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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR FRUIT CROPS

Thirty-Ninth Session
Lisbon, June 2 to 6, 2008

REVISED ADDENDUM TO TGP DOCUMENTS:
CONCLUSIONS OF THE WORKSHOP ON
DOCUMENT TGP/14 SECTION 2, SUBSECTION 3 "COLOR"

Document prepared by the Office of the Union

1. The purpose of this document is to report on the conclusions of the workshop on document TGP/14 Section 2, Subsection 3 "Color" (TGP/14 Workshop), which was held on May 30 and 31, 2008, under the chairmanship of Mr. Ton Kwakkenbos (Community Plant Variety Office of the European Community (CPVO)). The list of participants is attached as Annex I to this document. A copy of the documents and information discussed at the Workshop can be found at *http://www.upov.int/restrict/en/twf/index_twf39.html*.

STRATEGIES FOR COLOR CHARACTERISTICS

2. The TGP/14 Workshop agreed that the most appropriate strategy for describing color would need to be considered on a characteristic-by-characteristic basis. The following are strategies which might be appropriate:

(a) Number of Colors

3. The TGP/14 Workshop concluded that the use of characteristics for "number of colors" should be avoided as the starting point for describing color distribution and patterns. Instead, it was agreed that the colors should first be described, followed by characteristics explaining the area, distribution, pattern etc. of each color

Example

1.1	**Petal: color 1**				
(+)					
	Option 1		~~*Option 2**~~		*Option 3*
PQ	green	1	~~UPOV Color Group~~	(1-50)	RHS Colour Chart
	yellow	2			
	red	3			
		etc	* option subsequently deleted		

4. The TGP/14 Workshop agreed that the following standard explanation should be included in the Test Guidelines when using this approach for describing color:

> "Ad. 1 (Option 1). The order of colors in Char. 1.1, 1.2 etc. should be according to the order in the states of expression (green, yellow etc.). The RHS Colour Chart should be used to allocate the color to the appropriate state. In some cases, it may be appropriate to create particular groupings of RHS Colour Chart refernces in the Test Guidelines."
>
> ~~"Ad. 1 (Option 2). The order of colors should follow the UPOV Color Group order"~~
>
> "Ad. 1 (Option 3). The order of colors should follow the RHS Colour Chart order."

- with the following paragraph added for all options above:

> "A photograph of the [relevant organ] should be provided in conjunction with the description in order to clarify the color pattern. However, a warning should be added to this photograph, explaining that the first intention is to represent the distribution of colors on flowers of the varieties more than the colors themselves. Such colors can be affected by the technology of the camera and the facilities used to display the photograph (printer, overhead projector, etc.)."

1.2	**Petal: color 2**				
(+)					
	Example 1		~~*Example 2*~~		*Example 3*
PQ	green	1	~~UPOV Color Group~~	(1-50)	RHS Colour Chart
	yellow	2			
	red etc.	3			

etc.

2.1	**Petal: area of color 1** (small/medium/large)
2.2	**Petal: area of color 2** (small/medium/large)
3.1	**Petal: distribution of color 1** (at margins etc..
3.2	**Petal: distribution of color 2** (at margins, at base etc..
4.1	**Petal: shape of color 1** (continuous base color (1), spots (2); stripes (3)
4.2	**Petal: shape of color 2** (continuous base color (1), spots (2); stripes (3)
5.1	**Petal: border of color 1** (clearly defined to slightly diffused (1); moderately diffused (2); strongly diffused or continuous (3))
5.2	**Petal: border of color 2**(clearly defined to slightly diffused (1); moderately diffused (2); strongly diffused or continuous (3))

(b) "Ground" / "Over" color

5. The TGP/14 Workshop agreed that for organs which have two independent layers of tissue containing color pigmentation (e.g. apple), the two layers could be described as follows:

GROUND COLOR: the color of the inner tissue layer, which in most cases develops first.

OVER COLOR: the color of the outer tissue layer, where this pigmentation is developed. In most cases this color appears after the ground color.

(c) "Main" Color

6. The TGP/14 Workshop concluded that the term "MAIN COLOR" should only be used where, for all varieties, there would always be a clearly identifiable main color, with a continuous distribution across the relevant organ, with other colors in the form of isolated spots, patches etc. e.g.

1. (+)	**Organ: main color**			
	Option 1		*Option 2*	
PQ	green	1	RHS Colour Chart	
	yellow	2		
	red	3		
		etc		

7. The TGP/14 Workshop agreed that the following standard explanation should be included in the Test Guidelines when using this approach for describing color:

"Ad. 1 The main color is the color which has a continuous dispersion across the surface of the organ; in general, it will also be the largest surface area."

