

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

on

Orchid
(*Paphiopedilum* Pfitz.)



**Protection of Plant Varieties and Farmers' Rights Authority
(PPV & FRA)
Government of India**

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Orchid (*Paphiopedilum* Pfitz.)

I. Subject

These test guidelines apply to all vegetatively propagated species / varieties of *Paphiopedilum* Pfitz. of the family Orchidaceae.

II. Plant Material Required

1. The Protection of Plant Varieties and Farmers' Rights Authority (PPV & FRA) shall decide when, where and in what quantity and quality the plant material are required for testing of a variety denomination for registration under the Protection of Plant Varieties and Farmers' Rights (PPV & FR) Act, 2001. Applicants submitting such plant material from a country other than India shall make sure that all customs and quarantine requirements stipulated under relevant national legislations and regulations are complied with.
2. For all varieties, full grown 20 plants (10 for each Centre) shall be required for DUS testing.
3. The plant material supplied should be visibly healthy, not lacking in vigour nor affected by any insect-pests or diseases or mechanical damage.
4. Plant material shall not have undergone any chemical or bio-physical treatment unless the competent authority allow or request such treatment. If it has been treated, details of the treatment must be given.

III. Conduct of Test

1. The minimum duration of test should normally be two similar flowering seasons.
2. Test shall normally be conducted at two places. If any essential characteristic of the variety is not expressed for visual observations at these places, the variety shall be considered for further examination at another appropriate test site or under special test protocol on request of the applicant.
3. The test should be carried out under greenhouse conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.
4. The design of the test should be such that the plants or parts of the plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the flowering period. Each test should be designed to a result in total of at least 10 plants.
5. Unless otherwise indicated, all observations determined by measuring or counting should be made on 10 plants or parts taken from each of 10 plants.
6. Additional tests for special purposes may be established.
7. Normally, growth regulators shall not be used.

IV. Methods and Observations

1. The characteristics described in the Table of Characteristics (Section VII) shall be used for the testing of varieties for their DUS.
2. For the assessment of Distinctiveness and Stability, all observations shall be made on 10 plants or parts taken from each of 10 plants.
3. For the assessment of Uniformity, a population standard of 1% and an acceptance probability of at least 95% shall be applied. In the case of a sample size of 10 plants, the maximum number of off-types allowed would be 1.
4. All observations on the shoot shall be made on the flowering shoot.
5. All observations on the leaf shall be made on the longest leaf of a flowering shoot.
6. All observations on the inflorescence and the flower shall be made at the time when 50% of the flowers on the inflorescence have opened and on the most recently fully opened flower on the inflorescence before fading of colour.
7. All observations on the length and width of the flower and parts of the flower shall be made in the spread out position.
8. All observations on the colour of sepal, petal, lip and column shall be made on the inner side.
9. For the assessment of colour characteristics, the Royal Horticultural Society (RHS) colour chart shall be used.

V. Grouping of Varieties

1. The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctiveness is aided by the use of grouping characteristics.
2. Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctiveness; and (b) to organize the growing trial so that similar varieties are grouped together.
3. The following have been agreed as useful grouping characteristics:
 - a) Floral bract shape (Characteristic 17)
 - b) Flower width in front view (Characteristic 24)
 - c) Dorsal sepal colour pattern (Characteristic 33)
 - d) Synsepal width (Characteristic 36)
 - e) Synsepal main colour (Characteristic 39)
 - f) Petal orientation (Characteristic 49)
 - g) Lip colour pattern (Characteristic 60)

h) Column staminode size

(Characteristic 66)

VI. Characteristics and Symbols

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

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

(+) See explanations on the Table of Characteristics

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

QL: Qualitative characteristic

QN: Quantitative characteristic

PQ: Pseudo-qualitative characteristic

5. (a)-(e) see Section VIII for explanation
6. Type of assessment of characteristics indicated in column six of the Table of Characteristics are as follows:

