भारत सरकार
GOVERNMENT OF INDIA

भारतीय पौधा किस्म जरनल

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पौधा किस्म और कृषक अधिकार संरक्षण प्राधिकरण
एनएएससी काम्प्लैक्स, डीपीएस मार्ग, निकट टोडापुर गांव, नई दिल्ली–110012

PROTECTION OF PLANT VARIETIES & FARMERS' RIGHTS AUTHORITY
NASC COMPLEX, DPS MARG, Opp. Todapur Village, New Delhi-110012

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भारतीय पौधा किस्म जरनल, खण्ड 07, अंक 07
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'भारतीय पौधा किस्म जरनल पौधा किस्म और कृषक अधिकार संरक्षण प्राधिकरण (पौ.कि.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, एस.2, ए ब्लाक, एनएएससी काम्प्लैक्स, 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.

Amendment in Official Notice

Subject: Amendments in official notice PV J(Vol. 3 No.9) Dated 01.09.2009 Registration of Extant Varieties about which there is Common Knowledge.

The PPV&FR Authority in PVJ (Vol. 3 No.9) dated 01st september, 2009 at page No 04 has published a official notice regarding registration of extant varieties about which there is common knowledge. In accordance with the decision of the PPV&FR Authority in its 18th regular meeting, the last para of the said official notice may be substituted and read as follows:-

"D. A Candidate variety should have been sold or otherwise disposed of in India one year prior to the date of filing of the application and it should not have been sold or otherwise disposed of 15 years prior to the date of filing of application and in case of trees and vines it should not have been sold or otherwise disposed of 18 years prior to the date of filing of application".

PUBLIC NOTICE

The Authority in its 12th meeting has approved the annual fee return form to be filed by registered breeder or agent or licencee under the PPV&FR Act, 2001. The form for filing annual fee return is enclosed in the next page. Accordingly, the registered breeders, agents and licencees are requested to file their annual fee returns.

ANNUAL FEE RETURN FORM

1. Crop…….
2. Denomination of Registered Variety…….
3. Registration Number……
4. Date of Registration……..

Category	Total seed available for sale during the financial year {including carry-over of revalidated seed of previous year}*	*Seed sold during the financial year	*Seed In stock as on 31st March (2-3)	Selling price (Rs./unit)	Net Sale Value (3x5) (In Rs.)	Annual Fees on sale (% of 6) (In Rs.)	Royalty, if any received During the F.Y (In Rs.)	Annual fee on Royalty (% of 8) (In Rs.)	Total Annual Fees paid (7+9) (in Rs.)
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Certified Seed									
Foundation Seed									
Breeder Seed									
Truthfully Labeled Seed									
Any other									
Grand Total of Annual Fee Paid to the Authority (give details of deposits)									

***(in gm/kg/Qtl.)**

C ertified that the above information is true and correct.

Signature of Regd. Breeder/Agent/Licencee

Note : The last date for submission of the form would be 31st October of every year

PUBLIC NOTICE

Sub: Notice is given under Rule 29 (8 and 9) of the PPV & FR Rules, 2003.

As a requirement under Rule 29 (8 and 9) of the PPV & FR Rules, 2003, it is hereby informed that the specific DUS test guideline for Almond (*Prunus dulcis*), Apple (*Malus domestica* Borkh), Pear (*Pyrus communis* L.), Apricot (*Prunus armeniaca* L.), Cherry (*Prunus avium* L.), Walnut (*Juglans regia* L.) and Grapes (*Vitis* spp.) is hereby published in 'Plant Variety Journal of India', Vol. 07, No. 07, July 01, 2013. Interested parties may read these guidelines and act accordingly.

Sd/-
MANOJ SRIVASTAVA
REGISTRAR

I. Subject

These test guidelines shall apply to all varieties of Almond (*Prunus dulcis*)

II. 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 (PPV&FRA) Act, 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. As a minimum the applicant may submit 10 grafted or budded plants of almond on rootstock for each centre.
2. The plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.
3. The plant material should not have undergone any treatment, which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of tests

1. The minimum duration of the DUS tests shall normally be for at least two fruiting season in succeeded years.
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 evaluation. Each test should include total of 6 trees. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing seasons.

Test plot design

The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. The additional test protocol for special purpose may be established by PPV & FRA

1 Locations : Two
2 No. of replications : Three
3 Treatment unit : Two trees per replication (total 6 plants / location)
4 Spacing : 3 x 3m

IV. Methods and observations

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

1. For the assessment of Distinctiveness and Stability, observations shall be made on 6 plants or 18 parts taken from 6 plants with the exception of the observation on nut and kernel which should be made on at least 20 nuts. In the case of parts of plants, the number to be taken from each of the plant should be three.
2. For the assessment of uniformity a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 6 plants, the maximum number of off-types allowed would be 1.
3. All observations on the tree and the branches should be made during dormancy. Observations on the mature fruit/nut should be recorded when fruit is ready for harvest at 50% hull splitting.
4. All observations on the leaf should be made on fully developed leaves of the middle third of current season's shoot
5. Time of maturity should be recorded at 50% hull splitting from first of January.
6. All observations on the nut should exclude the pericarp and should be made on dried nuts.
7. All observations on the kernel should be made after harvest when the moisture content is about 8%.
8. Type of assessment of characteristics as indicated in column of Table VII of characteristics is as follows.

    a) ***MG**: Measurement by a single observation of a group of plants or parts of plants*
    b) ***MS**: Measurement by a single observation of individual plants or parts of plant*
    c) ***VG**: Visual assessments by a single observation of a group of plants or parts of plants*
    d) ***VS**: Visual assessments by a single observation of individual plants or parts of plant*

VI. 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. It is recommended that the competent authorities use the following characteristics for grouping varieties

    a. Tree growth habit
    b. Bearing habit
    c. Flower bud shape
    d. Petal shape
    e. Leaf blade margin

f. Nut shape
g. Nut outer shell markings
h. Shell softness

VI. Characteristics and symbols

i. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of characteristics (Section VII) shall be used.
ii. Notes (1 to 9) shall be given for each state of expression for different characteristics for the purpose of electronic data processing.
iii. 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 phonological characteristics or by the environmental conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.

(+) See Explanation 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 the colour variation.

iv. A code number in the sixth column of Table of characteristics indicates the optimum stage for the observation of each characteristic during growth and development of plant. The relevant growth stages corresponding to these code numbers are described below:

a. Observations on tree vigour and habit should be made at the central third of the shoot during dormant season of adult trees relative to reference cultivars grafted on sweet seedling root stock.
b. The observations on the leaves should be made on mature leaves from current season's shoot.
c. Observations should be made at the time of full bloom (75% flowering)
d. Observation should be made at 50% splitting of the hull.
e. Observation should be made after harvest on dried nuts containing about 8 percent moisture.

VII. Table of characteristics

S. No.	Characteristics	States	Notes	varieties characterized in 2010-11/2011-2012	Stages of observation	Type of assessment
1	2	3	4	5	6	7
1.	**Tree vigour**	Weak	3	CITH-Almond-2, CITH-Almond-11	a	VG
		Intermediate	5	IXL, Makhdoom, Non Pareil CITH-Almond-9, CITH-Almond-14		
		Strong	7	California Paper Shell, Pranyaj, CITH-Almond-1, CITH-Almond-3,		
2. (+)	**Tree habit**	Upright	3	Non Pareil, Merced, Waris, CITH-Almond-1	a	VG
		Spreading	5	California Paper Shell, Makhdoom, Pranyaj, IXL, CITH-Almond-12,		
		Drooping	7	Primorskij, CITH-Almond-4, CITH-Almond-18		
3.	**Ramification**	Sparse	3	CITH-Almond-2	a	VG
		Intermediate	5	IXL, Non Pareil CITH-Almond-4, CITH-Almond-6		
		Dense	7	California Paper Shell, Makhdoom, Merced, Pranyaj, Waris, Primorskij CITH-Almond-12		
4.	**Onset of flowering**	Early	3	Pranyaj, Primorskij, Waris, Makhdoom, Almond-1, CITH-Almond-2,	c	MG
		Mid	5	California Paper Shell, I XL, Merced,		
		Late	7	Drake, CITH-Almond-21		
5.	**Duration of blooming (days)**	Short (<5)	1	CITH-Almond-8	c	MG
		Medium (5-10)	3	CITH-Almond-2, CITH-Almond-3, CITH-Almond-6		
		Long (>10)	5	Makhdoom, Pranyaj, Primorskij, Waris, CITH-Almond-1, CITH-Almond-4		
6. (*)	**Colour of petals**	White	1	IXL, Primorskij, Waris, CITH-Almond-12	c	MG
		Light pink	2	California Paper Shell, Merced, Non Pareil, Pranyaj, CITH-Almond-9		
		Pink	3	Shalimar, CITH-Almond-1, CITH-Almond-4		
7. (*)	**Flower bud: Colour of sepals**	Green	3	CITH-Almond-11	c	MG
		Brown	5	Primorskij,CITH-Almond-1		
		Red	7	California Paper Shell, CITH-		

				Almond-4		
8. (*) (+)	**Flower: Bearing habit**	Flowers on one year old shoot	3	IXL, Makhdoom, Merced, Non Pareil, CITH-Almond-3	a	VG
		Flowers on spurs	5	CITH-Almond-6, CITH-Almond-11		
		Mixed	7	California Paper Shell, Primorskij, CITH-Almond-1, CITH-Almond-2		
9. (*) (+)	**Flower bud shape**	Triangular	1	Non-Pareil, Merced, CITH-Almond-3, CITH-Almond-2,	a	VG
		Ovate	3	Makhdoom, Waris CITH-Almond-7		
		Circular	5	CITH-Almond-9, CITH-Almond-15		
10. (*) (+)	**Petal shape**	Elliptic	1	Waris, CITH-Almond-16	c	VG
		Circular	3	Shalimar, CITH-Almond-1,CITH-Almond-2, CITH-Almond-17		
		Rhombic	5	California Paper Shell, Makhdoom, CITH-Almond-9		
11.	**Double flowers in shoot (%)**	Few (< 25)	1	California Paper Shell, CITH-Almond-12	c	MS
		Mid (25-50)	2	Primorskij, CITH-Almond-1, CITH-Almond-3		
		Many (>50)	3	Non Pareil, Pranyaj, CITH-Almond-7, CITH-Almond-8		
12.	**Leaf blade: Length (cm)**	Short (< 8)	3	California Paper Shell, Waris, CITH-Almond-4	b	MS
		Medium (8-10)	5	Primorskii, CITH-Almond-8		
		Long (>10)	7	Non Pareil, CITH-Almond-2, CITH-Almond-20		
13.	**Leaf blade: Width (cm)**	Narrow (< 2)	3	Primorskij, California Paper Shell, Waris CITH-Almond-9	b	MS
		Medium (2-2.5)	5	Makdoom CITH-Almond-18, CITH-Almond-17		
		Broad (>2.5)	7	CITH-Almond-15 CITH-Almond-11		
14.	**Petiole: Length (cm)**	Short (<1.5)	3	IXL, CITH-Almond-14, CITH-Almond-5	b	MS
		Medium (1.5-2)	5	Merced,CITH-Almond-2,CITH-Almond-13		
		Long (>2)	7	CITH-Almond-1, CITH-Almond-6, CITH-Almond-18		
15.	**Leaf blade color**	Light green	3	Waris	b	VG
		Green	5	Non-Pariel, CITH-Almond-3,		

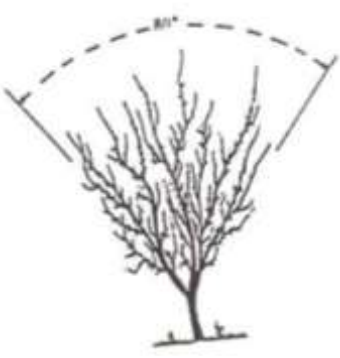
				CITH-Almond-4		
		Dark green	7	Makdoom, CITH-Almond-9, CITH-Almond-10		
16. (*) (+)	**Leaf Blade: Incisions of margins**	Serrate	3	IXL, CITH-Almond-10, CITH-Almond-13	b	VG
		Crenate	5	Merced, CITH-Almond-2		
17. (*)	**Shoot tip: Anthocyanin colouration**	Low	3	California Paper Shell, IXL	a	VG
		Medium	5	Merced, Non Pareil, Pranyaj, Primorskij CITH-Almond-2, CITH-Almond-18		
		High	7	Makhdoom, CITH-Almond-11, CITH-Almond-12		
18. (*)	**Suture opening of the hull**	Closed	1	California Paper Shell, Makhdoom, Merced, Non Pareil, Primorskij, Waris CITH-Almond-1, CITH-Almond-2, CITH-Almond-3	d	VG
		Half open	3	Pranyaj		
		Open	5	IXL		
19.	**Harvest maturity**	Early	3	Primorskij,Waris,CITH-Almond-1, CITH-Almond-2	d	VG
		Med	5	California Paper Shell, IXL, Merced, Non-Pareil, CITH-Almond-16		
		Late	7	Drake		
20.	**Ease of hulling**	Easy	3	California Paper Shell, Makhdoom, Non Pareil, Primorskij, Shalimar, CITH-Almond-4, CITH-Almond-9	d	VS
		Intermediate	5	IXL, Merced, Pranyaj, Waris CITH-Almond-1, CITH-Almond-2		
		Difficult	7	CITH-Almond-14, CITH-Almond-18		
21. (+) (*)	**Nut shape**	Elongated	1	California Paper Shell	e	VG
		Cordate	3	Shalimar, Non Pareil, CITH-Almond-7, CITH-Almond-16		
		Oblong	5	CITH-Almond-2, CITH-Almond-9, CITH-Almond-13		
		Ovate	7	Waris, Makhdoom, IXL, CITH-Almond-1		
22.	**Nut weight(g)**	Small (< 2)	3	CITH-Almond-9, CITH-Almond-10	e	MS
		Medium (2-4)	5	IXL, Makhdoom, Non Pareil, Primorskij, Waris, Merced		
		Large (>4)	7	Pranyaj, California Paper Shell		
23.	**Marking of outer shell**	Without pores	1	CITH-Almond-8		

(*) (+)		Sparsely pored	3	Non Pareil CITH-Almond-3, CITH-Almond-6	e	VG
		Intermediate	5	Shalimar, Makhdoom, CITH-Almond-1, CITH-Almond-2		
		Densely pored	7	Primorskij, IXL, CITH-Almond-4, CITH-Almond-5, CITH-Almond-7		
		Scribed	9	Pranyaj		
24.	**Shell colour intensity**	Extra light	3	California Paper Shell, Merced, Primorskij, CITH-Almond-1, CITH-Almond-2,	e	VS
		Light	5	Pranyaj, IXL,CITH-Almond-3, CITH-Almond-6		
		Dark	7	Makhdoom, Non Pareil, CITH-Almond-4		
25.	**Softness of shell**	Very soft	1	California Paper Shell, IXL, Waris, Pranyaj	e	VG
		Soft	3	Primorskij, Shalimar, Makdoom, Merced, Non Pareil		
		Semi hard	5	CITH-Almond-2, CITH-Almond-4, CITH-Almond-6, CITH-Almond-9		
		Hard	7	CITH-Almond-3, CITH-Almond-5, CITH-Almond-8, CITH-Almond-12		
		Extremely hard	9	CITH-Almond-1		
26.	**Kernel weight (g)**	Small (<1)	3	CITH-Almond-7, CITH-Almond -8, CITH-Almond -9	e	MG
		Medium (1-2)	5	Non Pareil, CITH-Almond -1, CITH-Almond -2		
		Large (>2)	7	Waris, Makhdoom, Pranyaj, IXL, California Paper Shell		
27. (*) (+)	**Kernel shape**	Cordate	3	California Paper Shell, Waris, Makdoom, Pranyaj, IXL, Primorskij	e	VG
		Oblong	5	Waris, Makhdoom, Merced, CITH-Almond-13		
		Ovate	7	CITH-Almond-3, CITH-Almond-5		
28.	**Kernel colour**	Light	3	California Paper Shell, Merced, Non Pareil, Waris,IXL, Makhdoom, Pranyaj	e	VG
		Amber	5	CITH-Almond-5, CITH-Almond-12		
		Dark Amber	7	CITH-Almond-1, CITH-Almond-20, CITH-Almond-2,		

				CITH-Almond-3		
29.	**Shriveling of kernel**	Low	3	California Paper Shell, Makhdoom, Merced, Non Pareil, Waris, CITH-Almond-2, CITH-Almond-4	e	VG
		Medium	5	IXL, Pranyaj, Primorskij CITH-Almond-1, CITH-Almond-3,CITH-Almond-9		
		High	7	CITH-Almond-8, CITH-Almond-12		
30.	**Percentage of twin kernels**	Low	1	CITH-Almond-3, CITH-Almond-11, CITH-Almond-16	e	MS
		Medium	2	CITH-Almond-13, CITH-Almond-15		
		High	3	Makhdoom, IXL, Merced, Non Pareil, Primorskij, CITH-Almond-1,CITH-Almond-2		

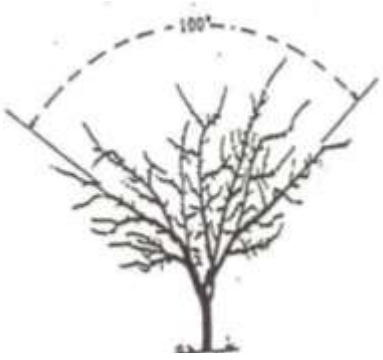
VIII. Explanation for the Table of characteristics

Characteristics 2: Tree habit



Upright
(3)

Spreading
(5)



Drooping
(7)

Characteristics 8: Bearing habit

One most buds on one year old shoots
(3)

Two most flower buds on spurs
(5)

Three mixed
(7)

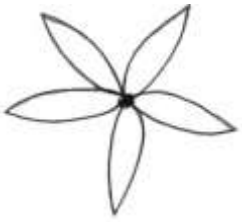
Characteristics 9: Flower bud shape

Triangular
(1)

Ovate
(3)

Circular
(5)

Characteristics 10: Petal shape

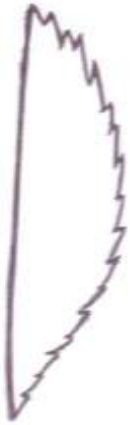


Elliptic
(1)

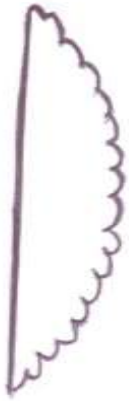
Circular
(3)

Rhombic
(5)

Characteristics 16: Leaf Blade - Incisions of margin



Serrate
(3)



Crenate
(5)

Characteristics 21: Nut shape

Elongated
(1)

Cordate
(3)

Oblong
(5)

Ovate
(7)

Characteristics 23: Marking of outer shell

Without pores
(1)

Sparsely pored
(3)

Intermediate
(5)

Densely pored
(7)

Scribed
(9)

Characteristics 27: Kernel shape

Cordate
(3)

Oblong
(5)

Ovate
(7)

X. NAME OF DUS TEST CENTERS

Nodal DUS Test Centre	Other DUS Test Centre
Central Institute of Temperate Horticulture, Rangreth, Srinagar (J&K)	---

I. Subject:

These test guidelines shall be applicable for all cultivars/ varieties of apple (*Malus domestica*).

II. Material required

2 The Protection of Plant Varieties and Farmers Rights Authority shall decide on the quantity and quality of planting material required for DUS testing of the candidate variety/ varieties when and where to be delivered for registration under the Protection of Plant Varieties and Farmers Rights. (PPV & FRA) Act, 2001. Applicant submitting such plant material for a country other than India shall make sure that all customs and quarantine requirements stipulated under relevant national legislations and regulations are compiled with. As a minimum the applicant need to submit 06 grafted or budded plants of pear on M-9 root stock for each centre.

3 The planting material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or diseases.

4 The plant material should not have undergone any treatment, which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of tests

1. The minimum duration of the DUS tests shall normally be at least two fruiting seasons in different years. Tests shall be conducted at least at two places.
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 of the two growing seasons.

Test plot design

The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. The addition test protocol for special purpose if any may be established by PPV & FRA.

1. Locations : Two
2. No. of replications : Three
3. Treatment unit : Two trees per replication (total 6 plants /location)
4. Spacing : 2.5 x 2.5m
5.

IV. Methods and observations

The characteristics described in the Table of characteristics (see section VIII) table shall be used for the testing varieties and hybrid for their DUS.

1. For the assessment of Distinctiveness and Stability observation shall be made on 6 plants or parts taken from each of 6 plants. In the case of parts of plants, the number to be taken from each of the plants should be 2.
2. Mature leaves in the middle third of the youngest shoots not showing signs of active growth should be selected for the observations on the leaf.
3. Observations on the flowers should be made at the time of full bloom.
4. Observations on the mature fruit should be recorded when fruit is ready for harvesting.

a) ***MG****: Measurement by a single observation of a group of plants or parts of plants*
b) ***MS****: Measurement by a single observation of individual plants or parts of plant*
c) ***VG****: Visual assessments by a single observation of a group of plants or parts of plants*
d) ***VS****: Visual assessments by a single observation of individual plants or parts of plant*

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. The following characteristics are recommended for grouping of varieties.

a) Tree: type
b) Tree: habit
c) Fruit shape
d) Fruit: over color
e) Fruit: pattern of over color

VI. Characteristics and symbols

1. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of characteristics (Section VIII) shall be used.
2. Notes (1-9) shall be given for each state of expression of characters for different characteristics for the purpose of electronic data processing.
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 are rendered impossible by a preceding phenological characteristics or by the environmental conditions of the testing region, under such exceptional situation, adequate explanation shall be provided.

(+) Characteristics with plus (+) sign: See Explanation on the Table of characteristics in Section VIII. It is to be noted that for certain characteristics, the plant parts on which observations are to be taken are given in the explanation or figure(s) for clarity and not the colour variation.

4. A Code number in the sixth column of Table- VIII of characteristics indicates the optimum stage for the observation of each characteristic during the growth and development of plant. The relevant growth stages corresponding to these code numbers are described below:

a. Tree: Type and habit: Observation should be made on dormant stage.

b. One year old shoot: Observations on one year old shoots should be made on lateral dormant shoot on the tree which have completed at least one growing season at the testing centre.

c. Tree vigour, leaf, petiole:- Observations should be recorded when the tree is in peak vegetative growth. The observations on the leaf blade petiole should be recorded on fully developed leaves from the middle third of vigorous current season's shoots at the periphery

d. Flower:- Observations on the flower should be made at the full bloom stage.
Type of flower bearing: Bearing pattern should be recorded at pink bud stage.

f. Fruit: Observations on the fruits should be made on 10 randomly selected fruits taken from a minimum sample of 10 fruits after 15 days from fruit set for recording the anthocyanin colour and for fruit characters it should be taken at the time of maturity. The terminal fruits should not be taken for recording the observations except in terminal bearers.

VII- Explanations for Individual Characteristics

1. Tree vigour
The vigour of the tree should be considered as the overall abundance of vegetative growth.
2. Tree type
   a) Columnar: a compact spur –type tree form with virtually no side branches. Closely spaced short fruiting spurs ate produced along the main stem.
   b) Ramified: form where trees have well developed branches.

VIII. Table of characteristics

S. No.	Characteristics	States	Notes	Example variety	Stage of Observation	Type of assessment
1	2	3	4	5	6	
1	**Tree: vigor**					
		weak	3	Black Ben Davis,	a	VG
		medium	5	Golden Delicious, Granny Smith, Spartan, Vista Bella, Cooper IV, Silver Spur,		
		strong	7	Benoni, Coe Red Fuji, Starkrimson, Mollies Delicious, American Apirouge, Firdous, Coe Red Fuji,		
2 * +	**Tree: type**					
		columnar	1	Spartan, Starkrimson, Red Chief, Top Red, Tydeman's Early Worcester, Well Spur, Mc Spur,	c	VG
		ramified	2	Starking Delicious, Coe Red Fuji, Granny Smith, Vista Bella, Silver Spur, Golden Delicious, Gold Spur,		
3 * +	**Tree: habit**					
		upright	3	American Apirouge, Benoni, Pink lady, Laxton's Fortune, Lal Ambri, Ambri,	a	VG
		spreading	5	Red Fuji, Coe Red Fuji, Granny Smith, Spartan, Vista Bella, Starkrimson,		
		drooping	7	-----		
4 * +	**Bearing habit**					
		spurs only	3	Oregon Spur, Silver Spur, Tydeman's Early Worcester, Summerred, Red Baron, Green Sleeves	e	VG
		Mixed	5	Starking Delicious, Golden Delicious		
		Terminal	7	Gold Spur, Red Chief		
5	**Shoot: colour on one year old, on sunny side**					
		dark brown	1	Laxton's Fortune , Spartan, Starkrimson, Mollies Delicious, Red Fuji, Red Chief	b	VG
		light brown	2	Tydeman's Early Worcester, Granny Smith, Cooper IV, Silver Spur, Firdous		
		medium brown	3	American Apirouge, Vance Delicious ,		
		reddish brown	4	Golden Delicious, Vista Bella, Gold Spur, Summerred, Scarlet Gala, Michal, Red Baron, Skyline Supreme, Parkin's Beauty		
6 * +	**Leaf blade: orientation in relation to shoot**					
		upwards	3	Red Chief , Oregon Spur, Shireen, Royal Delicious, Laxton's Fortune	c	VG
		out wards	5	Coe Red Fuji, Granny Smith, Spartan, Gala Mast, Starkrimson , Mollies Delicious, Cooper IV		
		downwards	7	Vista Bella, Coe Red Fuji, Gold Spur, Prima, Rome Beauty, Parkin's Beauty		