- with the addition of the following paragraph if considered appropriate for the characteristic:

"A photograph of the [relevant organ] should be provided in conjunction with the description in order to clarify the color pattern. However, a warning should be added to this photograph, explaining that the first intention is to represent the distribution of colors on flowers of the varieties more than the colors themselves. Such colors can be affected by the technology of the camera and the facilities used to display the photograph (printer, overhead projector, etc.)."

Example 1

2. (+)	**Organ: color of spots**	
PQ	green	
	yellow	
	etc.	

Example 2

2. (+)	**Organ: form of secondary color**	
PQ	spots	
	spots and patches	
	patches	
	etc.	

8. The TGP/14 Workshop agreed that the scheme for determining color pattern terms, drafted by the experts from Japan, attached as Annex II to this document, should be included in TGP/14 with any necessary modifications.

(d) Color Change Over Time

9. The Workshop noted the need to consider how to describe different color transition stages. The proposal below was discussed, but it was agreed that further discussion would be required in relation to that proposal, in particular by the Technical Working Party for Vegetables (TWV) in relation to the Test Guidelines for Pepper.

1.	**Fruit: number of different colors over time:**	
QN	one	1
	two	2
	three	3
	four	4

2.	**Fruit: succession of colors (only for varieties with more than two colors)**	
PQ	green-yellow-red	1
	green-yellow-orange-red	2
	white-yellow-red	3
	white-yellow-orange-red	4
	yellow-orange-red	5

(e) Describing color patterns where those are in addition to the variegation in variegated varieties

10. The TGP/14 Workshop agreed on the following definition:

VARIEGATION: well defined areas of different colors, with less or no chlorophyll, especially as irregular patches or stripes on one organ.

11. The TGP/14 Workshop agreed that the following approaches might be used as appropriate on a case-by-case basis:

In cases where there are more colors than a main green color and a less green variegated part:

(a) exclude variegation from the general color pattern by defining variegation and indicating "(excluding variegation)" in the general pattern characteristics (where appropriate); or

(b) consider variegation within the general color pattern and indicate "(including variegation)"

(f) Consideration of whether pigments, such as anthocyanin, should be considered as a color

12. The TGP/14 Workshop proposed:

(a) to refer to "anthocyanin coloration" where the pigment is known to be anthocyanin;

(b) to refer to "red pigment" in cases where the red pigment is not known or is not anthocyanin; or

(c) to refer to the name of the pigment if known.

13. With regard to describing anthocyanin/red coloration, the TGP/14 Workshop agreed, on a case-by-case basis, to decide whether coloration should be:

(a) considered as a color pattern; or

(b) excluded from the pattern observations, by indicating, e.g. "(excluding anthocyanin)".

14. The TGP/14 Workshop agreed that TGP/14 should provide guidance on anthocyanin coloration characteristics, including: an explanation that, unlike other color characteristics, anthocyanin coloration is, in general, a quantitative characteristic; the possibility to describe intensity of anthocyanin coloration (weak, medium strong) and / or distribution of anthocyanin coloration; the importance of light intensity, position on plant, temperature etc. in observing anthocyanin coloration characteristics.

(f) "Conspicuousness"

15. The TGP/14 Workshop proposed that a characteristic for conspicuousness might be used where the individual factors could not be usefully described, e.g. for small organs (e.g. veins, hairs), or because they are not consistently expressed across the organ.

16. The TGP/14 Workshop agreed that an explanation of the meaning of "conspicuousness" in terms of the individual factors (e.g. color contrast, relative size etc.) should be provided.

(g) COLOR CHART

17. The TGP/14 Workshop noted that a new version of the RHS Colour Chart had been published and that it was understood that some color charts had been added in the new (2007) version. It agreed that document TGP/14, including Annexes I and II should be updated accordingly.

[Annexes follow]

ANNEX I

LIST OF TGP/14 WORKSHOP PARTICIPANTS

I. MEMBERS

AUSTRALIA

Nik HULSE

BRAZIL

Vera Lúcia DOS SANTOS MACHADO (Sra.)

