

UPOV

TG/VERBEN(proj.2)

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

VERBENA

(*Verbena* L.)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*to be considered by the
Technical Working Party for Ornamental Plants and Forest Trees
at its thirty-sixth session, to be held in
Niagara Falls, Canada, from September 22 to 26, 2003*

Alternative Names: *

<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Verbena</i> L.	Verbena, Vervain	Verveine	Verbene, Eisenkraut	Verbena

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants" (hereinafter referred to as the "General Introduction") and its associated "TGP" documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Verbena* L. of family Verbenaceae.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of plants of normal commercial standard, for vegetatively propagated varieties, or seed with a germination capacity of at least 50% for seed-propagated varieties.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

- vegetatively propagated varieties: 20 plants
- seed-propagated varieties: 5 gram seeds

2.4 In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

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

2.6 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.

3. Method of Examination

3.1 *Duration of Tests*

The minimum duration of tests should normally be a single growing cycle.

3.2 *Testing Place*

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be observed at that place, the variety may be tested at an additional place.

3.3 *Conditions for Conducting the Examination*

3.3.1 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, unless otherwise indicated, all observations should be made on fully grown, typical organs at the time of full flowering.

3.3.2 The following growing conditions are recommended:

- Sowing time: February
- Planting time: outdoors, April -May (Northern hemisphere)
- Planting distance: ca. 75cm (in the open field)
- Soil: well-drained
- Fertilizer: well-balanced

3.3.3 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 20 plants (vegetatively propagated varieties) or 100 plants (seed-propagated varieties).

3.4.2 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.

3.5 *Number of Plants/Parts of Plants to be Examined*

Unless otherwise indicated, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test.

3.6 *Additional Tests*

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 *General Recommendations*

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.2 Uniformity

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 Vegetatively propagated varieties: for the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, 1 off-type is allowed.

4.2.3 Seed-propagated varieties: the assessment of uniformity of seed-propagated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 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 distinctness is aided by the use of grouping characteristics.

5.2 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

othersuchcharacteristics:(a)toselectvarietiesofcommonknowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trials so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- (a) Plant: growth habit (characteristic 1)
- (b) Leaf: division of blade (characteristic 7)
- (c) Leaf: Blade: type of division (characteristic 8)
- (d) Corolla: number of colors (characteristic 24)
- (e) Corolla: main color (characteristic 27)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

6. Introduction to the Table of Characteristics

6.1 *Categories of Characteristics*

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 *States of Expression and Corresponding Notes*

States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.3 *Types of Expression*

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 *Example Varieties*

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 *Legend*

- (*) Asterisked characteristic –seeSection6.1.2
- (QL) Qualitativecharacteristic –seeSection6.3
- (QN) Quantitativecharacteristic –seeSection6.3
- (PQ) Pseudo-qualitativecharacteristic –seeSection6.3