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

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

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

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

VII. Table of Characteristics

Sl. No.	Characteristic	State	Note	Example Species /hybrids	Type of Assessment
1. QN (a)	Leaf number/flowering shoot	few (<3)	3		MS
		medium (3-6)	5	<i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paphiopedilum fairrieanum</i> , Pl x PW-29	
		many (more than 6)	7		
2. QN (a)	Leaf length (at flowering) (cm)	short (<10)	3	<i>Paph. insigne</i> , <i>Paphiopedilum fairrieanum</i>	MS
		medium (10-20)	5	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i>	
		long (> 20)	7	<i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , Pl x PW-29	
3. QN (a)	Leaf breadth (flowering shoot) (cm)	narrow (<2)	3	<i>Paphiopedilum fairrieanum</i>	MS
		medium (2-4)	5	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , Pl x PW-29	
		broad (> 4)	7		
4. (+) PQ (a)	Leaf shape	oblong	1	<i>Paph. concolor</i> , <i>Paph. spicerianum</i> , <i>Paphiopedilum fairrieanum</i>	VG
		elliptic	3	<i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , Pl x PW-29	
		obovate	5		
5. (+) PQ (a)	Leaf apex	obtuse	1		VG
		acute	3	<i>Paphiopedilum fairrieanum</i>	
		accuminate	5		
		forked	7	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , Pl x PW-29	
6. PQ	Leaf variegation	absent	1	<i>Paph. insigne</i> , <i>Paphiopedilum fairrieanum</i>	VG
		present	9	<i>Paph. concolor</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , Pl x PW-29	
7. QL	Leaf upper surface colour	uniform	1	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paphiopedilum fairrieanum</i>	VG
		mixed	3	<i>Paph. concolor</i> , <i>Paph. spicerianum</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> , <i>Paph.</i>	

				<i>lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
8. QL	Leaf lower surface colour (As per RHS colour chart)	green	1	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph.villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieianum</i> , <i>Pl x PW-29</i>	VG
		white	2		
		yellow	3		
		pink	4		
		red	5		
		brown	6	<i>Paph. venustum</i> ,	
		purple	7		
		blue	8		
	violet	9			
9. PQ (a)	Leaf margin	entire	1	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. venustum</i> , <i>Paph.villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	VG
		undulate	9	<i>Paphiopedilum fairrieianum</i>	
10. QN (b)	Inflorescence: number per season	solitary (one)	1	<i>Paph. concolor</i> , <i>Paph. spicerianum</i>	VS
		few (two)	3	<i>Paph. spicerianum</i> , <i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph.villosum</i> , <i>Paphiopedilum fairrieianum</i>	
		many (> two)	5	<i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
11. QN (b)	Inflorescence length (cm)	short (<10)	3	<i>Paph. concolor</i>	MS
		medium (10-20)	5	<i>Paph. spicerianum</i> , <i>Paphiopedilum fairrieianum</i>	
		long (>20)	7	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph.villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
12. QN	Peduncle length	short (<5)	1	<i>Paph. concolor</i>	MS
		medium (5-10)	3	<i>Paphiopedilum fairrieianum</i>	
		long (>10)	5	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph.villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
13. PQ	Peduncle pubescence	absent	1	<i>Paph. spicerianum</i>	VG
		present	9	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. concolor</i> , <i>Paph.villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieianum</i> , <i>Pl x PW-29</i>	
14. QL	Peduncle colour (As per RHS)	green	1	<i>Paph. concolor</i> , <i>Paph.villosum</i> , <i>Paphiopedilum fairrieianum</i>	VG

	colour chart)	white	2		
		yellow	3		
		pink	4		
		red	5		
		brown	6		
		purple	7	<i>Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph. venustum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		blue	8		
		violet	9		
15. QN (b)	Floral bract length (cm)	short (<2)	3	<i>Paph. hirsutissimum, Paphiopedilum fairrieianum</i>	MS
		medium (2-4)	5	<i>Paph insigne, Paph. concolor, Paph. spicerianum</i>	
		long (> 4)	7	<i>Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
16. QN (b)	Floral bract width (Spread out)(cm)	narrow (< 2)	3	<i>Paph. concolor, Paph. hirsutissimum, Paph. spicerianum, Paphiopedilum fairrieianum</i>	MS
		medium (2-4)	5	<i>Paph insigne, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		broad (> 4)	7		
17. (* (+ PQ (b)	Floral bract shape	broadly ovate	1	<i>Paph. concolor, Paph. spicerianum, Paph. venustum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	VG
		lanceolate	3		
		oblong	5	<i>Paph. hirsutissimum, Paph insigne, Paph.villosum, Paphiopedilum fairrieianum</i>	
18. PQ	Floral bract colour pattern	uniform	1	<i>Paphiopedilum fairrieianum</i>	VG
		mixed	2		
		spotted	3	<i>Paph. concolor. Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph. venustum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		blotched	4		

