Brown group N199)	5	Da 81		
		Purple (Red Purple group 59)	7	Sree Neelima		
3 (*) (+)	Colour of wings	Green (Yellow Green group 144)VG	1	Da 21	B	VG
		Green with purple margin (Yellow Green group 144)	3	Da 340		
4 (*) (+)	Petiole colour	Green (Yellow Green group 144)	3	Da 240	B	VG
		Green with pigmentation	5	Da 340		
5 (*)	Petiole length (cm)	Short (≤ 5cm)	3	Da 73	B	MS
		Medium (5-10cm)	5	Da 215		
		Long (≥10m)	7	Da 222		
6. (*) (+)	Mature leaf colour	Pale green (Yellow Green group 144)	1	Sree Nidhi	B	VG
		Dark green (Green group 137)	3	Sree Swathy		
7 (*) (+)	Leaf shape	Cordate narrow	1	Sree Nidhi,Da 13	B	VG
		Cordate broad	3	Da 340, Sree Swathy		
		Sagittate narrow	5	Da 240		
		Sagittate broad	7	Da 287		
8	Leaf margin	Absent	1	Sree Nidhi	B	VS

(*) (+)	pigmentation	Present	9	Sree Neelima		
9 (*) (+)	Leaf lobes in a Leaf	Non overlapping	1	Da 516	B	VS
		Overlapping	9	Da 515		
10 (*)	Flowering	Absent	1	Da 240	C	VG
		Present	9	Sree Karthika		
11 (*) (+)	Sex	Female	1	Sree Roopa	C	VG
		Male	3	Sree Karthika		
12 (*)	Aerial tubers	Absent	1	Da 303	C	VG
		Present	9	Sree Neelima		
13 (*) (+)	Aerial tuber: cortex colour	Yellow (Greyed Orange group 164-C)	1	Sree Swathy	C	VS
		Purple (Puple group N78-B)	3	Sree Neelima		
14 (*) (+)	Aerial tuber flesh colour	Cream (White group NN155A)	1	Sree Swathy	C	VS
		Yellow (Greyed Yellow group 162C)	3	Dah106		
		Light purple (Purple Violet group N82D)	5	Da 492		
		Purple Purple group N78A)	7	Da 340		
15 (*) (+)	Tuber shape	Linear	1	Da 17-6, Da 8	C	VS
		Oval	3	Sree Shilpa, Da 84		
		Digitate	5	Sree Roopa		
		Cylindrical	7	Sree Nidhi, Sree Karthika		
		Irregular	9	Da 340		
16 (*) (+)	Tuber cortex colour	Cream (Yellow White group 158)	1	Da 278	C	VS
		Yellow (Yellow Orange group 17)	3	Sree Swathy Da 243		
		Light purple (Red purple group 62)	5	Sree Nidhi		
		Dark purple (Purple group N79)	7	Sree Neelima		
17 (*) (+)	Tuber flesh colour	White (White group 155)	1	Sree Nidhi	C	VS
		Yellowish white/offwhite (Yellow White 158)	3	Sree Karthika		
		Yellow (Yellow orange group 17-19)	4	Da 509		
		Light purple (Red purple 65)	5	Sree Neelima		
		Purple (Purple Violet N80)	7	Da 340		

		Mixed	9	Da504		
18 (*) (+)	Hairs/roots on tuber	Sparse (<4/sq. inch)	3	TCR115	C	VS
		Dense (>4/ sq. inch)	5	DaH9-2		
19 (*) (+)	Tuber: appearance of cross section	Amorphous	1	Da385	C	VS
		Granular	3	Sree Keerthy Da526		
20 (*) (+)	Tuber oxidation /browning	Absent	1	Da 508	C	VS
		Present	9	Sree Nidhi		

VIII. Explanation for the Table of characteristics

Characteristic 1. Young stem colour: Determined by recording the predominant colour of the young emerging vine.

	
Green	Purple
(1)	(3)

Characteristic 2. Young fully open leaf colour: Determined by recording the predominant colour of the young leaves on emerging vines at one month after planting

			
Yellowish	Dark green	Light Brown	Purple
(1)	**(3)**	**(5)**	**(7)**

Characteristic 3. Colour of wings: The colour of wings of main stem recorded at 6 month after planting when the plant is fully developed.

	
Green	Green with purple margin
(1)	(3)

Characteristic 4. Petiole colour: The predominant color of petioles of the mature leaves recorded at 6 month after planting.

	
Green	Green with pigmentation
(3)	(5)

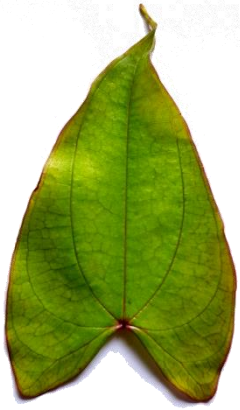
Characteristic 6. Mature leaf colour: The predominant colour of the mature leaf on main stem recorded at 6 month after planting.

	
Pale green	Dark green
(1)	(3)

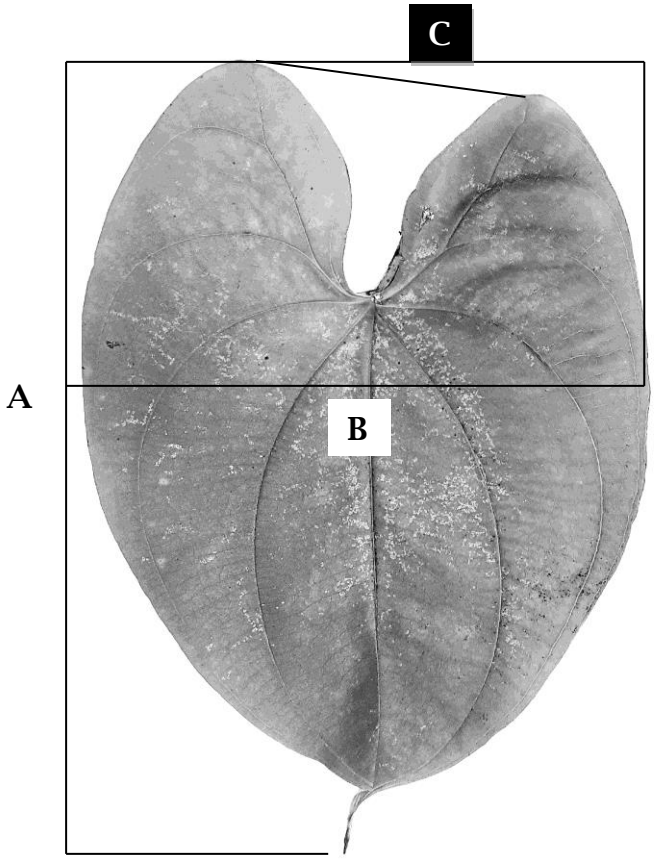
Characteristic 7. Leaf shape: The predominant shape of the mature leaf on main stem recorded at 6 month after planting.

			
Cordate narrow	Cordate broad	Sagittate narrow	Sagittate broad
(1)	(3)	(5)	(7)

Characteristic 8. Leaf margin pigmentation: The predominant color of leaf margin of the mature leaves on main stem recorded at 6 month after planting.

	
Absent	Present
(1)	(9)

Characteristics 9. Leaf lobes in a leaf: Recorded as given in Fig.1 and classified as non overlapping (1) and overlapping (9).

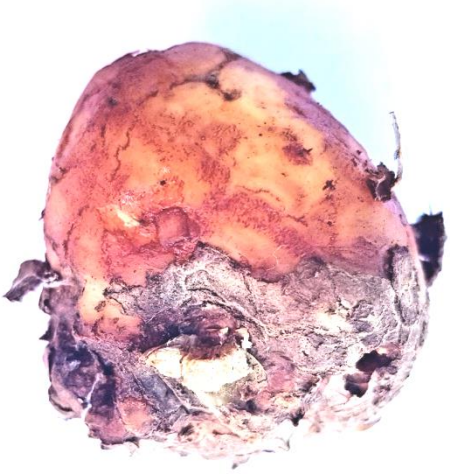


Leaf length	Leaf breadth	Distance between leaf lobes
(A)	(B)	(C)

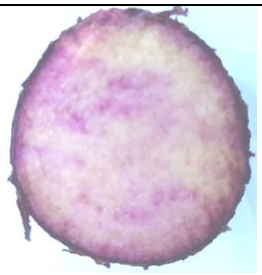
Characteristic 11. Sex: recorded on flowering plants

	
Female	Male
(1)	(3)

Characteristic 13: Aerial tuber cortex colour: Predominent colour of the aerial tuber cortex recorded at 9 month after planting

	
Yellow	Purple
(1)	(3)

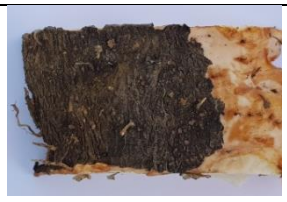
Characteristic 14: Aerial tuber flesh colour: Predominent aerial tuber flesh colour recorded at 9 month after planting

			
Cream	Yellow	Light purple	Purple
(1)	(3)	(5)	(7)

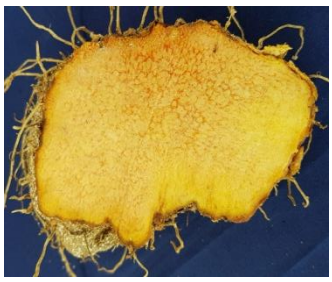
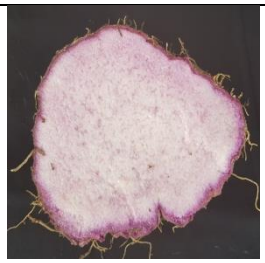
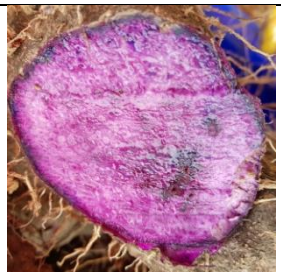
Characteristic 15. Tuber Shape

				
Linear	Oval	Digitate	Cylindrical	Irregular
(1)	**(3)**	**(5)**	**(7)**	**(9)**

Characteristic 16. Tuber cortex colour: The predominant colour of the cortex recorded on fully matured tubers at nine months after planting

			
Cream	Yellowish	Light purple	Dark Purple
(1)	**(3)**	**(5)**	**(7)**

Characteristic 17. Tuber flesh colour: The predominant flesh colour of the cross section of the fully matured tubers at middle portion recorded at nine months after planting

		
White	Yellowish white/offwhite	Yellow
(1)	**(3)**	**(4)**
		
Light purple	Purple	Mixed
(5)	**(7)**	**(9)**

Characteristic 18. Hairiness of tuber: Recorded on matured tubers at nine months after planting.

	
Sparse	Dense
(3)	(5)

Characteristic 19. Tuber appearance of cross section: Graininess of the cross section of the fully matured tubers recorded at nine months after planting.

	
Amorphous	Granular
(1)	(3)

Characteristic 20. Tuber oxidation /browning: The tuber may be cut into small pieces and colour may be observed after 15 minutes to record browning due to the presence of phenolics.

	
Absent	Present
(1)	(9)

IX. Working group details

The test guidelines developed by the task force (03/2018) constituted by the PPV & FR Authority for Greater yam (*Dioscorea alata L.*) with consultation by Nodal officer, ICAR-CTCRI(HQ), Thiruvanathapuram & Co-Nodal officer ICAR-CTCRI, Regional Centre, Bhubaneswar. Technical inputs also provided by the PPV & FR Authority.

1.	**Dr. S.K. Naskar (Plant Breeding),** Former Director, ICAR-CTCRI 4, Deshbandhu Road, Jadavpur, Kolkata 700032	Chairman
2.	**Dr. (Mrs.) Archana Mukherjee** **Director, ICAR-CTCRI** Sreekariyam, Thiruvananthapuram 695017, Kerala	Member

3.	**Dr. K Joseph John** **Pr. Scientist & Officer In-Charge** ICAR-NBPGR Regional Station – Thrissur Vellanikkara, KAU P.O. Thrissur - 680656, Kerala	Member
4.	**Dr. Kalidas Pati,** **Senior Scientist**, ICAR-CTCRI Regional Centre Dumuduma, Bhubaneswar	Member
5.	**Dr. Ashish Narayan** **Tuber Breeder** RAU, Eastern Regional Centre, Dholi Muzaffarpur – 843121, Bihar	Member
6.	**Dr. M. N. Sheela** **Head of Division, Crop improvement** ICAR-CTCRI, Sreekariyam, Thiruvananthapuram 695017, Kerala	Member
7.	**Dr. Ravi Prakash** Registrar(Farmers' Rights), PPV & FRA, New Delhi	Member Secretary

X. DUS testing Centre:

Lead DUS test centre	Collaborating DUS test Centre
ICAR – Central Tuber Crops Research Institute, Sreekaryam,Thiruvananthapuram-695017, Kerala	ICAR-CTCRI Regional Centre Dumduma, Bhubaneswar

Guidelines
for the Conduct of Test for
Distinctiveness, Uniformity and
Stability

On

Jackfruit

(*Artocarpus heterophyllus* Lam.)

