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DOCUMENT TGP/14: SECTIONS FOR SEPARATE DEVELOPMENT

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As explained in document TWF/40/3 “TGP documents”, this document contains information concerning document TGP/14, Section 2, Subsection 3 “Color”, which has been omitted from document TGP/14/1 in order to allow its separate development for inclusion in a future revision of document TGP/14. That information is provided as follows:

- Annex I: Section 2, Subsection 3 “Color”, omitted from document TGP/14/1 Draft 9;
- Appendix I: Allocation of UPOV Color Groups for each RHS Color in RHS Reference order
- Appendix II: RHS Colors contained in each UPOV Color Group
- Annex II: (a) conclusions of the Workshop on document TGP/14/1 Section 2, Subsection 3 “Color”; and
- Appendix: Scheme for Determining Color Pattern Terms
- (b) comments of the Technical Working Parties on document TGP/14/1 Draft 6 Section 2, Subsection 3 “Color” and on the conclusions of the Workshop on document TGP/14/1 Section 2, Subsection 3 “Color”.

[Annex I follows]

EXTRACT FROM DOCUMENT TGP/14/1 DRAFT 7
SECTION 2: BOTANICAL TERMS: SUBSECTION 3: “COLOR”

OMMITTED FROM DOCUMENT TGP/14/1 DRAFT 9
“GLOSSARY OF TECHNICAL, BOTANICAL AND STATISTICAL TERMS
USED IN UPOV DOCUMENTS”

Section 2: Botanical Terms

Subsection 3: Color

Note for Draft version

~~Strikethrough~~ (highlighted) indicates deletion from the text presented to the Technical Committee (TC) at its forty-fourth session

Underlining (highlighted) indicates insertion to the text presented to the TC at its forty-fourth session

highlighted text indicates text which cannot yet be completed

Footnotes will be retained in published document

Endnotes are for background information when considering this draft and will not appear in the final, published document

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Appendix I: Allocation of UPOV Color Groups for each RHS Color in RHS Reference order

Appendix II: RHS Colors contained in each UPOV Color Group

SUBSECTION 3: COLOR

(1) Color characteristics

PART I: INTRODUCTION

The purpose of this document is:

(a) To provide guidance on the development of characteristics related to colors and color patterns;

(b) To provide standard illustrations and examples in relation to colors and color patterns which may be useful for inclusion in the Test Guidelines, whilst noting that illustrations for specific characteristics can be found in the relevant Test Guidelines and noting that searches for relevant individual characteristics can be made through TGP/7 “Collection of Approved Characteristics”; and

(c) To provide definitions of botanical terms with an indication of whether those terms are generally used in Test Guidelines, or whether alternative terms might be more appropriate for use in Test Guidelines.

PART II: COLOR

1. Components of Color

1.1 Color is complex and can be defined in terms of 3 main elements: HUE (distinguishes the kind of color), SATURATION (the element of color that indicates the purity or grayness of the color) and the BRIGHTNESS (distinguishes the total amount of light that is reflected by the color, how the color is perceived by the eye on the dark to light scale). However for the purposes of UPOV Test Guidelines it is more practical to use a separation of 2 elements of color: COLOR and INTENSITY. The illustration below shows the 2 elements: COLOR in the horizontal cross section and INTENSITY in the vertical axis:



2. Development of Color Characteristics

2.1 Terms used for color

¹ 2.1.1 As explained in Section 1, for the purposes of UPOV Test Guidelines, it can be useful to consider color according to the following terms:

~~COLOR: HUE and SATURATION are, in general, combined in a single characteristic for color
(see 2.1.2 below)~~

~~INTENSITY (synonym: LIGHTNESS): (Inverse of BRIGHTNESS): indicates the amount of light that is absorbed by the color, indicated in a light to dark scale, e.g. light, medium, dark
(see 2.1.3 below)~~

2.1.2 There are various forms in which color may be presented as states of expression in the Test Guidelines:

(a) Simple color

e.g. yellow, red, green, blue etc. or

(b) Color combination

e.g. “green red”

in such combinations, the second color indicates the predominant color. For example “green red” belongs to the red group and “red green” belongs to the green group.

(c) Multiple color combinations (use of “-ish”)

in cases where there is a limited range of colors which are predominantly one color (e.g. yellow) or predominantly one color combination (e.g. yellow green), but which cover a minor presence of some other colors, the color can be described as, for example,

<i>yellowish</i> ,	covers all colors which are predominantly yellow (would include, for example, white yellow; brown yellow; orange yellow; etc.)
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<i>yellowish green</i>	covers all colors which are predominantly green with some yellow (would include, for example, white yellow green; brown yellow green; orange yellow green etc.)
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“Whitish” is synonymous with “off white”

¹ The TWO proposed that the definitions of the components of color should be deleted.

(d) Intensity

the intensity can be presented in combination with the color
e.g. light green, dark green etc.

(e) Color chart

Because of its worldwide availability, UPOV uses the color chart from the Royal Horticultural Society (RHS), the “RHS Colour Chart”. There are 4 editions of this color chart, dating from 1966, 1986, 1995 and 2001. Since 2005, the ‘RHS mini colour chart’ has also been published by the Flower Council Holland and is also frequently used by breeders. Some examination offices are still in the possession of a HCC colour chart of 1942 and use it beside the RHS Colour chart. Other color charts may also be appropriate.

Document TGP/7 “Development of Test Guidelines” (see ASW 4(2)(d)) explains that “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 D 6500 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.”. When it is not possible to make observations under artificial daylight, for example when observations have to be made in the open, observations should not be made in direct sunlight. The observations should be made on a cloudy day with sufficient light intensity, or in a shaded area. When artificial shading is needed in the open, it should be ensured that the color of the shading cloth does not interfere with the observations.

When using the RHS Colour Chart, the reference number of the RHS color, the color name and the edition of the chart should be mentioned in the variety description. A proposal for naming the colors has been made in document TGP/14.2.3.2 [*cross ref.*].

2.2 Developing characteristics

2.2.1 Type of expression

As explained in Section I, color is complex and can be defined in terms of 3 main elements: hue, saturation and brightness (intensity). Therefore, any characteristic which combines more than one of those elements is likely to constitute a pseudo-qualitative characteristic. However, in some cases it may be appropriate to consider one of the elements as a quantitative characteristic. For example, it is common for the intensity of green color to be considered as a quantitative characteristic, with the states light, medium and dark. Where there is a clear discontinuity between color states (e.g. white and red), a qualitative characteristic is indicated.

2.2.2 Order of states of expression

In the Test Guidelines, the states of expression for colors are normally presented in the following order: white, green, yellow, orange, pink, red, purple, violet, blue, brown, black.

(note: it is quite common to have the order white, yellow, green where only those colors occur). However, the chronological appearance of the color (e.g. as the fruit ripens) may also be used (see also documents TGP/14.2, Glossary of Botanical, Statistical and Terms Used in UPOV Documents: Botanical Terms [*cross ref.*]) where appropriate. The same sequence should normally be used for organs with similar states within the same Test Guidelines (e.g. color of leaf and color of the stem).

2.2.3 Color chart

It is not always necessary, or even possible, to make color observations with the help of a color chart. Some examples where the use of a color chart is less useful are:

- (a) in certain cases where the lightness of a color is observed (e.g. intensity of green color: light-medium-dark);
- (b) where the size of the color surface is very small;
- (c) where only limited, clearly separated, color expressions are present;
- (d) where other elements influence the observation of color (e.g. where the surface is covered with hairs or with a waxy layer);
- (e) where colors are blended;
- (f) where colors are not well represented on the color chart (e.g. greens, browns, dark shadows of some colors).

2.2.4 Examples

2.2.4.1 Qualitative characteristics

Stem: color: green (1); red (2)

2.2.4.2 Quantitative characteristics

Leaf: intensity of green color: light (3); medium (5); dark (7) (1 to 9 scale)

2.2.4.3 Pseudo-Qualitative characteristics

(i) Simple colors

Flower: main color: white (1); yellow (2); orange (3); red (4)

(ii) Simple colors / color combination

Flower: main color: white (1); yellow white (2); yellow (3); yellow orange (4); orange (5)

(iii) Simple colors / intensity

Flower: main color: white (1); light yellow (2); medium yellow (3); dark yellow (4); orange (5)

(iv) Multiple color combinations (use of “-ish”)

Spathe: color of apex: whitish (1); yellowish (2); greenish (3)

(v) Color chart

Flower: main color: RHS Colour Chart (indicate reference number)

=> description: RHS 11D – light yellow orange

(sometimes the color observed differs slightly from the RHS Colour Chart number. Therefore it may be necessary to refer to several RHS Colour Chart numbers and/or to add a comment to the observed RHS Colour Chart Number, e.g.:

*=> description: RHS 11D – light yellow orange, but slightly darker
=> description: RHS 11D to 19D – light yellow orange)*

2.3 Unsuitable color names

Color terms such as “beige”, “bronze”, “fuchsia”, “gold”, “ochre”, “salmon”, “silver”, etc. should not normally be used in the Test Guidelines because they could cause confusion concerning the intended color. Therefore, those terms should be replaced by standard colors (e.g. orange brown instead of bronze). However, where those terms are intended to cover a wide range of colors and where those colors do not overlap with the colors in any other states of expression, they could be used in the Test Guidelines. For example: the use of “salmon” to cover all colors between pink and brown, where the only other possible colors are white and green.