BULGARIA

Filka Petrova GRIGOROVA (Mrs.)
Diliyan Rusev DIMITROV

CHINA

LU Xin (Ms.)
Hao TANG

EUROPEAN COMMUNITY

Antonius KWAKKENBOS (Chairman)
Sergio SEMON

GERMANY

Erik SCHULTE

JAPAN

Tomoaki MIURA
Kiyofumi NAKAMURA

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Sweetia P. RAMÍREZ-RAMÍREZ (Ms.)

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NEW ZEALAND

Christopher J. BARNABY

POLAND

Piotr LASKOWSKI
Jozef PERCZAK

PORTUGAL

Ana Paula CARVALHO (Mrs.)
Margarida ARMADA (Mrs.)
Teresa PAIS COELHO (Mrs.)
Anabela ROCHA (Mrs.)
Maria Fernanda VIANA LAMPREIA (Mrs.)
Zulmira GOMES (Mrs.)
João DIAS FERNANDES

REPUBLIC OF KOREA

JUN-YON Jang

SLOVAKIA

Bronislava BÁTOROVÁ (Mrs.)

SOUTH AFRICA

Carensa PETZER (Mrs.)
Mark SCHAFFNER

SPAIN

David CALVACHE QUESADA

UNITED KINGDOM

Elizabeth M.R. SCOTT (Miss)