7	**Leaf blade: length (cm)**					
		short (<4.0)	1	Mc-Spur, Starkrimson, Coe Red Fuji, Rich-a-Red , Starking Delicious, Anna,	c	MS
		medium (4.0-7.0)	3	Coe Red Fuji, Granny Smith, Spartan, Cooper-IV, American Apirouge,		
		broad (>7.0)	7	Golden Delicious, Vista Bella, Mollies Delicious Tydeman's Early Worcester, Laxton's Fortune ,		
8	**Leaf blade: width (cm)**					
		narrow (2-4.0)	3	Tydeman's Early Worcester, Breaburn	c	MS
		medium(4.0-6.0)	5	Jona Gold, Granny Smith, Starkrimson, Cooper-IV, Silver Spur , Red Fuji,		
		broad(>6.0)	7	Vista Bella, Coe Red Fuji, Spartan, Golden Delicious, Starking Delicious, Red Gold , Tydeman's Early Worcester, Pink Lady,		
9 *	**Leaf blade : ratio length /width**					
		small (0.5-1.0)	1	Indo, Jonathan,	c	MS
		medium(1.0-2.0)	3	Silver Spur , Coe Red Fuji, Gala Mast		
		large (2.0-3.0)	5	Cooper-IV, Golden Delicious		
		very large (>3.0)	7	Mollies Delicious , Vista Bella		
10 *	**Leaf blade: pubescence on lower side**					
		less/ weak	1	Golden Delicious, Vista Bella	c	VG
		moderate	3	Gala Mast , Starkrimson, Cooper IV		
		high	5	Red Chief , Jonathan, Red Chief		
11	**Leaf blade: intensity of green color**	light green	1	Parkin's Beauty, Golden Delicious, Lemon Gourd	c	VG
		green	2	Cooper IV, Red Spur, Fanny		
		dark green	3	Firdous, Mutsu, Prima , Green Sleeves		
12 * +	**Leaf blade: incision of margin (Upper half)**					
		crenate	1	Mayan, Summerred	c	VS
		bicrenate	2	Granny Smith, Vista Bella, Gold Spur		
		serrate type 1	3	Starking Delicious		
		serrate type 2	4	Cox's Orange Pippin, Silver Spur		
		biserrate	5	Red Gold		
13 + *	**Leaf blade: size of stipules**					
		Absent	1	Anna	c	VS
		very small	2	Black Ben Davis, Cox's Orange Pippin, Braeburn		
		small/ narrow	3	Granny Smith, Starkrimson Gold, Star Summer Gold, Starkrimson, Top Red, Winter Commercial		
		medium	5	Coe Red Fuji, Spartan, American Apirouge , Silver Spur , Golden Delicious , Red Fuji, Gold Spur, Red Chief, Oregon Spur, Parkin's Beauty		
		broad/large	6	Antonovka , Benoni,		

		large	7	Lemon Guard, Prima		
14	**Onset of flowering**				d	VG
		early	1	Anna, Mai Gold,		
		mid	3	Granny Smith, Vance Delicious		
		late	5	Starking Delicious , Top Red, Ambri		
15 * +	**Flower: arrangement of petals**					
		free	3	Michal, Shireen, Black Ben Davis, Antonovka, King Hasicus, Rich-a-Red ,	d	VS
		intermediate	5	Coe Red Fuji, Parkin's Beauty, Prima, Summerred, Wilson Red June, June Eating Starkrimson,		
		over lapping	7	American Apirouge, Cox's Orange Pippin , Red Baron		
16 * +	**Flower: position of stigmas relative to anthers**					
		below	1	King Hasicus, Shireen, Black Ben Davis, Mollies Delicious , Jonica, Hardiman, Starking Delicious	d	VS
		same level	3	Starkrimson, Summerred, Michal, Rich-a-Red , Starkrimson Gold, Wilson Red June		
		above	5	Granny Smith, Golden Delicious		
17 * +	**Flower: predominant color at baloon stage (RHS COLOR CHART NO.)**					
		white	1	Early Mc Intosh, Florina, Starking Delicious	d	VG
		yellowish pink	2	Tydeman's Early Worcester,		
		light pink	3	Cooper IV, Starkrimson, Anna, Michal, June Eating, Prima, Granny Smith, Mayan, Oregon Spur, Tallisare, Top Red, Vista Bella,		
		dark pink	4	Hardiman, Silver Spur, Coe Red Fuji, Red Gold, Red Fuji, Scarlet Gala, Summerred, Spartan		
		red	5	Firdous		
		purple	7	-		
18	**Fruit let: Anthocyanin colouration**					
		weak	1	Granny Smith, Golden Delicious , King Hasicus	f	VS
		medium	3	Red Spur, Rome Beauty		
		strong	5	Spartan		
19	**Fruit: weight (g)**					
		small(<60)	3	Starkrimson Gold, American Apirouge	f	MS
		medium(60-120)	5	Golden Delicious, Coe Red Fuji		
		large(120-240)	7	Vista Bella, Hardiman,		
		extra large (>240)	9	Mollies Delicious, Yellow Newton		
20 * +	**Fruit: shape**					
		conical	1	Starking Delicious, Spartan, Silver Spur, Firdous, Red Chief, Oregon Spur, Royal Delicious, Top Red, Laxton's Fortune , Rich –a – Red, Ambri	f	VS
		cylindrical	2	Tallisare, Skyline Supreme,		
		cylindrical waisted	3	Mollies Delicious, Starkrimson, Cooper IV, Red Delicious, Hardiman,		
		ellipsoid	4	Scarlet Gala, Wilson Red June,		

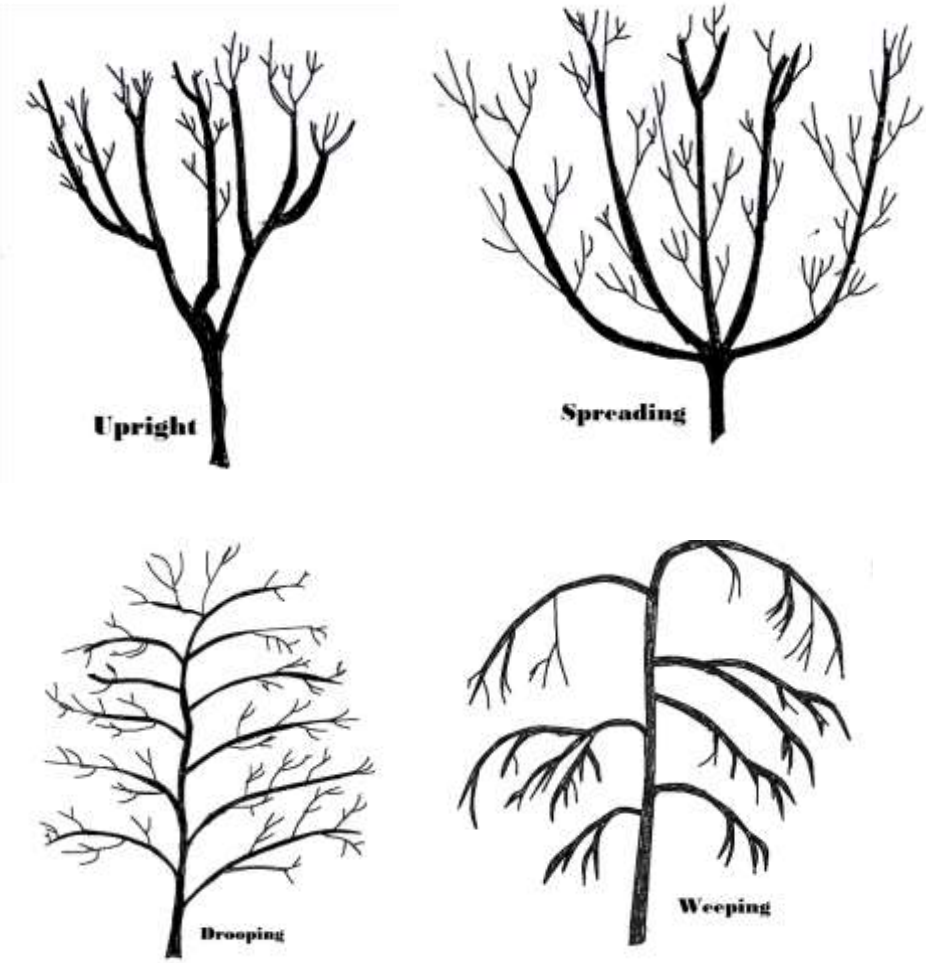
		globose	5	Coe Red Fuji, Granny Smith, Red Gold, Benoni, Pink lady, Prima, Michal, Winter Commercial, Starkrimson Gold,		
		obloid	6	Vista Bella, American Apirouge, Gold Spur, Tydeman's Early Worcester, June Eating, Red Baron, Green Sleeves, Parkin's Beauty		
		ovoid	7	Summerred, Shireen		
21 * +	**Fruit: size of eye basin (mm)**					
		small (<1.5)	3	Granny Smith, American Apirouge, Golden Delicious, Benoni, Laxton's Fortune , Ambri, Rome Beauty, King Hascias	f	MS
		medium (1.5-2.0)	5	Coe Red Fuji, Spartan, Vista Bella, Gala Mast, Mollies Delicious, Silver Spur, Firdous, Gold Spur, Red Chief, Oregon Spur		
		large(>2.0)	7	Starkrimson, Cooper IV, Shireen, Hardiman, Prima, Rich –a – Red, , Michal, June Eating,		
22	**Fruit: firmness of flesh (psi)**					
		soft (<25)	3	Hardiman, Red Delicious, Michal, Jonica, Mayan	f	MS
		medium (25-30)	5	Spartan, Golden Delicious, Red Fuji, Oregon Spur, Tydeman's Early Worcester, Pink lady, Laxton's Fortune , Prima, Summerred		
		firm (>30)	7	Red Chief, Coe Red Fuji, Vista Bella, Gala Mast, Starkrimson, Mollies Delicious, Cooper IV		
23 *	**Fruit: length of stalk (cm)**					
		very short (<0.65)	1	Jonathan, Granny Smith, Starkrimson, Cox's Orange Pippin, Vance Delicious, Jonathan,	f	MS
		short (0.65-1.0)	2	Mc Spur, Vista Bella, Golden Delicious, Pink lady, Green Sleeves, Starking Delicious		
		medium (1.0-1.9)	3	Hardiman, Florina,		
		long (1.9-2.35)	4	Silver Spur, Rich –a – Red, Coe Red Fuji, Gala Mast, Mollies Delicious, Cooper IV, American Apirouge , Silver Spur		
		very long (>2.25)	5	Top Red, Spartan, Red Delicious, Tydeman's Early Worcester, Benoni, Winter Commercial, Skyline Supreme		
24 * +	**Fruit: depth of stalk cavity (cm)**					
		shallow (<1)	1	Vista Bella, Granny Smith, American Apirouge , Golden Delicious, Gold Spur, Hardiman, Summerred, Scarlet Gala, Red Baron,	f	MS
		medium(1.0-2.0)	3	Well Spur, Coe Red Fuji, Gala Mast, Starkrimson, Silver Spur, Red Chief, Starking Delicious		
		deep (>2.0)	5	Oregon Spur, Jonagold, Spartan, Cooper IV, Top Red, Tydeman's Early Worcester, Benoni, Michal, Skyline Supreme, Well Spur		
25 * +	**Fruit: prominence of lobes at calyx end**					
		absent	1	Winter Commercial	f	VS
		weak	3	Granny Smith		
		moderate	5	Jonathan		

		strong	7	Starkrimson, Mollies Delicious, Red Delicious, Hardiman		
26 * +	**Fruit: bloom of skin**					
		weak	1	Pink lady, Granny Smith, Summerred, June Eating, Red Baron, Green Sleeves	f	VG
		moderate	3	Coe Red Fuji, Vista Bella, Gala Mast, Mollies Delicious, American Apirouge, Golden Delicious,		
		strong	5	Vista Bella, Spartan, Starkrimson, Cooper IV, Silver Spur, Gold Spur, Red Chief, Starking Delicious		
27 *	**Fruit: greasiness of skin**					
		absent or weak	1	Anna, Pink lady, Vista Bella, Green Sleeves	f	VG
		moderate	3	Granny Smith, Coe Red Fuji, Gala Mast, Mollies Delicious, American Apirouge, Golden Delicious		
		strong	5	Starkrimson, Jonagold, Cooper IV, Spartan, Silver Spur, Red Chief, Oregon Spur, Starking Delicious		
28	**Fruit: over color**					
		very small	1	Granny Smith, Prima	f	VS
		small	3	Cox's Orange Pippin		
		medium	5	Gala Mast, Coe Red Fuji		
		large	7	Spartan, Starkrimson		
29 *	**Fruit: pattern of over color**					
		only solid flush	1	Rich –a – Red , Gold Spur, Green Sleeves, Spartan, American Apirouge, Golden Delicious	f	VS
		solid flush with weakly defined stripes	2	Well Spur, Oregon Spur, Ambri, Red Baron, Vista Bella		
		solid flush with strongly defined stripes	3	Red Chief, Top Red, Gold Spur, Royal Delicious, Tydeman's Early Worcester, Benoni, Mayan		
		weakly defined flush with strongly defined stripes	4	Vance Delicious, Winter Commercial, Ambri		
		flushed and mottled	5	Firdous, Red Gold, Granny Smith, Early Mc-Intosh, Rome Beauty, Lemon Guard		
		flushed striped and mottled	6	Skyline Supreme, Tallisare		
30 *	**Fruit: area of russet around Stalk attachment**					
		small	3	Vista Bella, Cox's Orange Pippin, Silver Spur, Starkrimson, Red Fuji, Red Gold, Tydeman's Early Worcester	f	VG
		medium	5	Golden Delicious, Laxton's fortune, Black Ben Devis		
		large	7	-----		
31 *	**Fruit: area of russet on cheeks**					
		absent	1	Granny Smith, Coe Red Fuji, Vista Bella, Spartan, Gala Mast, Mollies Delicious, Cooper	f	VS

				IV, American Apirouge, Silver Spur		
		small	3	Starkrimson, Red Gold, Tydeman's Early Worcester, Prima,		
		medium	5	Laxton's Fortune, Golden Delicious, Black Ben Devis, Cox's Orange Pippin,		
		large	7	Golden Delicious, Yellow Newton		
32	**Fruit: area of russet around eye basin**					
		absent	1	Coe Red Fuji, Granny Smith, Spartan, Gala Mast, Starkrimson, Mollies Delicious	f	VS
		small	3	Laxton's Fortune, Red Gold, Tydeman's Early Worcester, Prima, Rich –a – Red, Michal		
		medium	5	Cox's Orange Pippin		
		large	7	Golden Delicious, Yellow Newton		
33	**Fruit: number of lenticels**					
		few	1	James Grieves, Granny Smith, American Apirouge, Red Chief, Red Gold	f	MS
		medium	3	Starkrimson, Coe Red Fuji, Spartan, Cooper IV, Gold Spur, Top Red, Laxton's fortune		
		many	5	Vista Bella, Gala Mast, Mollies Delicious, Silver Spur, Golden Delicious, Oregon Spur		
34 *	**Fruit: colour of flesh**					
		whitish	1	Spartan, Cox's Orange Pippin,	f	VG
		creamy	2	Gala Mast, Starkrimson, Coe Red Fuji, Mollies Delicious, Cooper IV,		
		pinkish	3	Red Gold, Pink Lady, Vista Bella, American Apirouge, Silver Spur,		
		greenish	4	Granny Smith		
		yellowish	5	Scarlet Gala, Shireen, Red Gold, Skyline Supreme,		
35	**Fruit maturity: days (DAFB)**					
		very early (< 90)	1	Vista Bella, Scarlet Gala, Laxton's Fortune	g	MG
		early (90-105)	3	Michael, Summerred, Benoni,		
		medium (105-130)	5	Gala Mast, Starkrimson,		
		late (130-170)	7	Golden Delicious, Coe Red Fuji, American Apirouge		
		very late >170	9	Granny Smith		

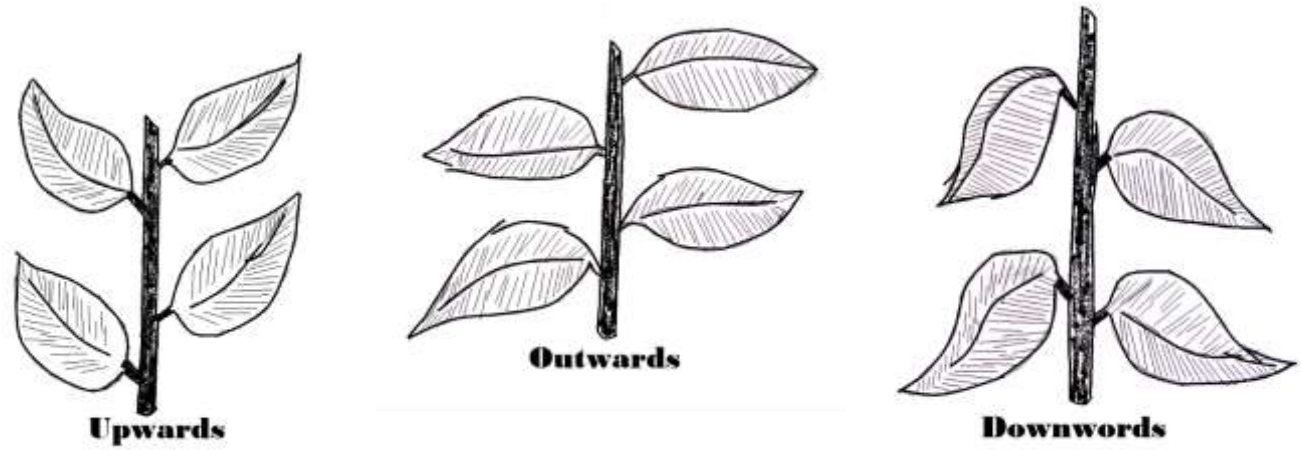
IX. Explanations on the table of characteristics

Characteristics 3: Tree habit



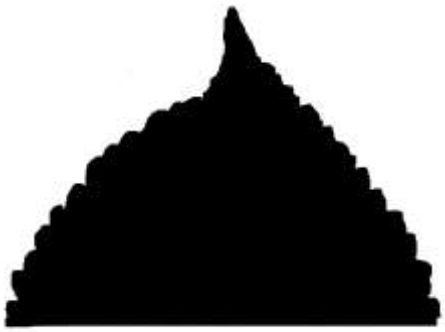
Characteristic 4: Type of bearing habit

Characteristics 6: Leaf Blade ; Altitude in relation to shoot



Characteristics 13: Leaf blade: Incision of margin upper half.

Crenate



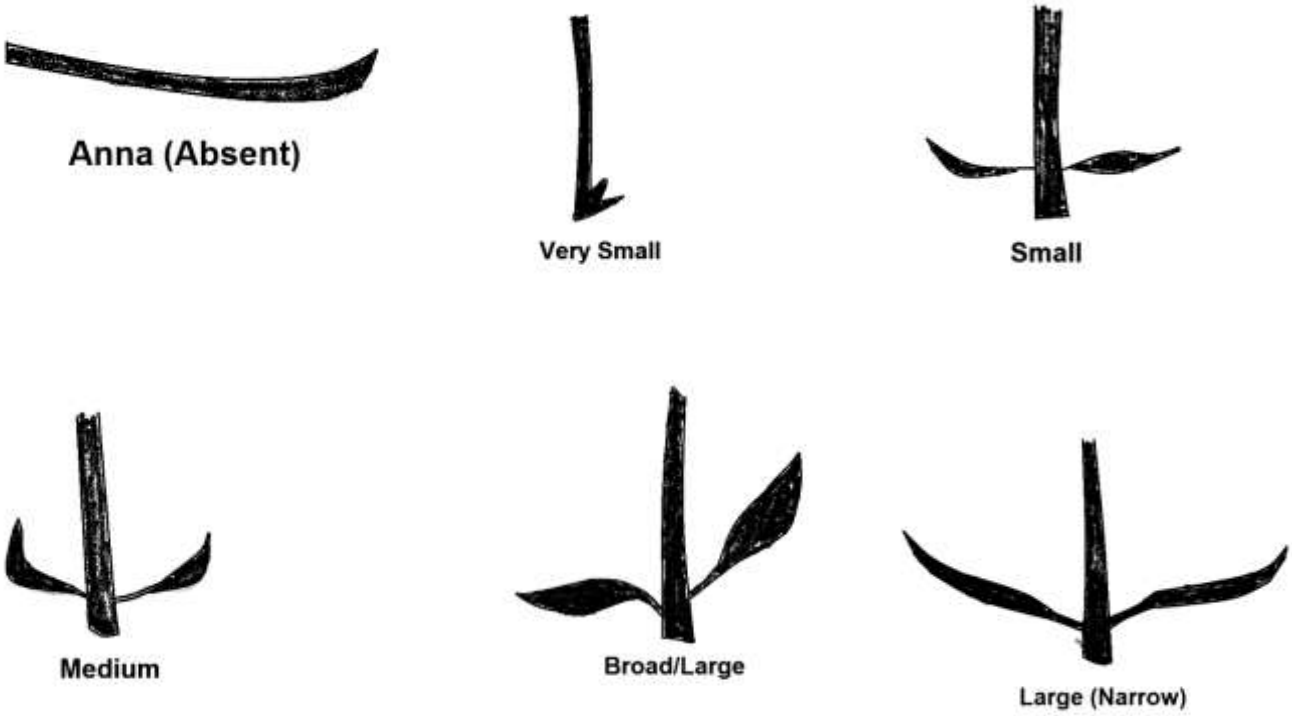
bicrenate

biserrate

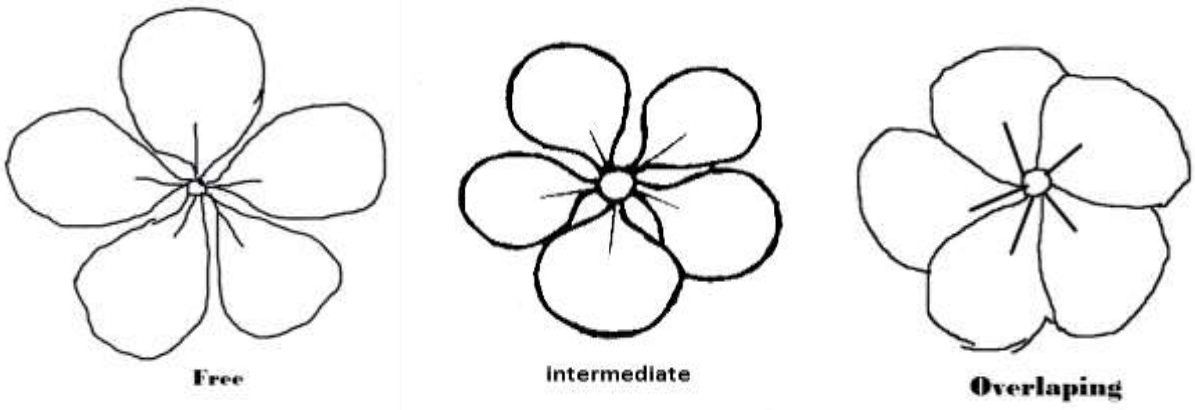
serrate type 1

serrate type 2

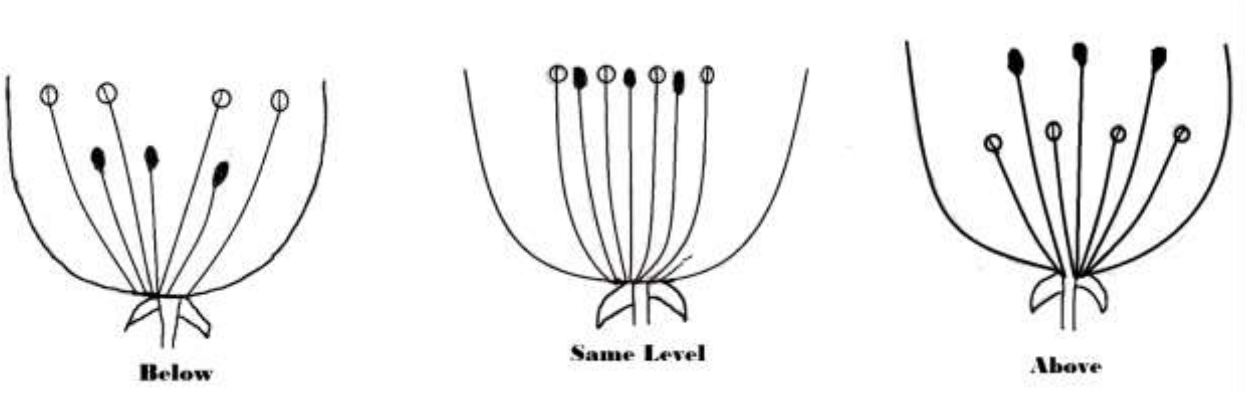
Characteristics 14: Size of stipules



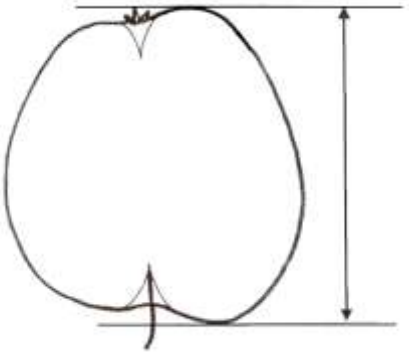
Characteristics 16: Flower – arrangement of petal



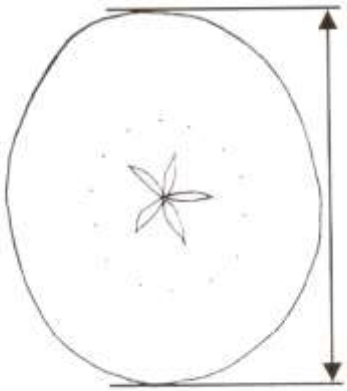
Characteristics 17: Flower: Position of stigma in relation to anthers



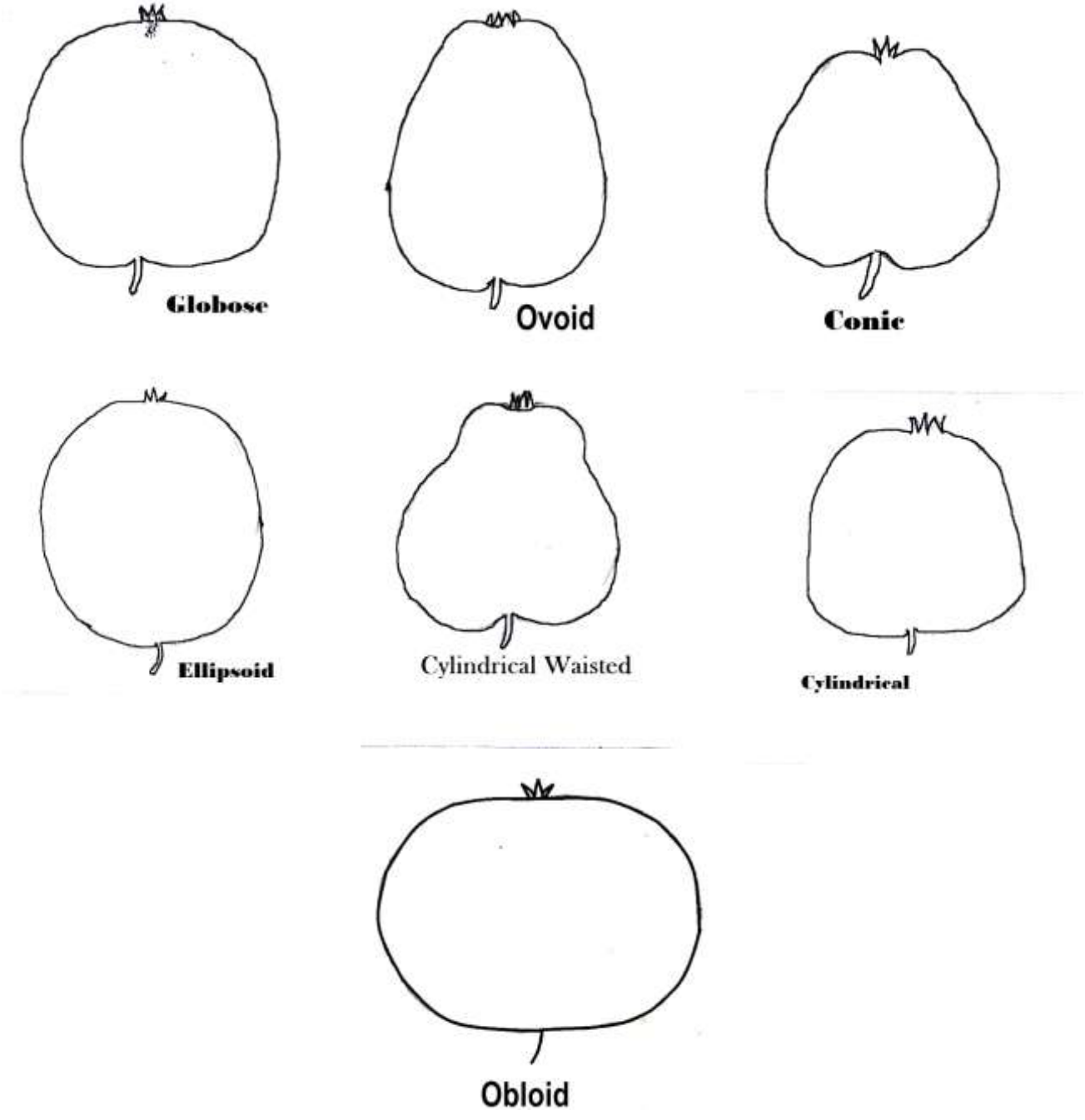
Characteristics 21: Fruit Height



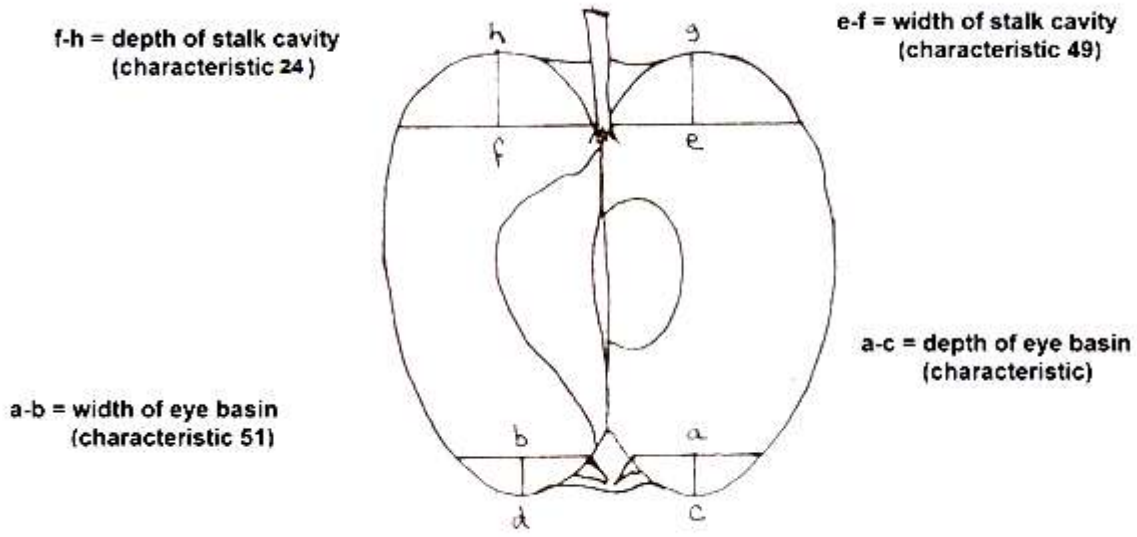
Characteristics 22: Fruit diameter



Characteristics 24: Fruit general shape



Characteristics 24: Fruit depth and width of stalk cavity ; depth and width of eye basin .



