



Disclaimer: unless otherwise agreed by the Council of UPOV, only documents that have been adopted by the Council of UPOV and that have not been superseded can represent UPOV policies or guidance.

This document has been scanned from a paper copy and may have some discrepancies from the original document.

Avertissement: sauf si le Conseil de l'UPOV en décide autrement, seuls les documents adoptés par le Conseil de l'UPOV n'ayant pas été remplacés peuvent représenter les principes ou les orientations de l'UPOV.

Ce document a été numérisé à partir d'une copie papier et peut contenir des différences avec le document original.

Allgemeiner Haftungsausschluß: Sofern nicht anders vom Rat der UPOV vereinbart, geben nur Dokumente, die vom Rat der UPOV angenommen und nicht ersetzt wurden, Grundsätze oder eine Anleitung der UPOV wieder.

Dieses Dokument wurde von einer Papierkopie gescannt und könnte Abweichungen vom Originaldokument aufweisen.

Descargo de responsabilidad: salvo que el Consejo de la UPOV decida de otro modo, solo se considerarán documentos de políticas u orientaciones de la UPOV los que hayan sido aprobados por el Consejo de la UPOV y no hayan sido reemplazados.

Este documento ha sido escaneado a partir de una copia en papel y puede que existan divergencias en relación con el documento original.

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL COMMITTEE

Twenty-Third Session
Geneva, October 6 to 8, 1987

DISCUSSION PAPER ON STATES OF EXPRESSION AND
NOTES OF CERTAIN CHARACTERISTICS

Document prepared by the Office of UPOV

Introduction

1. At its twenty-third session held on October 6 and 7, 1987, the Technical Committee discussed the Notes for states of expression of certain virtually quantitative characteristics which in some cases had been given quantitative Notes and in other cases qualitative Notes, depending on the taxa for which Test Guidelines had been established.
2. After the discussions, the Technical Committee agreed in general that:
 - (i) The quantitative expression should be used as far as possible, especially in the case of characteristics for which the differentiation of states of expression was one-dimensional. This should also apply to most characteristics of shapes.
 - (ii) The qualitative expression should be used for quantitative characteristics only where intermediate states did not exist or—in the case of characteristics of shape—where the differentiation of states of expression was to have more than one dimension.
3. The following constitutes a discussion paper on this subject prepared by the Office of UPOV, at the request of the Technical Committee, for further discussion with a view to harmonizing the Notes for states of expression to be used in Test Guidelines (see paragraphs 21 and 22 of document TC/XXIII/6 Prov.).

Current practice

4. Current practice for giving Notes is governed by paragraphs 44 to 47 of the General Introduction to the Test Guidelines (document TG/1/2) which reads as follows:

"(c) Qualitative Characteristics

44. Qualitative characteristics as well as those of the quantitative characteristics which are handled in the same way as true qualitative characteristics are classified by consecutive numbers according to the state commencing with Note 1 and with no upper limit, for example:

Poplar: sex of plant

dioecious female	(1)
dioecious male	(2)
monoecious unisexual	(3)
monoecious hermaphrodite	(4)

As far as it is possible to build up an order for the expressions, the smaller, lesser or lower expressions should be assigned the lower Note."

"(d) Quantitative Characteristics

45. As a general rule, states are formed in such a way that, for the weak and strong expressions, a reasonable word pair is chosen, for example:

weak/strong
short/long
small/large

These word pairs are given the Notes 3 and 7 and the word "medium" is given the Note 5. The remaining states of the scale indicated by the Notes 1 to 9 are formed according to the following example:

<u>State</u>	<u>Note</u>
very weak	1
very weak to weak	2
weak	3
weak to medium	4
medium	5
medium to strong	6
strong	7
strong to very strong	8
very strong	9

46. The full scale (1 to 9) may be used, even if only some of the states (for example, only 1, 3, 5, 7, 9 or 3, 5, 7) have been indicated in the Test Guidelines for reasons of simplification.