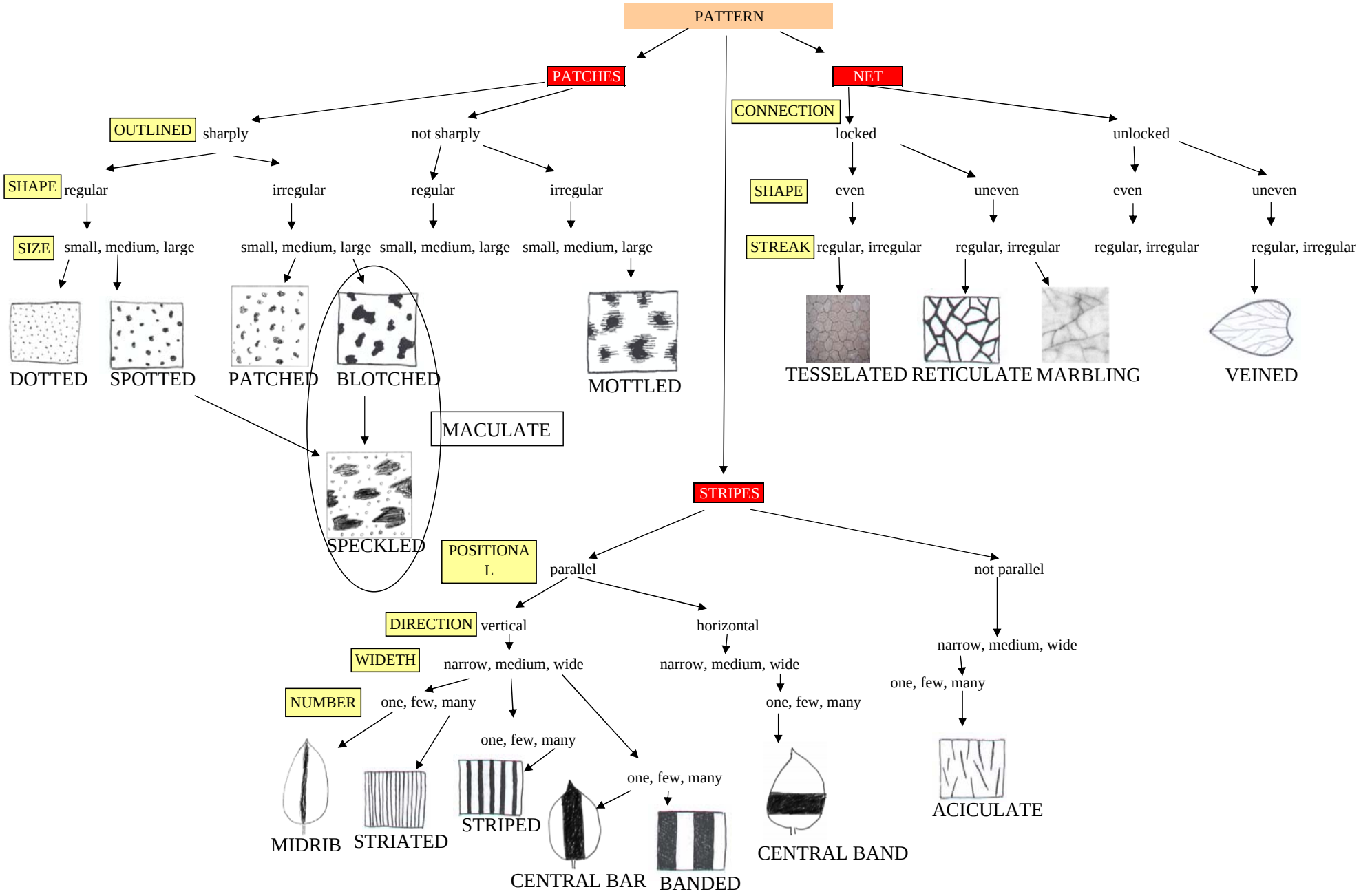
II. OFFICE OF UPOV

Peter BUTTON

[Annex II follows]

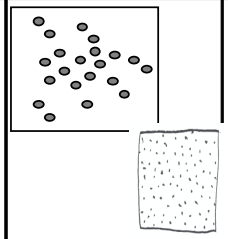
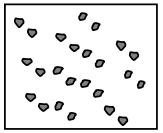
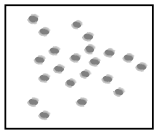
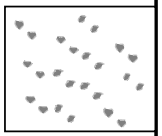
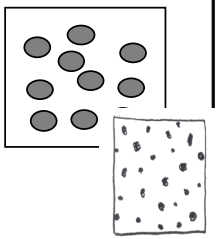
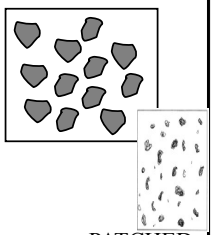
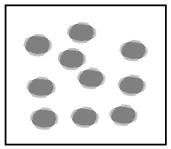
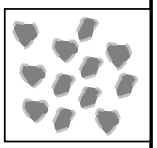
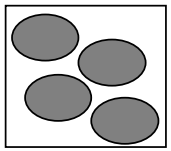
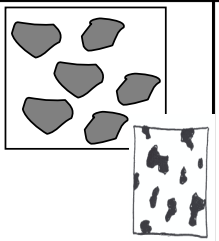
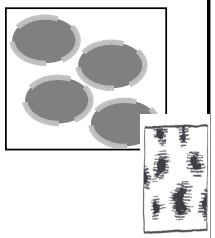
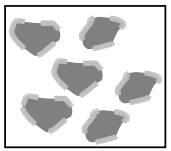
ANNEX II

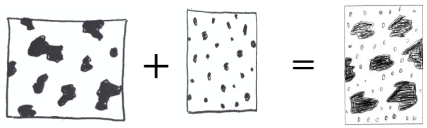
SCHEME FOR DETERMINING COLOR PATTERN TERMS



Annex 2

PATCHES	
outline	(sharply / not sharply)
shape	(regular / irregular)
size	(small / medium / large)

OUTLINED	sharply		not sharply	
SIZE＼SHAPE	regular	irregular	regular	irregular
small	 DOTTED			
medium	 SPOTTED	 PATCHED		
large		 BLOTCHED	 MOTTLED	

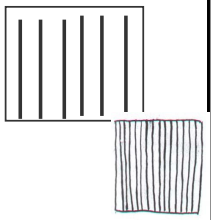
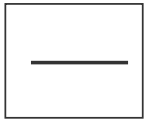
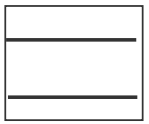
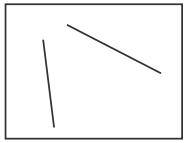
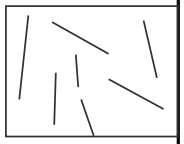
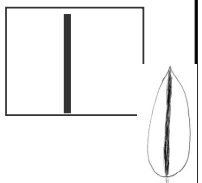
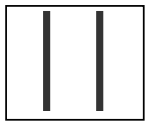
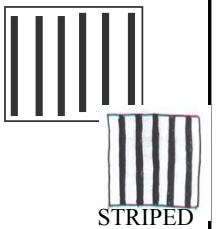
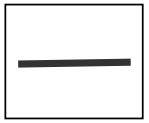
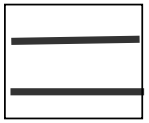
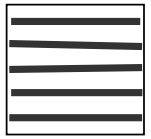
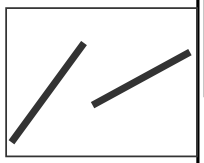
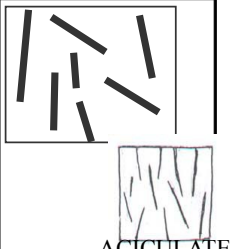
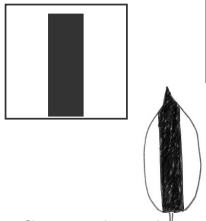
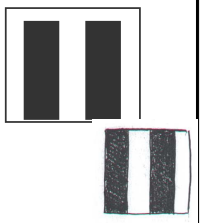
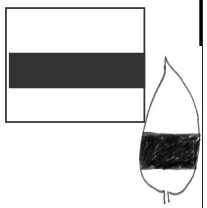
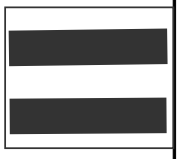
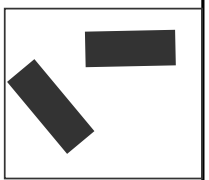
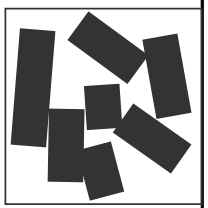