Example: Flower: Pistil: Main color: white (1); green (2); salmon (3)

Furthermore, gold and silver might be used in Test Guidelines where the color to be described contains a standard color in combination with other characteristics (like waxy layers). See also TGP/14.2.1 Glossiness [cross ref.].

2.4 Timing of observations

2.4.1 It is very important that all color observations on the different organs of the plant should be made at a clearly defined stage of development of the organ. Color expression of the organ might change, for example, during aging of the plant/organ or the time of the day.

2.4.2 In cases where the color of an organ, or part of an organ, changes during the development of the plant, it may be appropriate to have separate characteristics for the color at appropriate, clearly defined stages of development. In some cases, it may also be appropriate to have a characteristic which describes the rate at which the color changes.

Example for Anthurium where the color of the part of the Spadix changes after dehiscence of the anthers:

Spadix: Main color of distal part shortly before dehiscence of anthers

Spadix: Main color of distal part shortly after dehiscence of anthers

PART III: COLOR DISTRIBUTION / PATTERN

Note:

Part III of this document will be reviewed according to the outcome of the consideration of the conclusions of the workshop on document TGP/14 Section 2, Subsection 3 “Color”, as set out in documents TWF/39/3 Add., TWO/41/3 Add., TWV/42/3 Add. and TWA/37/3 Add.. The following comments have been made on those conclusions:

The TWF supported the proposals set out in document TWF/39/3 Add.. With regard to characteristics for color changes over time, it noted that that matter would be discussed at its next session in relation to Peach. It was also noted that any such characteristics would need to fulfill the UPOV requirements for a characteristic.

The TWF proposed that the example of anthocyanin coloration in the flesh of peach could be used to illustrate the need to consider both the intensity and distribution of anthocyanin coloration in some cases.

The TWO agreed to start using the proposals set out in document TWO/41/3 Add. in the preparation of draft Test Guidelines for 2009. It noted that it would be necessary to develop a new state of expression in color pattern characteristics to describe the area of color which was previously described as the “main” color, (e.g. continuous dispersion). It was also agreed that the example in 4.2 of document TWO/41/3 Add. should be amended to read “Petal: shape of color [1]/[2] area.

The TWO agreed that it would still be important to retain the possibility to have a characteristic for number of colors in order to have a simple overall characteristic, but which was not used as the starting point to describe color pattern. It also agreed that it would be important to retain the option, where appropriate, to describe the color pattern by describing colors in specified parts of the plants (e.g. color of margin, color of basal zone etc.).

With regard to anthocyanin coloration, it was agreed that an example of characteristics should be included in TGP/14.

In order to develop and test the approach to color characteristics proposed in document TWO/41/3 Add., the TWO agreed to have an exercise on color in Alstroemeria, Canna and Phalaenopsis to see if characteristics based on that approach would be more effective than the traditional approach. The TWO agreed that the European Community should coordinate a subgroup to develop proposals for an exercise to be conducted by the TWO, in which the two approaches would be evaluated. The experts present at the session, from Australia, France, Germany, Japan, Mexico, Netherlands (Kees Grashoff), New Zealand, United Kingdom and the Office of the Union agreed to participate in the subgroup. The first draft of characteristics, to be prepared by the European Community according to the proposed new approach, would be circulated to the subgroup for comment by October 31, 2008, with 4 weeks for comments. On

the basis of the comments, a new draft would be prepared by the European Community and checked by the subgroup. A circular presenting the exercise would be sent by the Office of the Union to the TWO by the end of February 2008, with 6 weeks for completion. The completed exercises by the TWO experts would be sent to the European Community, with a copy to the Office of the Union. The European Community would then prepare a TWO document, containing the compiled results of the exercise, 6 weeks before the forty-second session of the TWO.

The TWV agreed that consideration should be given to including “flecking” as a color pattern in the scheme in the annex to document TWV/42/3 Add..

With regard to document TWV/42/3 Add., “(d) Color Change Over Time”, the TWV agreed that characteristic 2 “Fruit: succession of colors” should be considered as a possible option for consideration in relation to relevant Test Guidelines.

The TWA proposed to include guidance on characteristics and states of expression for green color and, in particular, to avoid the creation of a separate characteristic for intensity of particular hues of green (c.f. draft Test Guidelines for Pea (document TG/7/10(proj.5): Chars. 7 and 8)

1. Terms used for color distribution

The following sets of terms can be used to describe the distribution of color

1.1 Main/Secondary/Tertiary Color

(a) **MAIN COLOR:** color of the largest area of the (part of the) organ.

(b) **SECONDARY COLOR:** when more than one color is present, the color of the second largest area of the (part of the) organ is the secondary color..

(c) **TERTIARY COLOR:** when more than two colors are present, the third largest area is the tertiary color.

1.2 Ground/Over Color

(a) **GROUND COLOR:** The first color to appear chronologically during the development of the organ and upon which other colors will develop in time in the form of spots, a macule, or a color flush or blush. It is not always necessarily the largest area of the (part of the) organ concerned.

(b) **OVER COLOR:** In the case of an organ which has a ground color with a second color developing over time, usually in the form of a flush, which is not very sharply bordered, this flush is called the over color. It is not always necessarily the smallest area of the (part of the) organ concerned.

1.3 Variegation

VARIEGATION: well defined areas of different colors, especially as irregular patches or stripes on one organ.

1.4 One-/Self-/Bi-Colored

(a) ONE-COLORED: where the organ has only one color hue, but the color varies in intensity and/or saturation. There may be clear borders between the different color intensities and/or saturations, or they may be overlaid, partially blended or in the form of a pattern.

(b) SELF-COLORED (synonym SHADED): a particular case of a one-colored organ where there are no clear borders between the different intensities and/or saturations. The term is only necessary where there are both types of one-colored varieties for a characteristic, e.g. one-colored / self-colored (state 1); one-colored / non self-colored (state 2); bicolored (state 3).

(c) BICOLORED: where an organ has two clearly different color hues. There may be clear borders between the two color hues, or they may be overlaid, partially blended or in the form of a pattern.

2. Terms used for Color Patterns

2.1 Flush/Blush

(a) FLUSH: different color hue as a thin layer over the ground color of a surface

(b) BLUSH: special case of FLUSH where the color of the layer over the ground color of the surface is reddish, pinkish or purplish.

2.2 Spotted/Dotted/Patched/Blotched/Speckled/Mottled

(a) SPOTTED: with other color as sharply outlined spots (round or nearly round contour). Compare to “dotted”, where the spots are smaller;

(b) DOTTED: finely spotted, if made with a pen. Compare to “spotted”, where the spots are larger and “patched”, where the spots are irregular;

(c) PATCHED: with small irregular spots that have another color. Compare to “dotted”, “spotted” and “blotched”;

(d) BLOTCHED (synonym: MACULATE with large spots): with sharply outlined irregular large spots. Compare to “spotted”, where the spots are regular, “mottled”, where the blotches are not sharply outlined and “speckled” where the spots are irregular, but smaller;

(e) SPECKLED (MACULATE with small spots): with many small spots, patches (irregular contour) or flecks (irregular spot, usually longer than broad)

(f) MOTTLED: with other color as blotches which are not sharply outlined. Compare to “spotted” and “blotched”, which are sharply outlined and to “blotched” where the spots are irregular, but larger.

(g) MACULATE: term covering both blotched and speckled.

2.3 Veined/Midrib

(a) VEINED: different color of veins compared to the rest of the organ.

(b) MIDRIB: with other color on or around the central vein (synonym MAIN VEIN for monocotyledonous plants). Compare to “central bar” where the zone with another color is broader.

2.4 On Margin/Picotee/Marginal Zone

(a) ON MARGIN (synonym: EDGED): different color around the margin of an organ. Compare to “marginal zone” where the zone with another color is broader.

(b) PICOTEE: flower characteristic, special form of EDGED with color pattern of margin on a flower, where the margin is narrow and has a different, contrasting, color.

(c) MARGINAL ZONE: with another color on the marginal zone (see also ON MARGIN/EDGED and PICOTEE). Compare to “on margin/edged” where the zone with another color is narrower.

2.5 Striped/Striated/Aciculate/Banded/Central Band/Central Bar

(a) SPECKLED (maculate): with many small spots, patches (irregular contour) or flecks (irregular spot, usually longer than broad)

(b) STRIATED: finely striped: with another color as fine, more or less parallel stripes.

(c) ACICULATE: with another color as fine, straight stripes, lying in different directions.

(d) BANDED: broadly striped: with another color as broad, more or less parallel stripes. Compare to “striped” (narrower) and “striae” (much finer).

(e) CENTRAL BAND: with another color as a horizontal band at the central part of the organ. Compare to “central bar” which is vertical.

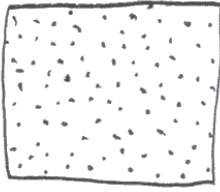
(f) CENTRAL BAR: with another color as a vertical bar at the central part of the organ. Compare to “midrib”, which is usually narrower and “central band” which is horizontal.