Contents

Jackfruit (*Artocarpus heterophyllus* Lam.)

I. Subject

These Test Guidelines shall apply to all the genotypes and varieties of Jackfruit (*Artocarpus heterophyllus* Lam.)

II. Planting material required

1. The Protection of Plant Varieties and Farmers' Rights Authority (PPV & FRA) shall decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered for registration under the Protection of Plant Varieties and Farmers' Rights Authority (PPV & FRA), 2001. Applicants submitting such plant material from a country other than India shall make sure that all customs and quarantine requirements stipulated under relevant national legislations and regulations are complied with.
2. The plant material has to be supplied in the form of grafts / budded plants. Five plants per genotype, propagated vegetatively needs to be supplied to DUS testing centres.
3. The plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any pest or disease.
4. The plant material should not have undergone any treatment, which would affect the expression of genetic potential of the variety, unless the Registrar of the PPV & FRA may allow or request for such treatment. If it has been treated, full details of the treatment must be provided.
5. The age of the plant(s) shall be minimum nine months from the date of grafting/ budding on the *A. heterophyllus* Lam. rootstock and raised in the polythene bags.

III. Conduct of tests

Minimum growing cycle

1. The minimum duration of the DUS test shall normally be at least for two full-fledged fruiting seasons in two fruit bearing seasons or a tree which shall be a minimum of five years old as assessed by the team/Authority.
2. The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination. In particular, it is essential that the trees produce a satisfactory crop of fruit in each bearing season.

3. If any essential characteristic of the candidate variety is not expressed sufficiently for visual observation at these locations, the variety shall be considered for further examination at another appropriate test site or under special test protocol on expressed request by the applicant, for which additional quantity of planting material shall be required.
4. The field test shall be carried out at site under open field conditions favoring normal growth and expression of all the test characteristics.

Testing at DUS testing center

The tests shall normally be carried out at the DUS testing center's for the recommended period of years. However, looking into the perennial nature of the crop, provision has been made for *on- site DUS testing* with prior precautions as mentioned below.

Testing on- site

The applicant should have well grown bearing mother plant *on- site* (for SAU, Institutes and at farmer's field). Since Uniformity & Stability of propagated trees cannot be tested on a single tree *on- site*, the Registrar for this purpose, shall stipulate the applicant to produce grafted trees (27 Nos.) within the first 09 (Nine) years. Failing which the registration shall not be renewed.

- The applicant or his/her nominee shall submit a request to the Authority for *on-site* examination prior to start of bearing season as mentioned in Test Guidelines for site examination of the candidate variety.
- *on-site* testing may be conducted at the places specified by the applicant. The age of the trees at *on-site* shall be minimum 5 years.
- All chimeric branches/infested/malformed branches have to be removed before considering the *on-site* tree as mother tree. If the breeder/farmer objects to it such a tree cannot be considered for DUS. Such a tree with GIS position shall be permanently numbered on the procambium under the bark at 10ft or above the ground. The less of this can lead to forfeiture of registration.

Conditions for the conduct of on- site examination will be approved by the PPV and FRA, New Delhi, to ensure the site represents normal grouping structure and not exceptions such as in ponds/shade/slope/canopy restricting structures or density etc.

Test Plot Design

The design of the test should be such that plants shall be grafted ones of same age with seed based mother plant identified and labeled or parts of plants may be removed for measurement or counting without any prejudice to the observations which must be made up to the end of the bearing season. If mother plant is not available, a justifiable reason has to be put on record with the history of how the mutant/diverse scion was obtained.

- Number of rows : 3 (With three plants per row)
- Row to Row distance : 7 m
- Plant to plant distance : 7 m
- Number of replications : 3
- No. of plants per replications : 3

IV. Methods and observations

1. The characteristics described in the Table of Characteristics (see section VII) shall be used for the testing genotypes, varieties and hybrids for their DUS.
2. For the assessment of Distinctiveness and Stability, observations shall be made on 3 plants or parts (fruits) taken from each of 3 plants or single tree for *on-site* DUS testing. In the case of parts of plants and the number to be taken from each plant are discussed in the individual characters, in notes given below.

Notes on DUS characters to be recorded on trees at least 5 years old

a) **Leaf*:** Leaf observations must be made on fully expanded leaf (fourth leaf from the tip of any branch) after cessation of active growth. Twenty leaves, 5 leaves each collected from all four sides of the tree (North, South, East and West directions) should be used for recording all leaf characters.

b) **Tree*:** Foliage density (see section VII) must be recorded on trees aged five years and above. The density of leaves along with branches must be considered to classify them as sparse or dense.

c) **Mature fruit*:** Observations on the mature fruit should be recorded when the fruit is ready for harvesting. At this stage fruit spine become well developed and wide spread.

- **Spine density* (in 5cm × 5cm area*):** The spine density will be measured after harvesting of mature fruits. The density needs to be recorded at the middle of the fruit with well-developed spines.

d) **Ripe fruit*:** - All observations on the fruit shall be recorded at edible ripe stage. At this stage a dull, hollow sound is produced when the fruit is tapped by the finger and an aromatic odour develops. The observations must be recorded on <u>five largest fruits</u> selected from the tree <u>during two bearing seasons.</u>

- **Latex exudation***: Fruits should be dissected in cross section and the latex flow must be recorded from the fruit core in ripe fruits.

  The intensity of latex flow and duration will be considered to classify them as Gumless, low and high latex exudation.
- **Ripe fruit surface colour*:** The fully ripened fruit colour needs to be recorded just before cutting of the fruit and the colours listed in Table of

Characteristics (Section VII) and pictures provided can be considered for the same.

- **Ripe fruit rind colour*:** The inner fruit rind colour needs to be recorded soon after cutting the ripe fruit, and the colours listed in Table of Characteristics (Section VII) and pictures provided can be considered for the same.

Note- *All flake characters must be recorded from twenty flakes*

- **Flake colour*:** The flake colour has been categorised into four groups *viz.*, White 2. Yellow 3.Orange 4.Coppery red. The Royal Horticulture Society (RHS) colour chart shall be used for the same. The flake colour was found to vary depending on the sunlight intensity in a given season. Thus it's found to be non-reliable character for assessing distinctness.
- **Flake length*:** The flake length must be measured from stalk end to tip.
- **Flake width*:** The flake width must be measured from middle of the flake.
- **Weight of flakes* (20 flakes with seed)*:** The weight of 20 flakes will be recorded in a ripe fruit and categorised as per the descriptions provided in Table of Characteristics (Section VII).
- **Flake thickness*:** The flake needs to be cut in the middle portion and thickness can be measured using scale and expressed in millimeter (mm).
- **Flake shape*:** Needs to be recorded as per the descriptions provided in Table of Characteristics (Section VII).
- **TSS***: The TSS of the fruit needs to be measured using Hand refractometer (0-60°Brix) and expressed as °Brix.
- **Seed weight*:** Twenty seed weight has to be recorded at the time of taking observations on ripe fruit.
- **Seed shape*:** The seed shape varies and it can be recorded as per the Table of Characteristics (Section VII) and explanation of notes provided thorough sketch (Section VIII).

**** Flakes for these traits have to be from middle region of the selected fruits.***

e) The optimum stages of plant growth for assessment of each characteristic is given in the sixth column of the Table of characteristics are described below.

Growth stages	Codes
Vegetative	10
flowering	20
Fruit maturity	30
Fruit ripening	40
Seed separation	50

V. Grouping of varieties

1. The candidate varieties for DUS testing shall be divided into groups to facilitate the assessment of Distinctiveness. Characteristics, which are known from experience not to vary, or to vary only slightly within a variety and which in their various states are fairly evenly distributed across all varieties in the collection are suitable for grouping purpose.
2. Grouping characteristics are those in which the documented states of expression, even when produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctiveness; and (b) to organize the growing trial so that similar varieties are grouped together.

The following characteristics shall be used for grouping Jackfruit genotypes/ varieties

I.	Leaf apex shape	(Characteristics 5)
II.	Leaf base shape	(Characteristics 6)
III.	Upper Leaf surface	(Characteristics 9)

IV.	Ripe fruit Size	(Characteristics 15)
V.	Spine density	(Characteristics 19)
VI.	Fruit rind thickness	(Characteristics 21)
VII.	Flake texture	(Characteristics 28)
VIII.	Flake colour	(Characteristics 29)

VI. Characteristics and symbols

1. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of Characteristics (Section VII) shall be followed.
2. Notes (1 to 9) shall be given for each state of expression for different characteristics for the purpose of electronic data processing.
3. Legend

   (*) Characteristics that shall be observed during every growing season for all varieties and shall always be included in the description of the variety, except when the state of expression of any of these characters is rendered impossible by a preceding phenological characteristic or by the environmental conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.
4. (+) See Explanation on the Table of Characteristics in Section VII. It is to be noted only for certain characteristics mentioned in the table.
5. Characteristics denoted with symbols **QL, QN** and **PQ** in the first column of the Table of characteristics shall be indicated as;
   - **QL**: Qualitative characteristic
   - **QN**: Quantitative characteristic
   - **PQ**: Pseudo-qualitative characteristic

6. Type of assessment of characteristics indicated in column 7 of Table of Characteristics is as follows;

MG: Measurement by a single observation of a group of plants or parts of plants

MS: Measurement of a number of individual plants or parts of plants

VG: Visual assessment by a single observation of a group of plants or parts of plants

VS: Visual assessment by observation of individual plants or parts of plants.

VII. Table of Characteristics

Sl. No	Characteristics	State	Note	Example varieties	Stage of observation	Type of Assessment
1	2	3	4	5	6	7
1 (+) (*) QL	Tree Crown Shape	Broadly pyramidal	3	Janagare, Singapore Jack		
		Spherical	5	Swarna Halasu, A-1	10	VG
		Elliptical	7	Palur-2, All season		
2 (*) QN (+)	Leaf Blade: Length	Short (<100 mm)	3	KK-9, Kokan Prolific, Gomati 7		
		Medium (101-150 mm)	5	Swarna Halasu, Sindhura, Palur-1, Tura 1 Lalbaugh raja, Pechipari, Sadananda,	10	MS
		Long (> 150 mm)	7			

3 (*) QN (+)	Leaf Blade: Width	Narrow(< 50 mm) Medium(51-75mm) Broad(> 75 mm)	3 5 7	Ananya, Panruthi seedling, Gomati 7 Swarna Halasu, A-1, Tura 1 Sadananda	10	MS
4 (*) (+) QL	Leaf Blade Shape	Obovate Elliptical Oblong	3 5 7	Sindhura, Kerala Jack, Swarna Halasu, Singapore, Lalbaugh Raja, Thalavani Plus	10	VG
5 (*) (+) QL	Leaf Apex Shape	Acute Acuminate Retuse	3 5 7	Janagere, Pechiparai Malaji Bakke, Sompadi Gumless. Seedless Jack, NKT 1	10	VG
6 (*) (+) QL	Leaf Base Shape	Oblique Rounded	3 5	NKT 1,Lalbaugh Raja, Thalavani Plus, Ampati 8	10	VG

7 (*) (+) QL	Leaf Orientation	Erect Horizontal	3 5	Pechiparai, Thenavarikka Red Jack, Tura 1	10	VG
8 (*) (+) QL	Leaf posture	Flattened Revolute Conduplicate	3 5 7	Singapore jack, TBT 2 and 3 NSP, Jack Uttam Viswas, Lalbagh Raja	10	VG
9 (*) QL (+)	Upper leaf surface	Smooth Blisters	1 3	Swarna Halasu, Byrachandra, Sadananda, ManjulaBiskur	10	VS
10 (*) (+) QL	Fruiting position	Trunk, primary and secondary branches Only on branches (Primary, secondary and tertiary branches) All positions(Including roots)	3 5	Lalbaugh Madhura, Ashoka Red and yellow, Tura 1 Swarna Halasu, KVK Hadonahalli, Ampati 8 BVV-1	20	VG