SPECKLED

Annex 3

STRIPES

positional relation (parallel / not parallel)
direction (vertical / horizontal)
width (narrow / medium / wide)
number (one / few / many)

position	parallel						not parallel	
direction	vertical			horizontal				
width \ number	one	few	many	one	few	many	few	many
narrow			 STRIATED					
medium	 MIDRIB		 STRIPED					 ACICULATE
wide	 CENTRAL BAR	 BANDED		 CENTRAL BAND				

Annex 4

NET

connection (locked / unlocked)

shape/grid (even/ uneven) / (regular / irregular)

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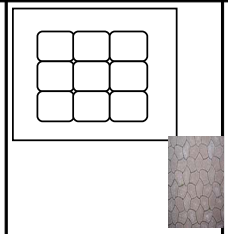
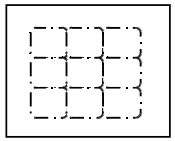
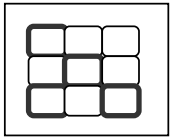
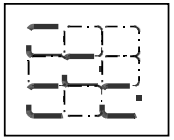
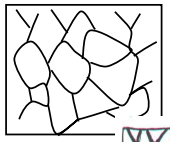
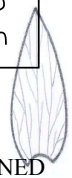
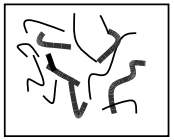
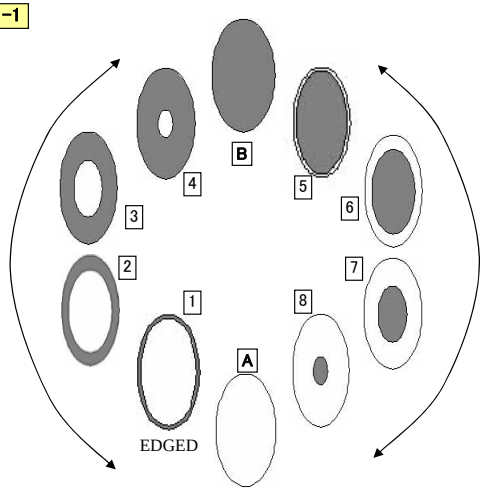
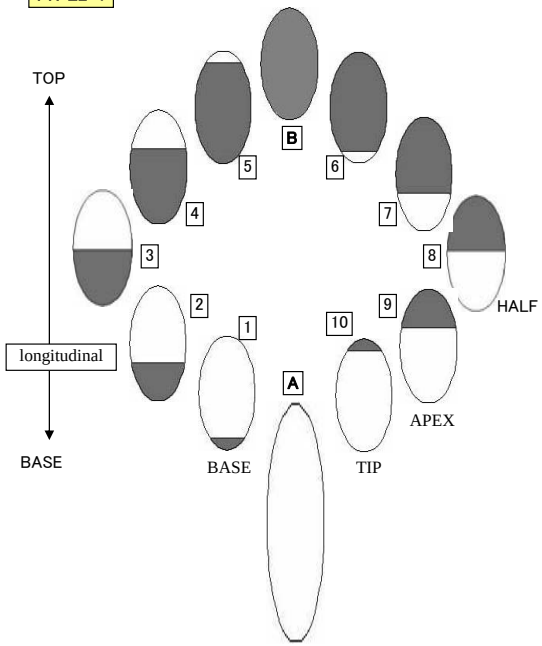
even	regular	 TESSELATED	
	irregular		
uneven	regular	  RETICULATE	  VEINED
	irregular	  MARBLING	