DUS TEST CENTERS

Nodal DUS Test Centre	Other DUS Test Centre
Central Institute of Temperate Horticulture, Rangreth, Srinagar (J&K)	---

I. Subject

Test Guidelines shall apply to all cultivated varieties of *Pyrus communis*.

II. Material Required

5 The Protection of Plant Varieties and Farmers Rights Authority shall decide on the quantity and quality of planting material required for DUS testing of the candidate variety/ varieties when and where to be delivered for registration under the Protection of Plant Varieties and Farmers Rights. (PPV & FRA) Act, 2001. Applicant submitting such plant material for a country other than India shall make sure that all customs and quarantine requirements stipulated under relevant national legislations and regulations are compiled with. As a minimum the applicant need to submit 06 grafted or budded plants of pear on seedling root stock for each centre.

6 The planting material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or diseases.

7 The plant material should not have undergone any treatment, which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of tests

1. The minimum duration of the DUS tests shall normally be at least two fruiting seasons in different years.
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 of the two growing seasons.

Test plot design

The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. The addition test protocol for special purpose if any may be established by PPV & FRA.

1. Locations : Two
2. No. of replications : Three
3. Treatment unit : Two trees per replication (total 6 plants /location)
4. Spacing : 3.0 x 3.0m

IV. Methods and observations

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

5. For the assessment of Distinctiveness and Stability observation shall be made on 6 plants or parts taken from each of 6 plants. In the case of parts of plants, the number to be taken from each of the plants should be 2.
6. Mature leaves in the middle third of the youngest shoots not showing signs of active growth should be selected for the observations on the leaf.
7. Observations on the flowers should be made at the time of full bloom.
8. Observations on the mature fruit should be recorded when fruit is ready for harvesting.

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

f) ***MS****: Measurement by a single observation of individual plants or parts of plant*

g) ***VG****: Visual assessments by a single observation of a group of plants or parts of plants*

h) ***VS****: Visual assessments by a single observation of individual plants or parts of plant*

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. The following characteristics are recommended for grouping of varieties

a. Fruit: Position of maximum diameter
b. Fruit: Size
c. Fruit: ground color of skin
d. Fruit: symmetry (in longitudinal section)
e. Fruit: texture of flesh
f. Fruit: days of maturity (DAFB)

VII. Characteristics and symbols

5. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of characteristics (Section VII) shall be used.
6. Notes (1-9) shall be given for each state of expression of characters for different characteristics for the purpose of electronic data processing.
7. 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 are rendered impossible by a preceding phenological characteristics or by the environmental conditions of the testing region, under such exceptional situation, adequate explanation shall be provided.

(+) Characteristics with plus (+) sign**:** See Explanation on the Table of characteristics in Section VIII. It is to be noted that for certain characteristics, the plant parts on which observations are to be taken are given in the explanation or figure(s) for clarity and not the colour variation.

8. A Code number in the sixth column of Table of characteristics indicates the optimum stage for the observation of each characteristic during the growth and development of plant. The relevant growth stages corresponding to these code numbers are described below:

a. Tree: Type and habit: Observation should be made on dormant stage.

b. One year old shoot: Observations on one year old shoots should be made on lateral dormant shoot on the tree which have completed at least one growing season at the testing centre.

c. Tree vigour, leaf, petiole:- Observations should be recorded when the tree is in peak vegetative growth. The observations on the leaf blade petiole should be recorded on fully developed leaves from the middle third of vigorous current seasons shoots at the periphery.

d. Flower:- Observations on the flower should be made at the full bloom stage.

e. Type flower bearing: Bearing pattern should be recorded at pink bud stage.

f. Fruit: Observations on the fruits should be made on 10 typical fruits taken from a minimum sample of 10 fruits after 15 days from fruit set for recording the anthocyanin colour and for fruit characters it should be taken at the time of maturity. The terminal fruits should not be taken for recording the observations.

VI. Table of characteristics

S. No	Characteristics	States	Notes	Example Variety	Stages of observation	Type of assessment
1	2	3	4	5	6	7
1	**Tree: vigor**	weak	3	-----	c	VG
		medium	5	Doyenne Burrah, Fertility, Beurre- de- Amanlis		
		strong	7	Moon Glow, Monarch, Wikar of Wink Field , Flemish Beauty , Doyenne du Comice		

2 * +	**Tree: branching**				c	VS
		weak	3	Severenta		
		medium	5	Conference		
		strong	7	Pyasua Behapa		
3 * +	**Tree: habit**				c	VG
		upright	3	Doyenne-du-Comice, Wikar of Wink Field		
		semi upright	5	Hayward, Doyenne Burrah, Fertility		
		spreading	7	Beurr'e Hardy, Jargonelle		
		drooping	9	-----		
4 * +	**One year old shoot: growth**				c	VG
		straight	3	Bar Battira Giffard, Doyenne Burrah		
		wavy	5	Coscia-F, Jargonelle, Moon Glow , Monarch, Winkar Wink Fied		
		zig zag	7	Beurr'e Hardy, Fertility		
5 *	**One year old shoot: apex of vegetative bud**				c	VG
		acute	1	Max Red Bartlett		
		obtuse	9	Doyenne-du- Comice		
6 * +	**One year old shoot: Position of vegetative bud in relation to shoot**				c	VG
		adpressed	3	Max Red Bartlett, Jargonelle		
		straightly held out	5	Santya Braskaya		
		markedly held out	7	Conference, Doyenne Burrah, Moon Glow , Beurre de Amanlis, Wikar of Wink Field		
7 +	**One year old shoot : size of bud support**				c	VS
		small(0.3-0.7cm)	3	Starkrimson		
		medium(0.7-1.1cm)	5	Gent Drouard		
		large(>1.1cm)	7	Pyasua Behapa		
8	**Days to full bloom**				d	VG
		Early (<95)	3	Bar Battira Giffard		
		Med (95-100)	5	Max Red Bartlett		
		Late (>100)	7	Doyenne-du-Comice		
9 *	**Flower: orientatio**				d	VS
		adpressed	5	William Bon Brighten,		

	n of sepal in relation to corolla			Hayward , Cosia –C, Max Red Bartlett		
		spreading	7	Doyenne-du-Comice, Conference , Cosia.F, Severenta , Starkrimson		
		recurved	9	Pyasua Behapa, Bar Barttira Giffard, Beurre Hardy, Santya Braskaya		
10 * +	**Flower: position of margins of petals**				d	VG
		apart	3	Bar Battira Giffard, Beurre Bosc		
		touching	5	Max Red Bartlett, Doyenne du Comice , Santya Braskaya , Hayward		
		overlapping	7	Conference, Pyasua Behapa, Zypaceac Hypacea Copeace , Cosia F		
11 * +	**Flower: position of stigma in relation to stamens**				d	VG
		below	3	Conference, Hayward, Max Red Bartlette, Cosia F		
		same level	5	Badshah Nakh, Bar Battira Giffard, Gent Drouard, William Bon Brighten, Severenta		
		above	7	Beurre-de- Amanlis, Pyasua Behapa, Doyenne du Comice, Santya Braskaya, Starkrimson		
12	**Leaf blade: length**				c	MS
		short(<6cm)	3	Max Red Bartlett, Gent Drouard		
		Medium (6-8cm)	5	Hayward, Bar Battira Giffard, Santya Braskaya		
		long(>8cm)	7	Pyasua Behapa, , Doyenne du Comice, Chinese Sandy Pear		
13	**Leaf blade: width (** cm)				c	MS
		narrow (2-4)	3	Doyenne-du-Comice, Starkrimson		
		medium(4-6cm)	5	Zypacea Hypacea Copeace, William Bon Brighten, Gent Drouard		
		broad(>6cm)	7	Pyasua Behapa, Hayward, Chinese Sandy Pear		

14 * +	**Petiole: presence of stipules**				c	VG
		absent	1	Coscia-F		
		present	9	William Bon Brighten,Bar Battira Giffard, Doyenne du Comice		
15	**Petiole: length**				c	MS
		short(1.0-2.5cm)	3	William Bon Brighten, Max Red Bartlett, Jorgonelle		
		medium(2.5-4.0cm)	5	Conference, Coscia C		
		long(>4.0cm)	7	Chinese Sandy Pear, Anjou, Willium Bon Brighten		
16 * +	**Leaf blade: attitude in relation to shoot**				c	VG
		upwards	3	Max Red Bartlett, Starkrimson, Severenta		
		outwards	5	Gent Drouard, Bar Battira Giffard, Doyenne du Comice		
		downwards	7	Santya Braskaya, Hayward		
17 * +	**Leaf blade: shape of base**				c	VG
		acute	1	Doyenne-du-Comice, Bar Battira Giffard		
		obtuse	2	Santya Braskaya, Max Red Bartlett, Hayward, Willium Bon Brighten		
		right angled	3	Pyasua Behapa, Starkrimson, Gent Drouard		
		truncate	4	Coscia C		
		cordate	5	-----		
18 * +	**Leaf blade: incisions of margin (upper half)**				c	VG
		smooth	1	Coscia C		
		crenate	3	Gent Drourad, Chinese Sandy Pear, Zypacea Hypacea Copeace		
		bluntly serrate	5	William Bon Brighten		
		serrate	7	Santya Braskaya, Severenta,		

				Max Red Bartlett		
		sharply serrate	9	Pyasua Behapa, Hayward, Starkrimson		
19 + *	**Petiole: distance of stipules from basal attachment of petiole**				c	VG
		short	3	Doynne-du-Comice		
		medium	5	Coscia F		
		long	7	Pyasua Behapa		
20 + *	**Fruit: length**				f	MG
		short (<60mm)	1	Bar Battira Giffard, Fertility		
		medium (60-80mm)	2	Max Red Bartlett, Pyasua Behapa, Hayward, Zypacea Hypacea Copeace		
		long (>80mm)	3	Jargonelle, Doyenne du Comice, Santya Braskaya		
21 * +	**Fruit: diameter**				f	VG
		small (<50mm)	1	Jorgonelle, Coscia C, Coscia F		
		medium (50-70mm)	2	Max Red Bartlett, Bar Battira Giffard, Pyasua Behapa, Hayward, Zypacea Hypacea Copeace		
		large (> 70mm)	3	William Bartlett, Doyenne du Comice, Santya Braskaya, Gent Drouard, William Bon Brighten		
22 * +	**Fruit: position of maximum diameter**				f	VG
		in middle	1	Santya Braskaya, Hayward, Starkrimson, Zypacea , Hypacea Copeace , Severenta		
		slightly towards calyx	2	Bar Battra Giffard, Pyasua Behapa, Coscia C, Jargonelle		
		clearly towards calyx	3	Gent Drouard, Doyenne du Comice, Coscia F, Beurre Hardy		
23 * +	**Fruit: symmetry (in longitudinal section)**				f	VG
		asymmetric	1	Hayward, Beurre Hardy		
		slightly symmetrical	2	Bihe, Bar Battira Giffard, Doyenne du Comice, Zypacea Hypacea Copeace, Severenta, Coscia C,		

				Coscia F,		
		symmetrical	3	Gent Drouard, Pyasua Behapa, Starkrimson,		
24 *	**Fruit: ground color of skin**				f	VG
		green	1	Behi , Chinese Sandy Pear		
		yellow green	2	Bar Battira Giffard,Sevrenta,		
		yellow	3	William Bon Brighten, Gent Drouard,		
		Red	4	Starkrimson, Max Red Bartlett		
25	**Fruit: relative area of over color**				f	VG
		very small	1	------		
		small	3	Coscia C		
		medium	5	Doyenne-du-Comice		
		large	7	Hayward, Max Red Bartlett		
26	**Fruit: hue of over color**	green	5	Bihe	f	VG
		yellowish green	4	Coscia F		
		light red	2	Doyenne-du-Comice, Bar Battira Giffard, Santya Braskaya		
		red	1	Starkrimson, Pyasua Behapa, Severenta		
27	**Fruit: relative area of russet on cheeks**				f	VS
		absent	1	Pyasua Behapa, Zypacea Hypacea Copeace , Santya Braskaya , Severenta, Coscia F		
		Small (<30%)	3	Bar Battira Giffard, Doyenne du Comice , Hayward		
		Medium (30-50%)	5	Red Bartlette, Gent Drouard, Max Red Bartlette, Bihe, Beurre Hardy		
		Large (>50%)	7	Fertility		
28 *	**Fruit: length of stalk (cm)**				f	MS
		short (<1)	3	Bar Battira Giffard, Pyasua Behapa, Doyenne du Comice, Starkrimson		
		medium (1-3)	5	Beurre Hardy,		
		long(>3)	7	Beurre Bosc,		
29	**Fruit:**				f	MS

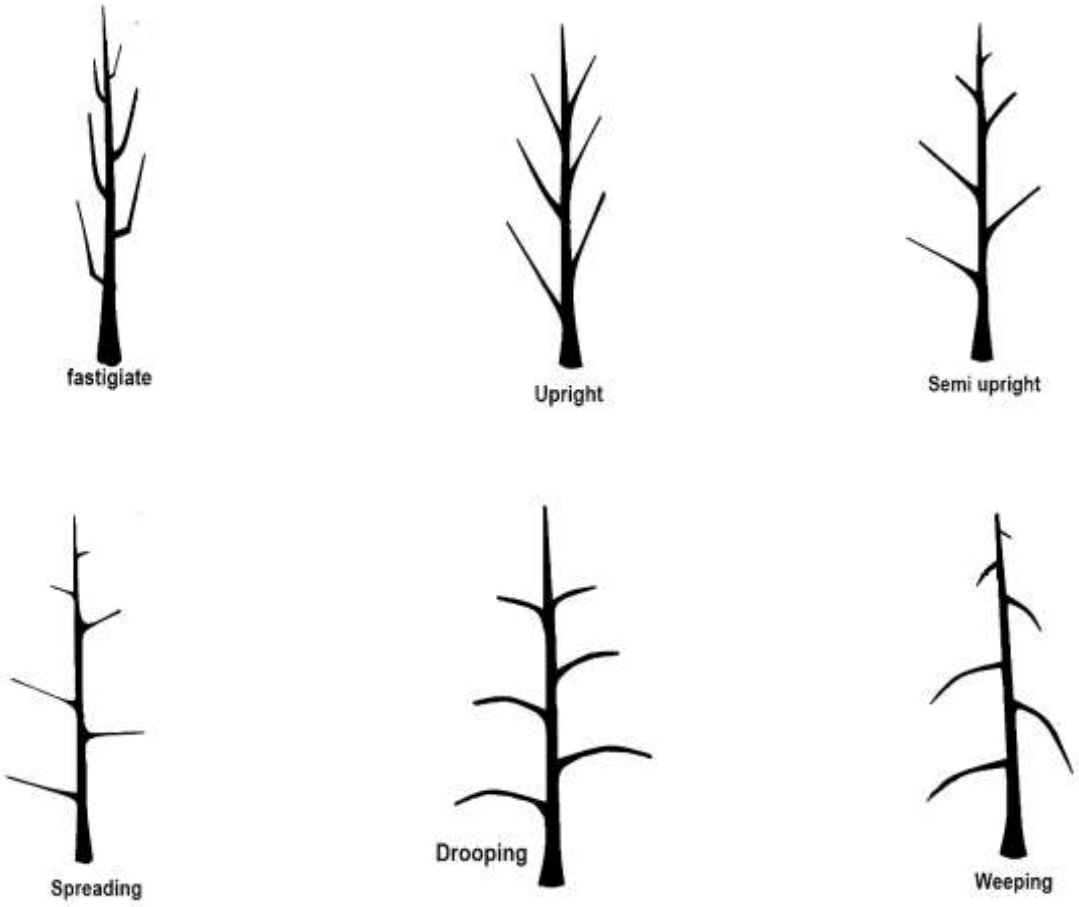
*	**thickness of stalk**	thin (<1mm)	1	Gent Drouard, William Bon Brighten, Starkrimson, Zypacea Hypacea Copeace		
		medium(1.1 -2.0 mm)	2	Bar Battira Giffard, Pyasua Behapa, Doyenne du Comice, Santya Braskaya, Hayward,		
		thick (>2.0mm)	3	Chinese Sandy Pear		
30 *	**Fruit: depth of stalk cavity**				f	MS
		very shallow (<0.6cm)	1	Zypacea Hypacea Copeace, Bihe, Conference		
		shallow(0.6-1.0cm)	2	Bar Battira Giffard, Santya Braskaya, Gent Drouard, Starkrimson		
		medium(1.0 -1.5cm)	3	Pyasua Behapa, Doyenne du Comice, Coscia C, Coscia F, Beurre Hardy		
		deep(>1.5)	4	Hayward		
31 * +	**Fruit: orientation of sepals (at harvest)**				f	VS
		converging	3	Pyasua Behapa, Max Red Bartlette, Conference		
		erect	5	Santya Braskaya, Hayward, Gent Drouard, Starkrimson, Coscia F, Bihe, Beurre Hardy, Jargonelle		
		spreading	7	Bar Battira Giffard, Doyenne du Comoice, Zypacea Hypacea Copeace, Severenta, Coscia C		
32 * +	**Fruit: eye basin (at harvest)**				f	VS
		absent	1	Gent Drouard, Santya Braskaya, William Bon Brighten		
		present	9	Bar Battira Giffard, Pyasua Behapa, Doyenne du Comice, Hayward, Starkrimson, Zypacea Hypacea Copeace,		
33 * +	**Fruit: depth of eye basin (at harvest)**				f	MS
		shallow(<0.5 cm)	1	Bar Battira Giffard, Pyasua Behapa, Doyenne du Comice, Hayward, Zypacea Hypacea Copeace		
		medium(0.5 -0.1cm)	2	Beurre Hardy, Max Red Bartlett		
		deep(>0.1cm	3	Doyenne-du-Comice, Santya		

		)		Braskaya, Gent Drouard, William Bon Brighten, Starkrimson		
34 *	**Fruit: texture of flesh**				f	VS
		fine	3	Bar Battira Giffard, Santya Braskaya, Max Red Bartlett, Hayward, Gent Drouard, Zypacea Hypacea Copeace,		
		medium	5	Doyenne-du-Comice, Pyasua Behapa, William Bon Brighten, Starkrimson, Coscia C, Coscia F, Bihe, Beurre Hardy, Conference, Jargonelle		
		coarse (Girty)	7	-		
35 *	**Fruit: firmness of flesh**				f	MS
		soft(<30 lb/inch)	3	Bar Battira Giffard, Pyasua Behapa, Zypacea Hypacea Copeace		
		medium(30-50 lb/inch)	5	Beurre Hardy, Doyenne du Comice, Hayward, William Bon Brrighten, Coscia C, Coscia F, Bihe, Conference, Jargonelle		
		firm(>50 lb/inch)	7	Santya Braskaya, Max Red Bartlett, Gent Drouard, Starkrimson, Severenta		
36 *	**Seed: shape**				f	VG
		round	3	Starkrimson		
		ovate	5	Bar Battira Giffard, Pyasua Behapa, Santya Braskaya, Gent Drouard, Severenta, Coscia C, Coscia F, Bihe, Conference		
		eliptic	7	Max Red Bartlett, Zypacea Hypacea Copeace , Beurre Hardy		
		narrow elliptic	9	Doyenne-du-Comice, Hayward, Jargonelle		
37	**Days to maturity (DAFB)**				f	VG
		very early (<l00)	1	Bar Battira Giffard		
		Early (100-120)	3	Pyasua Behapa		

		Medium (120-140)	5	Doyenne-du-Comice, Santya Braskaya , Max Red Bartlett, Hayward, Gent Drouard, Starkrimson, Coscia C, Coscia F		
		Late	7	Beurre Hardy, Zypacea Hypacea Copeace, Severenta		

VII. Explanations on the table of characteristics

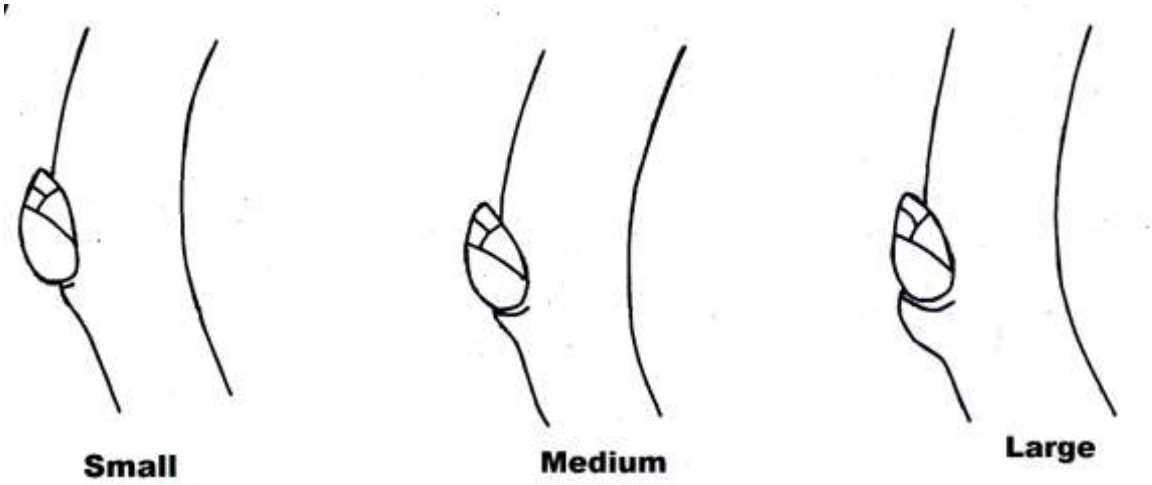
Characteristics 1: Tree habit



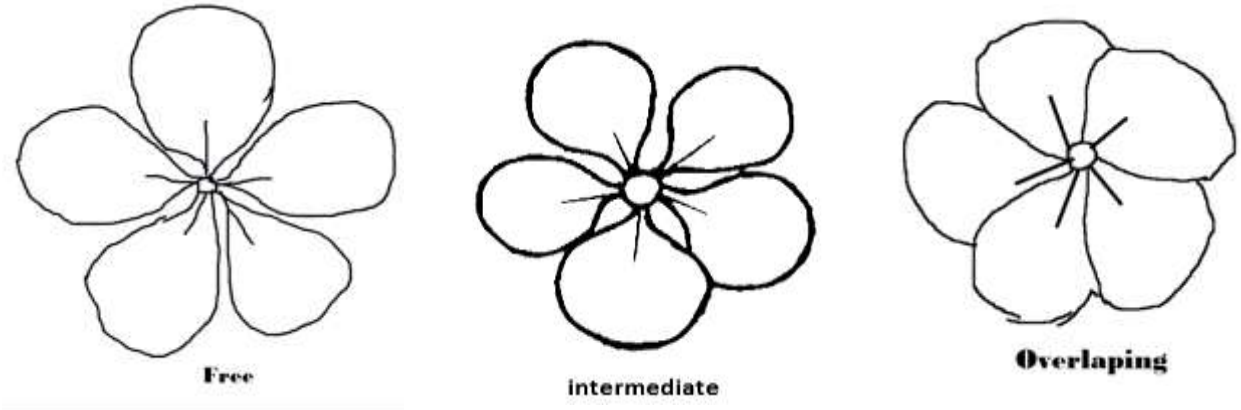
Characteristics 4: One year old shoot growth

Characteristics 6: One year old shoot position of vegetative bud in relation to shoot

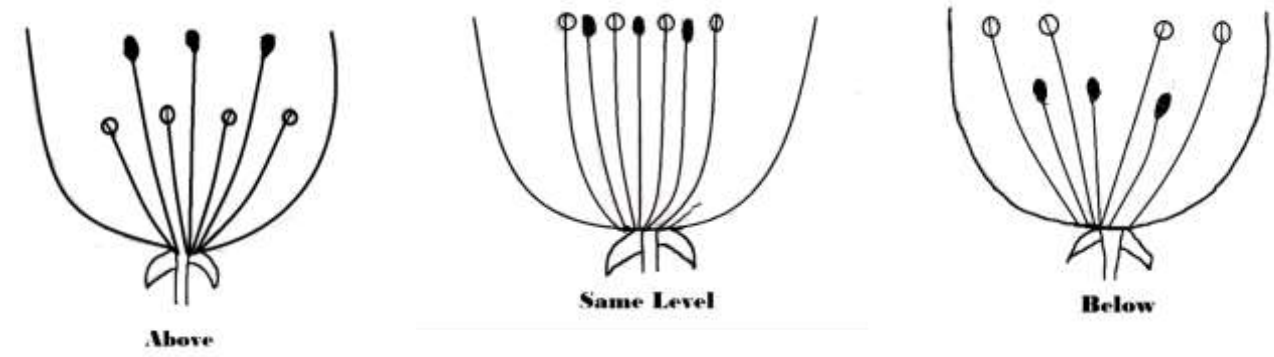
Characteristics 7: One-year-old shoot size of bud support