			7			
11 (*) QL (+)	Fruit Clustering Habit	Solitary Clusters	3 5	Singapore Jack, Ramachandra, Ampati 8 Swarna Halasu, Palur-1, Nongpoh 7	30	VS
12 (*) (+) QL	Fruit Shape	Spheroid Ellipsoid Clavate Oblong Irregular	1 3 5 7 9	Swarna Halasu, Nongpoh 7 Byrachandra, Ashoka yellow, Tura 1 Palur 1, Thenavarikka, South Tripura 7 Anbalagan, Ampati 8 Hort. Veg-1, RHH 10	30	VS
13 (*) (+)	Stalk attachment to fruit	Depressed	3	KT 7, KT 10, KT 12 , Tura 1	30	VS

QL		Flattened Inflated	5 7	Palur-1, NSP, Gomati 7 Swarna Halasu		
14 (*) QL (+)	Latex exudation (cross section of fruit core)	Gumless Low(<2ml) High(>2ml)	1 3 5	Somapadigumless, Nelagudigae Singapore Jack, Ampati 8 NSP, Swarna Halasu, Tura 1	40	MS
15 (*) QN	Ripe fruit size	Very Small (< 3 kg) Small (>3-6kg) Medium (>6-12 kg) Big (>12-20 kg) Very big(>20 kg)	1 3 5 7 9	Sirsi Rudrakshi small, Kesaramadugu, RHH 10 Ramachandra Hosur, Ampati 8 Singapore Jack, Swarna Halasu, Byrachandra, Tura 1 LalbaughMadhura, T. Badol NSP, Palur 1 and 2, T. Gabong	30	MS

16 (*) PQ (+)	Ripe fruit Peel colour	Green (RHS 134-136) Greenish yellow (RHS N144 -145) Brown (RHS 199-200)	3 5 7	Byrachandra, Rudrakshi,Ampati 8 Singapore Jack, Tura 1 Tubagare Red, Ramachandra, T. Gabong	30	VS
17 (*) QL (+)	Fruit Peel Surface	Smooth Spiny	3 5	Rudrakshi types Lalbaugh Madura, Palur 1 and 2, Tura 1	30	VS
18 (*) (+) QL	Shape of Spine	Flat Pointed	3 5	Lalbaugh Madura, Tura 1 Rudrakshi types	30	VS
19 (*) (+) QN	Spine Density (5X5 cm^2Area)	Sparse ≤50 Dense >50	3 5	Swarna Halasu, Rudrakshi types, Gomati 7 Byrachandra,, Tura 1	30	MS

20 (*) (+) QL	Ripe fruit rind color (inner rind)	White (RHS 155) Yellow (RHS 1-13) Orange (RHS 24-26)	3 5 7	KT-3, Channakrishnappa 3 KK-1, Palur-2, Gomati 7 KT-9, Shivakumar-3, South Tripura 8	40	VS
21 (*) (+) QN	Fruit rind thickness	Thin (≤5 mm) Thick (>5 mm)	3 5	Byrachadra, Ramachandra Anbalagan Singapore Jack, Swarna Halasu, Tura 1	40	MS
22 (*) QN	Fruit core diameter	Low (≤50mm) High (>50 mm)	3 5	Ashoka Yellow, Raja Rudrakshi, Tura 1 Swarna Halasu, Lalbaugh Madhura, Gomati 7	40	MS
23 (*) QN	Number of flakes per kg fruit	Few (<10) Medium (10-20)	3 5	Lalbaugh Madhura, Verappa, Tura 1 Swarna Halasu, Palur-1, Nongpoh 7 Byrachandra, NKT-2, Ampati	40	MS

		More (>21)	7	8		
24 (*) QN	Individual flake length	Short (≤50 mm) Medium (51-75 mm) Long (≥75 mm)	3 5 7	KK 10, Swarna Halasu, Ampati 8 Lalbaugh Madhura, Singapore Jack , Nongpoh 7 Byrachandra, Palur 1, Palur 2, Tura 1	40	MS
25 (*)	Flake Width	Narrow (≤30 mm) Medium (31-50 mm) Broad (≥51 mm)	3 5 7	Raja Rudrakshi, Pynursla 2, Ampati 8 Byrachandra, HV 2, Gomati 7 Lalbaugh Madhura, HV 1, Tura 1	40	MS
26 (*) (+) QN	Flake thickness	Thin (≤0.3cm)	3	All Season, Byrachandra Palur-1, Ampati 8 Singapore Jack, Swarna Halasu, Tura 1	40	MS

		Thick (>0.3cm)	5			
27 (*) (+) QL	Flake Shape	Spheroid Cordate Twisted Rectangular Oblong with curved tip Irregular	1 2 3 4 5 6	Swarna Halasu, Nelugudige, RHH 10 Singapore Jack, KT 10, Tura 1 Lalbaugh Madhura, KK-4 NSP, Nelugudige, Ampati 8 Palur-1, Palur-2 Byrachandra, Sompadigumless, S. Tripurs 8	40	VS
28 (*) QL	Flake texture	Soft Firm	3 5	Ampati 3,Kamrup-1, Ampati 8 Swarna Halasu, Palur-1 and 2,Tura 1	40	VS
29 (*)	Flake Color	White (RHS 155)	1	Panruthi, HRS 2, VRT 11, BVV 1		

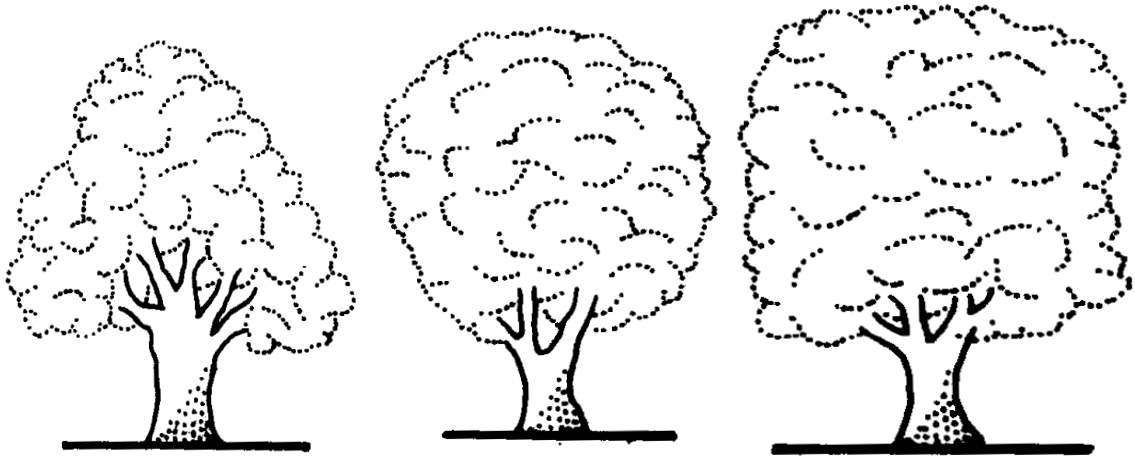
PQ (+)		Yellow (RHS 1-10) Orange (RHS 24-26) Coppery red (RHS 30-35)	3 5 7	Mottamvarika, Tenavarikka, Swarna Halasu, Palur-1, Gomati 7 Nelugudigae, Byrachandra, Tubagere red, South Tripura 8 Shivu, K V S, V. Kote	40	VS
30 (*) QL	Fruit: Sweetness (TSS^{0}Brix)	Low (<10^0 Brix) Medium (10.10^0 to 20^0 Brix) High (20.10^0 -30.00^0 Brix) Very High (> 30.10^0 Brix)	1 3 5 7	HV-2 Palur-1 and 2, Tura 1 Swarna Halasu, NSP, Nongpoh 7 Lalbaugh Madhura,Tenavarikka	40	MS

31 (*) QN	Flake to Fruit ratio	Low (<0.30) Medium(0.31- 0.50) High (> 0.51)	3 5 7	HV 2, ypes, Tura 1 Swarna Halasu, Byrachandra, S.Tripura 8 Palur, Lalbaugh Madhura, Gomati 7	40	VS
32 (+) (*) QL	Seed Shape	Spheroid Ellipsoid Elongate Oblong Reniform Irregular	1 2 3 4 5 6	Harini Kumar, Kesarumadugu, Ampati 3, Tura 1 KT-12, T. Gabong Kerala, KT-7, Ampati 8. NKT-2, HRS-1 Swarna Halasu, Gomati 7 Nongpoh 7, South Tripura 7 HV-1, HV-2	40	VS

33 (+) (*) QL	Seed colour (with seed coat)	Cream Brown	3 5	HV-2, NKT-2, Muttamvarika, South Tripura 7 Byrachandra, Swarna Halasu, Tura 1	40	VS

VIII. Explanation for the Table of Characteristics

Characteristic 1: Tree crown shape



Broadly pyramidal	Spherical	Elliptical
(3)	(5)	(7)

Broadly pyramidal	Spherical	Elliptical
(3)	(5)	(7)

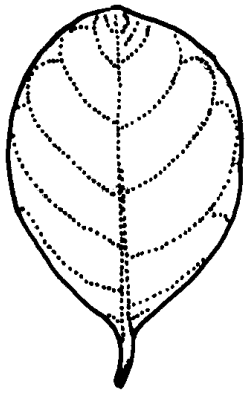
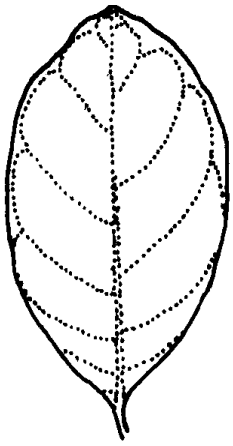
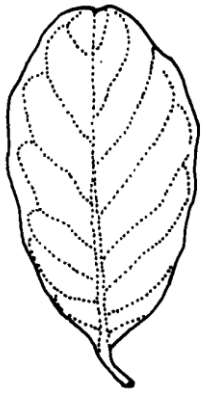
Characteristic 2: Leaf blade length

		
Short	**Medium**	**Long**
(3)	**(5)**	**(7)**

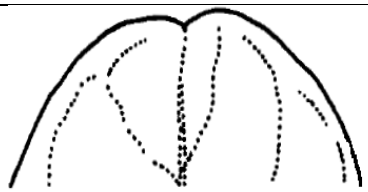
Characteristic 3: Leaf blade width

		
Narrow	**Medium**	**Broad**
(3)	**(5)**	**(7)**

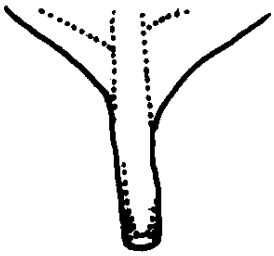
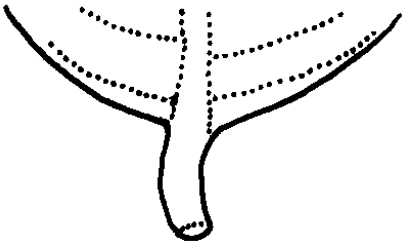
Characteristic 4: Leaf blade shape

		
		
Obovate	**Elliptical**	**Oblong**
(3)	**(5)**	**(7)**

Characteristic 5: Leaf apex shape

		
		
Acute	**Acuminate**	**Retuse**
(3)	**(5)**	**(7)**

Characteristic 6: Leaf base shape

	
	