(g) MARBLING: resembling marble in color pattern

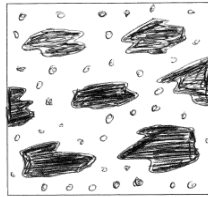
(h) RETICULATE (synonym NETTED): with another color as in the form of a net over the surface of the organ.

(i) TESSELATED = chequered, marked with a grid of small, regular shapes.

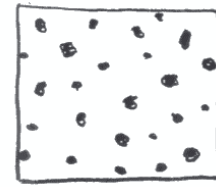
2.6 Illustrations



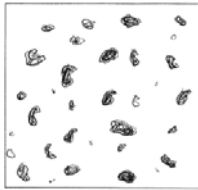
Dotted



Speckled [to be improved]



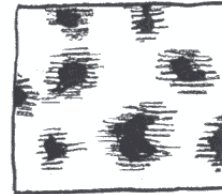
Spotted



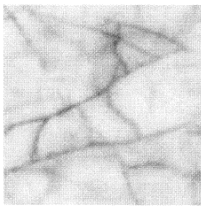
Patched



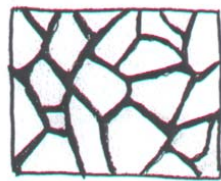
Blotched (Maculate)



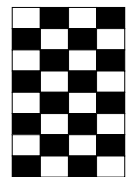
Mottled



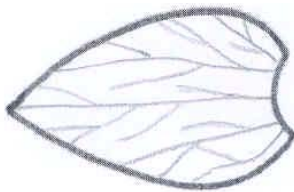
Marbling



Reticulate (Netted)



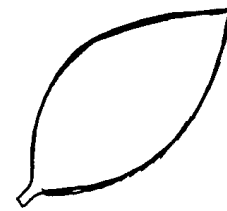
Tessellate



Veined



Midrib



On Margin (Edged)



Picotee



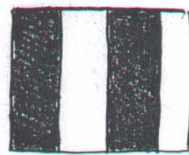
Marginal Zone



Central Band



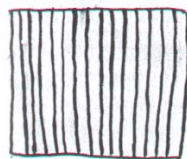
Central Bar



Banded



Striped



Striated



Aciculate

2.7 Other Color Terminology

- (a) ANTHOCYANIN COLORATION: flush, part of the organ or whole organ has an over color of anthocyanin. Usually, only the area where it is present, the hue and the intensity of the anthocyanin coloration is described. The main colors of this anthocyanin coloration are purplish, reddish and brownish.
- (b) GLAUCOSITY(BLOOM): The fact that the surface of an organ is coated with a whitish or grayish waxy layer which can be often be rubbed off or removed.
- (c) CONSPICUOUS: clearly visible, evident.
- (d) INCONSPICUOUS: not clearly visible, obscure.

3. Development of Characteristics for Color Distribution / Pattern

3.1 When organs have more than one color, the main color is the color that has the largest relative area of the surface that is covered with the color in question (including the color pattern). In cases where the relative areas are equal, the expert should indicate which color is considered to be the main color. In such cases other criteria might apply, however, usually the darkest color of the two is considered the main color (see also Part II section 1.1). The basis for this decision should be indicated in the Test Guideline for the species concerned.

3.2 With regard to the order of characteristics, the following order can be considered:

- number of colors of the organ
- main color of the organ
- border between colors (sharply outlined/not sharply outlined); excluding varieties with single colored organs
- regularity of secondary color; excluding varieties with single colored organs
- color of secondary color; excluding varieties with single colored organs
- location of secondary color; excluding varieties with single colored organs
- description of the color pattern
- etc.

3.3 When preparing a list of characteristics to describe a color distribution it is recommended to study the Test Guidelines which are available and which contain similar color descriptions like Test Guidelines, for example: chrysanthemum, orchids, alstroemeria, ficus and fruit species.

4. Examples of Color Distribution / Pattern Characteristics

4.1 Main/Secondary/Tertiary Color

- | | | |
|--------------------------|--|------|
| Flower: Main color: | RHS Colour Chart (indicate reference number) | (PQ) |
| Flower: Secondary color: | RHS Colour Chart (indicate reference number) | (PQ) |

Flower: Tertiary color: RHS Colour Chart (indicate reference number) (PQ)
or white (1), red (2).....

(When the area of the secondary and/or tertiary color is relatively small, it will be difficult to describe the color with the RHS Colour Chart. The second option, mentioned under tertiary color, should be used in such a case.)

4.2 Ground/Over Color

Fruit: Ground color white (1); whitish yellow (2); yellow (3); ... (PQ)

Fruit: Relative area of over color absent or very small (1); small (3); medium (5); large (7); very large (9) (QN)

Fruit: Over color: orange red (1); pink red (2); red (3); purple red (4); brown red (5) (PQ)

Fruit: Intensity of over color light (3); medium (5); dark (7) (QN)

Fruit: Pattern of over color only solid flush (1); solid flush with weakly defined stripes (2); solid flush with strongly defined stripes (3); weakly defined flush with strongly defined stripes (4); only stripes (5); flushed and mottled (6); flushed, striped and mottled (7) (PQ)

4.3 Variegation

Leaf: intensity of green color (excluding variegation) light (3); medium (5); dark (7) (QN: 1 to 9 scale)

Leaf: color of variegation white (1); yellowish (2); light green (3) (PQ)
(followed by a description of the variegation like:)

Varieties with variegated leaves only: Near main vein (1); near margin (2); randomly spread (3) (PQ)
leaf: distribution of variegation

4.4 One-/Self-/Two-Colored

Ray floret: number of colors one (1); two (2) (QL)

(State (1) also includes self-colored)

Only one-colored varieties

Ray floret: Color distribution of none (1); lighter towards base (2);
upper side lighter towards apex (3)

*(States of expression (2) and (3) are
examples of self colored)*

PART IV: INDEX OF DEFINITIONS

Note: A single list (index) for Technical terms (e.g. “distinctness”, “uniformity”, “variety” etc.), Botanical terms (shapes, colors etc.) and Statistical terms to be provided at the end of TGP/14. In that list, it will be indicated in which section to find an explanation of that term.

(to be provided for:)

Aciculate

Anthocyanin coloration

Banded

Bloom

Blotched

Blush

Brightness

Bronze

Central Band

Central Bar

Color

Conspicuous

Dotted

Edged

Fleck

Flush

Fuchsia

Glaucosity

Gold

Ground color

HCC colour chart

Hue

Inconspicuous

-ish

Lightness

Maculated

Main color

Main vein

Marbling

Marginal zone

Midrib

Mottled

Netted
Off white
On margin
One-colored
Over color
Patched
Picotee
Reticulate
RHS color
RHS colour chart
RHS mini colour chart
Salmon
Saturation
Secondary color
Self-colored
Shaded
Silver
Speckled
Spotted
Striated
Striped
Tertiary color
Tessellated
Variegation
Veined
Waxy layer
Whitish
Yellowish

PART IV: LITERATURE

RHS Colour Chart, 2001, Royal Horticultural Society, London, UK

RHS Mini Colour Chart, 2005, Royal Horticultural Society, London, UK, published together with the Flower Council Holland, Leiden, NL.

Horticultural Colour Chart (HCC Chart), 1942, R.F. Wilson, Published by the British Colour Council in collaboration with the Royal Horticultural Society.

International Commission on Illumination C.I.E./USA: ISO 15469:2004/CIE S 011/E:2003, Spatial distribution of daylight – CIE standard general sky

Rochester Institute of Technology: Munsell Color Science Laboratory; website: <http://mcsl.rit.edu/>

(2) Color names for the RHS Colour Chart

1. Introduction

1.1 When using the RHS Colour Chart, the variety description should contain both the RHS Colour Chart reference number and a name for the color. The purpose of this document is to harmonize color names for variety descriptions.

1.2 The RHS Colour Chart contains up to 884 different colors, which are divided into 23 “groups” to name the colors. However, for UPOV purposes, this initial grouping seemed unable to name the colors in variety descriptions in a sufficiently precise way. Therefore, UPOV has identified 50 color “groups” which are presented in this document. It is important to note that these color “groups” were not created for the purpose of grouping varieties for DUS trials and should not be used for that purpose.

1.3 The names used for the 50 UPOV Color Groups consist of either the [pure color] / [color hue] (e.g. yellow, orange, red), a combination of two [pure colors] / [color hues] (e.g. yellow orange, orange pink, purple red), or a combination of the [pure color(s)] / [color hue(s)] with “light” or “dark” (e.g. light yellow, dark pink red).

1.4 The color names in this document can be used with different editions of the RHS Colour Chart. The 1986 version of the RHS Colour Chart was used for the initial grouping and naming. In the 1995 edition no new charts were added. The additional charts in the 2001 edition (marked with “N”) have been integrated into the existing groups.

2. Example for the use of the UPOV Color Names in a variety description

2.1 If in Test Guidelines a characteristic is described by using the RHS Colour Chart, it is not obvious which color the plant part has, because it is only asked to indicate the RHS Colour Chart reference number, e.g.