47. In alternative observations, the state "absent" is coded by Note 1 and the state "present" by Note 9. If in a characteristic it is necessary to make a distinction between complete absence and different degrees of presence, the characteristic is split into one alternative characteristic with the states "absent (1)" and "present (9)" and in another quantitative characteristic with the Notes from 1 to 9. For those characteristics where it is not possible to make a distinction between "absent" and "very weak," the Note 1 received the meaning "absent or very weak" and then represents the first state in the scale 1 to 9 for quantitative characteristics."

5. In addition to the above-mentioned rules, the following could also be regarded as established practice:

For qualitative characteristics:

When the states of expression consist of or include whole numbers below 10, the same Notes should be used as the respective numbers.

Example:

	<u>Characteristic</u>	<u>States</u>	<u>Notes</u>
Ex. 5	ploidy	diploid	2
		tetraploid	4

For quantitative characteristics:

(i) Note "5" should represent the medium state within the whole range of variation;

(ii) extreme states should be given the Notes 1 and 9;

(iii) states of expression should be given symmetrically;

(iv) for measured characteristics, each step between Notes should be of the same size and the difference between 2 Notes should represent at least 1 LSD;

(v) larger Notes should represent higher values of varieties where the characteristic concerned is related to value.

Controversial Cases and a Proposed Solution

6. It is considered that controversial cases are related mainly to the demarcation between one-dimensional and multi-dimensional characteristics and to the existence of intermediate states. The following paragraphs show a possible solution to these problems, for each of which examples are given.

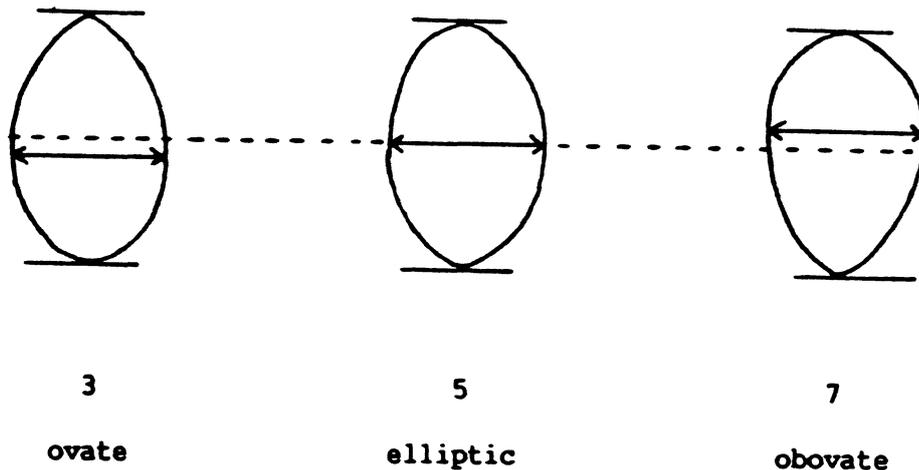
Controversial Cases with Respect to Dimensions

7. The following is clearly one-dimensional and should be provided with quantitative notes:

	<u>Characteristics</u>	<u>States</u>	<u>Notes</u>
Ex. 7.1	Shape	narrow elliptic elliptic broad elliptic	3 5 7
Ex. 7.2	Color	light green medium green dark green	3 5 7
Ex. 7.3	Attitude (Growth habit) (*1)	erect semi-erect horizontal	3 5 7

8. The following could be considered as one-dimensional in a broader sense and should be given quantitative Notes:

	<u>Characteristic</u>	<u>States</u>	<u>Notes</u>
Ex. 8.1	Shape (*2)	ovate elliptic obovate	3 5 7



(*1) In this case it should be remembered that the whole range of differentiation is limited to the states 3 to 7 as both the state "erect" and "horizontal" represent the extreme states (see also paragraph 13).