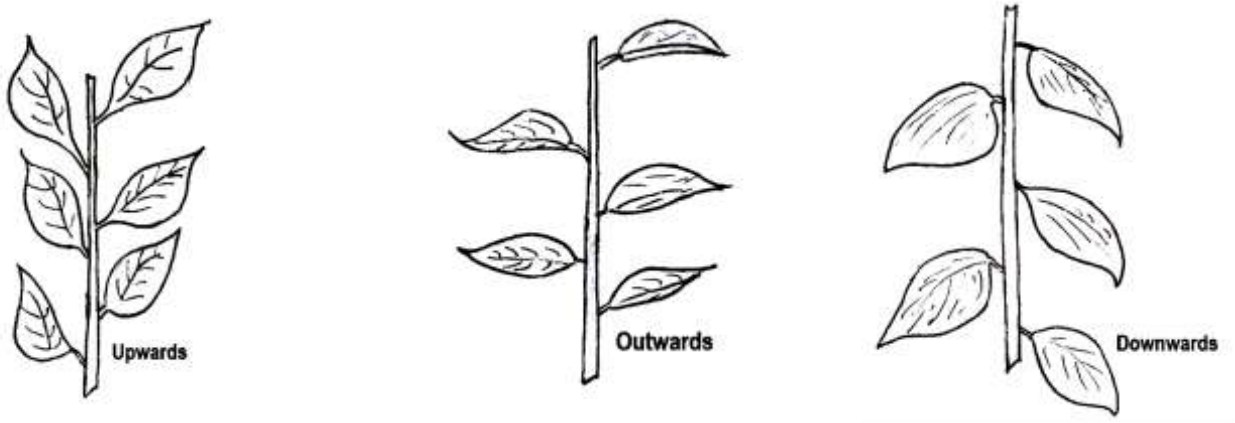
Characteristics 11: Flower position of margins of petals



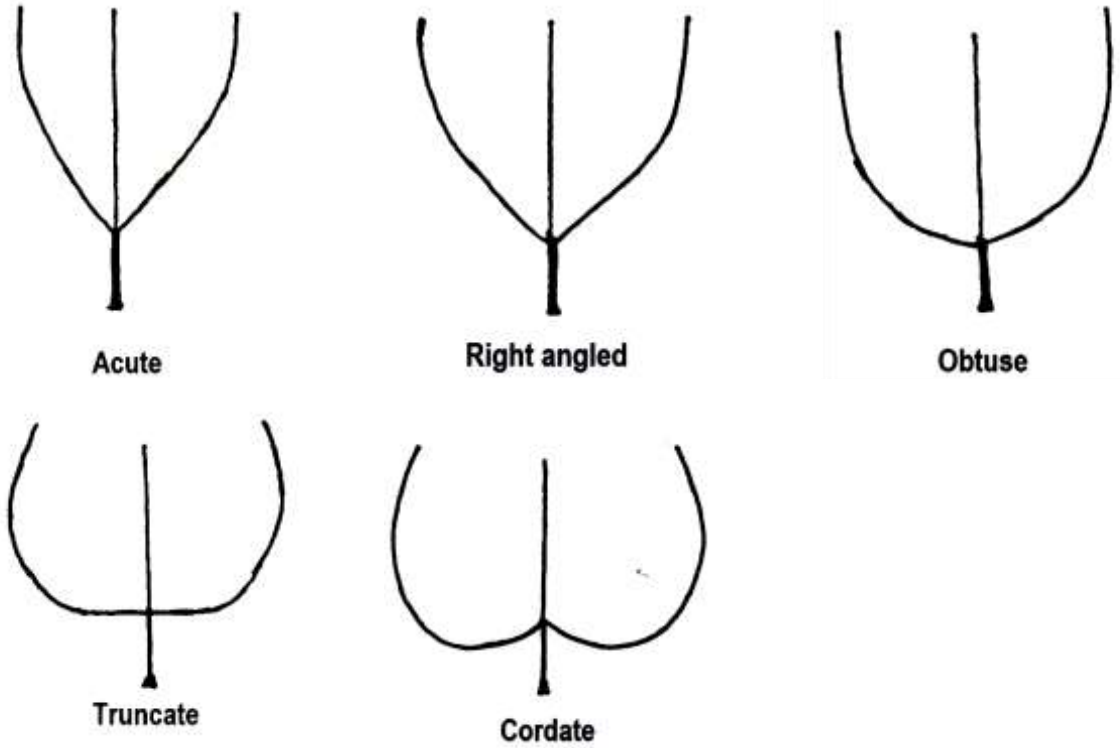
Characteristics 12: Position of stigma in relation to stamens



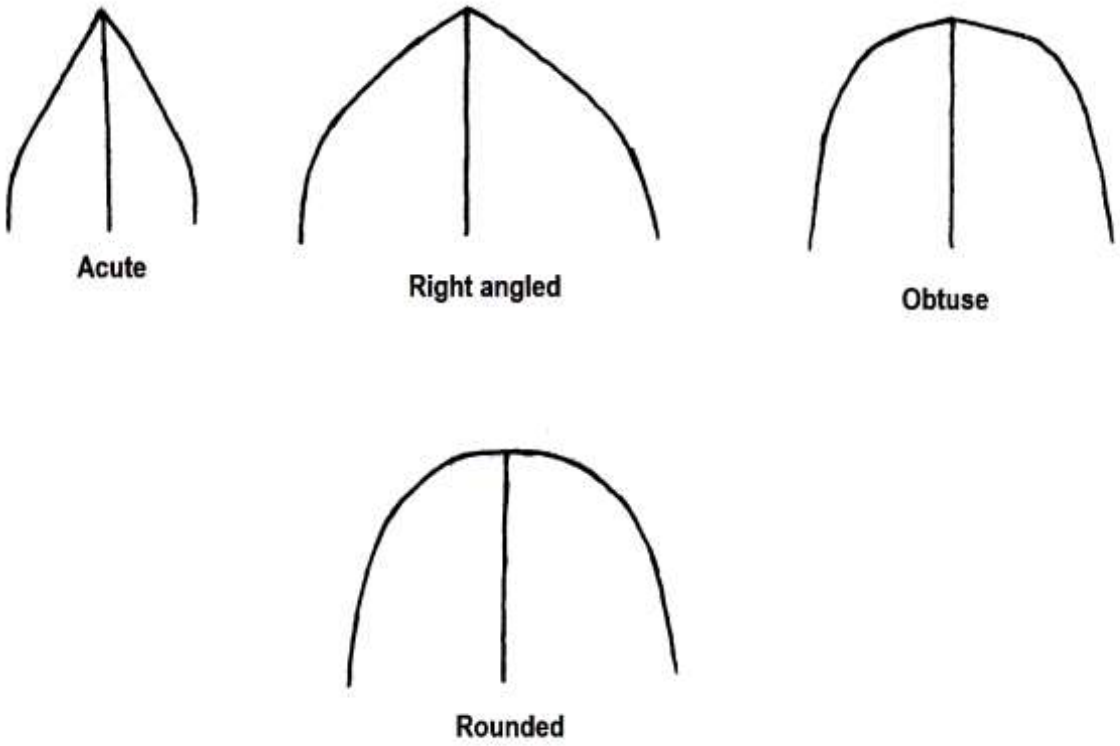
Characteristics 21: Leaf blade altitude in relation to shoot



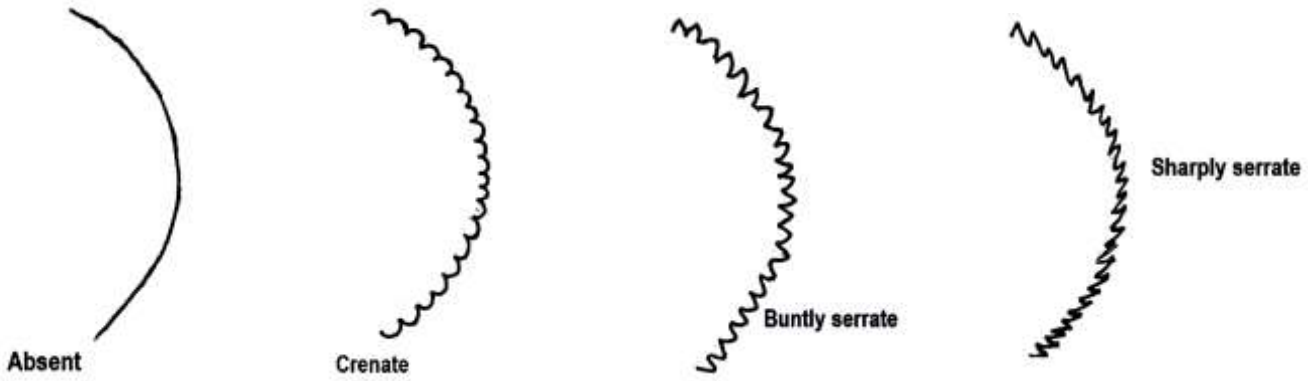
Characteristics 22: Leaf blade shape of base



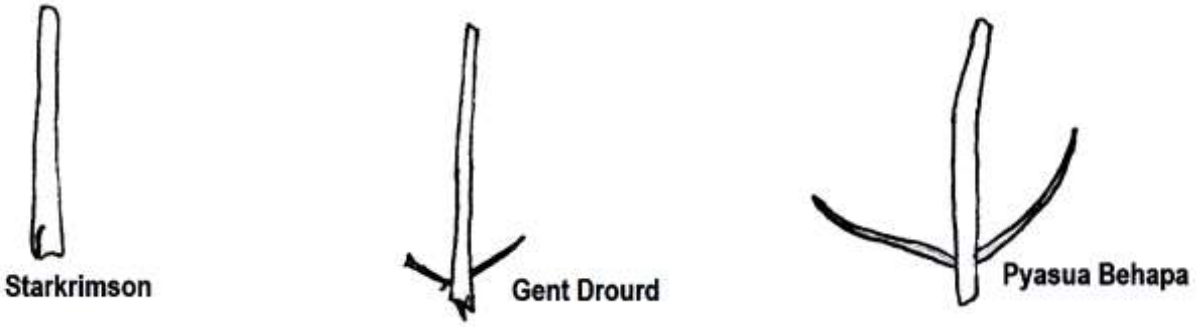
Characteristics 23: Leaf blade shape of apex



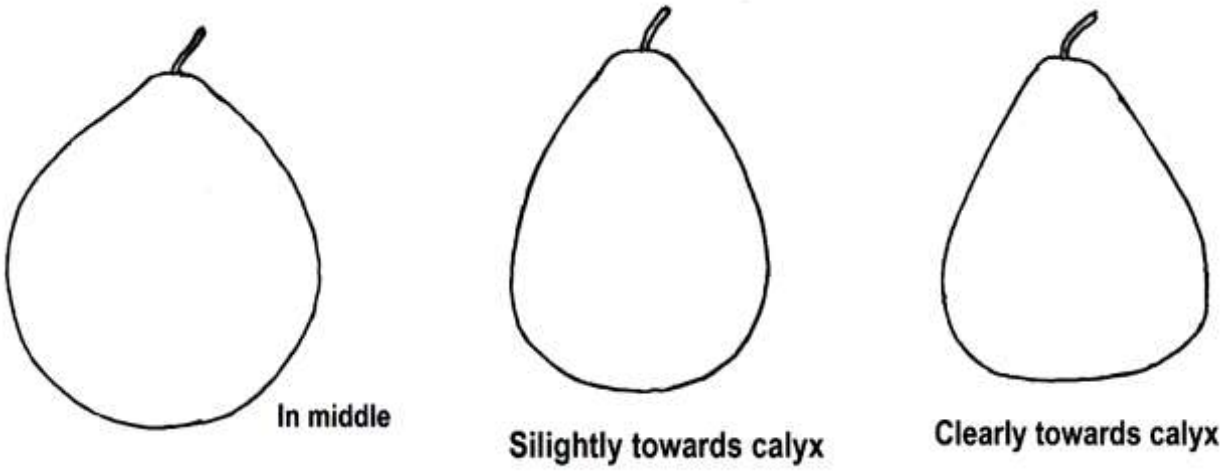
Characteristics 24: Leaf blade incision of margin (upper half)



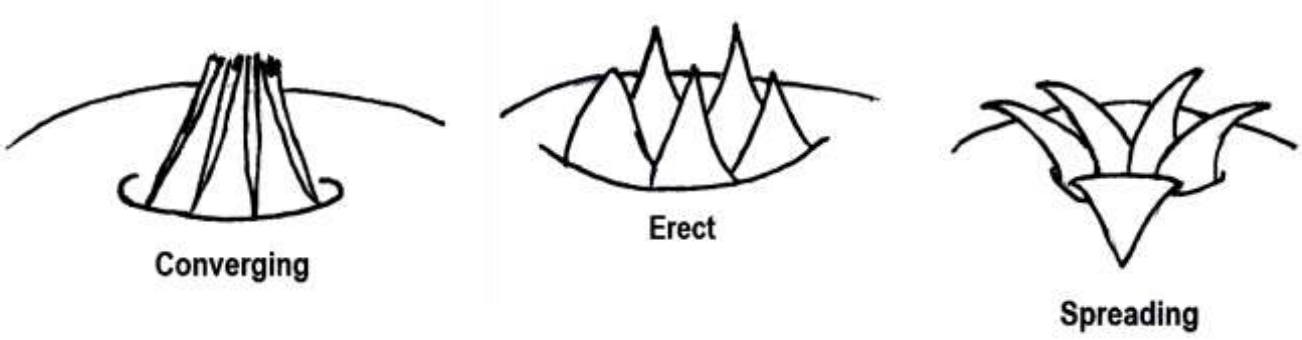
Characteristics 28: Petiole distance of stipules from basal attachment of petiole



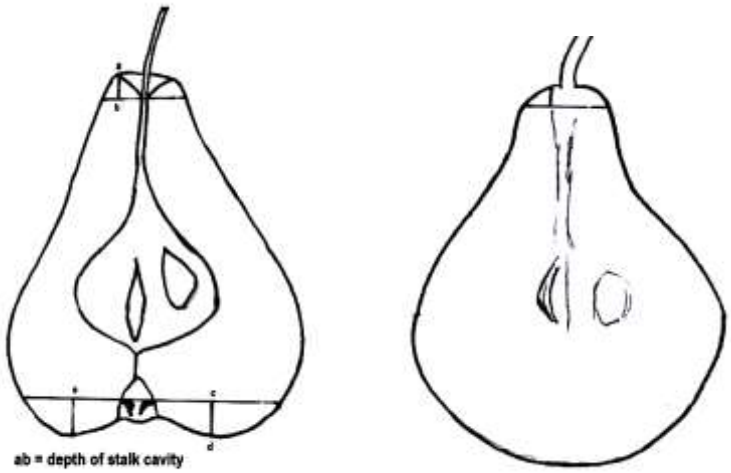
Characteristics 32: Fruit position of the maximum diameter



Characteristics 42: Fruit orientation of sepals (at harvest)



Characteristics 41:
Fruit: depth of stalk cavity
Fruit: depth of eye basin (at harvest)
Fruit: width of eye basin (at harvest)



DUS TEST CENTER

Nodal DUS Test Centre	Other DUS Test Centre
Central Institute of Temperate Horticulture, Rangreth, Srinagar (J&K)	---

I. Subject

These test guidelines shall apply to all varieties of Apricot (*Prunus armeniaca* L.)

II. Material required

4. 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 (PPV&FRA) Act, 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. As a minimum the applicant may submit 10 grafted or budded plants of apricot on rootstock for each centre.

5. The plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.

6. The plant material should not have undergone any treatment, which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of tests

1. The minimum duration of the DUS tests shall normally be at least for two fruiting season in succeeded years.
2. The test should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for conduct of the evaluation. Each test should include total of 6 trees. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing seasons.

Test plot design

The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. The additional test protocol for special purpose may be established by PPV & FRA

5 Locations : Two
6 No. of replication : Three
7 Treatment unit : Two tree per replication (total 6 plants/location)
8 Spacing : 2 x 2m

IV. Methods and observations

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

9. For the assessment of Distinctiveness and Stability observations shall be made on 6 plants or 18 parts taken from 6 plants with the exception of the observation on fruit which should be made on at least 20 fruits. In the case of parts of plants, the number to be taken from each of the plant should be three.
10. For the assessment of uniformity a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 6 plants, the maximum number of off-types allowed would be 1.
11. All observations on the tree and the branches should be made during dormancy.
12. Time of bloom should be recorded from first January to 75% bloom.
13. All observations on the leaf should be made on fully developed leaves of the middle third of current season's shoot.
14. Time of maturity should be recorded from 75% blooming to harvest.
15. Observations on the mature fruit should be recorded when fruit is ready for harvest.

16. Type of assessment of characteristics as indicated in column of Table VII of characteristics is as follows.

    a) ***MG**: Measurement by a single observation of a group of plants or parts of plants*
    b) ***MS**: Measurement by a single observation of individual plants or parts of plant*
    c) ***VG**: Visual assessments by a single observation of a group of plants or part of plants*
    d) ***VS**: Visual assessments by observation of individual plants or parts of plant*

V. Grouping of varieties

3. 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.
4. It is recommended that the competent authorities use the following characteristics for grouping varieties

The following characteristics are to be used for grouping cherry varieties as

a. Tree growth habit
b. Leaf shape
c. Days to full bloom
d. Days to maturity
e. Fruit shape
f. Stone shape

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. 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 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 characteristics or by the environmental conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.

(+) See Explanation 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 the colour variation.

4. A code number in the sixth column of Table of characteristics indicates the optimum stage for the observation of each characteristic during growth and development of plant. The relevant growth stages corresponding to these code numbers are described below:

   f. Observations on tree vigour and habit should be made at the central third of the shoot during dormant season of adult trees relative to reference cultivars grafted on sweet seedling root stock.
   g. The observations on the leaves should be made on mature leaves from current season's shoot.
   h. Observations on flowers should be made at the time of full bloom (75% flowering)
   i. Observation on fruit should be made at mature fruit
   j. Observation on stone and kernel should be made after harvest of fruit

VII. Table of characteristics

S. No.	Characteristics	Status	Notes	Example varieties	Stage of observations	Type of assessment
1	2	3	4	5	6	7
1. (+) (*)	**Tree: habit**	Upright	3	Tokpopa Nimu	a	VG
		Spreading	5	Rival, Heartly, Afghani, Communis, Turkey, New Castle, Viva Gold, Balcota, Erani, Chinese, Tilton, Communis Holly, Fairmedcester, Australian, Nari,		
		Drooping	7	-		
2.	**Tree: vigour**	Weak	3	-	a	VG
		Medium	5	Harcot, Balcota, Erani, Chinese, Tilton, Afghani, Communis Apricot, Communis Holly, Australian, Nari, New Castle, Viva Gold		
		Strong	7	Rival, Tokpopa Nimu, Fairmedcester		
3.	**Leaf: area (cm^2)**	Extremely small (< 30)	1	Tilton	b	MG
		Small (31-40)	3	Fairmedcester, Rival, Afghani, Viva Gold, New Castle, Heartly, Communis		
		Medium (41-50)	5	Turkey, Harcot, Communis Holly, Balcota, Erani, Austrilian		
		Large (51-60)	7	Tokpopa Nimu		
		Extremely large (> 60)	9	Chinese, Nari		
4.	**Leaf blade: length (cm)**	Short (< 7)	3	New Castle, Rival, Fairmedcester, Tilton, Communis Holly, Communis	b	MG
		Medium (7-9)	5	Turkey, Viva Gold, Harcot, Balcota, Heartly, Australian, Afghani, Erani, Tokpopa Nimu		
		Long (>9)	7	Chinese		
5.	**Leaf blade:width (cm)**	Narrow (< 6)	3	Fairmedcester, Communis Holly, Heartly, New Castle, Rival, Tilton	b	MG
		Medium (6-8)	5	Turkey, Viva Gold, Harcot, Balcota, Afghani, Erani, Communis, Australian, Tokpopa Nimu, Nari		

		Broad (> 8)	7	Chinese		
6.	**Leaf blade: ratio length/width**	Small (< 1)	3	Communis, Rival, Australian	b	MG
		Medium (1-2)	5	Harcot, Tilton, Communis Holly		
		Large (> 2)	7	Nari, Heartly		
7. (+) (*)	**Leaf blade: shape of base**	Obtuse	2	Heartly, Harcot, Afghani, Communis Holly, Viva Gold	b	VG
		Truncate	3	Tokpopa Nimu, Balcota, Erani, Turkey, Australian, Nari		
		Cordate	4	New Castle, Rival, Tilton, Communis, Chinese, Fairmedcester		
8. (+) (*)	**Leaf blade: angle of apex (excluding tip)**	Right-angled	3	Tokpopa Nimu, Afghani, Viva Gold	b	VG
		Moderately obtuse	5	New Castle, Heartly, Harcot, Balcota, Erani, Tilton, Communis Holly, Fairmedcester		
		Strongly obtuse	7	Chinese, Rival, Communis, Turkey, Australian, Nari		
9. (+) (*)	**Leaf blade: incisions of margin**	Crenate	3	Afghani, Communis Holly, Tokpopa Nimu, Viva Gold	b	VG
		Serrate	5	Chinese, Heartly		
		Biserrate	7	Balcota, Communis, Erani, Fairmedcester, Harcot, Australian, Turkey, Nari, New Castle, Rival, Tilton		
10.	**Petiole: length (cm)**	Short (< 3)	3	Tilton, Communis, Turkey, New Castle, Rival	b	MG
		Medium (3-4)	5	Erani, Balcota, Harcot, Australian, Communis Holly, Heartly, Nari, Viva Gold, Fairmedcester, Tokpopa Nimu, Afghani		
		Long (> 4)	7	Chinese		
11.	**Petiole: glands number**	< 2	3	Tokpopa Nimu	b	VG
		2-4	5	Harcot, Australian, Nari, Fairmedcester, Tilton, Communis, Rival, Communis Holly, Heartly, Viva Gold, New Castle		
		> 4	7	Chinese, Erani, Balcota, Afghani, Turkey		
12.	**Petiole: anthocyanin coloration of upper side**	Weak	3	Balcota, Afghani, Erani, Tokpopa Nimu	b	VG
		Medium	5	New Castle, Communis, Viva Gold, Australian		
		Strong	7	Rival, Fairmedcester, Tilton,		

				Communis Holly, Turkey, Harcot, Heartly, Chinese, Nari		
13.	**Flowering: Duration of blooming (days)**	Early (< 75)	3	New Castle, Harcot	c	MG
		Mid season (75-80)	5	Communis Holly, Balcota, Chinese, Rival, Heartly, Fairmedcester, Viva Gold, Turkey, Afghani, Tilton, Erani, Communis, Nari, Australian		
		Late (> 80)	7	Tokpopa Nimu		
14.	**Flower : diameter (mm)**	Small (< 30)	3	Viva Gold	c	MG
		Medium (30-35)		Communis Holly, Tokpopa Nimu, Balcota, Chinese, Rival, Heartly, Harcot, Turkey, Afghani, Tilton, Erani, New Castle, Communis, Nari		
		Large (> 35)		Fairmedcester, Australian		
15.	**Fruit: harvest maturity (days)**	Early (< 100)	2	Turkey, New Castle	d	MG
		Mid (100-115)		Erani,Heartly		
		Late (> 115)		Communis Holly, Tokpopa Nimu, Balcota, Chinese, Rival, Harcot, Fairmedcester, Viva Gold, Turkey, Afghani, Tilton, Communis, Nari, Australian		
		Medium (30-35)	5	Communis Holly, Tokpopa Nimu, Balcota, Chinese, Rival, Heartly, Harcot, Turkey, Afghani, Tilton, Erani, New Castle, Communis, Nari		
		Large (> 35)	7	Fairmedcester, Australian		
16. (+)	**Fruit size: weight (g)**	Small (< 40)	3	New Castle, Viva Gold, Afghani, Communis Holly Balcota, Nari, Turkey	d	MG
		Medium (40-60)	5	Chinese, Erani, Communis		
		Large (> 60)	7	Harcot		
17.	**Fruit: length (mm)**	Short (< 30)	3	Afghani, New Castle, Fairmedcester, Heartly, Tilton	d	MG
		Medium (30-40)	5	Balcota, Turkey, Nari, Australian, Viva Gold, Erani, Communis,		

				Chinese, Communis Holly, Tokpopa Nimu, Rival		
		Tall (> 40)	7	Harcot		
18.	**Fruit: width (mm)**	Narrow (< 40)	3	Afghani, Heartly, Fairmedcester, Tilton	d	MG
		Medium (30-40)	5	New Castle, Balcota, Tokpopa Nimu, Harcot, Viva Gold, Rival, Turkey, Australian, Nari		
		Broad (> 40)	7	Chinese, Communis, Erani		
19. (+) (*)	**Fruit: shape**	Round	1	Australian, Turkey, Nari, Fairmedcester, Afghani, Communis, Erani, Balcota	d	VG
		Elliptic	3	Harcot, Chinese		
		Ovate	5	Heartly, Viva Gold		
		Oblong	7	Communis Holly, Tilton, Rival		
20.	**Fruit :ratio weight of pulp / weight of stone**	Small (< 10)	3	Tilton, Fairmedcester, Heartly, Balcota, New Castle, Communis Holly, Chinese, Turkey, Erani, Viva Gold, Rival, Austrialian, Nari	d	MG
		Medium (10-20)	5	Harcot, Communis, Afghani, Tokpopa Nimu		
		Large (> 20)	7	-		
21.	**Fruit : cavity depth (mm)**	Shallow (< 10))	3	Balcota, Communis, Communis Holly, Fairmedcester, Harcot, Heartly, Tilton, Turkey, Viva Gold	d	VG
		Intermediate (10-15)	5	Afghani, Chinese, Nari, New Csatle, Rival, Tokpopa Nimu		
		Deep (> 15)	7	Erani		
22.	**Fruit :suture**	Shallow	3	Rival, Viva Gold, Communis, Communis Holly	d	VG
		Intermediate	5	Erani, Balcota, Tilton, Tokpopa Nimu, Fairmedcester, Australian, Heartly, Harcot, Nari		
		Deep	7	New Castle, Turkey, Chinese, Afghani		
23.	**Fruit: symmetry along the suture**	Asymmetrical	1	-	d	VG
		Symmetrical	5	Communis Holly, Tokpopa Nimu, Balcota, Chinese, Rival, Heartly, Harcot, Fairmedcester, Viva Gold, Turkey, Afghani, Tilton, Erani, New Castle, Communis, Nari, Australian		
24.	**Fruit: shape**	Flat	3	New Castle, Harcot, Tilton	d	VG

(+) (*)	**of apex**	Round	5	Communis Holly, Tokpopa Nimu, Balcota, Chinese, Rival, Heartly, Turkey, Afghani, Erani, Communis, Nari, Australian		
		Pointed	7	Fairmedcester		
25.	**Fruit: ground colour of skin**	Greenish yellow	1	Afghani, Tokpopa Nimu, Australian, Communis	d	VG
		Yellow	3	New Castle, Turkey, Erani, Harcot, Balcota		
		Light orange	5	Tilton, Viva Gold		
		Orange	7	Rival, Chinese, Turkey, Nari		
		Red blush	9	Fairmedcester, Heartly		
26.	**Fruit : firmness of flesh**	Soft	3	Turkey, Balcota, Australian	d	VG
		Medium	5	New Castle, Erani, Harcot, Rival, Communis Holly, Chinese, Afghani, Tilton, Tokpopa Nimu, Nari		
		Hard	7	Viva Gold, Fairmedcester, Communis, Heartly		
27.	**Fruit: flesh juiciness**	Less juicy	3	Erani, Heartly	d	VG
		Intermediate	5	Communis Holly, New Castle, Harcot, Balcota, Afghani, Tilton, Tokpopa Nimu, Viva Gold, Fairmedcester, Australian		
		Juicy	7	Turkey, Rival, Chinese, Communis, Nari		
28.	**Stone: weight (g)**	Small (< 3)	5	Turkey, Tilton, Rival, Nari, Fairmedcester, Communis	e	MG
		Medium (3-4)	8	Harcot, Communis Holly, Chinese		
		Large (> 4)	9	Balcota		
29. (+) (*)	**Stone: shape**	Round	3	Erani, Nari, New Castle, Communis, Australian, Balcota	e	VG
		Ovate	5	Tokpopa Nimu, Viva Gold, Communis Holly, Fairmedcester		
		Elliptic	7	Harcot, Rival, Chinese, Afghani, Heartly		
		Elongated	9	Tilton		
30.	**Seperation of stone**	Semi-clinging	5	Rival, Erani, New Castle	e	VG
		Free	7	Communis Holly, Tokpopa Nimu, Balcota, Chinese, Heartly, Harcot, Fairmedcester, Viva Gold, Turkey, Afghani, Tilton, Communis, Nari, Australian		