Oblique	**Rounded**
(3)	**(5)**

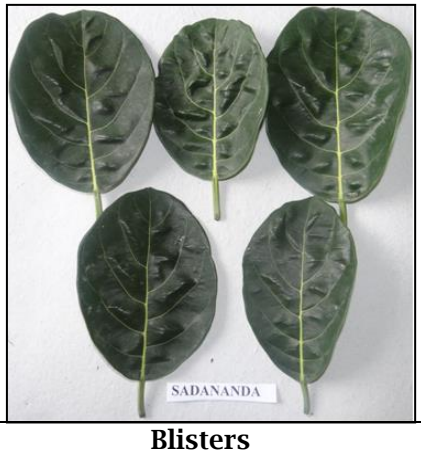
Characteristic 7: Leaf orientation

	
Erect	**Horizontal**
(3)	**(5)**

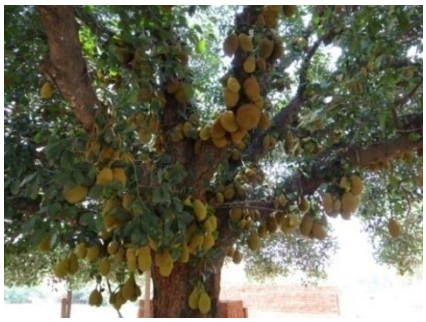
Characteristic 8: Leaf posture

		
Flattened	**Revolute**	**Conduplicate**
(3)	**(5)**	**(7)**

Characteristic 9: Upper leaf surface

	
Smooth	**Blisters**
(1)	**(3)**

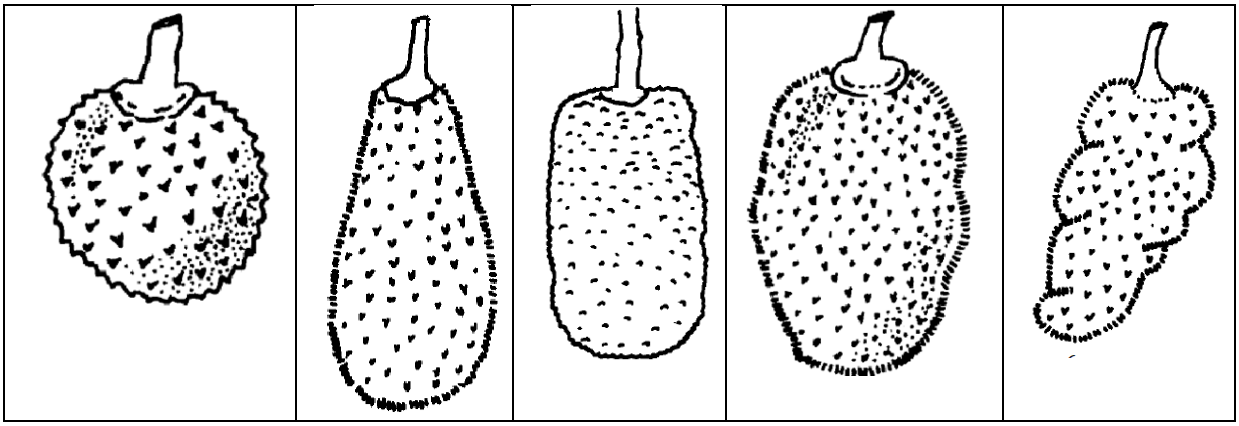
Characteristic 10: Fruiting position

		
Trunk, Primary and secondary branches	**Only on branches(primary, secondary and tertiary)**	**All positions(including roots)**
(3)	**(5)**	**(7)**

Characteristic 11: Fruit clustering habit

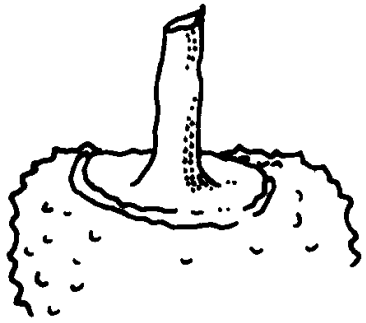
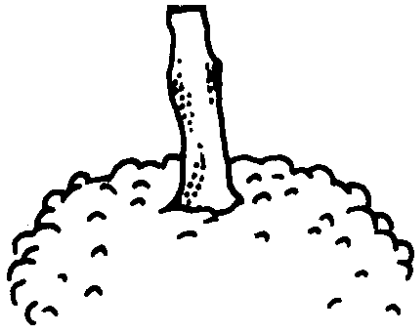
	
Solitary	**Cluster**
(3)	**(5)**

Characteristic 12: Fruit Shape

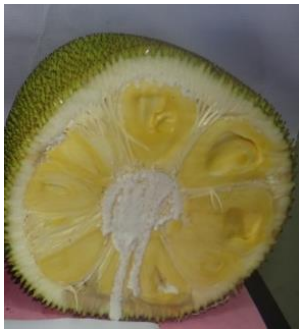


				
Spheroid	**Ellipsoid**	**Clavate**	**Oblong**	**Irregular**
(1)	**(3)**	**(5)**	**(7)**	**(9)**

Characteristic 13: Stalk attachment to fruit

		
		
Depressed	**Flattened**	**Inflated**
(3)	**(5)**	**(7)**

Characteristic 14: Latex exudation at harvest of mature fruits

		
Gumless	**Low**	**High**
(1)	**(3)**	**(5)**

Characteristic 16: Ripe fruit peel colour

		
Green	**Greenish yellow**	**Brown**
(3)	**(5)**	**(7)**

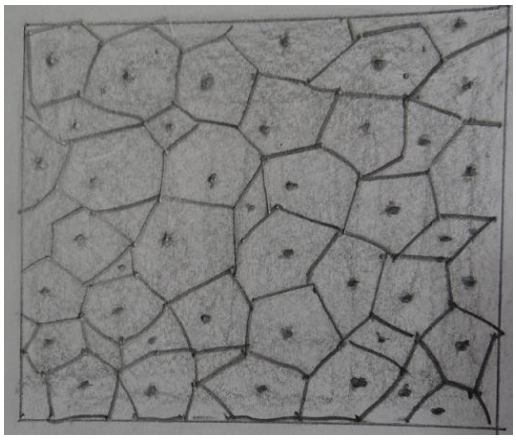
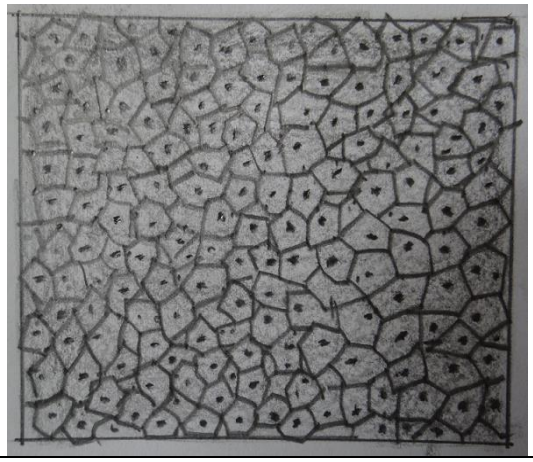
Characteristic 17: Fruit peel surface

	
Smooth	**Spiny**
(3)	**(5)**

Characteristic 18: Shape of spine

	
Flat	**Pointed**
(3)	**(5)**

Characteristic 19: Spine density

	
Sparse (≤50 per 25cm^2)	**Dense (>50 per 25cm^2)**
(3)	**(5)**

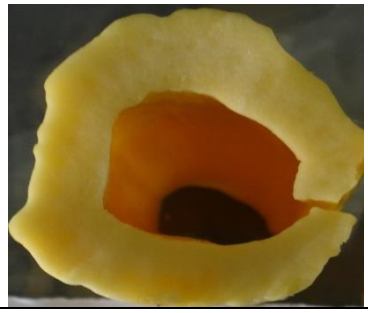
Characteristic 20: Ripe fruit rind color (inner rind)

		
White	**Yellow**	**Orange**
(3)	**(5)**	**(7)**

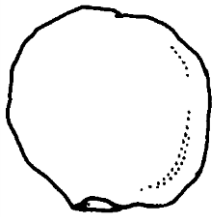
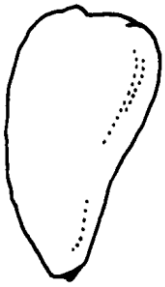
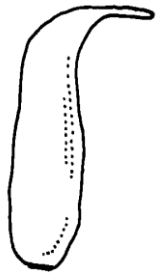
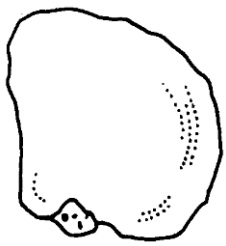
Characteristic 21: Ripe fruit rind thickness

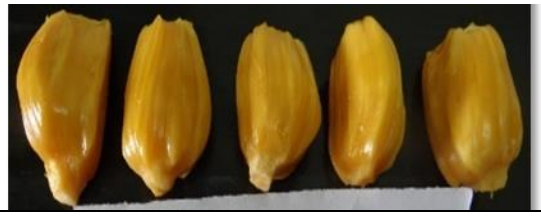
	
Thin	**Thick**
(3)	**(5)**

Characteristic 26: Flake thickness

	
Thin (≤ 0.3 cm)	**Thick (> 0.3 cm)**
(3)	**(5)**

Characteristic 27: Flake Shape

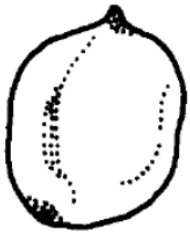
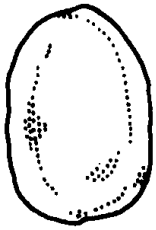
					
Spheroid	**Cordate**	**Twisted**	**Rectangular**	**Oblong with curved tips**	**Irregular**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**

	
Speroid	**Cordate**
(1)	**(2)**
	
Twisted	**Rectangular**
(3)	**(4)**
	
Oblong with curved tips	**Irregular**
(5)	**(6)**

Characteristic 29: Flake color

	
White Group	
(1)	
	
Yellow group	
(3)	
	
Orange group	
(5)	
	
Coppery red	
(7)	

Characteristic 32: Seed shape

					
Spheroid	**Ellipsoid**	**Elongate**	**Oblong**	**Reniform**	**Irregular**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**

		
Spheroid	**Ellipsoid**	**Elongate**
(1)	**(2)**	**(3)**
		
Oblong	**Reniform**	**Irregular**
(4)	**(5)**	**(6)**

Characteristic 33: Seed colour

	
Cream	**Brown**
(3)	**(5)**

IX. Working Group Details

The DUS test guidelines developed by the Task force (**2/2019**) constituted by the PPV & FR Authority for **Jackfruit (*Artocarpus heterophyllus Lamk.*)** with consultation by Nodal officer, UAS, GKVK, Bangalore and Co-Nodal officer of Collaborating centre ICAR Research Complex for NEH Region, Umiam, Meghalaya. Technical inputs also provided by the PPV & FR Authority.

1.	**Dr. M. R. Dinesh** **Director,** ICAR-Indian Institute of Horticultural Research Hessaraghatta Lake Post, Bengaluru-560089	**Chairman**
2.	**Dr. Prakash Patil,** **Principal Scientist and Project Coordinator (Fruits)** **ICAR-IIHR,**Hessaraghatta Lake Post, Bengaluru-560089	**Member**
3.	**Dr. Shyamalamma,** **Professor & PI of DUS Project** Department of Biotechnology, University Agriculture Sciences, GKVK, Bangalore, Karnataka-560065	**Member**
4.	**Dr. S. Ruth Assumi** **Scientist, ARS** Division of Horticulture ICAR Research Complex for NEH Region Umiam-793103, Meghalaya	**Member**
5.	**Dr. Ravi Prakash** Registrar, PPV & FRA, New Delhi	**Member Secretary**

X. Name of DUS Test Centre:

Lead DUS Test Centre	Collaborating DUS Test Centre
Department of Biotechnology, University Agriculture Sciences, GKVK, Bangalore, Karnataka-560065	Division of Horticulture ICAR Research Complex for NEH Region Umiam-793103, Meghalaya

Guidelines for the conduct of Test for Distinctiveness, Uniformity and Stability

On

SEABUCKTHORN

(*Hippophae rhamnoides* L.)

Protection of Plant Varieties and Farmers Rights Authority (PPV&FRA),
Govt. of India, New Delhi

Contents

SEABUCKTHORN (*Hippophae rhamnoides* L.)