(*2) differentiation between the states of this characteristic is essentially the position of the greatest width. (See drawings)

9. The following is considered as multi-dimensional and asymmetrical and therefore should be given qualitative notes:

	<u>Characteristic</u>	<u>States</u>	<u>Notes</u>
Ex. 9.1	Shape	round elliptic ovate	1 2 3
Ex. 9.2	Color	light green dark green yellow green	1 2 3
Ex. 9.3	Attitude (Growth habit)	climbing erect spreading	1 2 3

Where intermediate states exist for the above-mentioned characteristics, these could be formulated, for example, as follows:

Ex. 9.4	Shape (cf. Ex. 9.1)	round round to elliptic elliptic elliptic to ovate ovate	1 2 3 4 5
Ex. 9.5	Attitude (cf. Ex. 9.3)	climbing slightly climbing erect slightly spreading spreading	1 2 3 4 5

Controversial Cases with Respect to the Existence of Intermediate States

10. The following cannot have any intermediate states and should, therefore, be given qualitative notes:

	<u>Characteristic</u>	<u>States</u>	<u>Notes</u>
Ex. 10	Embryony	mono-embryonic poly-embryonic	1 2

11. The following could have intermediate states, but for practical reasons (difficulty in measuring, shortening of time for assessment), intuitional assessment, using a limited number of states of expression and ignoring their intermediate states, is considered to be more reasonable:

	<u>Characteristic</u>	<u>States</u>	<u>Notes</u>
Ex. 11.1	Outer leaf: midrib in cross section	flat convex	1 2

Ex. 11.2	Fruit: shape of base	pointed	1
		rounded	2
		flattened	3
Ex. 11.3	Type of incision of margin	crenate	1
		serrate	2
		dentate	3
Ex. 11.4	Color	yellow	1
		green yellow	2
		yellow green	3
		green	4
Ex. 11.5	Type of flower	single	1
		double	2

In example 11.5, the state "semi-double" could exist, but, depending on the taxa, semi-double flowers could be allocated to the state "double." However, if it is thought more reasonable to classify the flower into three groups, this characteristic could read as follows:

Ex. 11.6	Type of flower	single	1
		semi-double	2
		double	3

12. In the following cases, the wording of the states automatically excludes any intermediate states:

	<u>Characteristics</u>	<u>States</u>	<u>Notes</u>
Ex. 12.1	Inflorescence: number of flowers	usually one	1
		one to three	2
		usually three	3
Ex. 12.2	Number	always one	1
		sometimes more than one	2
		always more than one	3
Ex. 12.3	Number	less than 7	1
		between 7 and 10	2
		more than 10	3
Ex. 12.4	Flower: length of fertile stamen in relation to style	shorter	1
		equal	2
		longer	3

The characteristic of example 12.4 could also have a quantitative set of states of expression as follows:

Ex. 12.5	Flower: length of fertile stamen in relation to style	much shorter	1
		shorter	3
		equal	5
		longer	7
		much longer	9

Ex. 12.6	Position of maximum width	toward blossom end	1
		at center	2
		toward stem end	3

The characteristic of example 12.6 could have the following quantitative set of states of expression:

Ex. 12.7	Position of maximum width	at blossom end	1
		at a quarter from blossom end	3
		at center	5
		at a quarter from stem end	7
		at stem end	9
Ex. 12.8	Distribution of stem colors	in dots	1
		in patches	2
		in dots and patches	3
Ex. 12.9	Color	only green	1
		green and purple	2
		only purple	3

Examples 12.8 and 12.9 indicate two possible orders of states. It will have to be decided whether the state with both other expressions combined should be placed in between the other states (Ex. 12.9) or at the end (Ex. 12.8).

Particular Difficulty in Keeping the Same Notes for the Same States of Expression

13. Although it is preferable to always give the same Note to the same states of expression, particularly where the characteristic is observed quantitatively, some characteristics, typically those concerning attitude, could be given different Notes for their states of expressions, depending on the possible range of differentiation, for example whether the whole range covers 180° or only 90° (horizontal being already the extreme).