- (a) SeeExplanationsontheTableofCharacteristicsinChapter8,Section8.1

- (+) SeeExplanationsontheTableofCharacteristicsinChapter8,Section8.2

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tablă de caractere

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1.	Plant: growth habit					
PQ	upright				Sunvivapa	1
	semi-upright				Sunmariba, Sunmaririho, Blancena	2
	creeping				Sunvop	3
2.	Plant: width just after the start of flowering					
QN	small				Kieversil	3
	medium				Sunvop, Sunver	5
	large				Wymena	7
3.	Stem: anthocyanin coloration (on middle third of an actively growing stem)					
QL	absent				Sunmaririho, Blancena	1
	present				Wymena	9
4.	Leaf: length of blade					
QN	short				Sunvop	3
	medium				Sunmaribisu	5
	long				Scarlēna	7
5.	Leaf: width of blade					
QN	narrow				Sunmaribisu	3
	medium				Wymena	5
	broad					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.	Leaf: shape of blade					
PQ	lanceolate				Wesverdank	1
	narrow elliptic					2
	elliptic				Kieversil	3
	ovate				LanPureye	4
	broad ovate					5
7.	Leaf: division of blade					
QL	absent				Sunmaribisu	1
	present				Sunvop	9
8. (+)	Leaf: Blade: type of division					
PQ	lobed				Balazplum	1
	divided					2
	dissected				Sunvop	3
9. (+)	Leaf: Blade: type of incision of margin					
PQ	crenate				Balazlavi, Sunvivaripi	1
	dentate				Sunmarisu	2
	serrate				Sunverb07	3
10.	Leaf: Blade: color of upper side					
PQ	yellowgreen					1
	lightgreen				Sunmaririho	2
	mediumgreen				Sunvop	3
	darkgreen				Wymena	4
	greygreen					5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11.	Leaf:blade: anthocyanin colouration on upper side					
QL	absent				Wymena	1
	present				Sunmarisu	9
12.	Leaf:blade: amount of anthocyanin colouration					
QN	weak					3
	medium					5
	strong					7
13.	Leaf:length of petiole					
QN	short				LanPureye	3
	medium				Scarlana	5
	long				Wymena	7
14.	Inflorescence: diameter					
QN	small					3
	medium				Blancena	5
	large				Scarlana	7
15.	Inflorescence: shape in profile					
(+)						
PQ	cylindrical					1
	broadovate				Wymena	2
	broadobovate				Sunmarisu	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16.	Flower: arrangement of corolla lobes					
QN	free				Scarlana	1
	touching				Sunmarisu, Blancena	2
	overlapping					3
17.	Flower: diameter of corolla					
QN	small				Sunvop	3
	medium				Sunmarisu, Blancena	5
	large				Scarlana	7
18.	Calyx: anthocyanin coloration					
QL	absent				Lobena, Kieversil	1
	present				Scarlana	9
19.	Calyx: distribution of anthocyanin coloration					
PQ	at the base					1
	upper part				Sunmarisa	2
	teeth only				Sunmaribusu	3
	entire calyx					4
20.	Corolla-tube: length					
QN	short				Balazpima	3
	medium				Sunvop, Kieversil	5
	long				Sunmariba, Sunmariribu	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21.	Corolla-tube: color of tip of protruding hairs					
PQ	white				Balazpima	1
	light green yellow				Sunmaribisu	2
	pink					3
	red					4
	purple				Sunvivabupan	5
	grey purple				Balazplum	6
	light grey				Sunmariribu	7
22.	Corolla: curvature of longitudinal axis					
QN	incurved				Sunvat	1
	absent				Sunmaririho	2
	recurved				Wymena, Blancena	3
23.	Corolla: undulation of lobes of margin					
QN	weak				LanPureye	3
	medium				Balazplum, Balazdapi	5
	strong					7
24.	(a) Corolla: number of colors					
QL	one				Sunmaribisu	1
	two				Kieverstar	2
	more than two					3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
25.	(a)	Corolla: color pattern				
PQ	even				Sunmaribisu	1
	shaded				Kieverstar	2
	star-shaped					3
	speckled					4
	speckled and striped				Kieversil	5
26.	(a)	Corolla: <u>Shaded varieties only</u> : distribution of color				
QL	lighter towards base					1
	lighter towards apex					2
27.	(a)	Corolla: main color				
PQ	RHS Colour Chart					
28.	(a)	Corolla: secondary color				
PQ	RHS Colour Chart					
29.		Corolla: eye				
QL	absent				Sunmarisu	1
	present				Spikena	9
30.		Corolla: diameter of eye				
QN	small				Sunmaririho	3
	medium				Spikena	5
	large				Sumverb09	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31.	(a)	Corolla: color of eye				
PQ	whitegreenish				Sunvivaripi	1
	greenyellow				Balazlavi, Vertis	2
	pink				Balazpima	3
	red				QuHa237V	4
	purple				Balazdapi	5
32.	(a)	Corolla: change of color with age				
QN	strongly fading					1
	weakly fading					2
	absent				Blancena, Lobena	3
	weakly intensifying					4
	strongly intensifying					5

8. ExplanationsontheTableofCharacteristics

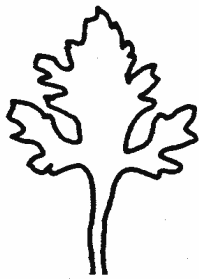
8.1 *Explanationscovingseveralcharacteristics*

Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

- (a) All observations concerning the flower color should be made on the upper side of the flower