Introduction

Hippophae rhamnoides L. is commonly known as Seabuckthorn, Siberian pineapple, Seaberry, Sandthorn or Sallowthorn. Seabuckthorn (*Hippophae* spp. *L.*,) is an ecologically and economically important thorny shrub that belongs to the family Elaeagnaceae and locally known as *Chharma*, *Sutz*, *Sarla*, in Himachal Pradesh and *tSer-Mang, tSer-Sa-Lu-Lu, Shib-Shu-Lu-Lu, sTar-Bu, Amesh, Chuk, Amil, Tarwar* in Leh (UT). The name is from its habit of growing near the sea and from the possession of many spines or thorns that are reminiscent of some buckthorn species (of the genus *Rhamnus*). The species is a wind pollinated, dioecious shrub/small tree. The female plant bears red, orange or yellow berry on its two-year- old thorny branches. The plant is hardy and it can withstand extreme temperatures from -43°C to 40°C. It is considered to be drought tolerant which is reflected from its form and structure of leaves. The shrub develops extensive root system having ability to fix atmospheric nitrogen. The species has recently been declared as horticultural activity under Mission for Integrated Development of Horticulture (MIDH) scheme of Ministry of Agriculture and Farmers' Welfare, GoI in four Himalayan states (Himachal Pradesh, Uttrakhand, Sikkim and Arunachal) and two Union Territory (Jammu & Kashmir, Ladakh). It is mostly found growing along the hill slopes, riverbeds, water logged and marshy areas and as a biofence around agricultural fields and orchards. It also grows as dense stands in scattered patches on moist areas.

Subject

These Test Guidelines shall apply to all the varieties of Seabuckthorn (*Hippophae rhamnoides* L.), belonging to family Elaeagnaceae.

I. Material Required

1. The Protection of Plant Varieties & Farmers' Rights Authority (PPV&FRA) shall decide when, where and in what quantity and quality the plant material are required for testing of a variety denomination for registration under the Protection of Plant Varieties and Farmers" Rights (PPV&FR) Act, 2001. Applicants submitting such material from a country other than India shall make sure that all customs and

quarantine requirements stipulated under relevant national legislations and regulations are complied with.

2. The minimum required quantity of planting material, should be at least seven well rooted one-year-old plants in poly bags with at least two shoots.
3. The planting material supplied shall be healthy, not lacking in vigour or affected by any pest or disease and it should certify that it shall also possess the highest genetic stability in the propagated material and uniformity.
4. The planting material shall not have undergone any chemical or bio-physical treatment, unless the Registrar of the Authority has requested for such treatment. If, it has been treated, full details of the treatment must be provided.
5. The planting material for DUS test should represent populations/provenances and/or individuals within populations/provenances with characteristic features.

II. Conduct of Tests

1. The minimum duration of tests should normally be two independent growing cycles. The growing cycle is considered to be the duration of a single growing season, beginning with bud burst and flowering, where as the fruit harvest only be in females and concluding when the following dormant period ends with the swelling of next season buds.
2. The tests should be conducted normally at one place/location and carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination. In particular, it is essential that the plants produce a satisfactory crop of fruits (only in female) during both the growing cycles.
3. The tests should be designed to observing/testing a total of at least 5 plants, such plants or parts of plants may be removed for observations without prejudice to the observations which must be carried on to the end of the growing cycle.

4. Test Plot Design

Row to row distance : 4.0 m

Plant to plant distance : 2.0 m

5. Standard cultural practices specific to the location of the DUS test centres to be adopted with the approval of the Authority.

On-site DUS testing

The Expert Committee constituted by the PPV&FRA in consultation with the DUS Centre shall be authorized to inspect on-site testing and recording of the appropriate characters.

a) The applicant or his/her nominee on his/her behalf shall submit a request to the Authority for conducting a reliable trial according to Test Guidelines and the instructions from Authority before on-site examination of the candidate/ population/provenance.
b) The applicant or his/her nominee shall submit a request to the Authority for on-site examination prior to start of growing cycle as mentioned in Test Guidelines for site examination of the candidate/ population/provenance.
c) On-site testing may be conducted at the places specified by the applicant. The test shall be conducted on fully grown mature plants (>five year old) during fruiting season.
d) A minimum five plants should be available for inspection and examination for 'On-site' DUS testing. The plants must be healthy and free from pest & disease.
e) On–site examination shall be arranged during the fruiting season, when distinguishing characteristics of candidate population/ provenance can be examined and compared with those of the comparative population/ provenance as per the Test guidelines.
f) The Expert Committee constituted by the PPV&FRA in consultation with the DUS Centre shall be authorized to inspect on-site testing to verify the appropriate characters.
g) The Expert Committee shall take record of the observations recorded and validate the preliminary data and/or summary of the data.
h) The Expert Committee shall submit examination report to the Authority.

III. Methods and observations

1. The characteristics described in the Table of characteristics shall be used for the testing of varieties for their DUS (section VII).
2. The assessment of the characteristics should be at the optimum stage of development.
3. All observations should be made on 5 single plants in each replication or parts taken from 5 plants. In the case of parts of plants, the number to be taken from each of the plant should be 3.
4. For the assessment of all colour characteristics, the Royal Horticultural Society (RHS) colour chart shall be used.
5. Each test shall include a total of at least 5 plants each in three replications. For assessment of Distinctiveness, Uniformity and Stability, all observations shall be made on all replicated plants.

6. Additional tests protocols for special purpose shall be established by the PPV & FR Authority.
7. The relevant growth stages corresponding to the code numbers are described below.

Growth Stages	Codes
Plant: Observations made/ should be made during winter dormancy. (December- February)	**A**
Shoot: Observations made /should be made during active growth period. (March-- July)	**B**
Leaf blade: Observations made/ should be made on mature leaves taken from the middle of the shoot, the third leaf of the current season's growth from the middle part of the plant. (July- August)	**C**
Pubescence: Observations made/ should be made with the help of magnifying glass during the active growth period.	**D**
Fruit: Observation made /should be made at the time of fruit maturity. (Till the second week of October).	**E**

IV. Assessment of Distinctiveness, Uniformity and Stability

Distinctiveness

- **Clear differences**: In all circumstances the differences between two clones clearly depends on many factors, and should considered, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner must express independently. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

- **Consistent differences**: The differences observed between clones may be so clear that even one growing cycle is sufficient for testing. Further, in any circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between clones are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent and to examine the characteristic in at least two independent growing cycles, whereas the second cycle taken as reserve for confirmation.

Uniformity

- For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants from one replication, whereas no off- types are considered.

Stability

- In practice, there is no need to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many varieties, when a variety performs uniformly in repeated cycle, it can be considered as stable.
- Where required, or in case of doubt, stability may be tested, either by growing in a fresh growing cycle, or by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the previous tested material.

V. Grouping of Varieties

1. The candidate varieties for DUS testing shall be divided into groups to facilitate the assessment of Distinctiveness. The characteristics and their states which are known from experience not to vary or to vary only slightly within a variety are suitable for grouping purpose.

2. The following features have been finalized as useful grouping characteristics:

1.	Plant: sex	(characteristic no. 1)
2.	Plant: growth type	(characteristic no. 2)
3.	Plant: attitude of mature branches	(characteristic no. 3)
4.	Shoot: number of thorns (from middle part to top)	(characteristic no. 11)
5.	Fruit: shape	(characteristic no. 25)
6.	Fruit: colour of skin	(characteristic no. 26)

VI. Characteristics and Symbols

1. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of Characteristics (section VII) shall be used.
2. Note or code (1-9) shall be used to describe the state of each character for the purpose of digital data processing.
3. Legend

   (*) Characteristics that shall be observed for the international harmonization of variety descriptors and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this as inappropriate or might misfit.

   (+) See explanations on the Table of characteristics in section VII. It is to be noted that for certain characteristics the plant part on which observations are to be taken / given in the explanation or figure(s) for clarity.
5. Characteristics denoted with symbols QL, QN and PQ in first column of the Table of characteristics shall be indicated as:

   QL: Qualitative characteristic
   QN: Quantitative characteristic
   PQ: Pseudo-qualitative characteristic

Table: Methodology adopted for recording of observation on Qualitative and Quantitative characteristics.

Sl. No.	**Character**	**Methodology**
1.	Plant : Sex	To be observed at full blooming stage/ at fruit bearing stage (July-September).
2.	Plant: Growth Type	To be observed on the basis of Habit including size of Plant.
3.	Plant : Attitude of Mature Branches	The Angle of branch from the main stem to be measured with the help of a geometric instrument/tool.

4.	Branch Length	Primary branches in middle 1/3rd of the main stem and to be measured by using scale and mean expressed in cm.
5.	Stem Shape (Cross Section)	To be recorded from the main branch,15 cm above soil level.
6.	Current Season stem colour	To be recorded on current season stem colour, 5cm below the stem tip.
7.	Mature stem colour	To be recorded on main stem, 25cm above soil level
8.	Plant:Density of Shoots	The number of shoots to be counted from the main stem in 100 cm length in the middle part of the plant leaving top and bottom part of the plant.
9.	Plant :Position of Inflorescence	To be observed from the position of inflorescence on one year –old shoots and both on one year old and older shoots, respectively. Female Inflorescence small, axillary and male Inflorescence a catkin , borne in spring before emergence of leaves.
10.	One–Year old Shoot: Thickness	To be measured by the vernier caliper in the middle of the shoot.
11.	Shoot: Number of thorns	Total number of thorns to be recorded at a unit of per 10 centimeter each of 2 and 3 year old shoots at 5 branches of the plant in all four sides / directions i.e. 100 cm unit, which can be depicted on 10 cm unit basis also i.e. No. of thorns per 10 cm of 2 or 3 year old shoots of the plant.
12.	Shoot :length of Thorns	Lateral thorns are assessed exclusively, since the terminal thorns (at the tip of the central leading shoots) are longer.
13.	Time of beginning of flowering	The time taken from flowering to fruit maturation is 12 to 15 weeks. Time of beginning of flowering is when 10 % of flower are fully open. Early : 1st fortnight of April Medium : 2nd fortnight of April Late : 1st fortnight of May
14.	Leaf Blade: Shape	Observation should be made on mature leaves taken from the middle of the shoot, the third leaf of the current season's growth from the middle part of the plant.
15.	Leaf length	To be recorded as mean length of 10 leaves from the base of old branches. Length is measured from the base to the tip of the leaf blade. Total length of leaf blade is to be recorded with the help of measuring scale and expressed in centimeters(cm).
16.	Leaf width	To be recorded on same leaves used for the measurement of leaf length. Width is to be measured at the widest portion of the leaf.
17.	Leaf density	To be recorded at flowering stage on 2 year old shoot at

		10 cm unit scale.
18.	Leaf Blade :Undulation of Margin	To be recorded at mature stage of leaf.
19.	Leaf Blade : Colour of adaxial surface	To be recorded at mature stage of leaf.
20.	Leaf Blade: Intensity of Green Colour of adaxial surface	To be recorded at mature stage of leaf.
21.	Leaf Blade : Pubescence of abaxial surface	Observations should be made with the help of magnifying glass during the active growth period.
22.	Fruit length	To be recorded mean length of 100 fully mature fruits randomly harvested from a single plant.
23.	Fruit width	To be recorded on the same fruits used for measuring the fruit length. Width is to be recorded at the widest portion of the fruit.
24.	Fruit weight	To be recorded the mean weight of 100 randomly collected fruits.
25.	Fruit: shape	To be recorded at full fruit maturity.
26.	Fruit :colour of skin	To be recorded at full ripe stage. Colour is observed with the help of RHS colour chart.
27.	Fruit: Pubescence	Observation should be made at full ripe stage, using a magnifying glass.
28.	Fruit : Length of Stalk	To be recorded at full fruit maturity.
29.	Time of beginning of fruit ripening	Time of fruit maturity is when at least 50 % of fruits have achieved the full colour. Early : 2nd week of August to 4th week of August Medium : 1st week of September to 3rd week of September Late : 4th week of September to 2nd week of October
30.	Seed length	To be recorded using vernier caliper on seeds extracted from fully ripe fruits after drying.
31.	Seed width	To be recorded as for seed length.
32.	Seed weight	The seed weight is to be recorded of 100/1000 mature seeds as follows: 100 seed weight or thousand seed weight.
33.	Seed coat colour	To be recorded on seeds extracted from fully ripe fruits after drying. Seed coat colour is observed with the help of RHS colour chart.
34.	Seed tip: Shape	To be observed on seeds extracted from fully ripe fruits after drying and categorized as angular and wedge shaped.