31.	**Stone: colour**	Brown	3	Communis Holly, Tokpopa Nimu, Balcota, Chinese, Heartly, Harcot, Fairmedcester, Viva Gold, Turkey, Afghani, Tilton, Communis, Nari, Australian, Rival, Erani, New Castle	e	VG
		Creamy	5	CITH-AP-20		
32.	**Kernel taste**	Bitter	3	Heartly, Erani, Balcota, Harcot, Chinese, Tokpopa Nimu, Afghani, Communis Holly, Australian	e	VG
		Sweet	5	Tilton, New Castle, Turkey, Rival, Nari, Tilton, Fairmedcester, Viva Gold, Communis		
33.	**Kernel: weight (g)**	Small (< 0.5)	3	Tilton,	e	MG
		Medium (0.5-1.0)	5	Nari, Afghani, Harcot, Fairmedcester, Heartly, Turkey, New Castle, Communis		
		Large (> 1.0)	7	Tokpopa Nimu, Chinese, Erani, Communis Holly, Rival, Viva Gold, Australian, Balcota		

VIII. Table of characteristics

Characteristics 1: Tree: habit

Upright
(3)

Spreading
(5)

Characteristics 7: leaf blade: Shape of base

Obtuse
(2)

Truncate
(3)

Cordate
(4)

Characteristics 8: leaf blade: angle of apex (excluding tip)

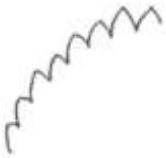
Right-angled
(3)

Moderately obtuse
(5)

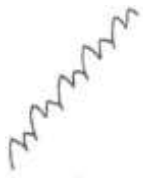
Strongly obtuse
(7)

Characteristics 9: Leaf blade: incisions of margin

Crenate
(3)

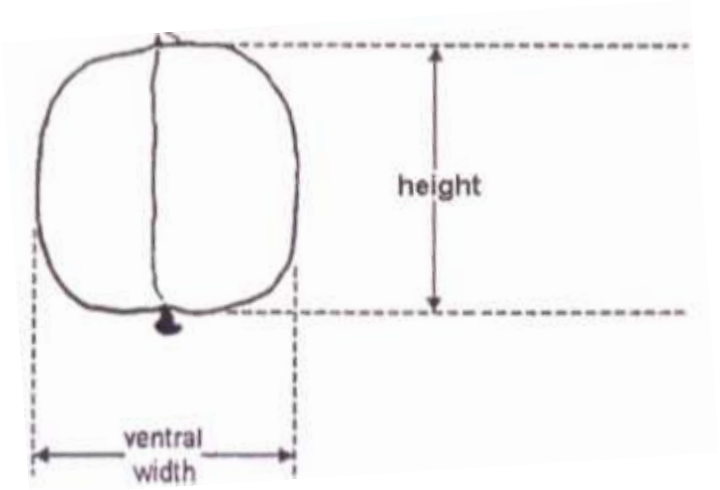


Serrate
(5)

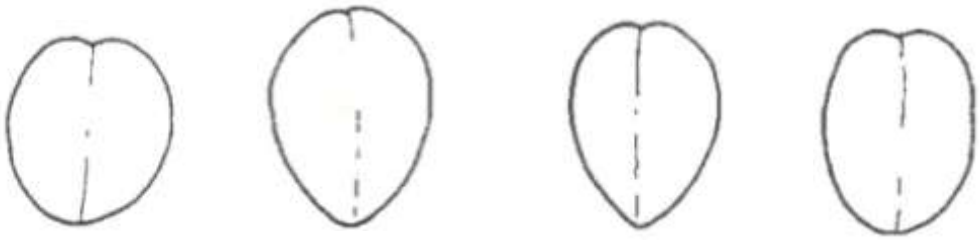


Biserrate
(7)

Characteristics 15 & 16: Fruit: size



Characteristics 17: Fruit: shape



Round
(1)

Elliptic
(3)

Ovate
(5)

Oblong
(7)

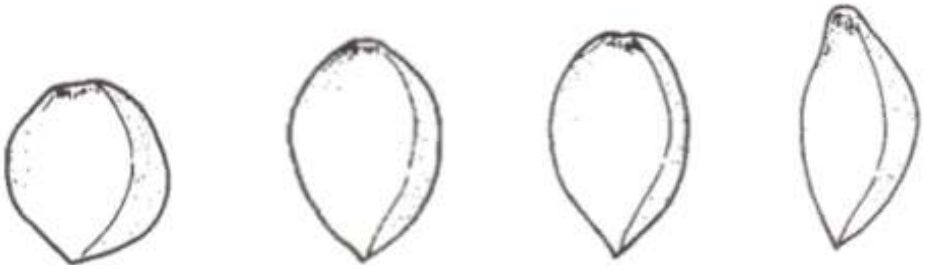
Characteristics 22: Fruit: shape of apex

Flat
(3)

Round
(5)

Pointed
(7)

Characteristics 27: Stone: shape



Round (3) | Ovate (5) | Elliptic (7) | Elongated (9)

DUS TEST CENTER

Nodal DUS Test Centre	Other DUS Test Centre
Central Institute of Temperate Horticulture, Rangreth, Srinagar (J&K)	---

I. Subject

These test guidelines shall apply to all varieties of Cherry (*Prunus avium* L.)

II. Material required

7. 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 (PPV&FRA) Act, 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. As a minimum the applicant may submit 10 grafted or budded plants of apricot on rootstock for each centre.

8. The plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.

9. The plant material should not have undergone any treatment, which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of tests

3. The minimum duration of the DUS tests shall normally be at least for two fruiting season in succeeded years.
4. The test should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for conduct of the evaluation. Each test should include total of 6 trees. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing seasons.

Test plot design

The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. The additional test protocol for special purpose may be established by PPV & FRA

9 Locations : Two
10 No. of replication : Three
11 Treatment unit : Two tree per replication (total 6 plants/location)
12 Spacing : 2 x 2m

IV. Methods and observations

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

17. For the assessment of Distinctiveness and Stability observations shall be made on 6 plants or 18 parts taken from 6 plants with the exception of the observation on fruit which should be made on at least 20 fruits. In the case of parts of plants, the number to be taken from each of the plant should be three.
18. For the assessment of uniformity a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 6 plants, the maximum number of off-types allowed would be 1.
19. All observations on the tree and the branches should be made during dormancy.
20. Time of bloom should be recorded from first January to 75% bloom.
21. All observations on the leaf should be made on fully developed leaves of the middle third of current season's shoot.
22. Time of maturity should be recorded from 75% blooming to harvest.
23. Observations on the mature fruit should be recorded when fruit is ready for harvest.

24. Type of assessment of characteristics as indicated in column of Table VII of characteristics is as follows.

e) ***MG****: Measurement by a single observation of a group of plants or parts of plants*
f) ***MS****: Measurement by a single observation of individual plants or parts of plant*
g) ***VG****: Visual assessments by a single observation of a group of plants or part of plants*
h) ***VS****: Visual assessments by observation of individual plants or parts of plant*

V. Grouping of varieties

5. 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.
6. It is recommended that the competent authorities use the following characteristics for grouping varieties

The following characteristics are to be used for grouping cherry varieties as

g. Tree growth habit
h. Leaf shape
i. Days to full bloom
j. Days to maturity
k. Fruit shape
l. Stone shape

VI. Characteristics and symbols

5. To assess Distinctiveness, Uniformity and Stability, the characteristics and their states as given in the Table of characteristics (Section VII) shall be used.
6. Notes (1 to 9) shall be given for each state of expression for different characteristics for the purpose of electronic data processing.
7. 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 characteristics or by the environmental conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.

(+) See Explanation 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 the colour variation.

8. A code number in the sixth column of Table of characteristics indicates the optimum stage for the observation of each characteristic during growth and development of plant. The relevant growth stages corresponding to these code numbers are described below:

   k. Observations on tree vigour and habit should be made at the central third of the shoot during dormant season of adult trees relative to reference cultivars grafted on sweet seedling root stock.
   l. The observations on the leaves should be made on mature leaves from current season's shoot.
   m. Observations on flowers should be made at the time of full bloom (75% flowering)
   n. Observation on fruit should be made at mature fruit
   o. Observation on stone should be made after harvest of fruit

VII. Table of characteristics

S. No.	Characteristics	Status	Notes	Example varieties	Stage of observations	Type of assessment

1	2	3	4	5	6	7
1. (+) (*)	**Tree: habit**	Upright	1	Lapins, Sweet Heart, Bing, Bigarrean Noir Grosso, Guigne Noir Hative	a	VG
		Semi-upright	3	Stella, Van, Guigne Pour Pere Precoca, Bigarrean Napolean, Lambert		
		Spreading	5	-		
2.	**Tree: vigour**	Weak	1	Stella , Van	a	VG
		Medium	3	Guigne Pour Pere Precoca, Bigarrean Napolean, Lambert, Lapins, Sweet Heart, Bing, Bigarrean Noir Grosso, Guigne Noir Hative		
		Strong	5	-		
3. (+)	**One-year-old shoot: length of internode (mm)**	Short (< 30)	3	Lapins, Sweet Heart, Bing, Guigne Noir Hative, Stella, Guigne Pour Pere Precoca, Bigarrean Napolean, Lambert	a	MG
		Medium (30-40)	5	Van, Bigarrean Noir Grosso		
		Long (> 40)	7	-		
4.	**Leaf blade: length (cm)**	Short (< 15)	3	Guigne Pour Pere Precoca, Van, Bing	b	MG
		Medium (15-20)	5	Stella, Bigarrean Noir Grosso, Guigne Noir Hative		
		Long (> 20)	7	Sweet Heart, Lapins, Lambert		
5.	**Leaf blade: width (cm)**	Narrow (< 5)	3	-	b	MG
		Medium (5-10)	5	Guigne Pour Pere Precoca, Van, Bing, Sweat Heart, Guigne Noir Hative, Lapins, Lambert		
		Broad (> 10)	7	Bigarrean Napolean, Stella, Bigarrean Noir Grosso		
6.	**Leaf blade: ratio length/width**	Small (< 1.5))	3	-	b	MG
		Medium (1.5-3.0)	5	Guigne Pour Pere Precoca, Van, , Bing, Sweat Heart, Guigne Noir Hative, Lapins, Lambert,		

				Bigarrean Napolean, Stella, Bigarrean Noir Grosso		
		Large (>3.0)	7	-		
7. (+)	**Leaf: shape**	Obovate	3	Bigarrean Napolean, Lapins, Bing	b	VG
		Lanceolate	5	Guigne Pour Pere Precoca, Van, Stella, Bigarrean Noir Grosso, Guigne Noir Hative, Sweet Heart, Lambert		
8. (+) (*)	**Leaf blade: angle of apex (excluding tip)**	Acute	3	Guigne Pour Pere Precoca, Van, Stella, Bigarrean Noir Grosso, Guigne Noir Hative, Sweet Heart, Lambert	b	VG
		Right-angled	5	Bigarrean Napolean, Lapins, Bing		
9. (+) (*)	**Leaf blade: shape of base**	Acute	3	Guigne Pour Pere Precoca, Lapins, Bing, Bigarrean Napolean	b	VG
		Obtuse	5	Van, Stella, Sweet Heart, Guigne Noir Hative, Bigarrean Noir Grosso, Lambert		
10.	**Leaf: length of petiole (cm)**	Short (< 3)	3	-	b	MG
		Medium (3-6)	5	Guigne Pour Pere Precoca, Van, Bing, Stella, Bigarrean Noir Grosso, Bigarrean Napolean, Guigne Noir Hative, Sweet Heart, Lapins, Lambert		
		Long (> 6)	7	-		
11.	**Flower: duration of blooming (Days)**	Early (>95)	3	Bigarrean Napolean	c	VG
		Mid-season (95 to 100)	5	Guigne Pour Pere Precoca, Van, Bing, Stella, Bigarrean Noir Grosso, Sweet Heart, Lapins, Lambert		
		Late (.100)	7	Guigne Noir Hative		
12. (+)	**Flower: arrangement of petals**	Free	3	Bing, Lapins, Van	c	VG
		Intermediate	5	Bigarrean Napolean, Lambert, Guigne Noir Hative, Sweat Heart		

		Overlapping	7	Bigarrean Noir Grosso, Guigne Pour Pere Precoca, Stella		
13.	**Fruit :harvest maturity (Days)**	Early (<55)	3	Sweat Heart, Bing, Guigne Pour Pere Precoca, Lambert	d	MG
		Mid (55-60)	5	Lapins, Bigarrean Noir Grosso, Stella, Bigarrean Napolean, Van		
		Late (>60)	7	Guigne Noir Hative		
14.	**Fruit : weight (g)**	Small (< 4)	3	Guigne Pour Pere Precoca	d	MG
		Medium (4-6)	5	Van, Stella, Lapins, Bigarrean Noir Grosso, Guigne Noir Hative, Lambert, Sweet Heart, Bigarrean Napolean, Bing		
		Large (> 6)	7	-		
15. (+)	**Fruit: height (mm)**	Short (< 15)	3	Guigne Pour Pere Precoca	d	MG
		Medium (15-20)	5	Stella		
		Tall (> 20)	7	Van, Lambert, Bigarrean Napolean, Guigne Noir Hative, Lapins, Bigarrean Noir Grosso, Sweet Heart, Bing		
16. (+)	**Fruit: width (mm)**	Narrow (< 15))	3	Van, Guigne Pour Pere Precoca, Stella	d	MG
		Medium (15-20)	5	Bigarrean Napolean, Bigarrean Noir Grosso, Lapins, Guigne Noir Hative, Lambert, Sweet Heart, Bing		
		Broad (> 20)	7	-		
17. (+) (*)	**Fruit: shape**	Round	3	Guigne Pour Pere Precoca, Lapins, Stella	d	VG
		Elliptic	5	Sweet Heart		
		Oblate	7	Van, Bing, Bigarrean Noir Grosso, Lambert		
		Reniform	9	Bigarrean Napolean		
18. (+) (*)	**Fruit: pistil end**	Pointed	3	Bing	d	VG
		Flat	5	Guigne Pour Pere Precoca, Bigarrean Napolean, Lapins, Stella, Sweet Heart, Van,		

				Bigarrean Noir Grosso		
		Depressed	7	Lambert		
19.	**Fruit: skin colour**	Yellow with red blush	3	Bigarrean Noir Grosso		
		Light red	5	Bigarrean Napolean		VG
		Red	7	Sweat Heart, Guigne Noir Hative, Bing, Lambert, Lapins, Stella		
		Dark red	9	Van, Guigne Pour Pere Precoca		
20.	**Fruit: flesh colour**	Creamy	1	Lambert	d	VG
		Yellow	2	Bigarrean Noir Grosso, Bigarrean Napolean		
		Light-red	3	Sweat Heart, Guigne Noir Hative, Lapins, Bing, Stella		
		Red	4	Van, Guigne Pour Pere Precoca		
21.	**Fruit: sweetness (^{o}Brix)**	Low (< 12)	1	Lapins, Bigarrean Napolean, Lambert, Guigne Pour Pere Precoca, Stella, Bigarrean Noir Grosso, Bing, Guigne Noir Hative, Sweat Heart	d	MG
		Medium (12-16)	2	Van		
		High (> 16)	3	-		
22.	**Fruit: firmness of flesh**	Soft	3	Bigarrean Napolean, Lapins, Sweet Heart	d	VG
		Intermediate	5	Guigne Pour Pere Precoca, Lambert, Van, Bing, Bigarrean Noir Grosso, Stella, Guigne Noir Hative		
		Hard	7	-		
23. (+)	**Fruit: length of fruit stalk (mm)**	Short (< 45)	3	Lambert, Lapins	d	MG
		Medium (45-55 mm)	5	Stella		
		Long (> 55)	7	Guigne Pour Pere Precoca, Bigarrean Napolean, Bigarrean Noir Grosso, Guigne Noir Hative, Bing, Van, Sweat Heart		
24.	**Stone : weight (g)**	Small (< 0.3)	3	Van, Guigne Noir Hative	e	MG
		medium	5	Sweet heart, Bigarrean		

		(0.3-0.6)		Noir Grosso, Stella, Lambert, Bing, Lapins		
		Large (> 0.6)	7	Bigarrean Napolean, Guigne Pour Pere Precoca		
25. (+) (*)	**Stone: shape**	Slightly elliptic	1	Van, Bing, Lapins, Bigarrean Noir Grosso, Guigne Noir Hative, Bigarrean Napolean	e	VG
		Elliptic	2	Guigne Pour Pere Precoca, Stella, Sweet Heart		
		Round	3	Lambert		

VIII. Explanation for the Table of characteristics

Characteristics 1: Tree: habit

Upright
(1)

Semi-upright
(3)

Characteristics 3: one year old shoot: length of internode

Short
(3)

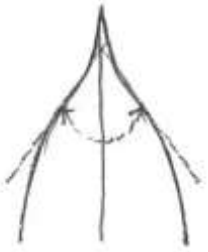
Medium
(5)

Characteristics 7: Leaf: shape

Obovate
(3)

Lanceolate
(5)

Characteristics 8: Leaf blade: angle of apex (excluding tip)



Acute
(3)

Right-angled
(5)

Characteristics 9: Leaf blade: shape of base

Acute
(3)

Obtuse
(5)

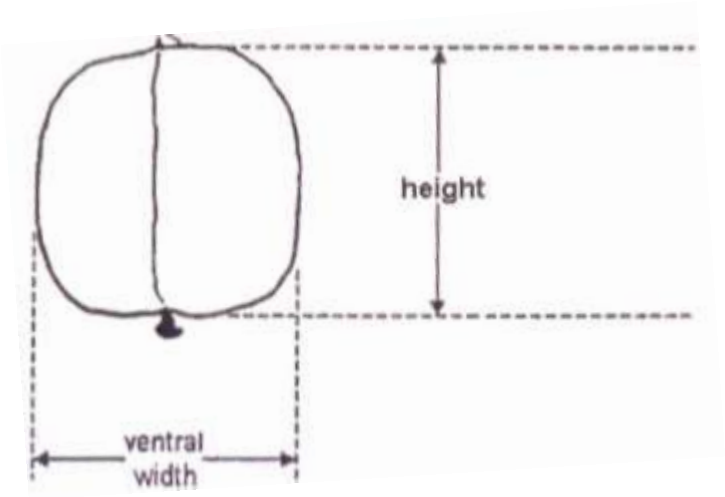
Characteristics 12: Flower: arrangement of petals

Free
(3)

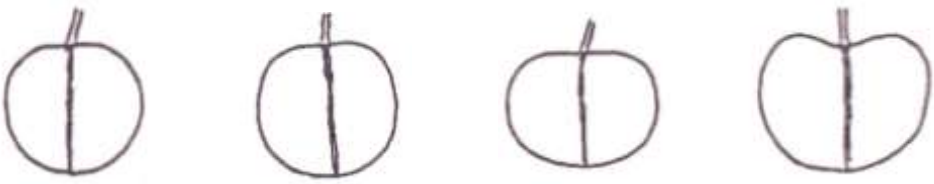
Medium
(5)

Overlap
(7)

Characteristics 14 & 15: Fruit: size



Characteristics 16: Fruit: shape

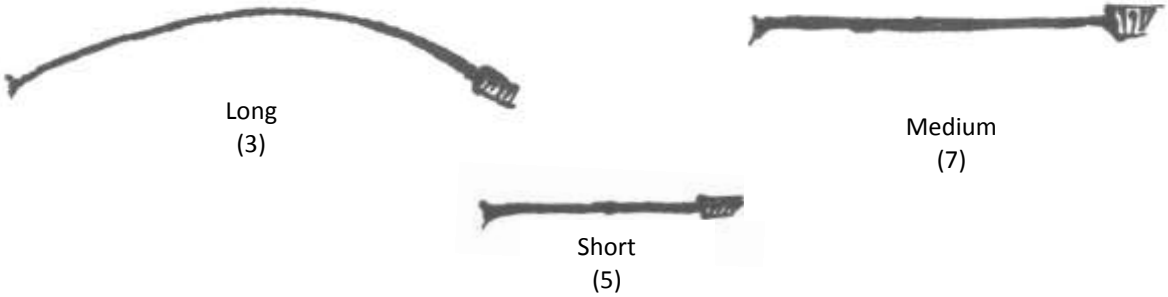


Round (3) | Elliptic (5) | Oblate (7) | Reniform (9)

Characteristics 17: Fruit: pistil end

Pointed (3) | Flat (5) | Depressed (7)

Characteristics 22: Fruit: length of fruit stalk



Long
(3)

Medium
(7)

Short
(5)

Characteristics 24: Stone: shape

Slightly elliptic
(1)

Elliptic
(2)

Round
(3)

DUS TEST CENTER

Nodal DUS Test Centre	Other DUS Test Centre
Central Institute of Temperate Horticulture, Rangreth, Srinagar (J&K)	---

I. Subject

These test guidelines shall apply to all varieties of Walnut (*Juglans regia* L.)

II. Material required

10. 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 (PPV&FRA) Act, 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. As a minimum the applicant need to submit 10 grafted or budded plants of walnut on rootstock for each centre.

11. The plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.

12. The plant material should not have undergone any treatment, which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of tests

5. The minimum duration of the DUS tests shall normally be at least for two fruiting season in different years. Tests shall be conducted at least at two places.

6. 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. Each test should include total of 6 trees. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing seasons.

Test plot design

The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. The additional test protocol for special purpose if any may be established by PPV & FRA.

13 Locations : Two
14 No. of replications : Three
15 Treatment unit : Two trees per replication (total 6 plants /location)
16 Spacing : 3 x 3m

IV. Methods and observations

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

25. For the assessment of Distinctiveness and Stability, observation shall be made on 6 plants or 18 parts taken from each of 6 plants with the exception of the observation on nut and kernel which should be made on at least 20 nuts. In the case of parts of plants, the number to be taken from each of the plant should be three.
26. For the assessment of uniformity a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 6 plants, the maximum number of off-types allowed would be 1.
27. All observations on the tree and the branches should be made during dormancy. Observations on the mature fruit / nut should be recorded when fruit is ready for harvesting at packing tissue turning brown.
28. The time of staminate and pistillate flowering should be observed when 10% of flowers have opened (at dehiscence of pollen or at full development of stigmas)
29. All observations on the leaf should be made on fully developed leaves of the middle third of current season's shoot
30. Time of maturity should be recorded at 50% fruits, turns their packing tissue brown
31. All observations on the nut should exclude the pericarp and should be made on physiologically mature nuts immediately after harvest.
32. All observations on the kernel should be made when the moisture is about 8 percent.
33. Type of assessment of characteristics indicated in column 7 of table of characteristics is as follows.

*e) **MG**: Measurement by a single observation of a group of plants or parts of plants*
*f) **MS**: Measurement by a single observation of individual plants or parts of plant*
*g) **VG**:Visual assessments by a single observation of a group of plants or parts of plants*
*h) **VS**: Visual assessments by a single observation of individual plants or parts of plant*

V. Grouping of varieties

7. 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.

8. The following characteristics are recommended for grouping of varieties
    g. Tree growth habit
    h. Bearing habit
    i. Leaflet margin
    j. Hull dehiscence
    k. Nut shape

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. 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 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 preceding phonological characteristics or by the environmental conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.

(+) See Explanation 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 the color variation.

4. A code number in the sixth column of Table-VII of characteristics indicates the optimum stage for the observation of each characteristic during growth and development of plant. The relevant growth stages corresponding to these code numbers are described below:
    a. All observations on the tree vigour and the branch should be made in winter during dormant conditions. Observation should be made at central third of shoot
    b. Observations on the leaf which should be made from average of 10 fully expanded represented leaves of current season shoot. Do not select leaves that are abnormal due to pruning and excessive vigor and measured from the base of petiole to the tip of terminal leaflet.
    c. Observations should be made when more than 10 percent staminate and pistillate flowers are open and well ahead of the first flush of pistillate flowers. Peak bloom dates are usually when about half the catkins and pistillate are fully opened and receptive and half are yet to be opened. Avoid reporting aberrant conditions such as a single, unopened catkin remaining after pollen shedding has ceased or a bloom which is receptive
    d. All observations on the nut should exclude the pericarp and should be made on the physiological ripe nuts immediate after harvest. Observations are taken when nuts are harvestable .Take a random sample which is representative of entire tree (in the format DDMMYYYY). Time of maturity should be recorded at 50% fruits turns their packing tissue brown.