		shaded/striped	5		
		netted	6		
19. QL	Floral bract main colour (As per RHS colour chart)	green	1	<i>Paph. concolor, Paph insigne, Paph. spicerianum, Paph. venustum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	VG
		white	2		
		yellow	3		
		pink	4		
		red	5		
		brown	6		
		purple	7		
		blue	8		
		violet	9		
20. (*) QN	Floral bract number of colour	single	3	<i>Paphiopedilum fairrieianum</i>	MG
		two	5	<i>Paph insigne, Paph. hirsutissimum, Paph. spicerianum, Paph. venustum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		more than two	7	<i>Paph. concolor</i>	
21. PQ	Floral bract apex	obtuse	1	<i>Paph. hirsutissimum, Paph insigne,</i>	VG
		acute	3	<i>Paph. spicerianum, Paph. venustum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
		acuminate	5		
22. (*) PQ (b)	Flower number per inflorescence	solitary (single)	1	<i>Paph. concolor, Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	MS
		few (two)	3		
		many (> two)	5		
23. QN (c)	Flower Length (Tip of dorsal sepal to tip of	short (<5)	3		MS
		medium	5	<i>Paph. concolor, Paph. hirsutissimum,</i>	

	lip) (cm)	(5-10)		<i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paphiopedilum fairrieianum</i>	
		long (>10)	7	<i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
24. (* QN (c)	Flower width in front view (Tip distance of two lateral petals) (cm)	narrow (<8)	3	<i>Paph. concolor</i> , <i>Paph. villosum</i> , <i>Paphiopedilum fairrieianum</i>	MS
		medium (8-16)	5	<i>Paph. insigne</i> , <i>Paph. hirsutissimum</i> , <i>Paph. spicerianum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
		broad (>16)	7		
25. QN	Flower longevity on the plant (days)	short (<20)	3		VG
		medium (20-30)	5	<i>Paph. concolor</i> , <i>Paphiopedilum fairrieianum</i>	
		long (> 30)	7	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
26. QN (c)	Dorsal sepal length (cm)	short (<3)	3	<i>Paph. concolor</i>	MS
		medium (3-6)	5	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paphiopedilum fairrieianum</i>	
		long (> 6)	7	<i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
27. QN (c)	Dorsal sepal width (at middle) (cm)	narrow (<3)	1	<i>Paph. concolor</i>	MS
		medium (3-6)	3	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paphiopedilum fairrieianum</i>	
		broad (>6)	5	<i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
28. (+ PQ	Dorsal sepal shape	orbicular	1	<i>Paph. spicerianum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	VG
		semi-orbicular	3	<i>Paph. hirsutissimum</i> ,	
		ovate	5	<i>Paph. concolor</i> , <i>Paphiopedilum fairrieianum</i>	
		cordate	7	<i>Paph. venustum</i> ,	
		lanceolate	9		
29. PQ	Dorsal sepal apex	obtuse	1	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paphiopedilum fairrieianum</i> ,	VG
		acute	3	<i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
		acuminate	5	<i>Paph. venustum</i> ,	
30. (+ PQ	Dorsal sepal curvature	straight	1	<i>Paph. concolor</i>	VG
		incurved	3	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieianum</i> , <i>Pl x PW-29</i>	

		reflexed	5		
31. PQ	Dorsal sepal margin	entire	1	<i>Paph. spicerianum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	VG
		undulate	9	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. concolor</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> , <i>Paphiopedilum fairrieanum</i>	
32. (* QL	Dorsal sepal dominant colour (As per RHS colour chart)	green	1	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> ,	VG
		white	2	<i>Paph. spicerianum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieanum</i> , <i>Pl x PW-29</i>	
		pink	3		
		yellow	4	<i>Paph. concolor</i>	
		red	5		
		purple	6		
		blue	7		
		violet	8		
33. (* QL	Dorsal sepal colour pattern inside	uniform	1		VG
		mixed	2		
		spotted	3	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. concolor</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
		blotched	4		
		shaded /striped	5	<i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> , <i>Paphiopedilum fairrieanum</i>	
		netted	6	<i>Paph. hirsutissimum</i> , <i>Paph. villosum</i> ,	
34. QN	Dorsal sepal no of colour	single	1		VG
		two	3	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> ,	
		more than two	5	<i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieanum</i> , <i>Pl x PW-29</i>	
35. QN (c)	Synsepal length (cm)	short (< 3)	3	<i>Paph. concolor</i> , <i>Paphiopedilum fairrieanum</i>	MS
		medium (3-6)	5	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
		long (> 6)	7		
36. (* QN (c)	Synsepal width (cm)	narrow (< 2)	3	<i>Paph. concolor</i> , <i>Paphiopedilum fairrieanum</i>	MS
		medium (2-4)	5	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> ,	
		broad (> 4)	7	<i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
37. (* (+ PQ	Synsepal shape	orbicular	1		VG
		semi-orbicular	3		
		ovate	5	<i>Paph. concolor</i> , <i>Paph. hirsutissimum</i> ,	