6. Type of assessment of characteristics indicated in column number seventh of the Table of characteristics is as follows:
   MG: Measurement by a single observation of a group of plants or parts of plants
   MS: Measurement of a number of individual plants or parts of plants
   VG: Visual assessment by a single observation of a group of plants or parts of plants
   VS: Visual assessment by observations of individual plants or parts of plants

VII. Table of Characteristics

Sl. No.	Characteristics	States	Notes	Example varieties		Stage of observation	Type of assessment
				Male ♂	Female ♀		
1. (*) (+) (QL)	Plant: Sex	Female	1	-	SHEIGO DIHAR-F75	B	VG
		Male	2	POH	-		
2. (*) (+) (QL)	Plant : Growth Type	Small Tree -Type	1	POH	SCHILLING DIHAR-F64	A	VG
		Shrub- Type	2	-	RANGREEK, TABO		
3. (*) (+) (PQ)	Plant : Attitude of Mature Branches	Erect (30º to 50º)	1	-	MANE	A	VG
		Semi- Erect (>50º to 70º)	2	POH	SCHILLING		
		Horizontal (>70º to 90º)	3	-	LARI DIHAR-F74		
		Arching (>90º to 110º)	4	-	HURLING DIHAR-F75		
4. (*) (QN)	Branch Length (cm)	Short (35 to 40)	3	-	MANE	A	VG
		Medium (>40 to 45)	5	POH	LARI		
		Long (>45 to 50)	7	-	RANGREEK		
5. (*) (QL)	Stem shape (cross section)	Rounded	3	-	SHEIGO, LARI	B	VG
		Angular	5	POH	HURLING		
6. (*) (QL)	Current Season stem colour	Green (N138,A)	1	POH	RANGREEK	B	VG
		Silvery (155,A)	3	-	HURLING		
		Light brown(199,C)	5	-	LARI		
		Brown (199,A)	7	-	MANE		
7. (*) (QL)	Mature stem colour	Reddish brown (178,B)	3	-	KAZA	B	VG
		Brown (200,C)	5	POH	LARI		
		Dark brown (200,A)	7	-	MANE		

8. (*) (QN)	Plant: Density of Shoots No. (100 cm)	Sparse (< 5)	3	-	LARI, HURLING	B	VG
		Medium (5 to 10)	5	-	SCHILLING PIN VALLEY DIHAR-F75		
		Dense (<10 to 15)	7	POH	TABO DIHAR-F64		
9. (*) (QL)	Plant: Position of Inflorescence	On one year old shoot only	1	-	SCHILLING	B	VG
		Both on one –year – old and older shoots	2	POH	RANGREEK, DIHAR-F64, DIHAR-F75		
10. (*) (+) (QN)	One- year-old Shoot : Thickness (mm)	Thin (3 to 5)	3	-	MANE, PIN VALLEY	B	MS
		Medium (>5 to 7)	5	-	RANGREEK, SHEIGO, DIHAR-F75		
		Thick (>7 to 9)	7	POH	KAZA		
11. (*) (QN)	Shoot : Number of thorns (No.) (from middle part to top): Total of 100 cm length	Absent	1	-	-		
		Very Less (< 25)	3	-	HURLING DIHAR-F64	B	VG
		Less (>25 to 50)	5	POH	SCHILLING		
		Many (>50 to100)	7	-	SHEIGO DIHAR-F75		
		Too Many (>100 to 125)	9	-	RANGREEK, TABO		
12. (*) (+) QN)	Shoot : length of Thorns (mm)	Short (< 5)	3	-	TABO	B	MS
		Medium (>5 to 10)	5	POH	LARI DIHAR-F74		
		Long (>10 to 15)	7	-	RANGREEK, SCHILLING		
13. (*) (QN)	Time of Beginning of Flowering	Early (1st fortnight of April)	3	-	PIN VALLEY	B	MG
		Medium (2nd fortnight of April)	5	-	TABO		

		Late (1st fortnight of May)	7	POH	KAZA		
14. (*) (+) (PQ)	Leaf Blade : Shape	Narrow Elliptic	1	-	SCHILLING, PIN VALLEY, KAZA, DIHAR-F64	C	VG
		Narrow Ovate	2	POH	MANE, HURLING		
15. (*) (QN)	Leaf Length (cm) : (Mature shoot)	Small (2 to 4)	3	-	LARI, DIHAR-F74	C	MS
		Medium (<4 to 6)	5	POH	KAZA, DIHAR-F64		
		Large (<6 to 8)	7	-	SCHILLING		
16. (*) (QN)	Leaf Width (cm) : (Mature shoot)	Small (0.30 to 0.60)	3	-	HURLING DIHAR-F74	C	MS
		Medium (>0.60 to 0.90)	5	-	LARI DIHAR-F64		
		Large (>0.90 to 1.20)	7	POH	SCHILLING		
17. (*) (QL)	Leaf Density: No. of Leaves per 10 cm of current season shoot (No.)	Low (10 to 20)	3	-	PIN VALLEY	C	MS
		Medium (>20 to 30)	5	POH	RANGREEK, MANE		
		High (>30 to 40)	7	-	HURLING SCHILLING		
18. (*) (QL)	Leaf Blade : Undulation of Margin	Absent	1	POH	TABO DIHAR-F75	C	VG
		Present	9	-	HURLING		
19. (*) (+) (QL)	Leaf Blade : Colour of Adaxial surface	Green	1	POH	RANGREEK, TABO	C	VG
		Silverish	2	-	LARI		
20. (*) (QN)	Leaf Blade: Intensity of Green Colour of Adaxial surface	Light	1	-	LARI, PIN VALLEY	C	VG
		Medium	2	POH	RANGREEK, HURLING		
		Dark	3	-	MANE		
					RANGREEK,	D	VG

21. (*) (QN)	Leaf Blade : Pubescence of Abaxial surface	Weak	3	-	SHEIGO		
		Medium	5	POH	KAZA		
		Strong	7	-	SCHILLING		
22. (*) (QN)	Fruit Length (mm)	Small (6 to7)	3	-	HURLING	E	MS
		Medium (>7 to 8)	5	-	TABO DIHAR-F75 PIN VALLEY		
		Large (>8 to 9)	7	-	SHEIGO, SCHILLING		
23. (*) (QN)	Fruit Width (mm)	Small (4.5 to5.5)	3	-	HURLING	E	MS
		Medium (>5.5 to 6.5)	5	-	TABO DIHAR-F74		
		Large (>6.5 to 7.5)	7	-	SCHILLING DIHAR-F64		
24. (*) (QN)	Fresh Fruit weight (g)	Light (11 to 13)	3	-	HURLING	E	MG
		Medium (>13 to 15)	5	-	TABO DIHAR-F74		
		Heavy (>15 to 17)	7	-	SHEIGO DIHAR-F64		
25. (*) (+) (PQ)	Fruit : Shape	Pear-Shaped	1	-	RANGREEK	D	VG
		Ovate	2	-	MANE		
		Transverse Elliptic	3	-	HURLING		
		Circular	4	-	LARI		
		Elliptic	5	-	TABO		
		Oblong	6	-	SHEIGO DIHAR-F64		
26. (*) (+) (PQ)	Fruit : Colour of skin	Light Yellow (9,A)	1	-	SCHILLING	D	VG
		Dark Yellow (13,A)	2	-	HURLING		
		Yellow Orange (23,A)	3	-	SHEIGO, DIHAR-F64		

		Orange Red (N30,A)	4	-	KAZA, DIHAR-F74		
		Red (44,A)	5	-	PIN VALLEY		
27. (*) (QN)	Fruit: Pubescence	Weak (Sparse)	3	-	HURLING	D	VG
		Medium (Dense)	5	-	SCHILLING		
		Strong (Very Dense)	7	-	SHEIGO		
28. (*) (QN)	Fruit: Length of Stalk (mm)	Short (1 to 2)	1	-	HURLING	D	VG
		Medium (>2 to 3)	5	-	TABO DIHAR-F75		
		Long (>3 to 4)	7	-	PIN VALLEY		
29. (*) (QN)	Time of beginning of Fruit Ripening	Early (2^{nd} week of August to 4^{th} week of August)	3	-	LARI, SCHILLING	E	MG
		Medium (1^{st} week of September to 3^{rd} week of September)	5	-	TABO DIHAR-F75		
		Late (4^{th} week of September to 2^{nd} week of October)	7	-	RANGREEK		
30. (*) (QN)	Seed Length (mm)	Short (2 to 3)	3	-	HURLING	E	MS
		Medium (>3 to 4)	5	-	SHEIGO, DIHAR-F74		
		Long (>4 to 5)	7	-	DIHAR-F64		
31. (*) (QN)	Seed Width (mm)	Short (1 to 1.5)	3	-	HURLING	E	MS
		Medium (>1.5 to 2)	5	-	SHEIGO		
		Long (>2 to 2.5)	7	-	DIHAR-F64		
32. (*) (QN)	Seed Weight(g) : 100 seeds	Light (0.84 to 0.96)	5	-	HURLING	E	MG
		Medium (>0.96 to 1.08)	7	-	SHEIGO, MANE		
		Heavy (>1.08 to 1.20)	9	-	DIHAR-F64		
	Seed coat colour	Grey –Brown		-	RANGREEK	E	VG

33. (*) (+) (QL)		(N 199,C)	1				
		Brown (200,A)	3	-	SHEIGO DIHAR-F75		
		Black (203,B)	5	-	HURLING		
34. (*) (+) (QL)	Seed tip: shape	Angular	3	-	SCHILLING	E	VG
		Wedge shaped	5	-	KAZA		

VIII. Explanation for the Table of Characteristics

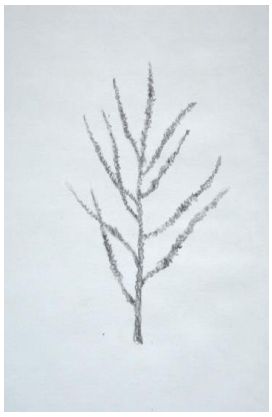
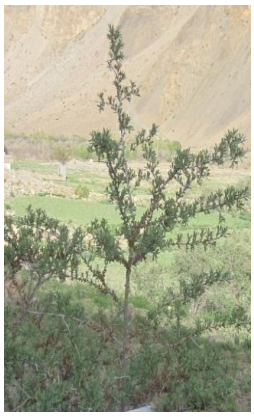
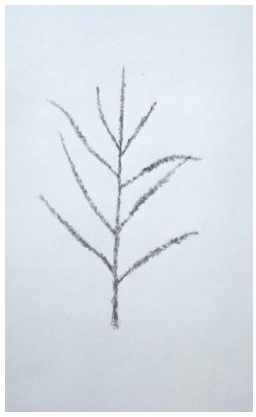
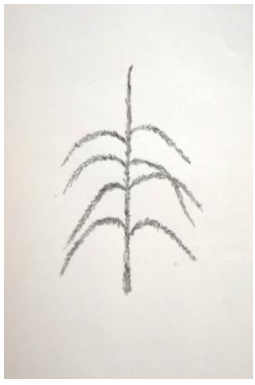
Characteristics 1: Plant: Sex

			
Female		**Male**	
(1)		**(2)**	

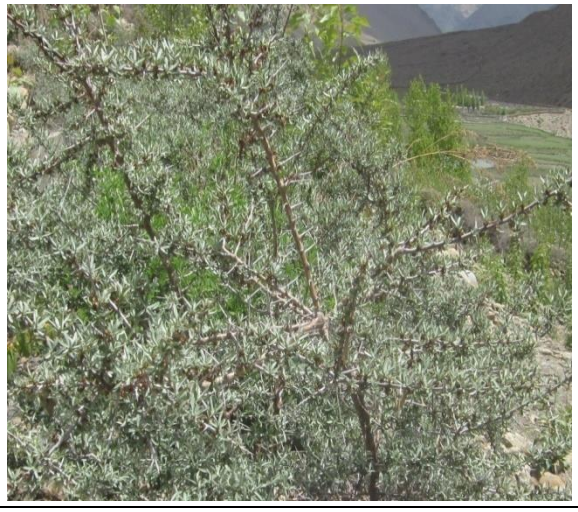
Characteristics 2: Plant : Growth Type

			
Small Tree -Type		**Shrub- Type**	
(1)		**(2)**	

Characteristics 3: Plant –Attitude of Mature Branches

 	 
Erect	**Semi- Erect**
(1)	**(2)**
 	 
Horizontal	**Arching**
(3)	**(4)**

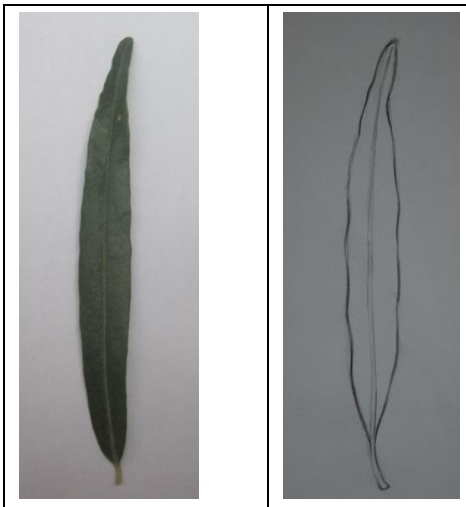
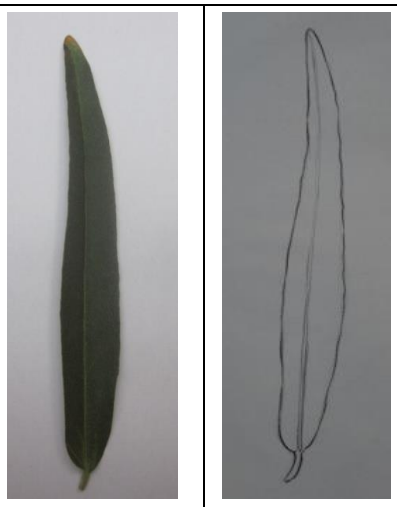
Characteristics 11: Shoot number of thorns (from middle part to top)