VII. Table of characteristics

S. No.	Characteristics	States	Notes	Varieties characterised	Stages of observation	Type of assessment
1	2	3	4	5	6	7
1.	**Tree vigour (cm)**	Low (< 50)	3	Opex Caulchery , Tutle, CITH-W-3	a	VG
		Intermediate (50-100)	5	Sulaiman, Cheinovo, Franquette, CITH-W-2, CITH-W-4, CITH-W-6		
		High (> 100)	7	Hamdan, Nugget, CITH-W-1, CITH-W-7		
2. (+)	**Tree: Growth habit**	Erect	3	CITH-W-12, CITH-W-54	a	VG
		Semi erect	5	Cheinovo, Nugget, Sulaiman, Franquette, CITH-W-1, CITH-W-2, CITH-W-6, CITH-W-10		
		Spreading	7	Hamdan, Opex Caulchery, CITH-W-3, CITH-W-5		
3.	**Tree: Density of branches**	Sparse	3	CITH-W-16	a	VG
		Intermediate	5	Cheinovo, Sulaiman, Nugget, Franquette, Turtle, CITH-W-2, CITH-W-3, CITH-W-5, CITH-W-6		
		Dense	7	Hamdan, Opex Caulchery, CITH-W-1, CITH-W-4		
4. (*) (+)	**Bearing habit**	Terminal	1	Opex Caulchery, Sulaiman, Hamdan, Cheinovo, CITH-W-1, CITH-W-2	c	VG
		Lateral	9			
5.	**Leaf: Leaflet length (cm)**	Short (< 10)	3	Franquette, Tutle, CITH-W-2, CITH-W-3, CITH-W-5	b	MG
		Medium (10-15)	5	Cheinovo, CITH-W-7, CITH-W-9		
		Long (>15)	7	Nugget, Hamdan, Opex Caulchery, Sulaiman, CITH-W-1, CITH-W-4		
6. (*) (+)	**Leaf: Leaflet shape**	Narrow elliptic	1	CITH-W-4,CITH-W-8,CITH-W-10	b	VG
		Elliptic	2	Franquette, Opex Caulchery, CITH-W-5, CITH-W-7, CITH-W-8, CITH-W-9,		
		Broad elliptic	3	Tutle, Nugget, Sulaiman, Cheinovo, Hamdan. CITH-W-1, CITH-W-6		
7. (*) (+)	**Leaf:Leaflet margin**	Entire	3	Opex Caulchery, Tutle, Hamdan, Nugget, Cheinovo, Sulaiman, CITH-W-1, CITH-W-2, CITH-W-3	b	VG
		Serrate	5	CITH-W-77		
		Dentate	7	Franquette		
8.	**Leaf: Leaflet colour**	Light green	3	CITH-W-36, CITH-W-45	b	VG
		Green	5	Hamdan, Nugget, Franquette, CITH-W-4, CITH-W-6,CITH-W-7		
		Dark green	7	Tutle , Cheinovo, Opex Caulchery,		

				Sulaiman, CITH-W-1, CITH-W-2, CITH-W-3		
		Purplish	9			
9.	**Leaf: Rachis colour**	Green	3	Tutle, Hamdan. Nugget, Sulaiman CITH-W-1, CITH-W-2, CITH-W-5	b	VG
		Yellow	5	CITH-W-4,CITH-W-6, CITH-W-7		
		Red	7	Opex Caulchery, Cheinovo, CITH-W-50		
10.	**Leaf:Leaflet rachis persistance**	Few	3	Opex Caulchery, Tutle	b	VG
		Intermediate	5	Nugget, Sulaiman, Hamdan, CITH-W-2		
		Many	7	Franquette, CITH-W-1, CITH-W-3, CITH-W-5		
11.	**Time of leaf fall**	Early	3	Nugget, Cheinovo, CITH-W-18	b	MG
		Mid	5	Opex Caulchery, Hamdan, CITH-W-1, CITH-W-2		
		Late	7	CITH-W-4, CITH-W-5		
12.	**Shoot pubescence**	Glabrous	1	Cheinovo, CITH-W-3, CITH-W-7, CITH-W-9	b	VG
		Slighty pubescent	2	Hamdan, Sulaiman, CITH-W-1, CITH-W-10		
		Pubescent	3	CITH-W-2, CITH-W-6,CITH-W-5		
13.	**Shoot colour**	Green	3		b	VG
		Brown	5	Opex Caulchery, Tutle, Hamdan, Nugget, Cheinovo, Sulaiman, Franquette, CITH-W-2, CITH-W-3, CITH-W-4, CITH-W-5		
		Dark Brown	7			
14. (*)	**Dichogamy**	Protandrous	3	Franquette, Opex Caulchery, CITH-W-4, CITH-W-7, CITH-W-8, CITH-W-10	c	VG
		Protogynous	5	Tutle, Cheinovo, Nugget, Sulaiman, Hamdan, CITH-W-1, CITH-W-2, CITH-W-3		
		Homogamous	7			
15.	**Flower : Initiation of 10% Female flowering**	Early	3	Sulaiman, CITH-W-1, CITH-W-2		
		Mid	5	Opex Caulchery, CITH-W-4		
		Late	7	Franquette, CITH-W-5		
16. (*)	**Flower: Number of male catkins percluser**	Few	3	Hamdan, CITH-W-5, CITH-W-17, CITH-W-4	c	VG
		Intermediate	5	Franquette, CITH-W-3, CITH-W-7, CITH-W-8, CITH-W-10		
		Many	7	Nugget, Cheinovo, Opex Caulchery, Tutle, Sulaiman, CITH-W-2, CITH-W-4, CITH-W-6, CITH-W-7, CITH-W-9		
17.	**Flower: Number of**	Low (< 2)	3	Sulaiman, Cheinovo, Hamdan, CITH-W-7		

(*)	**female flowers per cluster**	Medium (2-4)	5	Nugget, Opex Caulchery, Franquette, CITH-W-2, CITH-W-3, CITH-W-4, CITH-W-1	c	MG
		High(> 4)	7	CITH-W-11, CITH-W-43		
18.	**Stigma colour**	Green	3	Hamdan, Sulaiman, CITH-W-1, CITH-W-6, CITH-W-7, CITH-W-8	c	VG
		Yellow	5	CITH-W-27, CITH-W-33, CITH-W-34,		
		Red	7	Tutle, CITH-W-38, CITH-W-48, CITH-W-31		
19. (*)	**Hull dehiscence : Type**	Non – dehiscent	3	CITH-W-34, CITH-W-35, CITH-W-36	d	VG
		Partly dehiscent	5	CITH-W-20, CITH-W-27, CITH-W-32		
		Dehiscent	7	Opex Caulchery, Tutle, Hamdan, Nugget, Cheinovo, Sulaiman Franquette, CITH-W-1, CITH-W-2, CITH-W-3, CITH-W-4		
20.	**Time of maturity 50% hull dehiscent from 1st Jan**	Early	3	CITH-W-53, CITH-W-61	d	MG
		Medium	5	Opex Caulchery, CITH-W-4, CITH-W-11		
		Late	7	CITH-W-45,CITH-W-36, CITH-W-65		
21. (*) (+)	**Nut shape**	Round	1	Sulaiman, Opex Caulchery, CITH-W-9	d	VS
		Triangular	2	CITH-W-26		
		Cordate	3	Nugget, CITH-W-85		
		Ovate	4	Cheinovo, Hamdan, CITH-W-2, CITH-W-6, CITH-W-5		
		Short Trapezoid	5	CITH-W-32, CITH-W-36		
		Long Trapezoid	6	CITH-W-1,CITH-W-10,CITH-W-8		
		Broad Elliptic	7	CITH-W-29, CITH-W-37, CITH-W- 45		
		Elliptic	8	Franquette, CITH-W-7		
		Narrow Elliptic	9	CITH-W-42, CITH-W-70		
22. (+)	**Nut: Shape in cross section**	Oblate	3	Franquette, CITH-W-1, CITH-W-4, CITH-W-8, CITH-W-10	d	VS
		Round	5	Sulaiman, Opex Caulchery, CITH-W-2, CITH-W-5, CITH-W-6		
		Elliptic	7	Cheinovo, Hamdan, CITH-W-3, CITH-W-7		
23. (+)	**Nut: Shape of base perpendicular to suture**	Cuneate	1	Cheinovo, CITH-W-7	d	VS
		Rounded	3	Franquette		
		Truncate	5	Sulaiman, CITH-W-1 CITH-W-2, CITH-W-9		
		emarginate	7	Nugget, CITH-W-12		

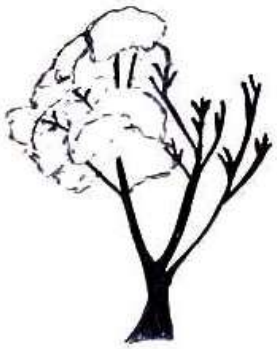
24. (+)	**Nut: Shape of apex perpendicular to suture**	Pointed	1	Cheinovo, CITH-W-2, CITH-W-3, CITH-W-7	d	VS
		Rounded	3	CITH-W-6, CITH-W-5, CITH-W-8		
		Truncate	5			
		emarginate	7			
25. (*) (+)	**Nut: Prominence of apical tip**	Weak	3	Opex Caulchery, CITH-W-11	d	VS
		Medium	5	CITH-W-1,CITH-W-8,CITH-W-4, CITH-W-10		
		Strong	7	CITH-W-42, CITH-W-70		
26. (+)	**Nut: Position of pad on suture**	on upper half	1	Hamdan, CITH-W-2, CITH-W-4, CITH-W-8	d	VS
		on upper 2/3	3	Franquette, Sulaiman, Tutle, Nugget, CITH-W-1, CITH-W-7		
		on whole length	5	Cheinova, CITH-W-6,CITH-W-11		
27.	**Nut diameter (mm)**	Small (<30)	3	Fanquette, Tutle	d	MG
		Medium (30-40)	5	Sulaiman, Cheinova, Opex Caulchery, Hamdan, CITH-W-3, CITH-W-5		
		Large (> 40)	7	CITH-W-1,CITH-W-2, CITH-W-8		
28.	**Nut length (mm)**	Small (< 30)	3	Tutle	d	MG
		Medium (30-40)	5	Opex Caulchery, Nugget, CITH-W-3, CITH-W-11, CITH-W-12		
		Large (>40)	7	Hamdan, Cheinovo, Sulaiman, CITH-W-1, CITH-W-2, CITH-W-4		
29.	**Nut weight (g)**	Light (<15)	3	Opex Caulchery, Cheinovo, CITH-W-11	d	MG
		Medium (15-20)	5	Hamdan, Sulaiman, CITH-W-2		
		Heavy (>20)	7	CITH-W-1, CITH-W-5, CITH-W-8		
30. (+)	**Nut: prominence of pad on suture**	Weak	1	Tutle, Hamdan, CITH-W-1, CITH-W-2	d	VS
		Medium	3	Franquette, Sulaiman CITH-W-11, CITH-W-13		
		Strong	5	Cheinova, Franquette, CITH-W-6		
31. (*) (+)	**Shell surface**	Smooth	3	Hamdan, CITH-W-1	d	VS
		Moderately Smooth	5	Nugget, Cheinovo, Opex Caulchery, Tutle, CITH-W-13		
		Rough	7	Sulaiman, CITH-W-2		
32. (*)	**Shell colour**	Very light	1	CITH-W-46, CITH-W-73	d	VS
		Light	3	Hamdan, Nugget, CITH-W-1, CITH-W-2, CITH-W-4,CITH-W-5, CITH-W-8		
		Medium	5	Opex Caulchery, Cheinovo, CITH-W-7		

		Dark	7	CITH-W-74, CITH-W-75		
33.	**Shell seal**	Weak	3	Hamdan	d	VS
		Intermediate	5	Sulaiman, CITH-W-1, CITH-W-5, CITH-W-6, CITH-W-8		
		Strong	7	Opex Caulchery, Cheinovo, Tutle, CITH-W-10,		
		Very strong	9	Franquette, Nugget, CITH-W-3		
34. (*)	**Shell strength**	Weak	3	Cheinovo	d	MG
		Intermediate	5	Hamdan , Sulaiman, Nugget, CITH-W-2		
		Strong	7	CITH-W-14, CITH-W-28, CITH-W-42		
35.	**Shell integrity**	Weak	3		d	VS
		Intermediate	5	Hamdan,		
		Strong	7	Open Caulchery, Tutle, Nugget, Cheinovo, Sulaiman, Franquette, CITH-W-2,CITH-W-3, CITH-W-4, CITH-W-5,CITH-W-6		
36.	**Shell thickness (mm)**	Thin (<1)	1	Hamdan, CITH-W-24, CITH-W-36	d	MG
		Medium (1-2)	2	Nugget, Opex Caulchery, Nugget, Cheinovo, CITH-W-2, CITH-W-3		
		Thick (>2)	3	CITH-W-19		
37.	**Kernel weight (g)**	Light (<6)	3	Opex Caulchery, Nugget	d	MG
		Medium 6-10)	5	Hamdan		
		Heavy(>10)	7	CITH-W-1, CITH-W-6,CITH-W-7		
38.	**Kernel percentage**	Low (<40)	3	CITH-W-55		
		Medium (40-50)	5	Opex Caulchery, Nugget, ITH-W-2		
		High(50-60)	7	Hamdan , Tutle, CITH-W-1,		
		Very high (>60)	9	CITH-W-58, CITH-W-38		
39. (*)	**Kernel veins (%)**	Low (<30)	1	Tutle, Opex Caulchery,CITH-W-10	d	MG
		Medium (30-40)	2	CITH-W-5 CITH-W-6		
		High (> 40)	3	Nugget,CITH-W-52, CITH-W-54		
		Very high (>50)	4	Sulaiman,CITH-W-55, CITH-W-56		
40.	**Kernel plumpness**	Thin	3	CITH-W-55,CITH-W-57	d	VG
		Moderate	5	CITH-W-23, CITH-W-36		
		Plumpy	7	Tutle, Hamdan, Nugget, Opex Caulchery Sulaiman, Cheinovo, CITH-W-2,CITH-W-5		
41. (*)	**Ease of removal of kernel halves**	Easy	3	Tutle, Nugget, Cheinovo, Opex Caulchery, Sulaiman , Franquette , CITH-W-1,CITH-W-2,CITH-W-6, CITH-W-10	d	MG
		Moderate	5	CITH-W-5,CITH-W-11,CITH-W-3		
		Difficult	7	CITH-W-36, CITH-W-66		

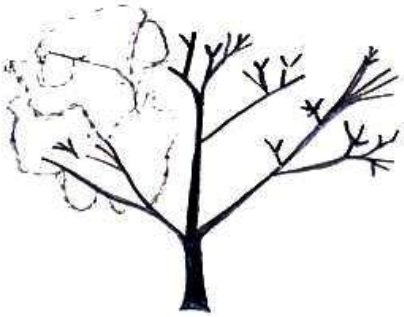
42.	**Kernel colour**	Extra light	1	Hamdan, CITH-W-1, CITH-W-5	d	VS
		Light	2	Franquette, Nugget, Opex Caulchery, Cheinovo, CITH-W-2		
		Amber	4	CITH-W-7, CITH-W-36, CITH-W-82,		
		Dark amber	7	Tutle		

VIII. Explanation for the Table of characteristics

Characteristics 2: Tree growth habit



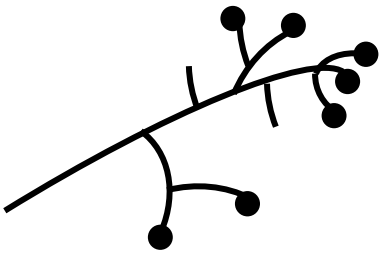
Erect
(3)



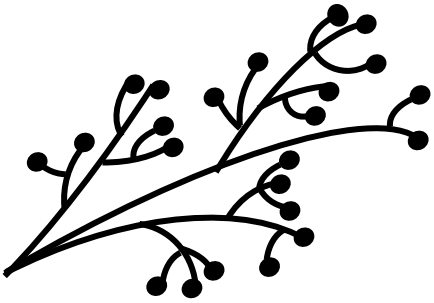
Semi erect
(5)

Spreading
(7)

Characteristics 4: Bearing habit



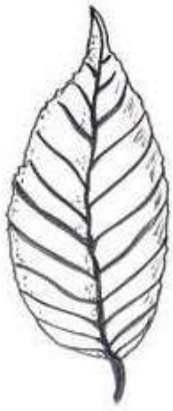
Terminal
(1)



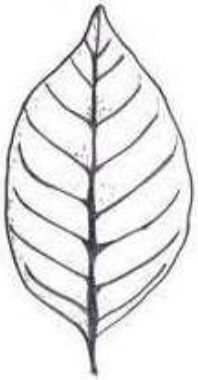
Lateral
(9)

Characteristics 6: Leaf: Leaflet shape

Narrow Elliptic
(1)

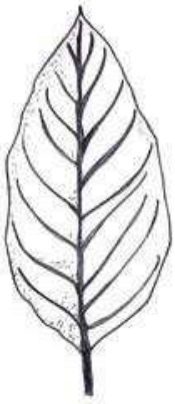


Elliptic
(2)

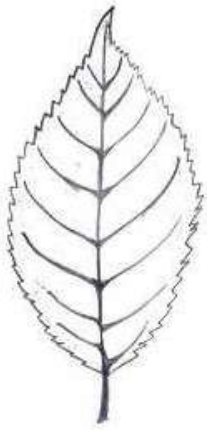


Broad Elliptic
(3)

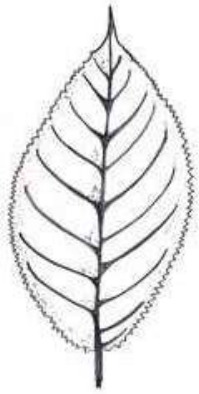
Characteristics 7: Leaf: Leaflet margin



Entire
(3)

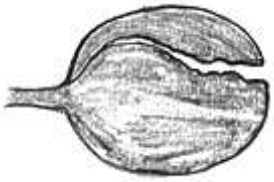


Serrate
(5)



Dentate
(7)

Characteristics 19: Hull dehiscence :Type

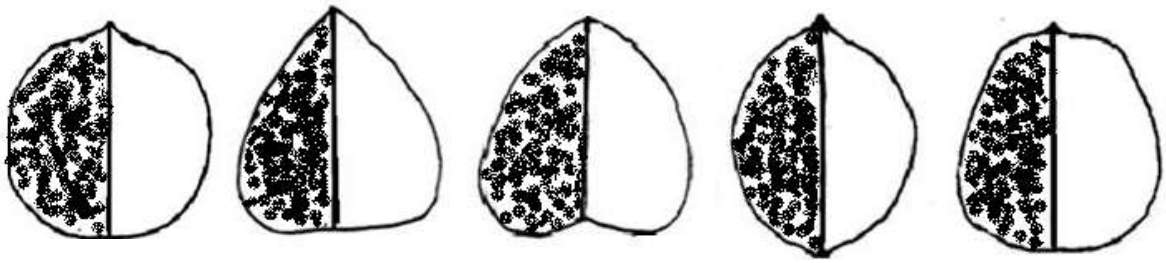


Non-dehiscent
(3)

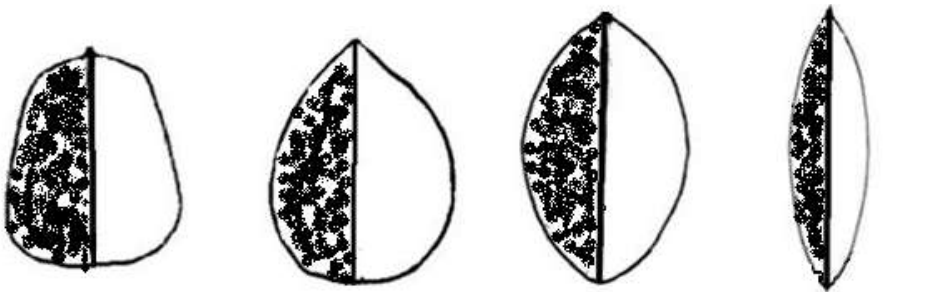
Partly dehiscent
(5)

Dehiscent
(7)

Characteristic 21: Nut: Shape



Round (1) | Triangular (2) | Cordate (3) | Ovate (4) | Short Trapezoid (5)



Long Trapezoid (6) | Broad Elliptic (7) | Elliptic (8) | Narrow Elliptic (9)

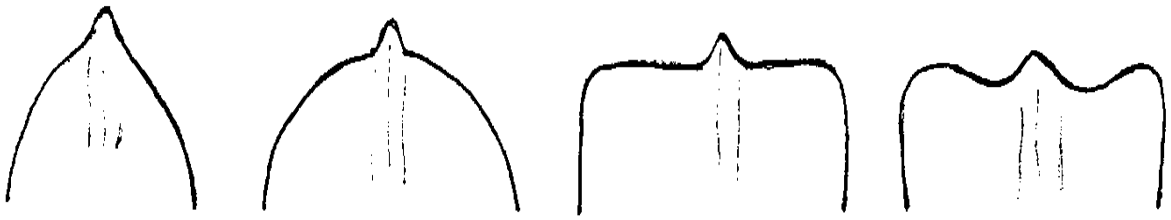
Characteristic 22: Nut: Shape in cross section

Oblate (3) | Round (5) | Elliptic (7)

Characteristic 23: Nut: Shape of base perpendicular to suture

Cuneate (1) | Rounded (3) | Truncate (5) | Emarginated (7)

Characteristic 24: Nut: Shape of apex perpendicular to suture



Pointed (1) | Rounded (3) | Truncate (5) | Emarginated (7)

Characteristic 25: Nut: Prominence of apical tip

Weak (3) | Medium (5) | Strong (7)

Characteristic 26: Nut: Position of pad on suture

On upper half of nut (1) | On upper 2/3 of nut (3) | On whole length (5)

Characteristic 30: Nut: Prominence of pad on suture

Characteristic 31: Nut: Shell surface

Smooth
(3)

Moderately smooth
(5)

Rough
(7)

DUS TEST CENTER

Nodal DUS Test Centre	Other DUS Test Centre
Central Institute of Temperate Horticulture, Rangreth, Srinagar (J&K)	---

I. Subject

The guidelines presented in this document shall be meant to apply to all varieties of grapes (***Vitis* spp.**)

II. Plant material required

1. The PPV & FRA shall decide the quantity and quality of the plant material required for testing the variety, when and where the material to be delivered for registration under the PPV& FR, Act 2001 (Govt. of India). Applicants submitting such plant material from a country other than India shall ensure that all customs and quarantine requirement(s) as stipulated under national legislation and regulations are fully complied.
2. The clonally propagated material is to be supplied in the form of 12 grafted plants on a suitable rootstock for each location. The planting material should be at least one year old at the time of supply.
3. The plant material supplied should be healthy, not lacking in vigour or unduly stressed nor affected by any pest or disease.
4. The plant material should be natural & not undergone by any treatment that affects the expression of the characteristics of the variety, unless the PPV&FRA may allow /demand such treatment. If the material is pre-treated, the full details of treatment must be presented at the time of submission.

III. Conduct of tests

1. The minimum duration of the DUS tests shall normally be atleast two fruiting seasons spread across two consecutive years after planting. Tests shall be conducted at least at two places that shall be decided by the Protection of Plant Varieties and Farmers' Rights Authority (PPV &FRA) or may be notified or identified by the Authority including an option for 'on-site' DUS testing.
2. The tests should be carried out under favourable conditions ensuring satisfactory growth and expression of the relevant characteristics of the variety and for the conduct of the examination. It is also to be ensured that the vines should bear satisfactory number of fruit clusters (5 or more) in each of the two growing cycles.
3. Test Plot Design

   A field lay out is required in a simple RBD (randomized block design) with sufficient number of replicates, that has at least 4 vines/replication. Finally the design shall facilitate the removal of plants or their parts for measurement/counting without prejudice to the observations to be recorded chronologically till the end of evaluationperiod.

   i) Plant to plant distance: 1.5 m

   ii) Row to row distance: 3.0 m

   iii) Row length : 6.0 m

   iv) Number of replications: 3

   v) Plants per replication: 4 plants

IV. Methods and Observations

The required characteristics are detailed in the Table VII (Sl.Nos.1-40) shall be used for testing of grape varieties for their Distinctiveness, Uniformity and Stability.

1. For the assessment of distinctiveness and stability, observations shall be made on 6 representative vines and 2 vines selected respectively from each of the 3 replications.

2. Shoot characters

   a. Fertile Buds: Examination of 3 scooped/excised buds under stereo microscope (40x) (3^{rd}-5^{th} basal position) before fruit pruning (October) from 4 shoots for each replication.

   b. Shoot tip: Examination of 4 healthy shoot tips with hand lens for each replication.

   c. Woody shoot cross section: Examination of internodes from the middle third of 4 woody shoots for each replication.

3. Leaf characters :

   a. Young leaf: colour of upper side of 4^{th} leaf from distal end on located 4 growing shoots for each replication.

   b. Mature leaves: obtained from the middle third of shoot just above the position of raceme attachment selected from 4 shoots per replication at pre-veraison stage when berries still hard and green (approx. 60 days after fruit pruning under Pune conditions).

4. Inflorescence per shoot: On shoots developed from canes after fruit pruning. Observations shall be recorded on 4 shoots selected from each replication.

5. Berry and bunch characters: Observations shall be recorded on 4 shoots selected from each replication.

   a. Berry: Length of pedicel; distance from insertion to ramification, mean values of 36 berries selected from middle part of 12 bunches.

   b. Berry: Formation of seeds: 36 berries taken from the middle part of 12 bunches.

   c. Berry: Per cent must recovery (v/w); crush 100 g fully ripe, healthy berries without pedicels and centrifuge at 3000 rpm.

   d. Sugar and titratable acid contents of must (%): Pooled sample from the bunches on 4 shoots selected from each replication.

6. Stages of observations (Column 6 of Table of Characteristics, Section VII)

Sl. No.	Stage of observation	Decimal coding
1.	After shoot maturity or just before fruit pruning	10
2.	When 50 % of the buds are in green shoot tip stage	20
3.	75 % flowering	30
4.	Between flowering and fruit set	40
5.	Pre-veraison stage when berries still hard and green	50
6.	About 50% berries in a bunch start getting soft and changing	60

	color, if any.	
7.	At harvest	70
8.	After full cane maturity when growth ceases	80

V. Grouping of Varieties

The candidate varieties for DUS test shall be divided into groups to facilitate the assessment of Distinctiveness. Characteristics which are known from experience not to vary or to vary 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.

Under Indian conditions, the grapes are broadly classified into 2 groups based on their suitability to end use which is dependent on berry characteristics, such as a) Pulpy and b) Juicy types. Again juicy types may be classified into i) Adherent skin (mostly *vinifera* types) and ii) Slip skin (mostly *labrusca* types). The third group may comprise only the rootstocks which are used extensively in viticulture for their compatibility to major scion varieties and also to overcome biotic and abiotic stress conditions under arid, semi-arid and semi-humid tropical conditions.

Following characteristics as per the table in Section VII shall be used for grouping of grape varieties:

1. Mature leaf shape and number of lobes (Characteristics 9 and 10).
2. Physiological maturity of the berry (Characteristic 18)
3. Bunch peduncle length (Characteristic 22)
4. Bunch shape/type (Characteristic 23)
5. Berry shape (Characteristic 26)
6. Berry skin colour after removal of bloom (Characteristic 27)
7. Berry flavour (Characteristic 31)
8. Formation of seeds (Characteristic 34)
9. Sugar content of must (Characteristic 37)
10. Total acid content of must (Characteristic 38)

VI. Characteristics and Symbols

1. To assess Distinctiveness, Uniformity and Stability for evaluating grapevine varieties under tropical Indian conditions, the selected characteristics and their states, as given in the Table of characteristics in Section VII shall be used.
2. Notes (1 to 9) shall be assigned for each state of expression of all the listed characteristics for the purpose of electronic/digital data processing.
3. Legend: (*) Characteristics to be observed during every fruiting season (from October pruning) and shall be always be included in the description of the variety
4. Legend (+): See section VIII. It is to be noted that certain characteristics and the plant parts on which observations to be taken are given in the explanations or figures for clarity on the table of characteristics in Section VII.
5. The optimum stage for recording observations/ measurement of each characteristic is given in sixth column of the Table of Characteristics (Decimal coding as given in IV(6).
6. Type of assessment of characteristics indicated in column seven of Table of Characteristics is as follows :-

MG: Measurement by single observation of a group of plants or parts of plants.
MS: Measurement of unit number/scale from individual plants or parts of plants.
VG: Visual assessment by a single observation of group plants or parts of plants.
VS: Visual assessment by observations of individual plants or parts of plants.