Flower: main color of upper side RHS Colour Chart (indicate reference number)

2.2 For the variety description, it is useful to translate the RHS Colour Chart number into a color name and to fill this name into the column “state of expression”. The color name can be found in the appendix to this document, in which the RHS Colors are listed according to the UPOV Color Group to which they belong: e.g. RHS 46C belongs to group 21 “red”, RHS N 74B belongs to group 27 “purple” and RHS N 57A belongs to group 23 “purple red”.

Example:

2.3 Part of a variety description for New Guinea Impatiens (TG/196/1)

No.	Characteristic	State of expression		Note
20	Flower: main colour of upper side	red	RHS 46C	
21	<u>Varieties with bi- or multicoloured flowers only:</u> Flower: secondary colour of upper side	purple	RHS N 74B	
22	<u>Varieties with bi- or multicoloured flowers only:</u> Flower: distribution of secondary colour	mainly on upper petal		1
23	Flower: eye zone	present		9
24	Flower: size of eye zone	large		7
25	Flower: main colour of eye zone	purple red	RHS N 57A	

3. UPOV Color Groups

3.1 The 50 UPOV Color Groups are as follows:

UPOV Group No.	English	français	deutsch	español
1	white		weiss	
2	light green		hellgrün	
3	medium green		mittelgrün	
4	dark green		dunkelgrün	
5	yellow green		gelbgrün	
6	grey green		graugrün	
7	light blue green		hellblaugrün	
8	blue green		blaugrün	
9	brown green		braungrün	
10	light yellow		hellgelb	
11	yellow		gelb	
12	light yellow orange		hellgelborange	
13	yellow orange		gelborange	
14	orange		orange	
15	orange pink		orangerosa	
16	light red pink		hellrotrosa	
17	red pink		rotrosa	
18	light blue pink		hellblaurosa	
19	blue pink		blaurosa	
20	orange red		orangerot	
21	red		rot	
22	dark pink red		dunkelrosarot	
23	purple red		purpurrot	
24	dark purple red		dunkelpurpurrot	
25	brown red		braunrot	
26	brown purple		braunpurpur	
27	purple		purpur	
28	violet		violett	
29	dark violet		dunkelviolett	
30	light blue violet		hellblauviolett	
31	blue violet		blauviolett	
32	light violet blue		hellviolettblau	
33	violet blue		violettblau	
34	light blue		hellblau	
35	medium blue		mittelblau	
36	dark blue		dunkelblau	
37	light green blue		hellgrünblau	
38	green blue		grünblau	
39	grey blue		graublau	
40	light brown		hellbraun	
41	medium brown		mittelbraun	
42	dark brown		dunkelbraun	
43	light yellow brown		hellgelbbraun	
44	yellow brown		gelbbraun	
45	orange brown		orangebraun	
46	grey brown		graubraun	
47	green brown		grünbraun	
48	grey		grau	
49	green grey		grüngrau	
50	black		schwarz	

3.2 The appendices to this document allocate the colors in the RHS Colour Chart to the appropriate UPOV Color Groups as follows:

Appendix I: Allocation of UPOV Color Groups for each RHS Color in
RHS Reference order

Appendix II: RHS Colors contained in each UPOV Color Group

[Appendices follow]

APPENDIX I TO ANNEX I

Appendix I:
Allocation of UPOV Color Groups for each RHS Color in RHS Reference order

RHS COLORS (RHS COLOUR CHART, EDITIONS 1986, 1995 AND 2001)
BY UPOV COLOR GROUPS

UPOV Group No.	RHS No.	English	français	deutsch	español
11	001A	yellow		gelb	
5	001B	yellow green		gelbgrün	
5	001C	yellow green		gelbgrün	
5	001D	yellow green		gelbgrün	
11	002A	yellow		gelb	
11	002B	yellow		gelb	
5	002C	yellow green		gelbgrün	
5	002D	yellow green		gelbgrün	
11	003A	yellow		gelb	
11	003B	yellow		gelb	
11	003C	yellow		gelb	
5	003D	yellow green		gelbgrün	
11	004A	yellow		gelb	
11	004B	yellow		gelb	
5	004C	yellow green		gelbgrün	
10	004D	light yellow		hellgelb	
11	005A	yellow		gelb	
11	005B	yellow		gelb	
11	005C	yellow		gelb	
10	005D	light yellow		hellgelb	
11	006A	yellow		gelb	
11	006B	yellow		gelb	
11	006C	yellow		gelb	
10	006D	light yellow		hellgelb	
11	007A	yellow		gelb	
11	007B	yellow		gelb	
11	007C	yellow		gelb	
11	007D	yellow		gelb	
11	008A	yellow		gelb	
10	008B	light yellow		hellgelb	
10	008C	light yellow		hellgelb	
10	008D	light yellow		hellgelb	
11	009A	yellow		gelb	
11	009B	yellow		gelb	
10	009C	light yellow		hellgelb	
10	009D	light yellow		hellgelb	
10	010A	light yellow		hellgelb	
10	010B	light yellow		hellgelb	
10	010C	light yellow		hellgelb	
10	010D	light yellow		hellgelb	
13	011A	yellow orange		gelborange	
10	011B	light yellow		hellgelb	

UPOV Group No.	RHS No.	English	français	deutsch	español
10	011C	light yellow		hellgelb	
12	011D	light yellow orange		hellgelborange	
11	012A	yellow		gelb	
11	012B	yellow		gelb	
10	012C	light yellow		hellgelb	
10	012D	light yellow		hellgelb	
13	013A	yellow orange		gelborange	
13	013B	yellow orange		gelborange	
13	013C	yellow orange		gelborange	
10	013D	light yellow		hellgelb	
13	014A	yellow orange		gelborange	
13	014B	yellow orange		gelborange	
13	014C	yellow orange		gelborange	
10	014D	light yellow		hellgelb	
13	015A	yellow orange		gelborange	
13	015B	yellow orange		gelborange	
13	015C	yellow orange		gelborange	
10	015D	light yellow		hellgelb	
13	016A	yellow orange		gelborange	
13	016B	yellow orange		gelborange	
13	016C	yellow orange		gelborange	
10	016D	light yellow		hellgelb	
13	017A	yellow orange		gelborange	
13	017B	yellow orange		gelborange	
13	017C	yellow orange		gelborange	
13	017D	yellow orange		gelborange	
13	018A	yellow orange		gelborange	
12	018B	light yellow orange		hellgelborange	
12	018C	light yellow orange		hellgelborange	
12	018D	light yellow orange		hellgelborange	
13	019A	yellow orange		gelborange	
12	019B	light yellow orange		hellgelborange	
12	019C	light yellow orange		hellgelborange	
12	019D	light yellow orange		hellgelborange	
13	020A	yellow orange		gelborange	
13	020B	yellow orange		gelborange	
12	020C	light yellow orange		hellgelborange	
12	020D	light yellow orange		hellgelborange	
13	021A	yellow orange		gelborange	
13	021B	yellow orange		gelborange	
13	021C	yellow orange		gelborange	
12	021D	light yellow orange		hellgelborange	
13	022A	yellow orange		gelborange	
12	022B	light yellow orange		hellgelborange	
12	022C	light yellow orange		hellgelborange	
12	022D	light yellow orange		hellgelborange	
13	023A	yellow orange		gelborange	
13	023B	yellow orange		gelborange	
12	023C	light yellow orange		hellgelborange	

UPOV Group No.	RHS No.	English	français	deutsch	español
12	023D	light yellow orange		hellgelborange	
14	024A	orange		orange	
14	024B	orange		orange	
14	024C	orange		orange	
14	024D	orange		orange	
14	025A	orange		orange	
14	025B	orange		orange	
14	025C	orange		orange	
14	025D	orange		orange	
20	N 025A	orange red		orangerot	
14	N 025B	orange		orange	
14	N 025C	orange		orange	
13	N 025D	yellow orange		gelborange	
14	026A	orange		orange	
14	026B	orange		orange	
14	026C	orange		orange	
14	026D	orange		orange	
15	027A	orange pink		orangerosa	
15	027B	orange pink		orangerosa	
15	027C	orange pink		orangerosa	
15	027D	orange pink		orangerosa	
20	028A	orange red		orangerot	
14	028B	orange		orange	
14	028C	orange		orange	
14	028D	orange		orange	
14	029A	orange		orange	
14	029B	orange		orange	
15	029C	orange pink		orangerosa	
15	029D	orange pink		orangerosa	
20	030A	orange red		orangerot	
20	030B	orange red		orangerot	
20	030C	orange red		orangerot	
14	030D	orange		orange	
21	N 030A	red		rot	
20	N 030B	orange red		orangerot	
20	N 030C	orange red		orangerot	
14	N 030D	orange		orange	
20	031A	orange red		orangerot	
45	031B	orange brown		orangebraun	
45	031C	orange brown		orangebraun	
15	031D	orange pink		orangerosa	
20	032A	orange red		orangerot	
20	032B	orange red		orangerot	
45	032C	orange brown		orangebraun	
15	032D	orange pink		orangerosa	
21	033A	red		rot	
20	033B	orange red		orangerot	
45	033C	orange brown		orangebraun	
15	033D	orange pink		orangerosa	