	
Very Less	**Less**
(3)	**(5)**
	
Many	**Too Many**
(7)	**(9)**

Characteristics 12: Shoot: Length of Thorns

		
Short	**Medium**	**Long**
(3)	**(5)**	**(7)**

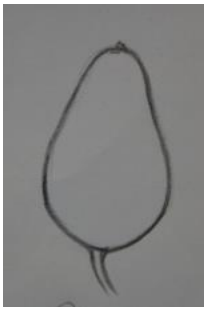
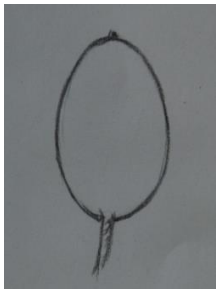
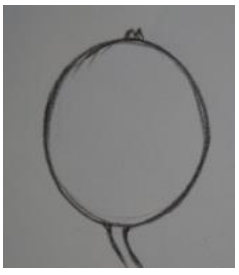
Characteristics 14: Leaf Blade: Shape

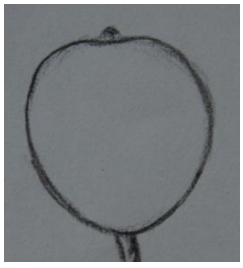
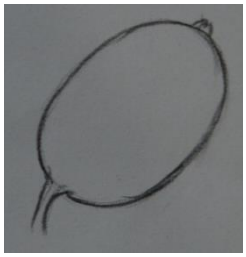
	
Narrow Elliptic	**Narrow Ovate**
(1)	**(2)**

Characteristics 19: Leaf Blade: Colour of Adaxial surface

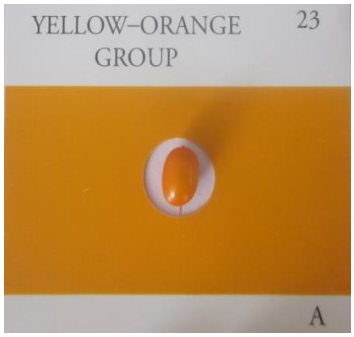
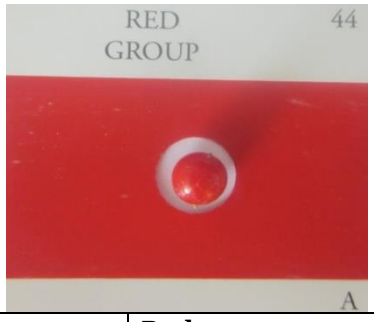
	
Green	**Silverish**
(1)	**(2)**

Characteristics 25: Fruit Shape

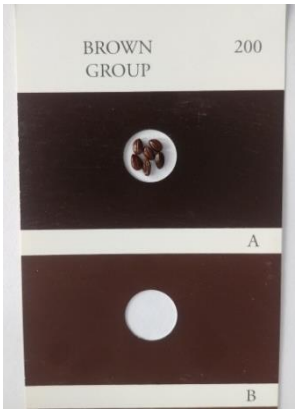
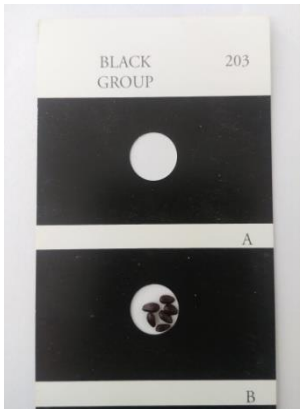
			
Pear-shaped		**Ovate**	
(1)		**(2)**	
			
Transverse elliptic		**Circular**	
(3)		**(4)**	

			
Elliptic		**Oblong**	
(5)		**(6)**	

Characteristics 26: Fruit : colour of skin

		
Light yellow	**Dark yellow**	**Yellow oragne**
(1)	**(2)**	**(3)**
		
Orange red		**Red**
(4)		**(5)**

Characteristics 33: Seed coat colour

		
Grey Brown	**Brown**	**Black**
(1)	**(3)**	**(5)**

Characteristics 34: Seed tip: shape

			
Angular		**Wedge- shaped**	
(3)		**(5)**	

IX. Working Group Details

The DUS test guidelines developed by the Task Force (02/2018) constituted by the PPV & FR Authority for **Seabuckthorn (*Hippophae rhamnoides* L.)** with consultation by Nodal Officer, Department of Tree Improvement & Genetic Resources, Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, Solan (HP) and Defence Institute of High Altitude Research (DRDO), UT of Ladakh. Technical inputs also provided by the PPV & FR Authority.

1.	**Dr. Brahma Singh** **Emeritus Scientist** Agricultural Sciences & Forestry, Horticulturist E-713, Mayur Vihar, Phase - II, Delhi- 110 091	**Chairman**
2.	**Dr. S. S. Sharma** **Professor Emeritus- Botany (UGC)** Hari Bhawan, Subathu Road Saproon,	**Member**

	Solan (Himachal Pradesh) -173 211	
3.	**Dr. Kulraj Singh Kapoor,** **Scientist/ GCR / HOD Ecology** Himalayan Forest Research Institute, Conifer Campus, Panthaghati, Shimla-171 009	**Member**
4.	**Dr. R.N. Sehgal** **Rtd. Professor** Grace Villa. Officer's Colony Near Tribal Girls Hostel, P.O Galanag Damrog Road, Solan(HP)-173 212	**Member**
5.	**Dr. Tsering Stobdan** Scientist – E Defence Institute of High Altitude Research, Leh (DRDO), UT of Ladakh-194 101	**PI of DUS Test Centre**
6.	**Dr. H.P. Sankhyan** **Principal Scientist/Professor (Forestry)** Department of Tree Improvement and Genetic Resources, College of Forestry, Dr. Y. S. Parmar, University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh- 173 230	**PI of DUS Test Centre**
7.	**Dr. Ravi Prakash** Registrar(Farmers' Rights), PPV & FRA, New Delhi	**Member Secretary**

X. Name of DUS Test Centres

Lead DUS Test Centre	Collaborating DUS Test Centre
Regional Horticulture Research Station Tabo, Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, Solan, Himachal Pradesh - 173 230.	Defence Institute of High Altitude Research, Leh (DRDO), UT of Ladakh - 194 101.

Guidelines for the Conduct of Test for Distinctiveness, Uniformity and Stability

On

Yam Bean

(*Pachyrhizus erosus* (L.)

CONTENTS

YAM BEAN (*Pachyrhizus erosus* (L.)

Introduction

Yam bean (*Pachyrhizus erosus* (L.) of the family Leguminoceae, is under the sub family Fabaceae (Papilionaceae). It is also called 'Potato bean' in English and '*Mishrikand*' in Hindi. In Bihar, it is called '*Kesaru*'. It is called '*Sank alu'* or '*Sankesh alu'* in West Bengal, Assam and Odisha. The yam bean appears to have originated in Mexico and northern South America, in the head-water region of the river Amazon, and was cultivated there in pre-Columbian days. Its cultivation spread to Indonesia and further introduction took place from the Philippines and Indonesia *via* Ceylon and India along the west coast of the African continent. In India, yam bean is cultivated in Bihar, Jharkhand, Chhattisgarh, Uttar Pradesh and West Bengal. Cultivation of yam bean is expected to lead to sustainable agriculture because its tuber is nutritious and a highly productive.

The yam bean is grown principally from seed. It can be also grown from sprouted roots saved from the previous crop. Traditionally yam bean is sown June-July with the onset of rain in North-Eastern India and is usually harvested in December-January. The time of sowing of seed varies from June to September accordingly to the purpose of the crop. If it is for seed purpose, sowing of seeds can be done in June-July. Late sowing discouraged the vegetative growth of the crop with less branching and flowering. Yam bean normally, flowers at 75 days after sowing. Removal of flowers results in better tuber yield and better quality. In case there is scarcity of rains, irrigation is required. For September sown crop, it is advisable to give supplementary irrigation so that the crop will not face moisture stress during tuberization.

Yam bean is harvested after 130-140 days of sowing. The tubers are usually dug manually. If harvesting is delayed, chances of cracking of tubers are more. Harvested tubers can be stored for 2-3 days without any deterioration. They can be stored successfully for at least 2 months at appropriate temperatures and can also be 'field stored', i.e. having the crop in the soil without removing top portion.

YAM BEAN (*Pachyrhizus erosus* (L.)

I. Subject

These test guidelines shall apply to all varieties, hybrids and parental lines of Yam bean [*Pachyrhizus erosus* (L)].

II. Planting material required

1. The Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA) shall decide when, where and in what quantity and quality the seed/planting material are required for testing of a variety denomination for registration under the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001. Applicants submitting such material from a country other than India shall make sure that all customs and quarantine requirements stipulated under relevant national legislations and regulations are complied with. The material is to be supplied in the form of seeds a minimum of 100 seeds.
2. The minimum quantity of planting material (seeds), to be supplied by the applicant, should be 75 - 100g for three replications.
3. The seed/planting material supplied shall be healthy, not lacking in vigour or affected by any pest or disease and it should certify that it shall also possess the highest genetic stability in the propagated material and uniformity.
4. The seed should not have undergone any chemical or bio-physical treatment which would affect the expression of the characteristics of the variety, unless the Registrar of the Authority has requested for such treatment. If it has been treated, full details of the treatment must be provided.

III. Conduct of tests

1. The minimum duration of DUS tests shall normally be at least two independent, similar growing seasons with two consecutive plantings, the second being sowing with the seed material harvested from previous season/trial.
2. The test shall normally be conducted at least at two test locations. If any essential characteristics of the candidate variety are not expressed for visual observation at these locations, the variety shall be considered for further

examination at another appropriate test site or under special test protocol on expressed request of the applicant.

3. The field tests shall be carried out under conditions (irrigated/rainfed) favouring normal growth and expression of all test characteristics. The size of plot shall be such that plants or parts of plants could be removed for measurement and observation without prejudicing the other observations on the standing plants until the end of the growing period.
4. Each test shall include about 150 plants in the plot planted at a planting space specified below across three replications. Separate plots for observation and for measurement can only be used, if they have been subjected to similar environmental conditions.
5. All the replications shall be sharing similar environmental conditions of the test location.
6. **Test plot design**

No. of rows	: 5
No. of plants per row	: 5
Spacing: 60 x 20 cm; Plants/ replication	: 25
Number of replications	: 3

7. Observations should not be recorded on the plants in border rows.
8. Additional test protocols for special tests shall be established by the PPV & FR Authority as and when needed.

IV. Methods and observations

1. The characteristics described in the Table of characteristics shall be used for the testing of varieties for their DUS (section VII).
2. For the assessment of Distinctiveness and Stability, observations shall be made on at least 30 plants or parts of 30 plants, which shall be equally divided among three replications (10 plants per replication) and any other observations made on all plants in the test, disregarding any off-type plants. Maximum off types allowed is one plant for every 100 plants.
3. For the assessment of Uniformity, a population standard of 1% and an acceptance probability of at least 95 % shall be applied.
4. For the assessment of all colour characteristics, the latest Royal Horticultural Society (RHS) colour chart shall be used.