VII. Table of Characteristics

Sr. No.	Characteristics	States	Notes	Example variety	Stage of observation	Type of assessment
1	2	3	4	5	6	7
1.	Shoot: fertile basal buds (Mean of 3 buds)	Very low(<1)	1	Thompson Seedless	10	VG
		Medium (1-2 per cane)	5	Sharad Seedless		
		Very high (more than 2 per cane)	9	Flame Seedless		
2. +	Time of bud burst (Days after fruit pruning)	Very early(<6)	1	Christmas Rose	20	VG
		Early (6-8)	3	Marroo Seedless		
		Medium (9-11)	5	Red Globe		
		Late (12-14)	7	Merbein Seedless		
		Very late (>14)	9	Centennial Seedless		
3. +	Young shoot: form of shoot tip	Closed	1	B-69 (Kober **5**BB x SO4)	30	VG
		Half open	5	Kober 5BB		
		Fully open	9	Red Globe		
4. *	Young leaf: colour of upper side of blade	Green	1	Perlette	30	VG
		Green with bronze spots	2	Golden Queen		
		Yellow	3	Thompson Seedless		
		Yellow with bronze spots	4	Red Prince		
		Copper yellow	5	Beauty Seedless		
		Copper	6	Angoor Kalon		
		Reddish	7	Convent Large Black		
		Other	9	*V. flexousa*		
5.	Time of full bloom (Number of days after fruit pruning)	Very early (<25)	1	Christmas Rose	30	MG
		Early(25-30)	3	Perlette		
		Medium(31-36)	5	Marroo Seedless		
		Late (37- 42)	7	Thompson Seedless		

Sr. No.	Characteristics	States	Notes	Example variety	Stage of observation	Type of assessment
1	2	3	4	5	6	7
		Very late (>42)	9	Centennial Seedless		
6.	Inflorescence: average number of inflorescences per shoot	<1	1	Superior Seedless	40	VG
		1 to <2	3	Thompson Seedless		
		2 to <3	5	Marroo Seedless		
		3 or more	7	Beauty Seedless		
7. +	Shoot: growth habit	Erect	1	Mourvedre	50	
		Semi erect	3	Sauvignon Blanc		
		Horizontal	5	Pinot Noir		
		Semi-drooping	7	Walthom Cross		
		Drooping	9	Kober 5BB		
8.	Mature leaf: width of blade (cm)	Very small (<5)	1	Pinot Noir	50	MS
		Small(5-8)	3	Pearl of Csaba		
		Medium (9-11)	5	Thompson Seedless		
		Large (12-14)	7	Centennial Seedless		
		Very large(>14)	9	Kishmish Chernyi		
9. * +	Mature leaf: shape of blade	Cordate	1	Champanel	50	VG
		Wedge-shaped	2	Thompson Seedless		
		Pentagonal	3	Marroo Seedless		
		Circular	4	*V. flexousa*		
		Kidney shaped	5	Spin Sahebi		
10. * +	Mature leaf: number of lobes	Single	1	Chardonnay	50	MG
		Three	3	Concord		
		Five	5	Thompson Seedless		
		Seven	7	Cabernet Sauvignon		
		More than seven	9	NRCG - A8-3		
11.	Mature leaf: anthocyanin coloration of main vein on lower side of blade	Absent	1	Thompson Seedless	50	VG
		Present	9	Flame Seedless		
12. +	Mature leaf: shape of teeth	Both sides concave	1	Champanel	50	VG

Sr. No.	Characteristics	States	Notes	Example variety	Stage of observation	Type of assessment
1	2	3	4	5	6	7
		Both sides straight (rectilinear)	2	Sirius		
		Both sides convex	3	Kishmish Chernyi		
		One side concave, one side convex	4	Black Round		
		Mixture of both sides straight and both sides convex	5	Arka Kanchan		
13. * +	Mature leaf: shape of petiole sinus / degree of opening / overlapping	Very wide open	1	Spin Sahebi	50	VG
		Moderately open	3	Arkavati		
		Narrowly open	5	Superior Seedless		
		Lobes overlapping	7	Jaos Belyi		
14.	Mature leaf: prostrate hairs between veins on lower side of blade	Absent	1	Perlette	50	VG
		Present	9	Isabella		
15.	Mature leaf: erect hairs between veins on lower side of blade	Absent	1	Perlette	50	VG
		Present	9	*V. flexousa*		
16. +	Mature leaf: length of petiole compared to mid vein	Short (<1)	1	Beauty Seedless	50	VS
		Equal (=1)	5	Walthom Cross		
		Long (>1)	7	Arka Kanchan		
17.	Time of veraison (days after fruit pruning)	Early (<70)	1	Perlette	60	MG
		Medium (70-90)	5	Kishmish Chernyi		
		Late (91 and above)	7	Thompson Seedless		
18. *	Physiological maturity of the berry	Early (<110)	1	Perlette	70	VS
		Medium(121-130)	3	Kishmish Chernyi		

Sr. No.	Characteristics	States	Notes	Example variety	Stage of observation	Type of assessment
1	2	3	4	5	6	7
	(days after fruit pruning)	Late (131-140)	5	Red Globe		
19 (a)	Bunch: weight (g) without peduncle of table grapes	Small (<250)	3	Red Muscat	70	MG
		Medium(250-500)	5	Kishmish Chernyi		
		Large(>500)	7	Red Globe		
19 (b)	Bunch: weight (g) without peduncle of wine grapes	Small(<150)	3	Cabernet Sauvignon	70	MG
		Medium(150-250)	5	Shiraz		
		Large(>250)	7	Ugni Blanc		
20 (a) * +	Bunch: length (mm) of table grapes (without peduncle)	Short (<120)	3	Catawba	70	MS
		Intermediate (120-200)	5	Thompson Seedless		
		Long (>200)	7	Red Globe		
20(b) * +	Bunch: length (mm) of wine grapes (without peduncle)	Short (<90)	3	Pinot Noir	70	MS
		Intermediate (90-150)	5	Shiraz		
		Long (>150)	7	Ugni Blanc		
21.	Bunch: berry density / compactness in table grapes	Loose	1	Red Globe	70	VG
		Medium	5	Manjri Naveen		
		Compact	7	Perlette		
22.* +	Bunch: peduncle length (mm)	Short (upto50)	3	Perlette	70	MS
		Medium (51- 70)	5	Thompson Seedless		
		Long (> 70)	7	Walthom Cross		
23.* +	Bunch: shape/type	Globular	1	Katta Kurghan	70	VG
		Cylindrical	2	Arkavati		
		Conical	3	Perlette		
		Winged cylindrical	4	Arka Shweta		
		Winged conical	5	Diamond Jubilee		

Sr. No.	Characteristics	States	Notes	Example variety	Stage of observation	Type of assessment
1	2	3	4	5	6	7
		Poly-winged	6	Cheema Sahebi		
		Double clustered	7	Black Champa		
24. +	Bunch: uniformity of berry size	Non uniform (<70%)	3	Thompson Seedless	70	VG
		Uniform (>70%)	7	Manjri Naveen		
25.	Berry diameter	Small (<14 mm)	3	Perlette	70	MS
		Medium (14-18 mm)	5	Flame Seedless		
		Large (>18 mm)	7	Red Globe		
26. * +	Berry: shape	Oblate	1	Riesling	70	VG
		Globose/Round	2	Flame seedless		
		Short elliptical	3	Crimson Seedless		
		Long elliptical	4	Manjri Naveen		
		Cylindrical	5	Sonaka		
		Ovate	6	Italia		
		Obovate	7	Fantasy Seedless		
		Arched	8	Ambe Seedless		
		Finger shaped	9	RR Seedless		
27. *	Berry: skin colour after removal of bloom	Green- yellow	1	Chasselas Blanc	70	VG
		Rose	2	KishmishRozavis		
		Red	3	Flame Seedless		
		Purple	5	Beauty Sls.		
		Blue-black	6	Kishmish Chernyi		
		Other	7	Delight		
28.	Berry: thickness of skin	Thin	3	Thompson Seedless	70	VG
		Medium	5	Flame Seedless		
		Thick	7	Red Globe		
29.	Berry: anthocyanin colouration of mesocarp	Absent	1	Kishmish Chernyi	70	VG
		Present	9	Rubi Red		

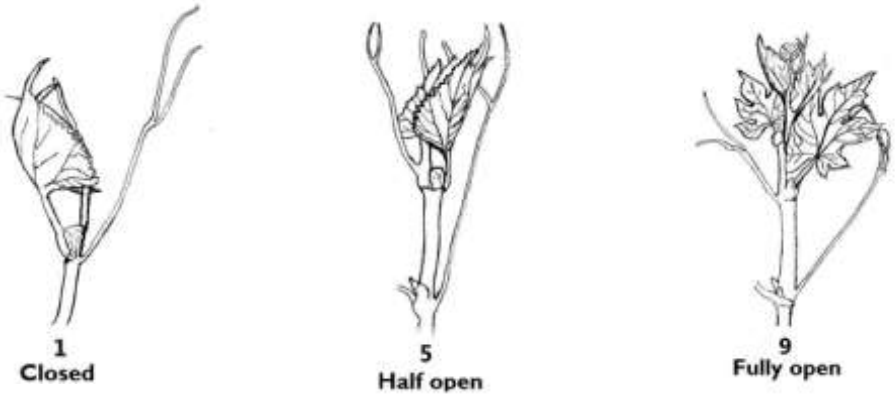
Sr. No.	Characteristics	States	Notes	Example variety	Stage of observation	Type of assessment
1	2	3	4	5	6	7
30.	Berry: firmness of mesocarp	Soft	3	Beauty Seedless	70	VG
		Firm	7	Flame Seedless		
31.*	Berry: flavour	Neutral	1	Thompson Seedless	70	VG
		Muscat	3	Flame Seedless		
		Foxy	5	Catawba		
		Others	9	Manjri Naveen		
32.+	Berry:length of pedicel (mm)	Very short(≤4)	1	Concord	70	MG
		Short(5-7)	3	Grenache Noir		
		Medium(8-10)	5	Cinsaut		
		Long(11-13)	7	Christmas Rose		
		Very long(≥14)	9	Red Globe		
33.	Berry: attachment with pedicel	Loose	3	Flame Seedless	70	VG
		Firm	7	Thompson Seedless		
34.*	Berry: formation of seeds	Seedless (absent)	1	Thompson Seedless	70	VG
		Rudimentary	3	Arkavati		
		Well developed	5	Red Globe		
35.	Berry: 100-seed weight (g)	Low (<1.5)	3	Marroo Seedless	70	MG
		Medium (1.5-3.0)	5	Arkavati		
		High (>3.0)	7	Red Globe		
36.	Berry: Must Recovery (V/W %)	Very little (≤45)	1	Red Globe	70	MG
		Little (46-55)	3	Gulabi		
		Medium(56-65)	5	Isabella		
		High (66-75)	7	Concord		
		Very high(>75)	9	PusaUrvashi		
37.*	Sugar content of must (%)	Low (<16)	3	Manjri Naveen	70	MG
		Medium (16-20)	5	Kismish Chernyi		
		High (>20)	7	Crimson Seedless		

Sr. No.	Characteristics	States	Notes	Example variety	Stage of observation	Type of assessment
1	2	3	4	5	6	7
38. *	Total acid content of must (g/l tartaric acid)	Very low (<3)	1	Manjri Naveen	70	MG
		Low (3-6)	3	Perlette		
		Medium (6-9)	5	Flame Seedless		
		High (9-12)	7	Thompson Seedless		
		Very high (>12)	9	Crimson Seedless		
39. +	Woody shoot; cross section	Circular	1	Red Globe	80	VG
		Elliptic	3	Chasselas Blanc		
		Oblate	5	Kober 5BB		
40.	Colour of Woody shoot	Yellow	1	Grenache Noir	80	VG
		Brownish	3	Chasselas Blanc		
		Red –Violet	5	3309C		
		Grey	7	Kishmish Chernyi		

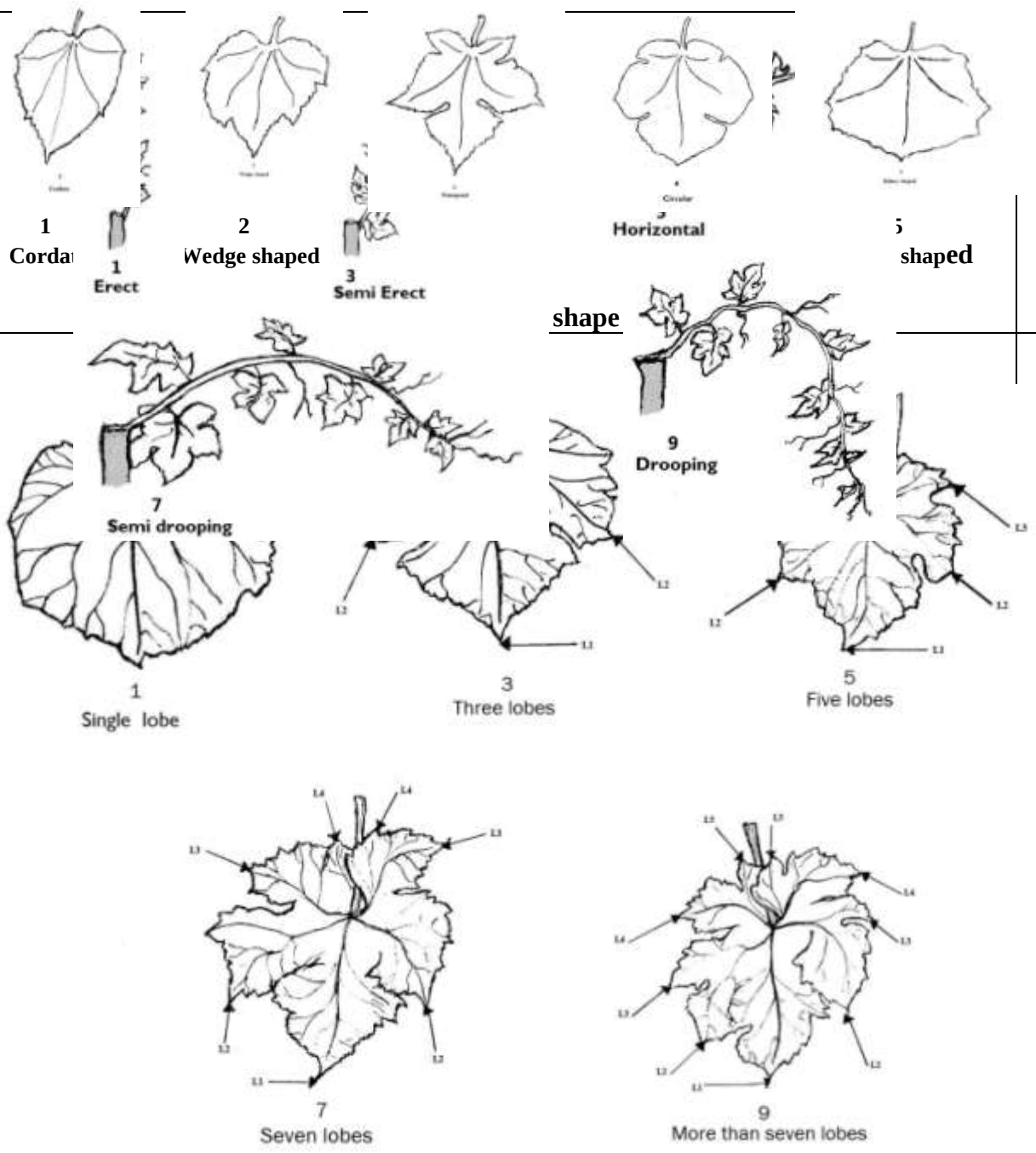
VIII. Explanation for Table of Characteristics

Green shoot tip stage

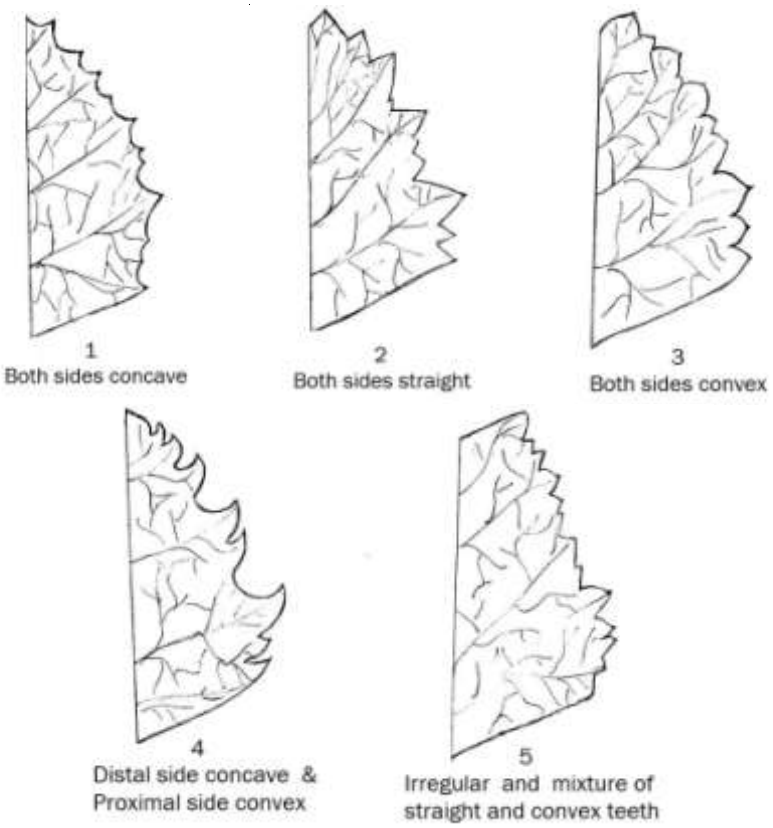
Characteristic. 2: Time of bud burst



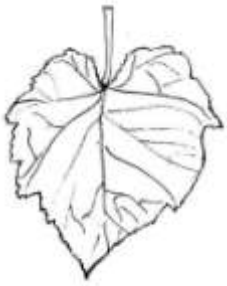
Characteristic 3 : Young shoot: Form of tip

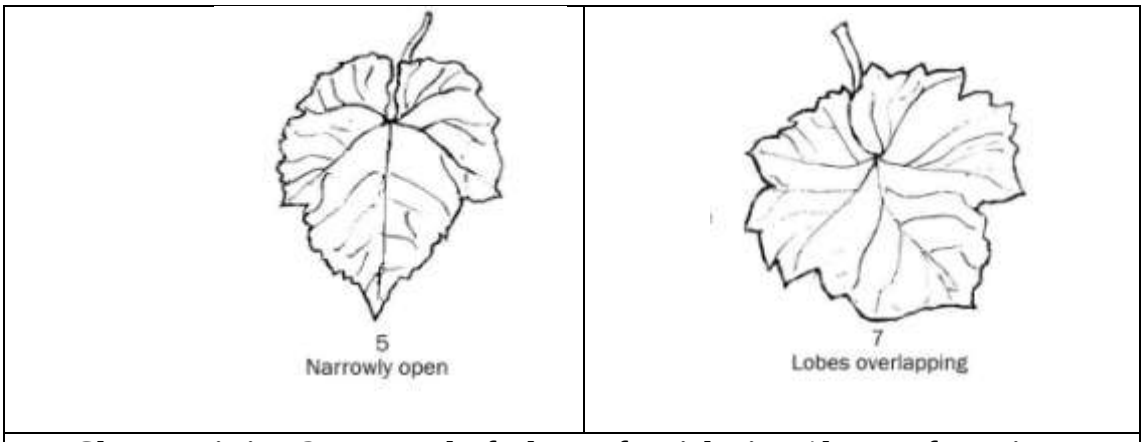


Characteristic 10: Mature leaf: number of lobes

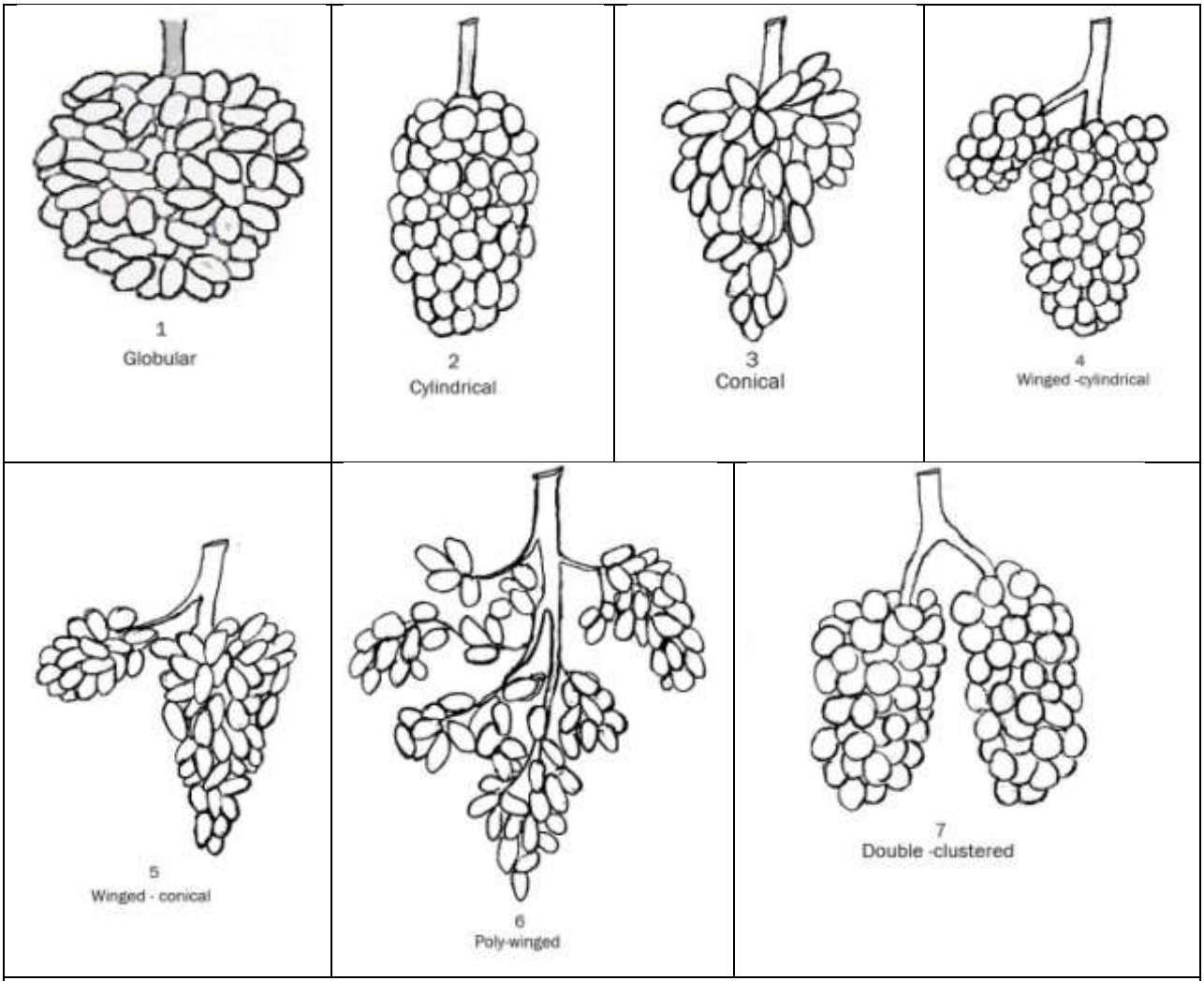


Characteristic. 12: Mature leaf: shape of teeth

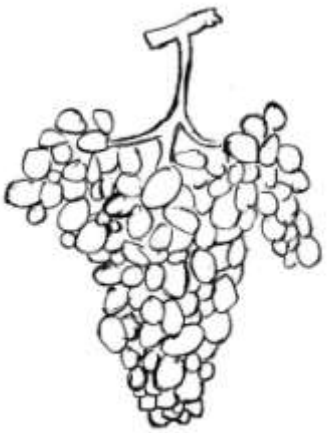




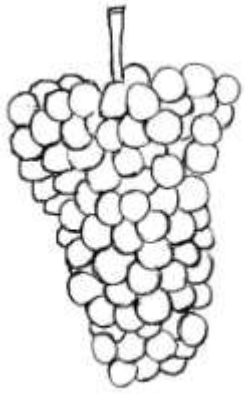
Characteristic. 13: Mature leaf: shape of petiole sinus/degree of opening



Characteristic 23: Bunch shape/type



3
Non- uniform



7
Uniform

Characteristic 24: Bunch: uniformity of berry size

1
Oblate

2
Globose

3
Short-elliptical

4
Long- elliptical

5
Cylindrical

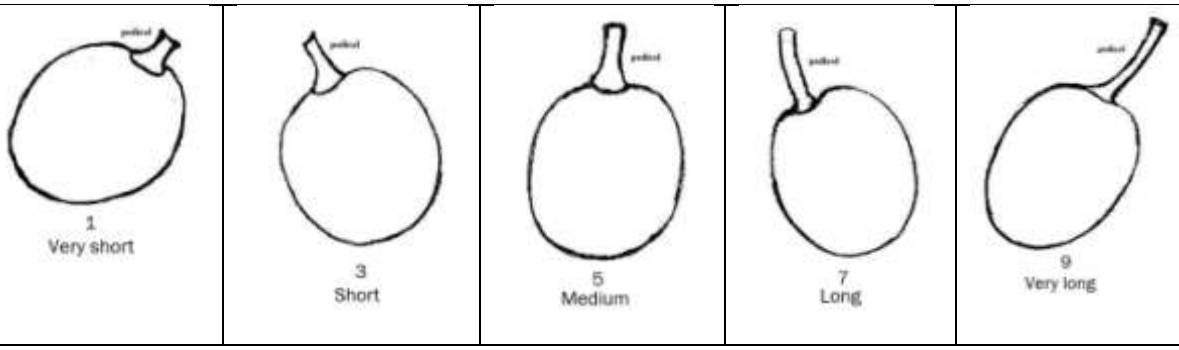
6
Ovate

7
Obovate

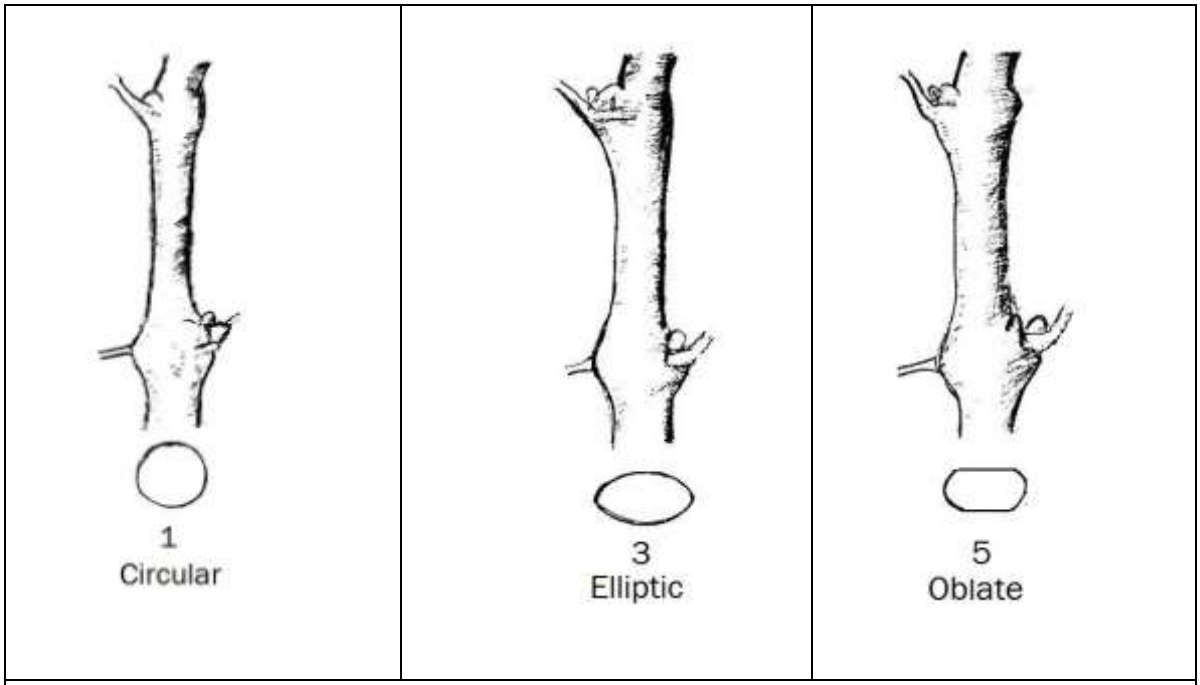
8
Arched

9
Finger shaped

Characteristic 26 : Berry shape



Characteristic 32: Berry pedicel length



Characteristic 39 : Woody shoot : Cross section

DUS Testing Centres

Nodal DUS Test Centre	Proposed Cooperative DUS Test Centres
National Research Centre on Grapes, Manjri Farm, P.B. No. 3., Solapur Road, Pune- 412 307, Maharashtra.	A. Post Graduate Centre, College of Horticulture, Bengaluru, University of Horticultural Sciences, Bagalkot, Karnataka B. Department of Horticulture Punjab Agriculture University Ludhiana, Punjab

PUBLIC NOTICE

Sub: Advertisement is given under sub-section (2) and (3) of Section 21 of the Protection of Plant Varieties and Farmers' Rights Act, 2001 for registration of farmers' variety [Section 2(j)(ii)] read with Rules 30 and 31 of PPV & FR Rules, 2003

It is hereby advertised that the application (s) for registration of farmers" varieties (falling within the definition of extant variety) listed herein have been accepted by the Registrar, Protection of Plant Varieties & Farmers" Rights Authority. The passport data of each variety furnished by the applicant are herewith advertised as specified for calling objections from the interested persons in the matter.