UPOV Group No.	RHS No.	English	français	deutsch	español
21	034A	red		rot	
45	034B	orange brown		orangebraun	
45	034C	orange brown		orangebraun	
45	034D	orange brown		orangebraun	
24	N 034A	dark purple red		dunkelpurpurrot	
21	N 034B	red		rot	
22	N 034C	dark pink red		dunkelrosarot	
45	N 034D	orange brown		orangebraun	
45	035A	orange brown		orangebraun	
20	035B	orange red		orangerot	
15	035C	orange pink		orangerosa	
16	035D	light red pink		hellrotrosa	
16	036A	light red pink		hellrotrosa	
16	036B	light red pink		hellrotrosa	
16	036C	light red pink		hellrotrosa	
16	036D	light red pink		hellrotrosa	
15	037A	orange pink		orangerosa	
15	037B	orange pink		orangerosa	
16	037C	light red pink		hellrotrosa	
16	037D	light red pink		hellrotrosa	
16	038A	light red pink		hellrotrosa	
16	038B	light red pink		hellrotrosa	
16	038C	light red pink		hellrotrosa	
16	038D	light red pink		hellrotrosa	
20	039A	orange red		orangerot	
20	039B	orange red		orangerot	
16	039C	light red pink		hellrotrosa	
16	039D	light red pink		hellrotrosa	
21	040A	red		rot	
21	040B	red		rot	
20	040C	orange red		orangerot	
20	040D	orange red		orangerot	
21	041A	red		rot	
20	041B	orange red		orangerot	
20	041C	orange red		orangerot	
16	041D	light red pink		hellrotrosa	
21	042A	red		rot	
21	042B	red		rot	
21	042C	red		rot	
20	042D	orange red		orangerot	
21	043A	red		rot	
21	043B	red		rot	
17	043C	red pink		rotrosa	
17	043D	red pink		rotrosa	
21	044A	red		rot	
21	044B	red		rot	
21	044C	red		rot	
20	044D	orange red		orangerot	
21	045A	red		rot	

UPOV Group No.	RHS No.	English	français	deutsch	español
21	045B	red		rot	
21	045C	red		rot	
22	045D	dark pink red		dunkelrosarot	
24	046A	dark purple red		dunkelpurpurrot	
21	046B	red		rot	
21	046C	red		rot	
22	046D	dark pink red		dunkelrosarot	
21	047A	red		rot	
21	047B	red		rot	
22	047C	dark pink red		dunkelrosarot	
17	047D	red pink		rotrosa	
22	048A	dark pink red		dunkelrosarot	
17	048B	red pink		rotrosa	
17	048C	red pink		rotrosa	
17	048D	red pink		rotrosa	
17	049A	red pink		rotrosa	
16	049B	light red pink		hellrotrosa	
16	049C	light red pink		hellrotrosa	
16	049D	light red pink		hellrotrosa	
21	050A	red		rot	
22	050B	dark pink red		dunkelrosarot	
17	050C	red pink		rotrosa	
16	050D	light red pink		hellrotrosa	
22	051A	dark pink red		dunkelrosarot	
22	051B	dark pink red		dunkelrosarot	
17	051C	red pink		rotrosa	
17	051D	red pink		rotrosa	
22	052A	dark pink red		dunkelrosarot	
17	052B	red pink		rotrosa	
17	052C	red pink		rotrosa	
17	052D	red pink		rotrosa	
24	053A	dark purple red		dunkelpurpurrot	
24	053B	dark purple red		dunkelpurpurrot	
22	053C	dark pink red		dunkelrosarot	
22	053D	dark pink red		dunkelrosarot	
23	054A	purple red		purpurrot	
23	054B	purple red		purpurrot	
23	054C	purple red		purpurrot	
18	054D	light blue pink		hellblaurosa	
23	055A	purple red		purpurrot	
23	055B	purple red		purpurrot	
18	055C	light blue pink		hellblaurosa	
18	055D	light blue pink		hellblaurosa	
18	056A	light blue pink		hellblaurosa	
18	056B	light blue pink		hellblaurosa	
18	056C	light blue pink		hellblaurosa	
18	056D	light blue pink		hellblaurosa	
23	057A	purple red		purpurrot	
23	057B	purple red		purpurrot	

UPOV Group No.	RHS No.	English	français	deutsch	español
23	057C	purple red		purpurrot	
23	057D	purple red		purpurrot	
23	N 057A	purple red		purpurrot	
23	N 057B	purple red		purpurrot	
23	N 057C	purple red		purpurrot	
23	N 057D	purple red		purpurrot	
27	058A	purple		purpur	
23	058B	purple red		purpurrot	
23	058C	purple red		purpurrot	
23	058D	purple red		purpurrot	
24	059A	dark purple red		dunkelpurpurrot	
24	059B	dark purple red		dunkelpurpurrot	
27	059C	purple		purpur	
23	059D	purple red		purpurrot	
24	060A	dark purple red		dunkelpurpurrot	
24	060B	dark purple red		dunkelpurpurrot	
27	060C	purple		purpur	
23	060D	purple red		purpurrot	
27	061A	purple		purpur	
27	061B	purple		purpur	
23	061C	purple red		purpurrot	
23	061D	purple red		purpurrot	
19	062A	blue pink		blaurosa	
18	062B	light blue pink		hellblaurosa	
18	062C	light blue pink		hellblaurosa	
18	062D	light blue pink		hellblaurosa	
23	063A	purple red		purpurrot	
19	063B	blue pink		blaurosa	
19	063C	blue pink		blaurosa	
18	063D	light blue pink		hellblaurosa	
27	064A	purple		purpur	
27	064B	purple		purpur	
19	064C	blue pink		blaurosa	
19	064D	blue pink		blaurosa	
19	065A	blue pink		blaurosa	
18	065B	light blue pink		hellblaurosa	
18	065C	light blue pink		hellblaurosa	
18	065D	light blue pink		hellblaurosa	
23	066A	purple red		purpurrot	
23	066B	purple red		purpurrot	
19	066C	blue pink		blaurosa	
19	066D	blue pink		blaurosa	
23	N 066A	purple red		purpurrot	
23	N 066B	purple red		purpurrot	
19	N 066C	blue pink		blaurosa	
19	N 066D	blue pink		blaurosa	
27	067A	purple		purpur	
19	067B	blue pink		blaurosa	
19	067C	blue pink		blaurosa	

UPOV Group No.	RHS No.	English	français	deutsch	español
19	067D	blue pink		blaurosa	
19	068A	blue pink		blaurosa	
19	068B	blue pink		blaurosa	
19	068C	blue pink		blaurosa	
18	068D	light blue pink		hellblaurosa	
18	069A	light blue pink		hellblaurosa	
18	069B	light blue pink		hellblaurosa	
30	069C	light blue violet		hellblauviolett	
30	069D	light blue violet		hellblauviolett	
27	070A	purple		purpur	
27	070B	purple		purpur	
19	070C	blue pink		blaurosa	
18	070D	light blue pink		hellblaurosa	
27	071A	purple		purpur	
27	071B	purple		purpur	
27	071C	purple		purpur	
19	071D	blue pink		blaurosa	
27	072A	purple		purpur	
27	072B	purple		purpur	
19	072C	blue pink		blaurosa	
19	072D	blue pink		blaurosa	
19	073A	blue pink		blaurosa	
19	073B	blue pink		blaurosa	
18	073C	light blue pink		hellblaurosa	
18	073D	light blue pink		hellblaurosa	
27	074A	purple		purpur	
27	074B	purple		purpur	
27	074C	purple		purpur	
19	074D	blue pink		blaurosa	
27	N 074A	purple		purpur	
27	N 074B	purple		purpur	
19	N 074C	blue pink		blaurosa	
19	N 074D	blue pink		blaurosa	
28	075A	violet		violett	
28	075B	violet		violett	
28	075C	violet		violett	
28	075D	violet		violett	
30	076A	light blue violet		hellblauviolett	
30	076B	light blue violet		hellblauviolett	
30	076C	light blue violet		hellblauviolett	
30	076D	light blue violet		hellblauviolett	
28	077A	violet		violett	
28	077B	violet		violett	
28	077C	violet		violett	
28	077D	violet		violett	
26	N 077A	brown purple		braunpurpur	
28	N 077B	violet		violett	
29	N 077C	dark violet		dunkelviolet	
28	N 077D	violet		violett	

UPOV Group No.	RHS No.	English	français	deutsch	español
28	078A	violet		violett	
28	078B	violet		violett	
28	078C	violet		violett	
28	078D	violet		violett	
28	N 078A	violet		violett	
28	N 078B	violet		violett	
28	N 078C	violet		violett	
28	N 078D	violet		violett	
29	079A	dark violet		dunkelviolet	
29	079B	dark violet		dunkelviolet	
29	079C	dark violet		dunkelviolet	
29	079D	dark violet		dunkelviolet	
29	N 079A	dark violet		dunkelviolet	
29	N 079B	dark violet		dunkelviolet	
27	N 079C	purple		purpur	
28	N 079D	violet		violett	
28	080A	violet		violett	
28	080B	violet		violett	
28	080C	violet		violett	
28	080D	violet		violett	
28	N 080A	violet		violett	
28	N 080B	violet		violett	
28	N 080C	violet		violett	
28	N 080D	violet		violett	
28	081A	violet		violett	
28	081B	violet		violett	
28	081C	violet		violett	
28	081D	violet		violett	
28	N 081A	violet		violett	
28	N 081B	violet		violett	
28	N 081C	violet		violett	
28	N 081D	violet		violett	
28	082A	violet		violett	
28	082B	violet		violett	
28	082C	violet		violett	
28	082D	violet		violett	
28	N 082A	violet		violett	
28	N 082B	violet		violett	
28	N 082C	violet		violett	
28	N 082D	violet		violett	
29	083A	dark violet		dunkelviolet	
29	083B	dark violet		dunkelviolet	
31	083C	blue violet		blauviolett	
31	083D	blue violet		blauviolett	
28	084A	violet		violett	
28	084B	violet		violett	
30	084C	light blue violet		hellblauviolett	
30	084D	light blue violet		hellblauviolett	
30	085A	light blue violet		hellblauviolett	