DISTRIBUTION

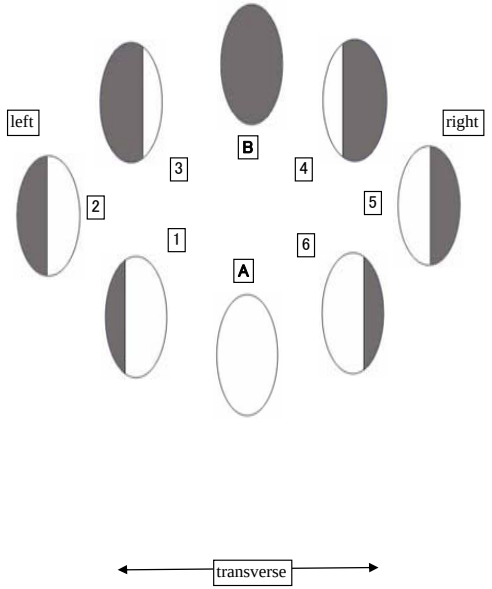
TYPE 1-1



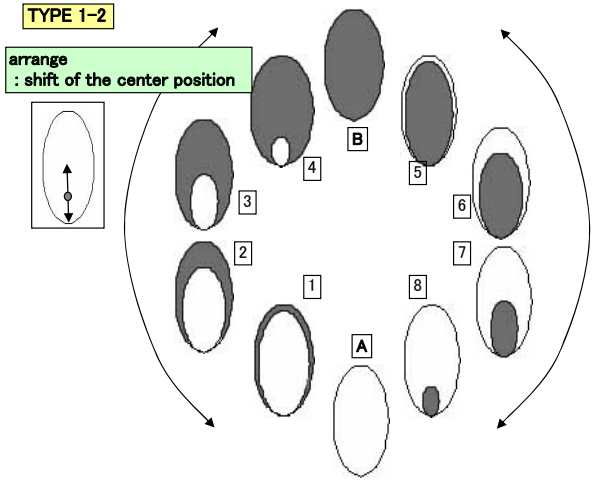
TYPE2-1



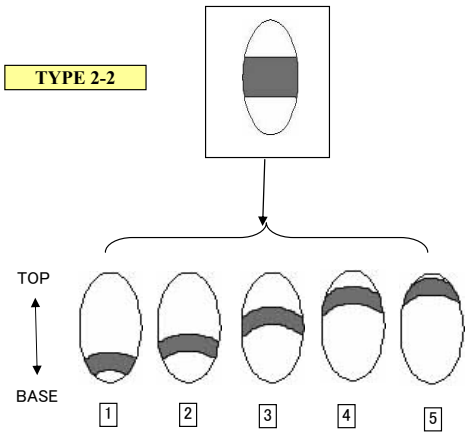
TYPE 3-1