				<i>Paph insigne, Paph. spicerianum, Paph. venustum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieatum, Pl x PW-29</i>	
		cordate	7		
		lanceolate	9		
38. PQ	Synsepal apex	obtuse	1	<i>Paph. concolor, Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieatum</i>	VG
		acute	3	<i>Paph. venustum, Paph.villosum,, Pl x PW-29</i>	
		acuminate	5		
39. (*) PQ (d)	Synsepal main colour (As per RHS colour chart)	green	1	<i>Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph. venustum, Paphiopedilum fairrieatum</i>	VG
		white	2		
		pink	3		
		yellow	4	<i>Paph. concolor, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		red	5		
		purple	6		
		blue	7		
		violet	8		
40. (*) PQ (d)	Synsepal colour pattern	uniform	1	<i>Paph. hirsutissimum, Paph. spicerianum</i>	VG
		mixed	2		
		spotted	3	<i>Paph. concolor, Paph insigne, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		blotched	4		
		shaded/striped	5	<i>Paph. venustum, Paphiopedilum fairrieatum</i>	
		netted	6		
41. QN (d)	Synsepal number of colour	single	1	<i>Paph. hirsutissimum, Paph. spicerianum</i>	VG
		two	3	<i>Paph insigne, Paph. venustum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		more than two	5	<i>Paph. concolor, Paphiopedilum fairrieatum</i>	
42. QN (c)	Petal length (cm)	short (<5)	3	<i>Paph. concolor, Paph. spicerianum, Paphiopedilum fairrieatum</i>	MG
		medium (5-10)	5	<i>Paph. hirsutissimum, Paph insigne, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		long (> 10)	7		
43. QN (c)	Petal width (at middle) (cm)	narrow (<2)	3	<i>Paph insigne, Paph. spicerianum, Paphiopedilum fairrieatum</i>	MS
		medium (2-4)	5	<i>Paph. concolor, Paph. hirsutissimum, Paph.villosum, Paph. lawrenceanum x</i>	

				<i>Paph. 'Winston Churchill', Pl x PW-29</i>	
		broad (>4)	7		
44. (+) PQ	Petal shape	sub-orbicular	1		VG
		ovate	3	<i>Paph. concolor</i>	
		oblong	5	<i>Paph. hirsutissimum, Paph. spicerianum, Paph. venustum, Pl x PW-29</i>	
		oblanceolate	7	<i>Paph. lawrenceanum x Paph. 'Winston Churchill'</i>	
		lanceolate	9	<i>Paphiopedilum fairrieianum</i>	
45. (*) (+) PQ	Petal curvature	straight	1	<i>Paph. insigne, Paph. hirsutissimum, Paph. villosum, Paph. spicerianum, Paph. venustum, Paph. lawrenceanum x Paph. 'Winston Churchill'</i>	VG
		incurved	3	<i>Paph. concolor, Pl x PW-29</i>	
		deflexed	5	<i>Paphiopedilum fairrieianum</i>	
46. PQ	Petal apex	obtuse	1	<i>Paph. concolor, Paph. hirsutissimum, Paph. insigne Paph. villosum,</i>	VG
		acute	3	<i>Paph. spicerianum, Paph. venustum, Paphiopedilum fairrieianum, Pl x PW-29</i>	
		acuminate	5		
47. PQ	Petal margin	entire	1	<i>Paph. concolor</i>	VG
		undulate	9	<i>Paph. hirsutissimum, Paph. insigne, Paph. spicerianum, Paph. venustum, Paph. villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
48. PQ	Petal pubescence at margin	absent	1		VG
		present	9	<i>Paph. concolor, Paph. hirsutissimum, Paph. insigne, Paph. spicerianum, Paph. venustum, Paph. villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
49. (*) (+) PQ	Petal orientation	horizontal	3	<i>Paph. hirsutissimum, Paph. insigne, Paph. spicerianum, Paph. venustum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	VG
		arching	5		
		drooping	7	<i>Paph. concolor, Paph. villosum, Paphiopedilum fairrieianum</i>	
50. (*) QL (d)	Petal predominant colour (As per RHS colour chart)	green	1	<i>Paph. spicerianum, Paphiopedilum fairrieianum, Pl x PW-29</i>	VG
		white	2		
		yellow	3	<i>Paph. concolor</i>	
		pink	4		
		red	5		
		purple	6	<i>Paph. hirsutissimum (red-purple) Paph. venustum, Paph. villosum (greyed-purple)</i>	