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30	085B	light blue violet		hellblauviolett	
30	085C	light blue violet		hellblauviolett	
30	085D	light blue violet		hellblauviolett	
29	086A	dark violet		dunkelviolett	
31	086B	blue violet		blauviolett	
31	086C	blue violet		blauviolett	
31	086D	blue violet		blauviolett	
28	087A	violet		violett	
28	087B	violet		violett	
28	087C	violet		violett	
28	087D	violet		violett	
28	N 087A	violet		violett	
28	N 087B	violet		violett	
28	N 087C	violet		violett	
28	N 087D	violet		violett	
31	088A	blue violet		blauviolett	
31	088B	blue violet		blauviolett	
31	088C	blue violet		blauviolett	
28	088D	violet		violett	
31	N 088A	blue violet		blauviolett	
31	N 088B	blue violet		blauviolett	
31	N 088C	blue violet		blauviolett	
31	N 088D	blue violet		blauviolett	
33	089A	violet blue		violettblau	
33	089B	violet blue		violettblau	
31	089C	violet blue		blauviolett	
31	089D	violet blue		blauviolett	
33	N 089A	violet blue		violettblau	
33	N 089B	violet blue		violettblau	
31	N 089C	blue violet		blauviolett	
31	N 089D	blue violet		blauviolett	
31	090A	blue violet		blauviolett	
31	090B	blue violet		blauviolett	
31	090C	blue violet		blauviolett	
31	090D	blue violet		blauviolett	
33	091A	violet blue		violettblau	
32	091B	light violet blue		hellviolettblau	
32	091C	light violet blue		hellviolettblau	
32	091D	light violet blue		hellviolettblau	
33	092A	violet blue		violettblau	
32	092B	light violet blue		hellviolettblau	
32	092C	light violet blue		hellviolettblau	
32	092D	light violet blue		hellviolettblau	
29	N 092A	dark violet		dunkelviolett	
33	N 092B	violet blue		violettblau	
33	N 092C	violet blue		violettblau	
31	N 092D	blue violet		blauviolett	
33	093A	violet blue		violettblau	
33	093B	violet blue		violettblau	

UPOV Group No.	RHS No.	English	français	deutsch	español
33	093C	violet blue		violettblau	
32	093D	light violet blue		hellviolettblau	
33	094A	violet blue		violettblau	
33	094B	violet blue		violettblau	
33	094C	violet blue		violettblau	
32	094D	light violet blue		hellviolettblau	
33	095A	violet blue		violettblau	
33	095B	violet blue		violettblau	
33	095C	violet blue		violettblau	
32	095D	light violet blue		hellviolettblau	
33	096A	violet blue		violettblau	
33	096B	violet blue		violettblau	
33	096C	violet blue		violettblau	
33	096D	violet blue		violettblau	
33	097A	violet blue		violettblau	
32	097B	light violet blue		hellviolettblau	
32	097C	light violet blue		hellviolettblau	
32	097D	light violet blue		hellviolettblau	
35	098A	blue		blau	
35	098B	blue		blau	
35	098C	blue		blau	
35	098D	blue		blau	
36	099A	dark blue		dunkelblau	
36	099B	dark blue		dunkelblau	
35	099C	blue		blau	
35	099D	blue		blau	
35	100A	blue		blau	
35	100B	blue		blau	
35	100C	blue		blau	
32	100D	light violet blue		hellviolettblau	
35	101A	blue		blau	
35	101B	blue		blau	
35	101C	blue		blau	
34	101D	light blue		hellblau	
36	102A	dark blue		dunkelblau	
35	102B	blue		blau	
35	102C	blue		blau	
35	102D	blue		blau	
36	103A	dark blue		dunkelblau	
36	103B	dark blue		dunkelblau	
36	103C	dark blue		dunkelblau	
35	103D	blue		blau	
35	104A	blue		blau	
35	104B	blue		blau	
35	104C	blue		blau	
34	104D	light blue		hellblau	
35	105A	blue		blau	
35	105B	blue		blau	
35	105C	blue		blau	

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35	105D	blue		blau	
35	106A	blue		blau	
34	106B	light blue		hellblau	
34	106C	light blue		hellblau	
34	106D	light blue		hellblau	
35	107A	blue		blau	
35	107B	blue		blau	
34	107C	light blue		hellblau	
34	107D	light blue		hellblau	
34	108A	light blue		hellblau	
34	108B	light blue		hellblau	
34	108C	light blue		hellblau	
34	108D	light blue		hellblau	
35	109A	blue		blau	
35	109B	blue		blau	
35	109C	blue		blau	
34	109D	light blue		hellblau	
35	N 109A	blue		blau	
35	N 109B	blue		blau	
35	N 109C	blue		blau	
34	N 109D	light blue		hellblau	
35	110A	blue		blau	
35	110B	blue		blau	
37	110C	light green blue		hellgrünblau	
37	110D	light green blue		hellgrünblau	
38	111A	green blue		grünblau	
38	111B	green blue		grünblau	
37	111C	light green blue		hellgrünblau	
37	111D	light green blue		hellgrünblau	
34	112A	light blue		hellblau	
34	112B	light blue		hellblau	
37	112C	light green blue		hellgrünblau	
37	112D	light green blue		hellgrünblau	
38	113A	green blue		grünblau	
38	113B	green blue		grünblau	
37	113C	light green blue		hellgrünblau	
37	113D	light green blue		hellgrünblau	
38	114A	green blue		grünblau	
38	114B	green blue		grünblau	
38	114C	green blue		grünblau	
38	114D	green blue		grünblau	
38	115A	green blue		grünblau	
38	115B	green blue		grünblau	
39	115C	grey blue		graublau	
39	115D	grey blue		graublau	
38	116A	green blue		grünblau	
38	116B	green blue		grünblau	
38	116C	green blue		grünblau	
38	116D	green blue		grünblau	

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37	117A	light green blue		hellgrünblau	
37	117B	light green blue		hellgrünblau	
37	117C	light green blue		hellgrünblau	
37	117D	light green blue		hellgrünblau	
38	118A	green blue		grünblau	
38	118B	green blue		grünblau	
37	118C	light green blue		hellgrünblau	
37	118D	light green blue		hellgrünblau	
38	119A	green blue		grünblau	
39	119B	grey blue		graublau	
39	119C	grey blue		graublau	
37	119D	light green blue		hellgrünblau	
7	120A	light blue green		hellblaugrün	
7	120B	light blue green		hellblaugrün	
7	120C	light blue green		hellblaugrün	
37	120D	light green blue		hellgrünblau	
38	121A	green blue		grünblau	
7	121B	light blue green		hellblaugrün	
37	121C	light green blue		hellgrünblau	
37	121D	light green blue		hellgrünblau	
39	122A	grey blue		graublau	
39	122B	grey blue		graublau	
39	122C	grey blue		graublau	
37	122D	light green blue		hellgrünblau	
7	123A	light blue green		hellblaugrün	
7	123B	light blue green		hellblaugrün	
7	123C	light blue green		hellblaugrün	
7	123D	light blue green		hellblaugrün	
3	124A	green		grün	
8	124B	blue green		blaugrün	
7	124C	light blue green		hellblaugrün	
7	124D	light blue green		hellblaugrün	
3	125A	green		grün	
3	125B	green		grün	
8	125C	blue green		blaugrün	
8	125D	blue green		blaugrün	
6	126A	grey green		graugrün	
6	126B	grey green		graugrün	
6	126C	grey green		graugrün	
8	126D	blue green		blaugrün	
6	127A	grey green		graugrün	
3	127B	green		grün	
3	127C	green		grün	
8	127D	blue green		blaugrün	
3	128A	green		grün	
8	128B	blue green		blaugrün	
8	128C	blue green		blaugrün	
8	128D	blue green		blaugrün	
3	129A	green		grün	