5. Unless otherwise indicated, all observation on the plant, observations on leaf and the vine should be made before the end of the growing phase, during the full expression time at physiological maturity. Unless otherwise indicated, all observations on the shoot should be made on the main twig.
6. Stem and leaf characters should be recorded as the average expression of the character observed in the main twig.
7. All observations on the tubers shall be made at the time of harvest.
8. Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo- qualitative manner. One means of ensuring that a difference in expression of characters, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

9. The optimum stage of plant growth for assessment of each characteristic is given in the sixth column of the Table of characteristics are described below:

Growth stages	Codes
Active vegetative growth stage (50 – 75 days after planting)	A
Flowering stage (70 – 100 days after planting)	B
Tuber harvesting stage (120 – 150 days after planting)	C
Seeds maturing stage (150 – 180 days after planting)	D

V. Grouping of characters

3. The candidate varieties for DUS testing shall be divided into groups to facilitate the assessment of Distinctiveness. The characteristics and their states which are known from experience not to vary or to vary only slightly within a variety are suitable for grouping purpose.

2. The following characteristics shall be used for grouping of yam bean varieties:

a) Flower colour, colour of standard and wing petal

(Characteristic 6)

b) Pod length

(Characteristic 10)

c) Tuber shape

(Characteristic 12)

d) Seed shape

(Characteristic 17)

VI. Characteristics and symbols

1. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of characteristics (Section VII) shall be used.

2. States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Notes (1 to 5) shall be used to describe the state of each character for the purpose of digital data processing and these notes shall be given against the states of each characteristic. In the case of qualitative and pseudo-qualitative characteristics, all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics.

3. **Legend**

(*) Characteristics that shall be observed during every growing season on all varieties and shall always be included in the description of the variety, except when the state of expression of any of these characters is rendered impossible by a preceding phenological characteristic or by the environmental conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.

(+) See explanations on the Table of characteristics in section VIII. It is to be noted that for certain characteristics the plant parts on which observations to be taken are given in the explanation or figure(s) for clarity and not for the colour variation.

7. Characteristics denoted with symbols QL and QN in first column of the Table of characteristics shall be indicated as:

QL: Qualitative characteristics

QN: Quantitative characteristics

8. Type of assessment of characteristics indicated in column seven of Table of characteristics is as follows:

MG: Measurement by a single observation of a group of plants or parts of plants

MS: Measurement of a number of individual plants or parts of plants

VG: Visual assessment by a single observation of a group of plants or parts of plants

VS: Visual assessment by observations of individual plants or parts of plants

VII. Table of characteristics

Sl. No.	Characteristics	States	Notes	Example varieties	Stages of observation	Type of assessment
1	2	3	4	5	6	7
1 (*) (+)	Stem colour	Yellowish Green (Yellow Green group145-C)	1	DPH63	A	VS
		Light green (Yellow Green group145-A)	3	RM 1		
		Dark Green (Yellow Green group147-A)	5	RM2, 8x9		
2 (*) (+)	Stem pubescence	Sparse (<10/cm^2) Dense (>10/cm^2)	1 3	RM 1 RM-2	A	VS
3 (*) (+)	Leaflet shape (No. of teeth of terminal leaf)	Less (<5)	1	RM 2, 8x9	A	MS
		Medium (5-7)	3	RM1		
		More (>7)	5	EC 100546		
4 (*)	Leaf surface (Adaxial)	Smooth	1	RM1	A	VG

(+)		Rough	3	DPH 10, RM 2		
5 (*) (+)	Flower density	Low (≤15) High (>15)	1 3	EC 100546, L19 8x9	B	VG
6 (*) (+)	Colour of standard and wing petal	Light blue(Blue group 104-D) Violet blue (Violet blue group 96-C) White	1 3 5	RM 1 EC 100546, RM 2 -	B	VG
7 (*)	Sepal colour	Light brown (Grey Brown group 199-C) Brown (Grey Brown group199-A)	1 3	RM 1 RM2	B	VG
8 (*) (+)	No. of Pods per 1-5 inflorescences/ primary branches	Low (≤10) High (>10)	1 3	DPH 20 8x9	B	VS
9 (*) (+)	No. of Pods per Primary inflorescence	Low (≤6) High (>6)	1 3	DPH 20 8x9, RM 1	B	MS

10 (*) (+)	Mature: Pod length (cm)	Short (≤6) Long (>6)	1 3	DPH 10, DPH 63 8x9	C	MS
11 (*) (+)	No. of seeds per pod	Low (≤6) High (>6)	1 3	DPH 10 8x9, RM 1	B	MS
12 (*) (+)	Tuber shape	Fusiform Round Irregular	1 3 5	RM-2 RM -1, 8x9 DPH 10, LNo. 3	B	VG
13 (*) (+)	Neck length (cm)	Short (≤5) Long (>5)	1 3	8x9, RM 2 DPH 10, DPH 63	B	MS
14 (*) (+)	Tuber rings (Nos)	Few (≤1) Many (>1)	1 3	8x9, RM 1, RM 2 DPH-10	B	MS
15 (*) (+)	Tuber surface	Smooth Rough	1 3	RM 1 8x9, RM2	B	VS

16 (*) (+)	Seed colour	Light brown (Greyed Orange group 166-D) Brown (Greyed Orange group166-B)	1 3	DPH 6 RM 1, RM 2	D	VS
17 (*) (+)	Seed shape	Square Circular	1 3	DPH 20 8x9	D	VG

VIII. Explanation for the Table of characteristics

Characteristic 1. Stem colour: The predominant colour of the stem of the primary branch to be recorded during active vegetative growth at 50 days after planting.


Yellowish green
(1)

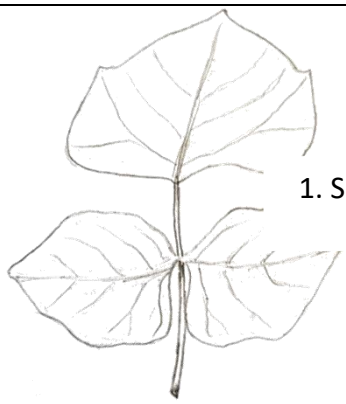
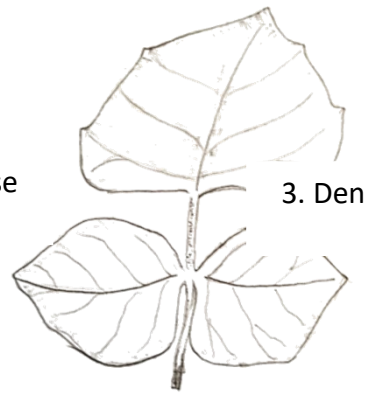
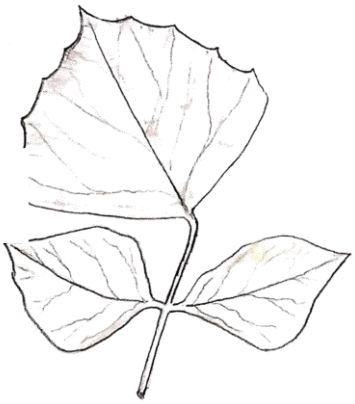
Light green
(3)

Dark Green
(5)

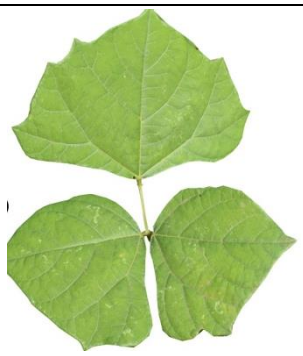
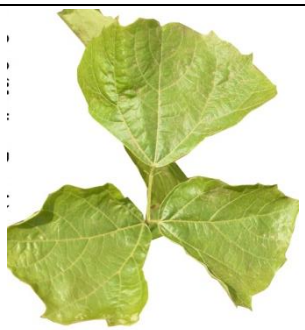
Characteristic 2. Stem pubescence: The pubescence of the stem of the primary branch to be recorded during active vegetative growth at 50 days after planting.

	
Sparse	**Dense**
(1)	**(3)**

Characteristic 3. Leaflet shape (No. of teeth): The number of teeth of the terminal leaflet of the compound leaf shall be recorded.

		
Less	**Medium**	**More**
(1)	**(3)**	**(5)**

Characteristic 4. Leaf surface: The texture of the leaf surface to be recorded on adaxial surface of the fifth fully opened leaf of the primary branch.

	
Smooth	**Rough**
(1)	**(3)**

Characteristic 5. Flower density of the inflorescence to be recorded as Low (1) and High (3)

			
Low	**High**	**Low**	**High**
(1)	**(3)**	**(1)**	**(3)**

Characteristic 6. Flower colour, colour of standard and wing petal

		
Light Blue		
(1)		
		
Violet Blue		
(3)		

Characteristic 8. Pods per branch: The number of mature pods per branch to be counted and recorded as low (1) and high (3)

			
Low	**High**	**Low**	**High**
(1)	**(3)**	**(1)**	**(3)**

Characteristic 9. Pods per inflorescence: Low (1), High (3)

			
Low	**High**	**Low**	**High**
(1)	**(3)**	**(1)**	**(3)**

Characteristic 10. Pod length (cm): Short (1), Long (3)

	
Short	**Long**
(1)	**(3)**

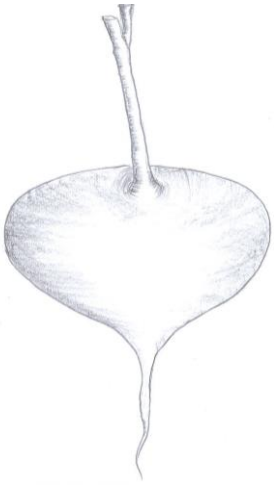
Characteristic 11. Number of seeds per pod: Low (1), High (3)

			
Low	**High**	**Low**	**High**
(1)	**(3)**	**(1)**	**(3)**

Characteristic 12. Tuber shape

		
Fusiform	**Round**	**Irregular**
(1)	**(3)**	**(5)**

Characteristic 13. Neck length (cm): The neck length of the mature tuber (tuber stalk) shall be recorded in cm and classified as short (1) and long (3)

	
Short	**Long**
(1)	**(3)**

Characteristic 14. Tuber rings (Nos): Few (1), Many (3)

	
Few	**Many**
(1)	**(3)**

Characteristic 15. Tuber surface: Smooth (1), Rough (3)

	
Smooth	**Rough**
(1)	**(3)**

Characteristic 16. Seed colour:

	
Light brown	**Brown**
(1)	**(3)**

Characteristic17. Seed shape:

	
Square	**Circular**
(1)	**(3)**

IX. Working group details

The test guidelines developed by the task force (03/2018) constituted by the PPV & FR Authority for Yam Bean (*Pachyrhizus erosus* (L.) with consultation by Nodal officer, ICAR-CTCRI(HQ), Thiruvanathapuram & Co-Nodal officer ICAR-CTCRI, Regional Centre, Bhubaneswar. Technical inputs also provided by the PPV & FR Authority.

8.	**Dr. S.K. Naskar (Plant Breeding),** Former Director, ICAR-CTCRI 4, Deshbandhu Road, Jadavpur, Kolkata 700032	Chairman
9.	**Dr. (Mrs.) Archana Mukherjee** **Director, ICAR-CTCRI** Sreekariyam, Thiruvananthapuram 695017, Kerala	Member
10.	**Dr. K Joseph John** **Pr. Scientist & Officer In-Charge** ICAR-NBPGR Regional Station – Thrissur Vellanikkara, KAU P.O. Thrissur - 680656, Kerala	Member
11.	**Dr. Kalidas Pati,** **Senior Scientist**, ICAR-CTCRI Regional Centre Dumuduma, Bhubaneswar	Member
12.	**Dr. Ashish Narayan** **Tuber Breeder**	Member

	RAU, Eastern Regional Centre, Dholi Muzaffarpur – 843121, Bihar	
13.	**Dr. M. N. Sheela** **Head of Division, Crop improvement** ICAR-CTCRI, Sreekariyam, Thiruvananthapuram 695017, Kerala	Member
14.	**Dr. Ravi Prakash** Registrar(Farmers' Rights), PPV & FRA, New Delhi	Member Secretary

X. DUS testing Centre:

Lead DUS test centre	Collaborating DUS test centre
ICAR – Central Tuber Crops Research Institute, Sreekaryam,Thiruvananthapuram-695017, Kerala	Rajendra Agricultural University, Dholi