For example:

	<u>Characteristics</u>	<u>States</u>	<u>Notes</u>
Ex. 7.3	Attitude (Growth habit)	erect	3
		semi-erect	5
		horizontal	7
Ex. 13.1	Attitude (growth habit)	erect	1
		semi-erect	3
		horizontal	5
Ex. 13.2	Attitude (growth habit)	erect	1
		semi-erect	3
		horizontal	5
		drooping	7
		strongly drooping	9

This kind of discrepancy (the state erect having in one case Note 1 and in the other Note 3) must be considered inevitable even if it appears in the same Test Guidelines document and thus Ex. 13.1 should not be applied.

Particular Difficulty in the Case of Continuous Characteristics of Which Only Three States can Actually be Separated

14. In the case of continuous characteristics which do not include an extreme state and of which the medium state reads "medium," Notes 4-5-6 could be given where only three states of expression can actually be separated.

	<u>Characteristics</u>	<u>States</u>	<u>Notes</u>
Ex. 14.1	Stem: thickness	thin to medium	4
		medium	5
		medium to thick	6

However, where specific wording is used to indicate the intermediate state, another rule should apply, as follows:

Ex. 14.2	Attitude	upwards	3
		horizontal	5
		downwards	7
Ex. 14.3	Attitude	upwards	1
		horizontal	2
		downwards	3

When the above-mentioned characteristic is presumed to have inbetween states like "semi-upwards" and "semi-downwards" which do not appear in the Table of Characteristics for reasons of simplification, Ex. 14.2 should be used and the characteristics should have the Notes 3-5-7 suggesting the existence of the Notes 4 and 6. However, when it is thought that only three states given here can actually be separated, Ex. 14.3 should be used and the characteristic should be given Notes 1-2-3 instead of Notes 4-5-6, as this case can be considered very similar to that of the intuitional observations mentioned in paragraph 11.

15. In the case of continuous characteristics which include at least one extreme state, a rule such as that applicable for Ex. 14.1 is not available as the extreme state must be given Note 1 (or 9). The following shows typical continuous characteristics with at least one extreme state of expression with their whole range (1-9).

	<u>Characteristics</u>	<u>States</u>	<u>Notes</u>
Ex. 15.1	Hairiness	absent or very weak	1
		weak	3
		medium	5
		strong	7
		very strong	9

Ex. 15.2	Curvature	flat or very slightly	
		convex	1
		slightly convex	3
		medium	5
		strongly convex	7
Ex. 15.3	Attitude (*3)	erect	1
		semi-erect	3
		intermediate	5
		semi-prostrate	7
		prostrate	9

16. A special difficulty arises if in the characteristics which include at least one extreme state (Ex. 15.1 to 15.3), only three states of expression can actually be separated. In most cases, this applies to a state "absent" combined with two degrees of presence or to two extremes with one intermediate state. Below are given several examples which in the past have, in most cases, been given the Notes 1-2-3. It has to be studied whether this practice can be continued in the light of the preceding information:

	<u>Characteristics</u>	<u>States</u>	<u>Notes</u>
Ex. 16.1	Hairiness (cf. Ex. 15.1)	absent	1
		slightly hairy	2
		strongly hairy	3
Ex. 16.2	Adherence	non-adherent	1
		semi-adherent	2
		fully adherent	3
Ex. 16.3	Curvature	straight	1
		slightly curved	2
		strongly curved	3
Ex. 16.4	Undulation	non undulate	1
		slightly undulate	2
		strongly undulate	3
Ex. 16.5	Presence	absent	1
		occasionally present	2
		always present	3
Ex. 16.6	Persistence	none	1
		partial	2
		total	3
Ex. 16.7	Distribution	uneven	1
		slightly uneven	2
		even	3

(*3) This example contains two extreme states. See also Ex. 7.3 and Ex. 16.8.

Ex. 16.8 Attitude	erect	1
(cf. Ex. 15.3)	intermediate	2
	prostrate	3

17. All members of the Technical Working Parties are invited to study the above-mentioned examples and to make comments and/or proposals in cases where they disagree with certain examples or would like to propose further solutions. The Technical Committee will study the examples, together with the expected comments and proposals at its next session in October 1988. In addition, the Office of UPOV is working on recommendations on the use of technical terms in UPOV Test Guidelines and on a much larger collection of examples than that given in the present document.

[End of document]