UPOV Group No.	RHS No.	English	français	deutsch	español
8	129B	blue green		blaugrün	
8	129C	blue green		blaugrün	
8	129D	blue green		blaugrün	
3	130A	green		grün	
3	130B	green		grün	
8	130C	blue green		blaugrün	
8	130D	blue green		blaugrün	
4	131A	dark green		dunkelgrün	
4	131B	dark green		dunkelgrün	
4	131C	dark green		dunkelgrün	
3	131D	green		grün	
4	132A	dark green		dunkelgrün	
4	132B	dark green		dunkelgrün	
3	132C	green		grün	
3	132D	green		grün	
4	133A	dark green		dunkelgrün	
6	133B	grey green		graugrün	
6	133C	grey green		graugrün	
6	133D	grey green		graugrün	
3	134A	green		grün	
3	134B	green		grün	
3	134C	green		grün	
2	134D	light green		hellgrün	
4	N 134A	dark green		dunkelgrün	
4	N 134B	dark green		dunkelgrün	
3	N 134C	green		grün	
3	N 134D	green		grün	
4	135A	dark green		dunkelgrün	
4	135B	dark green		dunkelgrün	
3	135C	green		grün	
2	135D	light green		hellgrün	
4	136A	dark green		dunkelgrün	
4	136B	dark green		dunkelgrün	
9	136C	brown green		braungrün	
2	136D	light green		hellgrün	
4	137A	dark green		dunkelgrün	
9	137B	brown green		braungrün	
9	137C	brown green		braungrün	
9	137D	brown green		braungrün	
9	138A	brown green		braungrün	
9	138B	brown green		braungrün	
2	138C	light green		hellgrün	
2	138D	light green		hellgrün	
4	N 138A	dark green		dunkelgrün	
9	N 138B	brown green		braungrün	
9	N 138C	brown green		braungrün	
9	N 138D	brown green		braungrün	
4	139A	dark green		dunkelgrün	
9	139B	brown green		braungrün	

UPOV Group No.	RHS No.	English	français	deutsch	español
9	139C	brown green		braungrün	
2	139D	light green		hellgrün	
3	140A	green		grün	
3	140B	green		grün	
2	140C	light green		hellgrün	
2	140D	light green		hellgrün	
4	141A	dark green		dunkelgrün	
4	141B	dark green		dunkelgrün	
4	141C	dark green		dunkelgrün	
2	141D	light green		hellgrün	
3	142A	green		grün	
2	142B	light green		hellgrün	
2	142C	light green		hellgrün	
2	142D	light green		hellgrün	
4	143A	dark green		dunkelgrün	
4	143B	dark green		dunkelgrün	
4	143C	dark green		dunkelgrün	
2	143D	light green		hellgrün	
4	144A	dark green		dunkelgrün	
2	144B	light green		hellgrün	
2	144C	light green		hellgrün	
2	144D	light green		hellgrün	
2	N 144A	light green		hellgrün	
2	N 144B	light green		hellgrün	
2	N 144C	light green		hellgrün	
2	N 144D	light green		hellgrün	
2	145A	light green		hellgrün	
2	145B	light green		hellgrün	
2	145C	light green		hellgrün	
2	145D	light green		hellgrün	
9	146A	brown green		braungrün	
9	146B	brown green		braungrün	
9	146C	brown green		braungrün	
9	146D	brown green		braungrün	
4	147A	dark green		dunkelgrün	
9	147B	brown green		braungrün	
9	147C	brown green		braungrün	
9	147D	brown green		braungrün	
9	148A	brown green		braungrün	
9	148B	brown green		braungrün	
9	148C	brown green		braungrün	
9	148D	brown green		braungrün	
5	149A	yellow green		gelbgrün	
2	149B	light green		hellgrün	
2	149C	light green		hellgrün	
2	149D	light green		hellgrün	
5	150A	yellow green		gelbgrün	
5	150B	yellow green		gelbgrün	
5	150C	yellow green		gelbgrün	

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5	150D	yellow green		gelbgrün	
47	151A	green brown		grünbraun	
47	151B	green brown		grünbraun	
47	151C	green brown		grünbraun	
47	151D	green brown		grünbraun	
47	152A	green brown		grünbraun	
47	152B	green brown		grünbraun	
47	152C	green brown		grünbraun	
47	152D	green brown		grünbraun	
47	153A	green brown		grünbraun	
47	153B	green brown		grünbraun	
47	153C	green brown		grünbraun	
47	153D	green brown		grünbraun	
5	154A	yellow green		gelbgrün	
5	154B	yellow green		gelbgrün	
5	154C	yellow green		gelbgrün	
5	154D	yellow green		gelbgrün	
1	155A	white		weiss	
1	155B	white		weiss	
1	155C	white		weiss	
1	155D	white		weiss	
1	N 155A	white		weiss	
1	N 155B	white		weiss	
1	N 155C	white		weiss	
1	N 155D	white		weiss	
48	156A	grey		grau	
48	156B	grey		grau	
48	156C	grey		grau	
48	156D	grey		grau	
48	157A	grey		grau	
48	157B	grey		grau	
48	157C	grey		grau	
1	157D	white		weiss	
43	158A	light yellow brown		hellgelbbraun	
43	158B	light yellow brown		hellgelbbraun	
43	158C	light yellow brown		hellgelbbraun	
43	158D	light yellow brown		hellgelbbraun	
43	159A	light yellow brown		hellgelbbraun	
43	159B	light yellow brown		hellgelbbraun	
43	159C	light yellow brown		hellgelbbraun	
43	159D	light yellow brown		hellgelbbraun	
43	160A	light yellow brown		hellgelbbraun	
43	160B	light yellow brown		hellgelbbraun	
43	160C	light yellow brown		hellgelbbraun	
43	160D	light yellow brown		hellgelbbraun	
43	161A	light yellow brown		hellgelbbraun	
43	161B	light yellow brown		hellgelbbraun	
43	161C	light yellow brown		hellgelbbraun	
43	161D	light yellow brown		hellgelbbraun	

UPOV Group No.	RHS No.	English	français	deutsch	español
43	162A	light yellow brown		hellgelbbraun	
43	162B	light yellow brown		hellgelbbraun	
43	162C	light yellow brown		hellgelbbraun	
43	162D	light yellow brown		hellgelbbraun	
44	163A	yellow brown		gelbbraun	
43	163B	light yellow brown		hellgelbbraun	
43	163C	light yellow brown		hellgelbbraun	
43	163D	light yellow brown		hellgelbbraun	
45	N 163A	orange brown		orangebraun	
45	N 163B	orange brown		orangebraun	
44	N 163C	yellow brown		gelbbraun	
44	N 163D	yellow brown		gelbbraun	
44	164A	yellow brown		gelbbraun	
44	164B	yellow brown		gelbbraun	
44	164C	yellow brown		gelbbraun	
43	164D	light yellow brown		hellgelbbraun	
41	165A	brown		braun	
44	165B	yellow brown		gelbbraun	
44	165C	yellow brown		gelbbraun	
43	165D	light yellow brown		hellgelbbraun	
41	166A	brown		braun	
41	166B	brown		braun	
40	166C	light brown		hellbraun	
40	166D	light brown		hellbraun	
44	167A	yellow brown		gelbbraun	
44	167B	yellow brown		gelbbraun	
44	167C	yellow brown		gelbbraun	
44	167D	yellow brown		gelbbraun	
44	N 167A	yellow brown		gelbbraun	
44	N 167B	yellow brown		gelbbraun	
44	N 167C	yellow brown		gelbbraun	
44	N 167D	yellow brown		gelbbraun	
45	168A	orange brown		orangebraun	
45	168B	orange brown		orangebraun	
44	168C	yellow brown		gelbbraun	
44	168D	yellow brown		gelbbraun	
45	169A	orange brown		orangebraun	
45	169B	orange brown		orangebraun	
45	169C	orange brown		orangebraun	
45	169D	orange brown		orangebraun	
40	N 170A	light brown		hellbraun	
40	N 170B	light brown		hellbraun	
40	N 170C	light brown		hellbraun	
45	N 170D	orange brown		orangebraun	
45	170A	orange brown		orangebraun	
45	170B	orange brown		orangebraun	
45	170C	orange brown		orangebraun	
45	170D	orange brown		orangebraun	
41	171A	brown		braun	

UPOV Group No.	RHS No.	English	français	deutsch	español
45	171B	orange brown		orangebraun	
45	171C	orange brown		orangebraun	
45	171D	orange brown		orangebraun	
41	172A	brown		braun	
41	172B	brown		braun	
45	172C	orange brown		orangebraun	
45	172D	orange brown		orangebraun	
45	N 172A	orange brown		orangebraun	
45	N 172B	orange brown		orangebraun	
45	N 172C	orange brown		orangebraun	
44	N 172D	yellow brown		gelbbraun	
41	173A	brown		braun	
45	173B	orange brown		orangebraun	
40	173C	light brown		hellbraun	
40	173D	light brown		hellbraun	
41	174A	brown		braun	
40	174B	light brown		hellbraun	
40	174C	light brown		hellbraun	
40	174D	light brown		hellbraun	
41	175A	brown		braun	
41	175B	brown		braun	
41	175C	brown		braun	
41	175D	brown		braun	
41	176A	brown		braun	
41	176B	brown		braun	
41	176C	brown		braun	
40	176D	light brown		hellbraun	
41	177A	brown		braun	
41	177B	brown		braun	
40	177C	light brown		hellbraun	
40	177D	light brown		hellbraun	
26	178A	brown purple		braunpurpur	
26	178B	brown purple		braunpurpur	
25	178C	brown red		braunrot	
25	178D	brown red		braunrot	
25	179A	brown red		braunrot	
25	179B	brown red		braunrot	
45	179C	orange brown		orangebraun	
15	179D	orange pink		orangerosa	
25	180A	brown red		braunrot	
25	180B	brown red		braunrot	
25	180C	brown red		braunrot	
25	180D	brown red		braunrot	
25	181A	brown red		braunrot	
25	181B	brown red		braunrot	
25	181C	brown red		braunrot	
25	181D	brown red		braunrot	
25	182A	brown red		braunrot	
25	182B	brown red		braunrot	