		blue	7		
		violet	8		
51. QL (d)	Petal colour (No.) inside	single	1		VG
		two	3	<i>Paph. concolor</i> , <i>Paph. insigne</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
		more than two	5	<i>Paph. hirsutissimum</i> , <i>Paph. venustum</i> , <i>Paphiopedilum fairrieianum</i>	
52. (* QL (d)	Petal colour pattern	uniform	1		VG
		mixed	3	<i>Paph. hirsutissimum</i> , <i>Paph. insigne</i> , <i>Paph. venustum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
		spotted	5	<i>Paph. concolor</i> , <i>Paph. spicerianum</i> ,	
		striped/ shaded	7	<i>Paphiopedilum fairrieianum</i>	
		netted	9	<i>Paph. villosum</i> ,	
53. QN (c)	Lip (pouch) length (cm)	short (< 3)	3		MS
		medium (3-6)	5	<i>Paph. concolor</i> , <i>Paph. insigne</i> , <i>Paph. hirsutissimum</i> , <i>Paph. spicerianum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieianum</i> , <i>Pl x PW-29</i>	
		long (> 6)	7		
54. QN (c)	Lip width (cm)	narrow (< 2)	1	<i>Paph. concolor</i> , <i>Paphiopedilum fairrieianum</i>	MG
		medium (2-4)	3	<i>Paph. spicerianum</i> , <i>Paph. insigne</i> , <i>Paph. hirsutissimum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Pl x PW-29</i>	
		broad (> 4)	5		
55. PQ	Lip shape	bowl	1	<i>Paph. concolor</i>	VG
		pitchers	3	<i>Paph. spicerianum</i> , <i>Paph. insigne</i> , <i>Paph. hirsutissimum</i> , <i>Paph. venustum</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieianum</i> , <i>Pl x PW-29</i>	
		others (specify)	5		
56. PQ	Lip front margin	truncate	1	<i>Paph. hirsutissimum</i> , <i>Paph. venustum</i> ,	VG
		acute	3	<i>Paph. concolor</i> , <i>Paph. insigne</i> , <i>Paph. villosum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieianum</i> , <i>Pl x PW-29</i>	
57. PQ	Lip orientation	vertical	1	<i>Paph. hirsutissimum</i> , <i>Paph. lawrenceanum</i> x <i>Paph. 'Winston Churchill'</i> , <i>Paphiopedilum fairrieianum</i> , <i>Pl x PW-29</i>	VG

		sub-horizontal	3	<i>Paph. concolor, Paph insigne, Paph. spicerianum, Paph. venustum,</i>	
		drooping	5	<i>Paph.villosum,</i>	
58. (* PQ	Lip lateral lobe shape	auricular	1	<i>Paph. hirsutissimum, Paph. spicerianum, Paph. venustum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	VG
		oblong	9	<i>Paph insigne, Paph.villosum, Paphiopedilum fairrieianum</i>	
59. QL (d)	Lip colour (Nos.)	single	1		VS
		two	3	<i>Paph. concolor, Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
		more than two	5	<i>Paph. venustum,</i>	
60. (* QL (d)	Lip colour pattern	uniform	1		VG
		mixed	3		
		spotted	5	<i>Paph. concolor, Paph. hirsutissimum, Paph. spicerianum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		striped/shaded	7	<i>Paphiopedilum fairrieianum</i>	
		netted	9	<i>Paph insigne, Paph. venustum, Paph.villosum,</i>	
61. PQ	Lip pubescence inside	absent	1	<i>Paph. concolor, Paph. spicerianum</i>	VG
		present	9	<i>Paph. hirsutissimum, Paph insigne, Paph. venustum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
62. QN (c)	Column length (cm)	short (< 1)	3	<i>Paph. concolor, Paph insigne, Paph. spicerianum, Paph.villosum, Paphiopedilum fairrieianum</i>	MS
		medium (1-2)	5	<i>Paph. hirsutissimum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		long (> 2)	7		
63. QN (c)	Column width(cm)	narrow (<0.5)	1	<i>Paph. concolor, Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph. villosum, Paphiopedilum fairrieianum</i>	MS
		medium (0.5-1)	3	<i>Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		broad (>1)	5		
64. QL (e)	Column main colour (As per RHS colour chart)	green	1	<i>Paph. hirsutissimum, Paph. spicerianum, Paph. venustum, Paphiopedilum fairrieianum</i>	VG
		white	2		
		yellow	3	<i>Paph. concolor, Paph insigne, Paph.villosum, Paph. lawrenceanum x</i>	