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.1,500/- (Rupees One Thousand and Five Hundred Only) by way of Demand Draft drawn in favour of "The Registrar, PPV & FR Authority" payable at New Delhi.

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

01. Application No. | **F76** | **OS82** | **11** | **282** | filed on 08.06.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Shri Dilip Kumar Behera, Antapali, Block- Bhatli, Dist- Baragarh, State-Odisha** a **Farmers' variety** of crop **Rice** [*Oryza sativa* L.] having denomination **BASPATARI**, 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 **: BASPATARI**

Applicant : Dilip Kumar Behera

Address of the Applicant : Antapali, Block- Bhatli, Dist- Baragarh, State-Odisha

Nationality of Applicant : Indian

Application details

a. Number : | **F76** | **OS82** | **11** | **282** |

b. Date of receipt : 08.06.2011

C. Date of acceptance : 29.11.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : BASPATARI

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : Savitri

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Early to Medium
Stem: Length (excluding panicles; excluding floating rice)	Short
Decorticated grain: Length	Short
Decorticated grain: Shape (in lateral view)	Short bold
Decorticated grain: Colour	White to Light brown
Endosperm: Content of amylose	Medium
Decorticated grain: Aroma	Absent to Present
B. Distinct Characteristics: **BASPATARI** has distinguishing characters like strong density of lemma pubescence and purple colour of sterile lemma.	

C. Reference varieties:
Savitri has distinguishing characters like weak density of lemma pubescence and straw colour of sterile lemma.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

02. Application No. | **F63** | **OS69** | **11** | **269** | filed on 08.06.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Shri Jugal Behera, Ghardhara, Block- Khariar, Dist- Nuapada, State-Odisha a Farmers' variety** of crop **Rice** [*Oryza sativa* L.] having denomination **LAL GORI**, 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 **: LAL GORI**

Applicant : Jugal Behera,

Address of the Applicant : Ghardhara, Block- Khariar, Dist- Nuapada, State-Odisha

Nationality of Applicant : Indian

Application details

a. Number : | **F63** | **OS69** | **11** | **269** |

b. Date of receipt : 08.06.2011

C. Date of acceptance : 29.11.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : LALGORI

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : Savitri

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Medium
Stem: Length (excluding panicles; excluding floating rice)	Short to Long
Decorticated grain: Length	Short
Decorticated grain: Shape (in lateral view)	Short bold
Decorticated grain: Colour	White to Variegated brown
Endosperm: Content of amylose	Medium
Decorticated grain: Aroma	Absent to Present
B. Distinct Characteristics: **LALGORI** has distinguishing characters like strong density of lemma pubescence.	

C. Reference varieties: **Savitri** has distinguishing characters like weak density of lemma pubescence.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

03. Application No. | **F71** | **OS77** | **11** | **277** | filed on 08.06.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Shri Balaram Nayak, Dumra Guda, Block- Jeypore, Dist- Koraput, State-Odisha a Farmers' variety** of crop **Rice** [*Oryza sativa* L.] having denomination **KARAKOILI**, 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 **: KARAKOILI**

Applicant : Balaram Nayak

Address of the Applicant : Dumra Guda, Block- Jeypore, Dist- Koraput, State-Odisha,

Nationality of Applicant : Indian

Application details

a. Number : | **F71** | **OS77** | **11** | **277** |

b. Date of receipt : 08.06.2011

C. Date of acceptance : 29.11.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : KARAKOILI

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : Dinesh

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Uniform purple
Time of heading (50% of plants with panicles)	Early to Medium
Stem: Length (excluding panicles; excluding floating rice)	Short to Medium
Decorticated grain: Length	Short to Medium
Decorticated grain: Shape (in lateral view)	Short bold
Decorticated grain: Colour	White to Light brown
Endosperm: Content of amylose	High
Decorticated grain: Aroma	Absent
B. Distinct Characteristics: **KARAKOILI** has distinguishing characters like high weight of 1000 fully developed grains.	

C. Reference varieties: **Dinesh** has distinguishing characters like medium weight of 1000 fully developed grains.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

04. Application No. | **F56** | **OS62** | **11** | **262** | filed on 08.06.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Sri. Pyari Duria, Saipala, Block- Nuapada, Dist- Nuapada, State-Odisha a Farmers' variety** of crop **Rice** [*Oryza sativa* L.] having denomination **SAPARI**, 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 **: SAPARI**

Applicant : Sri. Pyari Duria, Saipala

Address of the Applicant : Block- Nuapada, Dist- Nuapada, State-Odisha

Nationality of Applicant : Indian

Application details

a. Number : | **F56** | **OS62** | **11** | **262** |

b. Date of receipt : 08.06.2011

C. Date of acceptance : 29.11.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : SAPARI

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : Khandagiri

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Medium
Stem: Length (excluding panicles; excluding floating rice)	Very short
Decorticated grain: Length	Long to Medium
Decorticated grain: Shape (in lateral view)	Long bold
Decorticated grain: Colour	White to Light brown
Endosperm: Content of amylose	Medium
Decorticated grain: Aroma	Absent
B. Distinct Characteristics: **SAPARI** has distinguishing characters like absence of awns and medium grain width.	

C. Reference varieties: **Khandagiri** has distinguishing characters like presence of awns and narrow grain width.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

05. Application No. | **F66** | **OS72** | **11** | **272** | filed on 08.06.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Shri Dhanurjay Ghiuria, Nuaguda, , Block- Kundra, Dist- Koraput, State-Odisha** a Farmers' variety of crop **Rice** [*Oryza sativa* L.] having denomination **JAKSARU**, 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 **: JAKSARU**

Applicant : Shri Dhanurjay Ghiuria

Address of the Applicant : Nuaguda, Block- Kundra, Dist- Koraput, State-Odisha

Nationality of Applicant : Indian

Application details

a. Number : | **F66** | **OS72** | **11** | **272** |

b. Date of receipt : 08.06.2011

C. Date of acceptance : 29.11.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : JAKSARU

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : Krishna Hamsa

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Medium to Early
Stem: Length (excluding panicles; excluding floating rice)	Very short
Decorticated grain: Length	--
Decorticated grain: Shape (in lateral view)	Short bold to Long slender
Decorticated grain: Colour	White to Light brown
Endosperm: Content of amylose	Medium
Decorticated grain: Aroma	Absent
B. Distinct Characteristics: **JAKSARU** has distinguishing characters like strong density of lemma pubescence.	

C. Reference varieties: **Krishna Hamsa** has distinguishing characters like weak density of lemma pubescence.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

06. Application No. | **F62** | **OS68** | **11** | **268** | filed on 08.06.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Sunil Kumar Majhi, Chikalchuan, Block-Boden, Dist- Nuapada, State-Odisha** a Farmers' variety of crop **Rice** [*Oryza sativa* L.] having denomination **PUAGI**, 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 **: PUAGI**

Applicant : Sunil Kumar Majhi

Address of the Applicant :Chikalchuan, Block-Boden, Dist- Nuapada, State-Odisha

Nationality of Applicant : Indian

Application details

a. Number : | **F62** | **OS68** | **11** | **268** |

b. Date of receipt : 08.06.2011

C. Date of acceptance : 29.11.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : PUAGI

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : Nidhi

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Medium
Stem: Length (excluding panicles; excluding floating rice)	Short to medium
Decorticated grain: Length	Medium
Decorticated grain: Shape (in lateral view)	Long slender
Decorticated grain: Colour	White to Red
Endosperm: Content of amylose	Low to high
Decorticated grain: Aroma	Absent to present
B. Distinct Characteristics: **PUAGI** has distinguishing characters like strong density of lemma pubescence and awns are distributed on tip only.	

C. Reference varieties:
Nidhi has distinguishing characters like weak density of lemma pubescence and awns are distributed on whole length.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

07. Application No. | **F26** | **OS30** | **11** | **204** | filed on 13.04.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Hadan Majhi, Tundamuhi, Nakrundi Block- Rampur, Dist- Kalahandi, Odisha** a Farmers' variety of crop **Rice** [*Oryza sativa* L.] having denomination **SENKARA**, 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 **: SENKARA**

Applicant : Hadan Majhi

Address of the Applicant :Tundamuhi, Nakrundi Block- Rampur, Dist- Kalahandi, Odisha

Nationality of Applicant : Indian

Application details

a. Number : | **F26** | **OS30** | **11** | **204** |

b. Date of receipt : 13.04.2011

C. Date of acceptance : 23.05.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : SENKARA

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : Tulasi

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Early to Medium
Stem: Length (excluding panicles; excluding floating rice)	Very short
Decorticated grain: Length	Medium to short
Decorticated grain: Shape (in lateral view)	Short bold
Decorticated grain: Colour	Red
Endosperm: Content of amylose	High to medium
Decorticated grain: Aroma	Absent
B. Distinct Characteristics: **SENKARA** has distinguishing characters like presence of awns.	

C. Reference varieties: **Tulasi** has distinguishing characters like absence of awns.

D. Date of commercialization of the variety	---

(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

08. Application No. | **F74** | **OS80** | **11** | **280** | filed on 08.06.2011 by Director Agriculture and food production, Govt of Odisha, Bhubaneswar, 751001 on behalf of **Santosh Saha, Siletpali, Block- Padampur, Dist- Baragarh, State-Odisha** a Farmers' variety of crop **Rice** [*Oryza sativa* L.] having denomination **DANISARIA**, 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 **: DANISARIA**

Applicant : Santosh Saha

Address of the Applicant : Siletpali, Block- Padampur, Dist- Baragarh, State- Odisha

Nationality of Applicant : Indian

Application details

a. Number : | **F74** | **OS80** | **11** | **280** |

b. Date of receipt : 08.06.2011

C. Date of acceptance : 29.11.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : DANISARIA

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed : Not applicable

Denomination

Name of Parental Material : NA

Name of Reference Varieties : Kandagiri

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Early to Medium
Stem: Length (excluding panicles; excluding floating rice)	Very short
Decorticated grain: Length	Medium to Long
Decorticated grain: Shape (in lateral view)	Long bold
Decorticated grain: Colour	Red
Endosperm: Content of amylose	Medium
Decorticated grain: Aroma	Absent
B. Distinct Characteristics: **DANISARIA** has distinguishing characters like strong density of lemma pubescence.	

C. Reference varieties: **Kandagiri** has distinguishing characters like weak density of lemma pubescence.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)

Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

09. Application No. | **F52** | **OS56** | **11** | **231** | filed on 19.04.2011 by **Dr. Debal Deb, on behalf of BASUDHA, Binodbati, P.O. Layekbandh, Bankura- 722157** a Farmers' variety of crop **Rice** [*Oryza sativa* L.] having denomination **RANI KAJAL**, 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 **: RANI KAJAL**

Applicant : Dr. Debal Deb

Address of the Applicant : 9 Old Calcutta Road, Barrackpore, 700123, West Bengal

Nationality of Applicant : Indian

Application details

a. Number : | **F52** | **OS56** | **11** | **231** |

b. Date of receipt : 19.04.2011

C. Date of acceptance : 23.05.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : RANI KAJAL

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed Denomination : Not applicable

Name of Parental Material : NA

Name of Reference Varieties : IET 8116

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Medium
Stem: Length (excluding panicles; excluding floating rice)	Medium to short
Decorticated grain: Length	Short
Decorticated grain: Shape (in lateral view)	Short bold
Decorticated grain: Colour	Variegated brown
Endosperm: Content of amylose	Low to medium
Decorticated grain: Aroma	Present
B. Distinct Characteristics: **RANI KAJAL** has distinguishing characters like black colour of lemma tip, purple black colour of lemma and palea, very short grain length and aromatic decorticated grains.	

C. Reference varieties:
IET 8116 has distinguishing characters like yellowish colour of lemma tip, gold and gold furrow on straw background of lemma and palea, short grain length and non aromatic decorticated grains.

D. Date of commercialization of the variety	---

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
Advertisement of accepted application for registration

10. Application No. | **F44** | **OS48** | **11** | **223** | filed on 19.04.2011 by **Dr. Debal Deb, on behalf of BASUDHA, Binodbati, P.O. Layekbandh, Bankura- 722157, West Bengal** a Farmers' variety of crop **Rice** [*Oryza sativa* L.] having denomination **BAHURUPI**, 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 **: BAHURUPI**

Applicant : Dr. Debal Deb

Address of the Applicant : 9 Old Calcutta Road, Barrackpore, 700123, West Bengal

Nationality of Applicant : Indian

Application details

a. Number : | **F44** | **OS48** | **11** | **223** |

b. Date of receipt : 19.04.2011

C. Date of acceptance : 23.05.2011

Crop (Taxonomical Lineage) : Rice [*Oryza sativa* L.]

Denomination : BAHURUPI

Type of Variety : Farmers' variety

Classification of Variety : Typical

Previously proposed : Not applicable

Denomination

Name of Parental Material : NA

Name of Reference Varieties : Manasarovar

Variety Description:

A. Group Characteristics	**Remarks measured values, example varieties, etc.**
Basal leaf: Sheath colour	Green
Time of heading (50% of plants with panicles)	Late
Stem: Length (excluding panicles; excluding floating rice)	Very short
Decorticated grain: Length	Short
Decorticated grain: Shape (in lateral view)	Short bold
Decorticated grain: Colour	Light brown
Endosperm: Content of amylose	Medium
Decorticated grain: Aroma	Absent
B. Distinct Characteristics: **BAHURUPI** has distinguishing characters like weight of 1000 fully developed grains is low.	

C. Reference varieties:
Manasarovar has distinguishing characters like weight of 1000 fully developed grains is medium.

D. Date of commercialization of the variety	**---**

PUBLIC NOTICE

Details of registration certificate for inviting claims of benefit sharing under sub section 1 of section 26 of PPV&FR Act, 2001 read with rule 40 of PPV&FR Rules, 2003.

The details of 22 registration certificates which have been issued under section 24 (2) of PPV &FR Act, 2001 are published herein for invitation of claims for benefit sharing.

Any person or group of persons, being citizen(s) of India or firm or governmental or non-governmental organization formed or established in India shall submit their claims for benefit sharing (under Section 26 (2) of PPV&FR Act, 2001 read with Rule 41 of PPV&FR Rules, 2003) in Form PV 7 of the First schedule (in triplicate) within a period of six months from the date of publication. Claims for benefit sharing if any shall be submitted to the Deputy Registrar, PPV&FR Authority, NASC Complex, DPS Marg, New Delhi-110012 accompanied with the fee of Rs. 5000/- (Rupees Five Thousand Only) by way of Demand Draft drawn in favour of the "Registrar, PPV&FR Authority" payable at New Delhi.

Certificate of Registration No. 28 of 2013

(1) Registration Number and date of grant:- **28 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Vibha Agrotech Limited
501, Subhan srisampada, Raj Bhawan Road
Somajiguda, Hyderabad-500082

(3) Denomination of the variety:- **VBCH 1006 BG (ACEBG)**

(4) Name of:

Family: Malvaceae
Genus: *Gossypium*
Species: *hirsutum*

Variety and common name: **New/hybrid/cotton**

(5) Parentage and geographical location of the variety:-
VBC 100141A, VBC 101318

(6) Details of the distinguishing features or the characteristics:-

For medium leaf hairiness and cream coloured pollen.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
NA.

Certificate of Registration No. 29 of 2013

(1) Registration Number and date of grant:- **29 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **VASUMATI (IET-15391)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
PR 109 x Pakistan Basmati 1

(6) Details of the distinguishing features or the characteristics:-

Absence of leaf pubescence of blade surface, strong spikelet density of pubescence of lemma, semi erect to spreading.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since November 2001.

Certificate of Registration No. 30 of 2013

(1) Registration Number and date of grant:- **30 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Bayer Bioscience Pvt. Ltd..,
8-1-39, Qutub Shahi Tombs Road
Tolichowki, Hyderabad-500008 (A.P.)

(3) Denomination of the variety:- **Proagro 9555 (MSH 167) (PB 727)**

(4) Name of:

Family: Poaceae
Genus: *Permisitum*
Species: *glaucum*

Variety and common name: **Extant/hybrid/pearl millter**

(5) Parentage and geographical location of the variety:-
1144F x M10129

(6) Details of the distinguishing features or the characteristics:-

Broad leaf blade width, presence of plant node pubescence, brown plant node pigmentation, green plant internode pigmentation, cylindrical spike shape, absence of spike tip sterility.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since January 2008.

Certificate of Registration No. 31 of 2013

(1) Registration Number and date of grant:- **31 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **KAUM -57-9-1-1 (K-16) (MO18 Karishma) IET 15095**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
MO1 x MO6 (Pavizam)

(6) Details of the distinguishing features or the characteristics:-

Weak leaf pubescence of blade surface, late time of heading, erect flag leaf attitude of blade, weak spikelet density of pubescence of lemma, very short stem length, horizontal flag leaf attitude of blade, semi straight panicle attitude of branches etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since September 2002.

Certificate of Registration No. 32 of 2013

(1) Registration Number and date of grant:- **32 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Indira Dhan-1 (IET-15376) (R636-405)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-

1) Suraksha 2) Madhuri

(6) Details of the distinguishing features or the characteristics:-

Strong leaf pubescence of blade surface, late time of heading, erect flag leaf attitude of blade, weak spikelet density of pubescence of lemma, short star length, medium panicle length of main axis etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.

Variety has been commercialized since February 2005.

Certificate of Registration No. 33 of 2013

(1) Registration Number and date of grant:- **33 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Vivek Dhan-154**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/hybrid/rice**

(5) Parentage and geographical location of the variety:-
VL Dhan-221 VL-24

(6) Details of the distinguishing features or the characteristics:-

Early time of heading, semi-erect attitude of flag leaf blade, strong spikelet density of pubescence of lemma, medium length of panicle main axis, yellowish spikelet colour tip of lemma, semi-erect attitude of panicle branches.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since April 2006.

Certificate of Registration No. 34 of 2013

(1) Registration Number and date of grant:- **34 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **VL Dhan 61 (IET-13485) (VL 89-1179)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
Jaya, Ta-Poo-cho-z

(6) Details of the distinguishing features or the characteristics:-

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(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since May 1998.

Certificate of Registration No. 35 of 2013

(1) Registration Number and date of grant:- **35 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **KAUM 42-6-3 (D1) (MO 16-UMA) IET-14758**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
MO 6 Pokkali

(6) Details of the distinguishing features or the characteristics:-

Weak leaf pubescence of blade surface, late time of heading, erect flag leaf attitude of blade, short panicle length of main axis, horizontal flag leaf attitude of blade, straight panicle curvature of main axis, yellowish spikelet colour of tip of lemma, semi erect to spreading panicle attitude of branches etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since September 2002.

Certificate of Registration No. 36 of 2013

(1) Registration Number and date of grant:- **36 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Neeraja (IET-11865)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/cotton**

(5) Parentage and geographical location of the variety:-
IR 20 x IR 5

(6) Details of the distinguishing features or the characteristics:-

Strong pubescence of leaf blade surface, weak density of pubescence of spikelet lemma, long length of stem, short length of panicle main axis, presence of panicle awns, spreading attitude of panicle branches well exerted panicle, straw colour of sterile lemma.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since September 2000.

Certificate of Registration No. 37 of 2013

(1) Registration Number and date of grant:- **37 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **VL Dhan-85 (IET-16455)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
HPU 799 VL 221

(6) Details of the distinguishing features or the characteristics:-

Absence of leaf pubescence of blade surface, early time of heading, strong spikelet density of pubescence of lemma, very short stem length, semi erect flag leaf attitude of blade.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since April 2006.

Certificate of Registration No. 38 of 2013

(1) Registration Number and date of grant:- **38 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Luit (TTB 127-216-2/IET-13622)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
Heera Annada

(6) Details of the distinguishing features or the characteristics:-

Absence of pubescence of leaf blade surface, semi erect attitude of flag leaf blade, strong density of pubescence spikelet of lemma, very short length of stem, short length of panicle main axis, horizontal attitude of flag leaf blade, semi straight curvature of panicle main axis.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since May 1998.

Certificate of Registration No. 39 of 2013

(1) Registration Number and date of grant:- **39 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Sugandhamati (IET-16775)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/Typical/rice**

(5) Parentage and geographical location of the variety:-

Pusa Basmati 1 x IET-12603

(6) Details of the distinguishing features or the characteristics:-

Strong leaf pubescence of blade surface, late time of heading, semi-erect attitude of flag leaf of blade, strong spikelet density of pubescence of lemma, very short stem length, long panicle length of main axis, mostly exerted panicle etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.

Variety has been commercialized since February 2005.

Certificate of Registration No. 40 of 2013

(1) Registration Number and date of grant:- **40 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Triguhna (IET-12875)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-

1) Swarnadhan 2) RP 1579-GMS 38

(6) Details of the distinguishing features or the characteristics:-

Absence of leaf pubescence of blade surface, medium time of weak density of pubescence of spikelet lemma, absence of anthocyanin colouration of apex of lemma, white colour of spikelet stigma, very short length of stem, semi-erect attitude of flag leaf blade, straightcurvature of panicle main axis etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.

Variety has been commercialized since May 1998.

Certificate of Registration No. 41 of 2013

(1) Registration Number and date of grant:- **41 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **CSR-13 (IET-10348)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-

1) **CSR-1 and CSR 5**
2) **Basmati 370**

(6) Details of the distinguishing features or the characteristics:-

Medium density of pubescence of spikelet lemma, horizontal attitude of flag leaf blade, semi straight curvature of panicle main axis, well exerted panicle, straw colour of sterile lemma, long length, narrow width and long slender shape of decorticated grain.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.

Variety has been commercialized since June 1999.

Certificate of Registration No. 42 of 2013

(1) Registration Number and date of grant:- **42 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **KAUM-20-19-4 (MO15-Remanika) (IET-13981)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
MO1

(6) Details of the distinguishing features or the characteristics:-

Strong pubescence of leaf blade surface, erect attitude of flag leaf blade, weak density of pubescence of spikelet of lemma, short length of stem, short length of panicle main axis, horizontal attitude of flag leaf blade, semi straight curvature of panicle main axis, brown colour of spikelet tip of lemma etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since November 2007.

Certificate of Registration No. 43 of 2013

(1) Registration Number and date of grant:- **43 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Dhanrasi (IET-15358)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-

1) **B 32 Sel 4 and Q.rufipogon**
2) **B 127**

(6) Details of the distinguishing features or the characteristics:-

Strong leaf pubescence of blade surface, very late time of heading, semi-erect flag leaf attitude of blade, medium spikelet density of pubescence of lemma, horizontal flag-leaf attitude of blade, straw sterile lemma etc .

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since March 2003.

Certificate of Registration No. 44 of 2013

(1) Registration Number and date of grant:- **44 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **KAUM-45-20-1 (D6) (MO17 Revathi) IET-15322**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-

1) Cul 12814 2) MO6

(6) Details of the distinguishing features or the characteristics:-

Green basal leaf sheath colour, very strong leaf pubescence of blade surface, medium time of heading, erect flag leaf attitude of blade, weak spikelet density of pubescence of lemma, weak lemma anthocyanin colouration of apex etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.

Variety has been commercialized since September 2002.

Certificate of Registration No. 45 of 2013

(1) Registration Number and date of grant:- **45 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Gouri (MO-20)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
MO 4 x Culture 25331

(6) Details of the distinguishing features or the characteristics:-

Strong leaf pubescence of blade surface, late time of heading, absence of lemma anthocyanin colouration of apex, white spikelet colour of stigma, short stem length, short panicle length of main axis, deflexed flag leaf attitude of blade etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since April 2006.

Certificate of Registration No. 46 of 2013

(1) Registration Number and date of grant:- **46 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **BR-2655**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/hybrid/rice**

(5) Parentage and geographical location of the variety:-

BR 10/ BR-4 BR7/ Paeghar 84-3

(6) Details of the distinguishing features or the characteristics:-

Late time of heading, semi erect flag leaf attitude of blade, weak spikelet density of pubescence of lemma, short stem length, horizontal flag leaf attitude of blade, semi straight panicle curvature of main axis, spreading panicle attitude of branches, well exerted panicle etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.

Variety has been commercialized since April 2006.

Certificate of Registration No. 47 of 2013

(1) Registration Number and date of grant:- **47 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **Jarava (IET-15420)**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-

B 32-Sel 4 Q rufipogon, B 29-6

(6) Details of the distinguishing features or the characteristics:-

Medium leaf pubescence of blade surface, medium spikelet density of pubescence of lemma, long panicle length of main axis, erect flag leaf attitude of blade, semi straight panicle curvature of main axis, mostly exerted panicle, straw sterile lemma colour, medium decorticated grain length etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.

Variety has been commercialized since November 2005.

Certificate of Registration No. 48 of 2013

(1) Registration Number and date of grant:- **27 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **KAUM 57-18-1-1 (K-18) (MO 19-Krishnanjana) IET-15096**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
MO1 x MO6 (Pavizam)

(6) Details of the distinguishing features or the characteristics:-

Strong leaf pubescence of blade surface, absent leaf auricle, erect flag leaf attitude of blade, short stem length, deflexed flag leaf attitude of blade, semi straight panicle attitude of branches, mostly exerted panicle, straw sterile lemma etc. yellowish spikelet colour of tip of lemma etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since September 2002.

Certificate of Registration No. 49 of 2013

(1) Registration Number and date of grant:- **49 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **KAUM 59-29-2-1-2 (GM-1) (MO13-Pavithra) IET-13983**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
Surekha x MO5 (Asha)

(6) Details of the distinguishing features or the characteristics:-

Medium leaf pubescence of leaf blade surface, semi erect attitude of flag leaf blade, short stem length, deflexed attitude of flag leaf blade, semi-straight curvature of panicle main axis, yellowish colour of spikelet tip of lemma, spreading attitude of panicle branches, straw colour of sterile lemma etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since September 2002.

Certificate of Registration No. 50 of 2013

(1) Registration Number and date of grant:- **50 of 2013 & 06/03/2013**

(2) Name and address of applicant or breeder in whose name the certificate has been issued or registered:-

Indian Council of Agricultural Research (ICAR),
Krishi Bhawan, New Delhi-110114

(3) Denomination of the variety:- **GR-9**

(4) Name of:

Family: Poaceae
Genus: *Oryza*
Species: *sativa*

Variety and common name: **Extant/typical/rice**

(5) Parentage and geographical location of the variety:-
Sethi-34-36 x CR-544-1-2

(6) Details of the distinguishing features or the characteristics:-

Green basal leaf sheath colour, absence of leaf pubescence of blade surface, colourless leaf anthocyanin auricle, early time of heading, semi erect flag leaf attitude of blade, weak lemma anthocyanin colouration of apex, light purple spikelet colour of stigma etc.

(7) In case of 'essentially derived variety', the details of the 'initial variety' from which the 'essentially derived variety' is claimed to have been derived:- **NA**

(8) Name and address of the contributor, nature and amount of the contribution or the community knowledge used in the development of the plant variety:- **NA**

(9) Terms and conditions of the agreement, if any, entered into between the breeder and contributor:- **NA**

(10) If the variety is sold or otherwise disposed of, details thereof.
Variety has been commercialized since February 2005.