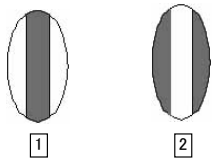
TYPE 1-2



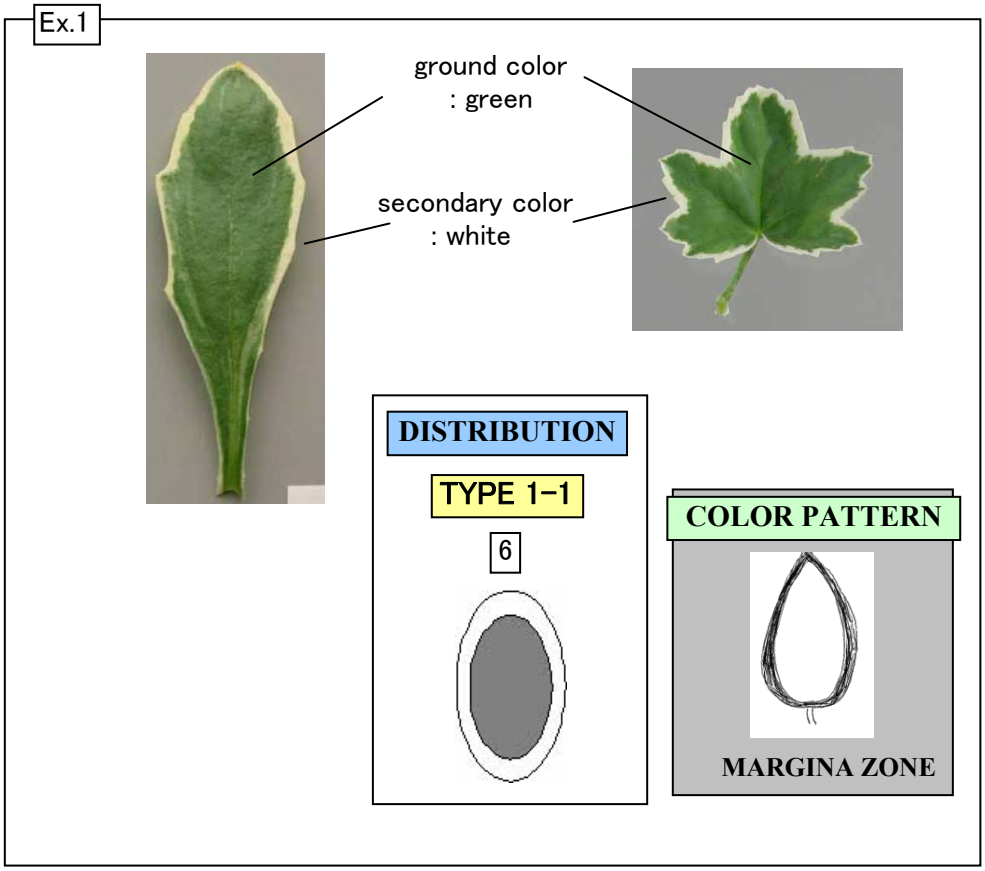
TYPE 2-2

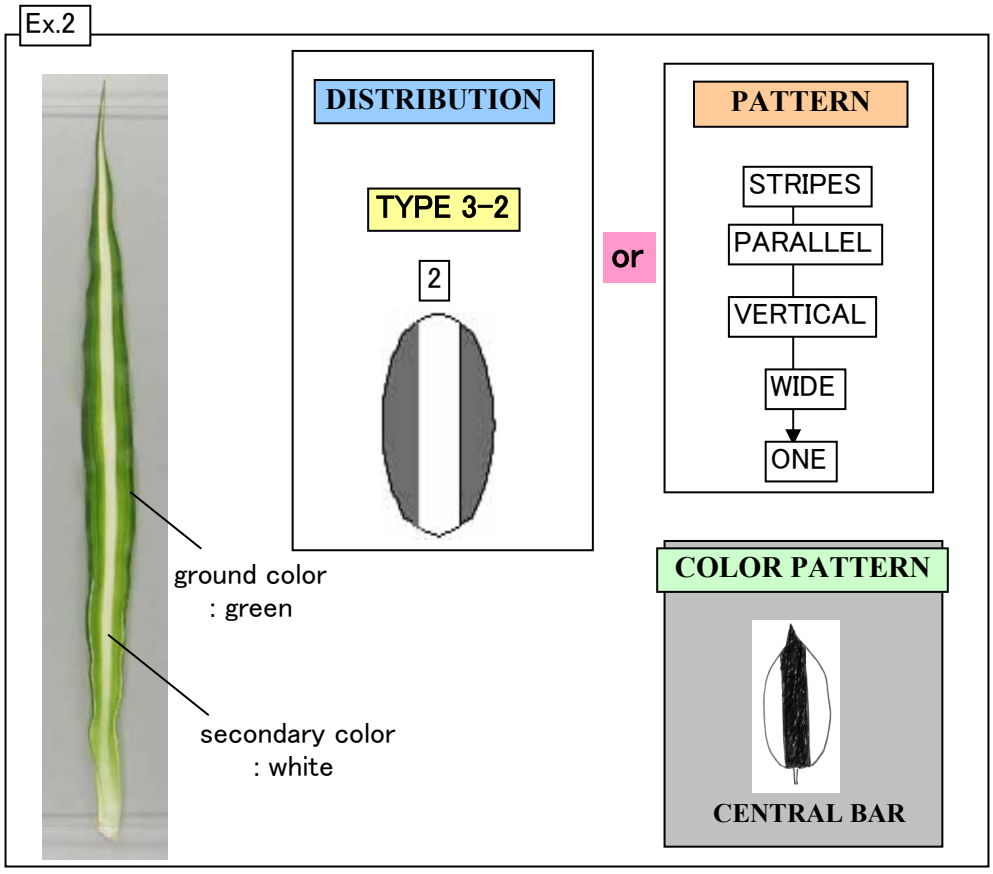


TYPE 3-2



EXAMPLE(LEAF)