				<i>Paph. 'Winston Churchill', Pl x PW-29</i>	
		pink	4		
		red	5		
		brown	6		
		purple	7		
		blue	8		
65. (+) PQ	Column staminode tip	obtuse	1	<i>Paph. spicerianum,</i>	VG
		acute	3	<i>Paph. concolor, Paph.villosum, Paph insigne</i>	
		lobed	5	<i>Paph. venustum, Paphiopedilum fairrieianum</i>	
66. (*) (+) QN (c)	Column staminode size (cm ²): (length x breadth)	Broader than length	3	<i>Paph. concolor, Paph. spicerianum, Paph. venustum, Paphiopedilum fairrieianum</i>	VG
		breadth and length equal	5	<i>Paph. spicerianum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		longer than breadth	7	<i>Paph. hirsutissimum, Paph insigne, Paph.villosum</i>	
67. PQ	Column staminode shape	cordate	1	<i>Paph. concolor, Paph insigne, Paph. spicerianum, Paph. venustum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	VG
		ovate	3		
		polygonal	5		
68. PQ	Column staminode colour pattern	uniform	1	<i>Paph insigne, Paph. villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	VG
		mixed	2		
		spotted	3	<i>Paph. concolor, Paph. hirsutissimum</i>	
		blotched	4	<i>Paph. spicerianum</i>	
		shaded/ striped	5	<i>Paph. spicerianum</i>	
		netted	6	<i>Paph. venustum, Paphiopedilum fairrieianum</i>	
69. QL	Column staminode number of colour	single	1	<i>Paph insigne, Paph. villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	VG
		two	3	<i>Paph. concolor, Paph. venustum,</i>	
		more than two	5	<i>Paph. hirsutissimum, Paph. spicerianum, Paphiopedilum fairrieianum</i>	
70. PQ	Stigma stalked	non-distinct	1	<i>Paph. concolor, Paph. venustum,</i>	VG
		distinct	9	<i>Paph. hirsutissimum, Paph insigne, Paph. spicerianum, Paph.villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
71. PQ	Stigma shape	cordate	1	<i>Paph insigne, Paph. venustum, Paph.villosum</i>	VG
		orbicular	3	<i>Paph. concolor, Paph. hirsutissimum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum,</i>	