8.2 *Explanationforindividualcharacteristics*

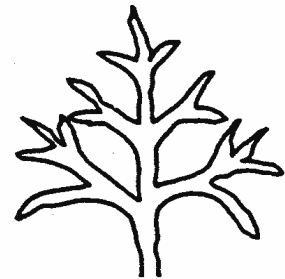
Ad.8:Leaf:Blade:typeofdivision



1
lobed



2
divided



3
dissected

Ad.9:Leaf:Blade:typeofincisionsofmargin



1
crenate



2
dentate



3
serrate

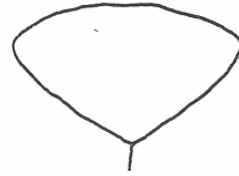
Ad.15:Inflorescence:shapeinprofile



1
Type1



2
Type2



3
Type3

9. Literature

10. TechnicalQuestionnaire

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
		Applicationdate: (nottobefilledinbytheapplicant)
TECHNICALQUESTIONNAIRE tobecompletedinconnectionwithanapplicationforplantbreeders'rights		
<p>1. SubjectoftheTechnicalQuestionnaire</p> <p>1.1 <i>LatinName</i> <input type="text" value="VerbenaL."/></p> <p>1.2 <i>CommonName</i> <input type="text" value="VERBENA,VERVAIN"/></p>		
<p>2. Applicant</p> <p>Name <input type="text"/></p> <p>Address <input type="text"/></p> <p>TelephoneNo. <input type="text"/></p> <p>FaxNo. <input type="text"/></p> <p>E-mailaddress <input type="text"/></p> <p>Breeder(ifdifferentfromapplicant) <input type="text"/></p>		
<p>3. Proposeddenominationandbreeder'sreference</p> <p>Proposeddenomination (ifavailable) <input type="text"/></p> <p>Breeder'sreference <input type="text"/></p>		

TECHNICALQUESTIONNAIRE	Page {x} of {y}	ReferenceNumber:
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4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

- (a) controlled cross
(please state parent varieties)
- (b) partially known cross
(please state known parent variety(ies))
- (c) totally unknown cross

4.1.2 Mutation
(please state parent variety)

4.1.3 Discovery
(please state where, when and how developed)

4.1.4 Other
(please provide details)]

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

- (a) cuttings
- (b) *in vitro* propagation
- (c) other (state method)

4.2.2 Seed

4.2.3 Other
(please provide details)

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the one which best corresponds).

Characteristics	Example Varieties	Note
5.1 Plant: growth habit (1)		
upright	Sunvivapa	1[]
semi-upright	Sunmariba, Sunmaririho, Blancena	2[]
creeping	Sunvop	3[]
5.2 Leaf: division of blade (7)		
absent	Sunmaribisu	1[]
present	Sunvop	9[]
5.3 Leaf: Blade: type of division (8)		
lobed	Balazplum	1[]
divided		2[]
dissected	Sunvop	3[]
5.4 Corolla: color pattern (25)		
even	Sunmribisu	1[]
shaded	Kieverstar	2[]
star-shaped		3[]
speckled		4[]
speckled and striped	Kieversil	5[]

TECHNICALQUESTIONNAIRE	Page {x} of {y}	ReferenceNumber:
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	Characteristics	ExampleVarieties	Note
5.5i (27)	Corolla:maincolor RHSColourChart		
5.6ii (27)	Corolla:maincolor		
	white		1[]
	yellow		2[]
	green		3[]
	orange		4[]
	lightpink		5[]
	pink		6[]
	red		7[]
	redpurple		8[]
	bluepurple		9[]
	lightpurple		10[]

6. Similarvarietiesanddifferencesfromthesevarieties

Please use the table, and space provided for comments, below to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Corolla:maincolor</i>	<i>lightpink</i>	<i>pink</i>

Comments:

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
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7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes No

(If yes, please provide details)

7.2 Special conditions for the examination of the variety

7.2.1 Are there any special conditions for growing the variety or conducting the examination?

Yes No

7.2.2 If yes, please give details:

7.3 Other information

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes No

(b) Has such authorization been obtained?

Yes No

If the answer to (b) is yes, please attach a copy of the authorization.

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
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9. Information on plant material to be examined.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 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 the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

- | | | |
|---|------------------------------|-----------------------------|
| (a) Microorganisms (e.g. virus, bacteria, phytoplasma) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| (b) Chemical treatment (e.g. growth retardant or pesticide) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| (c) Tissue culture | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| (d) Other factors | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

Please provide details of where you have indicated "yes".

.....

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant's name

Signature

Date

[End of document]