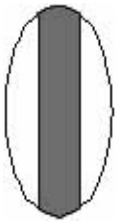




Ex.3

DISTRIBUTION

TYPE 3-2



1

or

PATTERN

STRIPES

PARALLEL

VERTICAL

MIDIUM

FEW

ground color
: green

secondary color
: white

Ex.4

PATTERN

PATCHES

SHARPLY

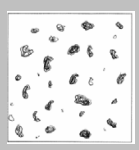
IRREGULAR

MEDIUM

ground color :
green

secondary color : white

COLOR PATTERN



PATCHED

Ex.5

ground color
: green

secondary color
: yellow

tertiary color : red

DISTRIBUTION

TYPE 1-2

3

plus

PATTERN

STRIPES

PARALLEL

VERTICAL

NARROW

ONE

MID RIB : red

COLOR PATTERN

MIDRIB

Ex.1 Stripe

take bloom to petal →

COLOR PATTERN

PICOTEE

DISTRIBUTION

TYPE 1-2

1

and

PATTERN

STRIPES
PARALLEL
VERTICAL
NARROW
MANY

Ex.2 Net

PATTERN

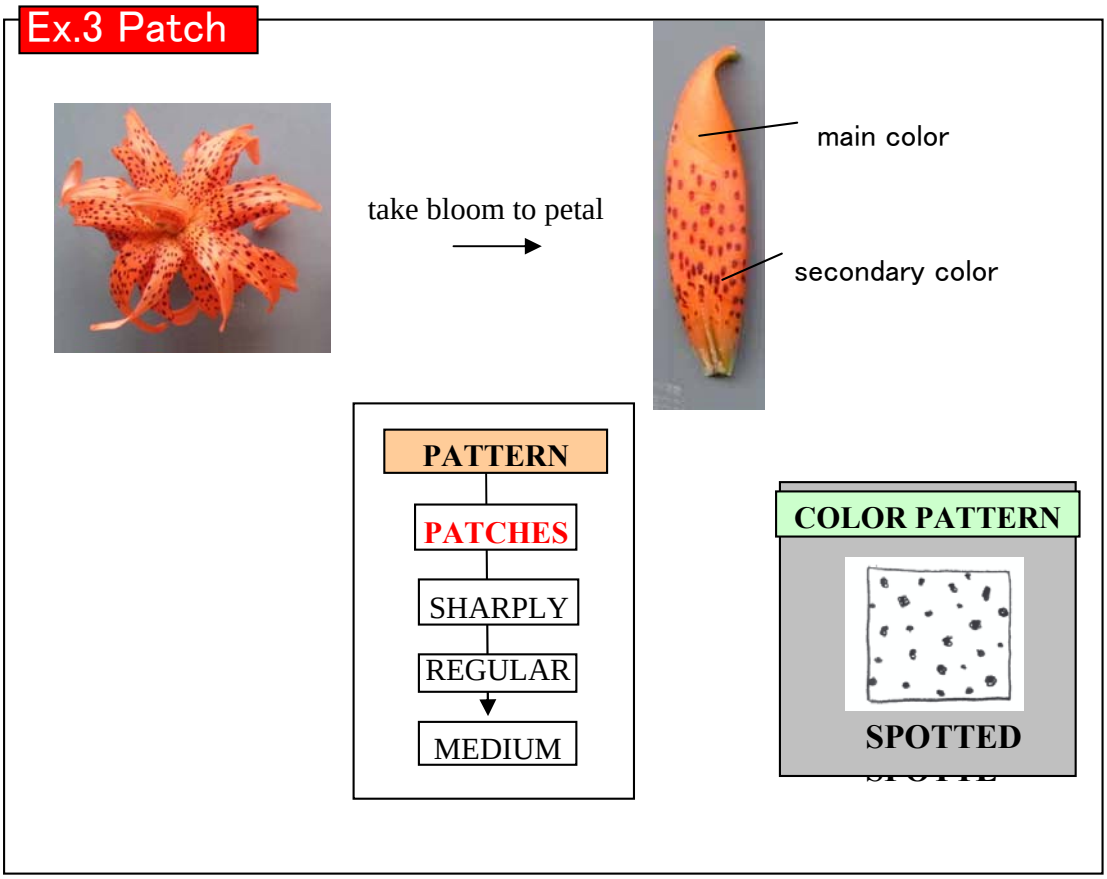
NET

LOCKED
UNEVEN
REGULAR

UNLOCKED
UNEVEN
REGULAR

COLOR PATTERN

VEINED



[End of Annex II and of document]