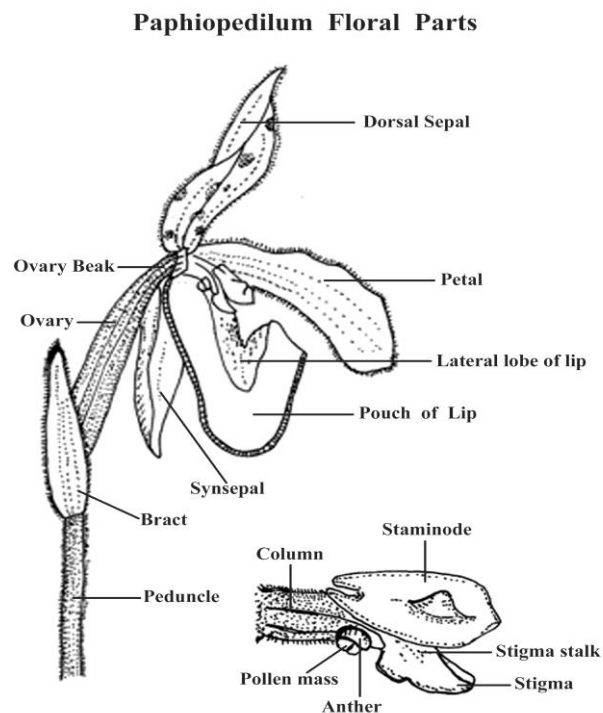
				<i>Pl x PW-29</i>	
		ovate	5		
		polygonal	7		
72. QL	Stigma colour pattern	uniform	1	<i>Paph. insigne, Paph. spicerianum, Paph. venustum, Paph. villosum</i>	VG
		mixed	2		
		spotted	3	<i>Paph. concolor, Paph. hirsutissimum</i>	
		blotched	4		
		striped/shaded	5	<i>Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
		netted	6		
73. QN (c)	Ovary with pedicel length (cm)	short (< 5)	3	<i>Paph. concolor, Paph. insigne, Paph. spicerianum, Paphiopedilum fairrieianum</i>	MS
		medium (5-10)	5	<i>Paph. hirsutissimum, Paph. villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Pl x PW-29</i>	
		long (>10)	7		
74. QL	Ovary with pedicel main colour	green	1	<i>Paph. concolor, Paph. venustum, Paph. villosum</i>	VG
		white	2		
		yellow	3		
		pink	4		
		red	5		
		brown	6		
		purple	7	<i>Paph. hirsutissimum, Paph. insigne, Paph. spicerianum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	
		blue	8		
75. PQ	Ovary with pedicel: pubescence nature	absent	1	<i>Paph. spicerianum</i>	VG
		villose	3	<i>Paph. villosum</i>	
		tomentose	5	<i>Paph. concolor, Paph. venustum</i>	
		hirsute	7	<i>Paph. hirsutissimum</i>	
		others	9		
76. QL	Ovary with pedicel: pubescence colour	green	1		VG
		white	2	<i>Paph. venustum, Paph. concolor</i>	
		yellow	3		
		pink	4	<i>Paph. villosum</i>	
		red	5		
		brown	6		
		purple	7	<i>Paph. hirsutissimum, Paph. insigne, Paphiopedilum fairrieianum</i>	
		blue	8		
77. PQ	Ovary with pedicel beaked	absent	1	<i>Paph. hirsutissimum, Paph. insigne, Paph. venustum,</i>	VG
		present	9	<i>Paph. concolor, Paph. spicerianum, Paph. villosum, Paph. lawrenceanum x Paph. 'Winston Churchill', Paphiopedilum fairrieianum, Pl x PW-29</i>	

VIII. Explanation on the Table of Characteristics

8.1 Guidelines for recording the observations of vegetative and flowering characteristics

Characteristics indicated with (a), (b), (c), (d) and (e) in the first column of the Table of Characteristics should be examined as indicated below:

- (a) Observations shall be made on the longest leaf of flowering plant.
- (b) Observations on the inflorescence and the flower shall be made at the time when 50% of the flowers on the inflorescence have opened and the most recently fully opened flower on the inflorescence before the color starts to fade.
- (c) Observations on the length and width of the flower and parts of the flower shall be made on the spread out positions.



- (d) Observations on the color of the sepal, the petal and the lip shall be made on inner side at apex, mid and base portion.
- (e) Observations on the colour of column shall be made on inner side at apex, mid and basal region.

8.2 Explanation for individual characteristics

Characteristics 4: Leaf shape



(1)

Oblong



(3)

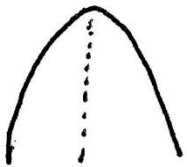
Elliptic



(5)

Obovate

Characteristics 5: Leaf apex



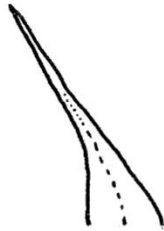
(1)

Obtuse



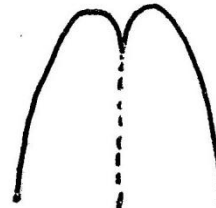
(3)

Acute



(5)

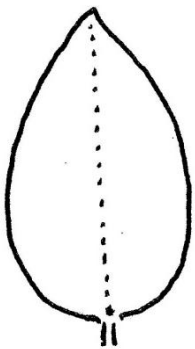
Acuminate



(7)

Forked

Characteristics 17: Floral bract shape



(1)

Broadly ovate



(3)

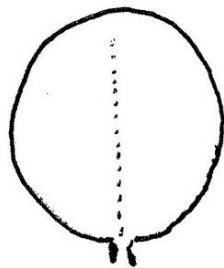
Lanceolate



(5)

Oblong

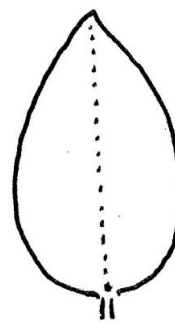
Characteristics 28 & 37: Dorsal sepal shape and Synsepal shape



(1)
Orbicular



(3)
Semi-Orbicular



(5)
Ovate



(7)
Cordate

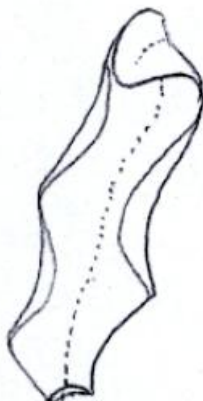


(9)
Lanceolate

Characteristics 30 & 45: Dorsal sepal and petal curvature



(1)
Straight



(3)
Incurved



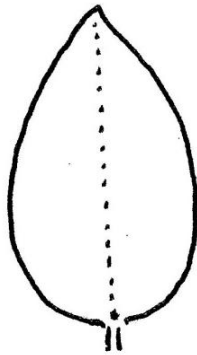
(5)
Reflexed

Characteristic 44: Petal shape



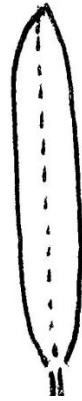
(1)

Sub-orbicular



(3)

Ovate



(5)

Oblong



(7)

Oblanceolate



(9)

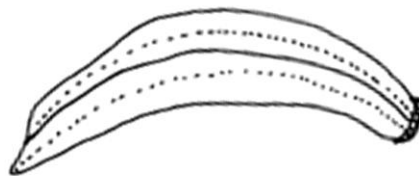
Lanceolate

Characteristic 49: Petal orientation



(3)

Horizontal



(5)

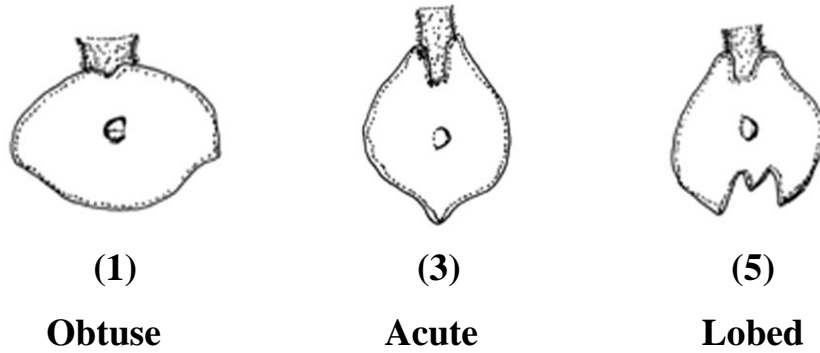
Arching



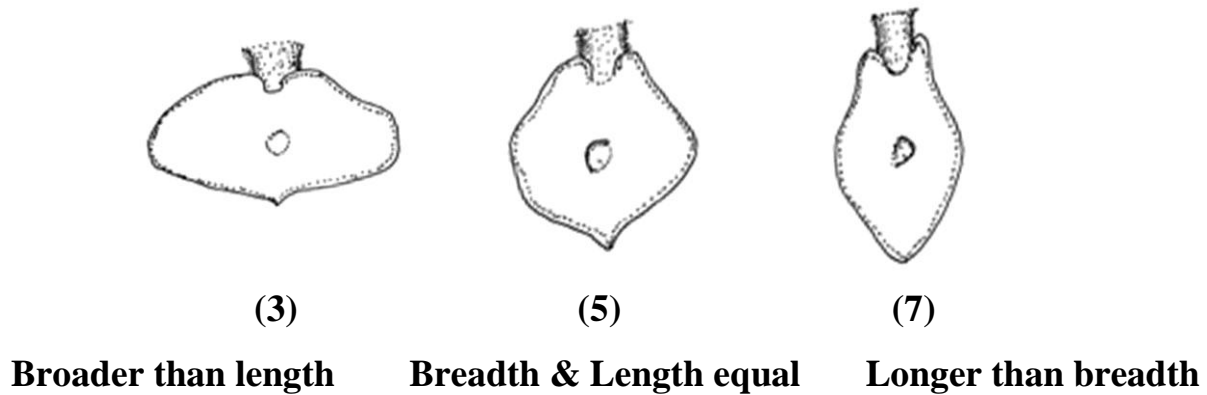
(7)

Drooping

Characteristic 65: Column staminode tip



Characteristic 66: Staminode size



IX. Literature:

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X. Working Group Details:

These test guidelines developed by the National Core Committee in consultation with the Nodal Officer, DUS Test Centre, ICAR-NRC for Orchids, Pakyong, Sikkim and Task Force (3/2012) constituted by the PPV & FR Authority.

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Dr. Ravi Prakash	Registrar (Farmers' Rights) PPV & FRA, NASC Complex, New Delhi	Member Secretary

IX. Name of DUS Test Centres

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