UPOV Group No.	RHS No.	English	français	deutsch	español
25	182C	brown red		braunrot	
25	182D	brown red		braunrot	
26	183A	brown purple		braunpurpur	
26	183B	brown purple		braunpurpur	
26	183C	brown purple		braunpurpur	
26	183D	brown purple		braunpurpur	
26	184A	brown purple		braunpurpur	
26	184B	brown purple		braunpurpur	
26	184C	brown purple		braunpurpur	
26	184D	brown purple		braunpurpur	
24	185A	dark purple red		dunkelpurpurrot	
26	185B	brown purple		braunpurpur	
26	185C	brown purple		braunpurpur	
26	185D	brown purple		braunpurpur	
26	186A	brown purple		braunpurpur	
26	186B	brown purple		braunpurpur	
19	186C	blue pink		blaurosa	
19	186D	blue pink		blaurosa	
50	N 186A	black		schwarz	
50	N 186B	black		schwarz	
42	N 186C	dark brown		dunkelbraun	
24	N 186D	dark purple red		dunkelpurpurrot	
26	187A	brown purple		braunpurpur	
24	187B	dark purple red		dunkelpurpurrot	
24	187C	dark purple red		dunkelpurpurrot	
24	187D	dark purple red		dunkelpurpurrot	
50	N 187A	black		schwarz	
48	N 187B	grey		grau	
48	N 187C	grey		grau	
48	N 187D	grey		grau	
49	188A	green grey		grüngrau	
49	188B	green grey		grüngrau	
49	188C	green grey		grüngrau	
49	188D	green grey		grüngrau	
9	189A	brown green		braungrün	
49	189B	green grey		grüngrau	
49	189C	green grey		grüngrau	
49	189D	green grey		grüngrau	
49	N 189A	green grey		grüngrau	
49	N 189B	green grey		grüngrau	
49	N 189C	green grey		grüngrau	
49	N 189D	green grey		grüngrau	
49	190A	green grey		grüngrau	
49	190B	green grey		grüngrau	
49	190C	green grey		grüngrau	
49	190D	green grey		grüngrau	
9	191A	brown green		braungrün	
9	191B	brown green		braungrün	
49	191C	green grey		grüngrau	

UPOV Group No.	RHS No.	English	français	deutsch	español
49	191D	green grey		grüngrau	
49	192A	green grey		grüngrau	
49	192B	green grey		grüngrau	
49	192C	green grey		grüngrau	
49	192D	green grey		grüngrau	
9	193A	brown green		braungrün	
9	193B	brown green		braungrün	
49	193C	green grey		grüngrau	
49	193D	green grey		grüngrau	
9	194A	brown green		braungrün	
9	194B	brown green		braungrün	
9	194C	brown green		braungrün	
48	194D	grey		grau	
48	195A	grey		grau	
48	195B	grey		grau	
48	195C	grey		grau	
48	195D	grey		grau	
48	196A	grey		grau	
48	196B	grey		grau	
48	196C	grey		grau	
48	196D	grey		grau	
48	197A	grey		grau	
48	197B	grey		grau	
48	197C	grey		grau	
48	197D	grey		grau	
48	198A	grey		grau	
48	198B	grey		grau	
48	198C	grey		grau	
48	198D	grey		grau	
46	199A	grey brown		graubraun	
46	199B	grey brown		graubraun	
46	199C	grey brown		graubraun	
46	199D	grey brown		graubraun	
46	N 199A	grey brown		graubraun	
42	N 199B	dark brown		dunkelbraun	
46	N 199C	grey brown		graubraun	
46	N 199D	grey brown		graubraun	
42	200A	dark brown		dunkelbraun	
42	200B	dark brown		dunkelbraun	
42	200C	dark brown		dunkelbraun	
41	200D	brown		braun	
42	N 200A	dark brown		dunkelbraun	
48	N 200B	grey		grau	
48	N 200C	grey		grau	
48	N 200D	grey		grau	
48	201A	grey		grau	
48	201B	grey		grau	
48	201C	grey		grau	
48	201D	grey		grau	

UPOV Group No.	RHS No.	English	français	deutsch	español
50	202A	black		schwarz	
48	202B	grey		grau	
48	202C	grey		grau	
48	202D	grey		grau	

[Appendix II follows]

APPENDIX II TO ANNEX I

Appendix II:
RHS Colors contained in each UPOV Color Group

**UPOV COLOR GROUPS ACCORDING TO RHS COLOUR CHART REFERENCE
(1986, 1995 AND 2001 EDITIONS)**

UPOV Group No.	RHS No.	English	français	deutsch	español
1	155A	white		weiss	
1	155B	white		weiss	
1	155C	white		weiss	
1	155D	white		weiss	
1	N 155A	white		weiss	
1	N 155B	white		weiss	
1	N 155C	white		weiss	
1	N 155D	white		weiss	
1	157D	white		weiss	
2	134D	light green		hellgrün	
2	135D	light green		hellgrün	
2	136D	light green		hellgrün	
2	138C	light green		hellgrün	
2	138D	light green		hellgrün	
2	139D	light green		hellgrün	
2	140C	light green		hellgrün	
2	140D	light green		hellgrün	
2	141D	light green		hellgrün	
2	142B	light green		hellgrün	
2	142C	light green		hellgrün	
2	142D	light green		hellgrün	
2	143D	light green		hellgrün	
2	144B	light green		hellgrün	
2	144C	light green		hellgrün	
2	144D	light green		hellgrün	
2	N 144A	light green		hellgrün	
2	N 144B	light green		hellgrün	
2	N 144C	light green		hellgrün	
2	N 144D	light green		hellgrün	
2	145A	light green		hellgrün	
2	145B	light green		hellgrün	
2	145C	light green		hellgrün	
2	145D	light green		hellgrün	
2	149B	light green		hellgrün	
2	149C	light green		hellgrün	
2	149D	light green		hellgrün	
3	124A	green		grün	
3	125A	green		grün	
3	125B	green		grün	
3	127B	green		grün	
3	127C	green		grün	
3	128A	green		grün	

UPOV Group No.	RHS No.	English	français	deutsch	español
3	129A	green		grün	
3	130A	green		grün	
3	130B	green		grün	
3	131D	green		grün	
3	132C	green		grün	
3	132D	green		grün	
3	134A	green		grün	
3	134B	green		grün	
3	134C	green		grün	
3	N 134C	green		grün	
3	N 134D	green		grün	
3	135C	green		grün	
3	140A	green		grün	
3	140B	green		grün	
3	142A	green		grün	
4	131A	dark green		dunkelgrün	
4	131B	dark green		dunkelgrün	
4	131C	dark green		dunkelgrün	
4	132A	dark green		dunkelgrün	
4	132B	dark green		dunkelgrün	
4	133A	dark green		dunkelgrün	
4	N 134A	dark green		dunkelgrün	
4	N 134B	dark green		dunkelgrün	
4	135A	dark green		dunkelgrün	
4	135B	dark green		dunkelgrün	
4	136A	dark green		dunkelgrün	
4	136B	dark green		dunkelgrün	
4	137A	dark green		dunkelgrün	
4	N 138A	dark green		dunkelgrün	
4	139A	dark green		dunkelgrün	
4	141A	dark green		dunkelgrün	
4	141B	dark green		dunkelgrün	
4	141C	dark green		dunkelgrün	
4	143A	dark green		dunkelgrün	
4	143B	dark green		dunkelgrün	
4	143C	dark green		dunkelgrün	
4	144A	dark green		dunkelgrün	
4	147A	dark green		dunkelgrün	
5	001B	yellow green		gelbgrün	
5	001C	yellow green		gelbgrün	
5	001D	yellow green		gelbgrün	
5	002C	yellow green		gelbgrün	
5	002D	yellow green		gelbgrün	
5	003D	yellow green		gelbgrün	
5	004C	yellow green		gelbgrün	
5	149A	yellow green		gelbgrün	
5	150A	yellow green		gelbgrün	
5	150B	yellow green		gelbgrün	
5	150C	yellow green		gelbgrün	

UPOV Group No.	RHS No.	English	français	deutsch	español
5	150D	yellow green		gelbgrün	
5	154A	yellow green		gelbgrün	
5	154B	yellow green		gelbgrün	
5	154C	yellow green		gelbgrün	
5	154D	yellow green		gelbgrün	
6	126A	grey green		graugrün	
6	126B	grey green		graugrün	
6	126C	grey green		graugrün	
6	127A	grey green		graugrün	
6	133B	grey green		graugrün	
6	133C	grey green		graugrün	
6	133D	grey green		graugrün	
7	120A	light blue green		hellblaugrün	
7	120B	light blue green		hellblaugrün	
7	120C	light blue green		hellblaugrün	
7	121B	light blue green		hellblaugrün	
7	123A	light blue green		hellblaugrün	
7	123B	light blue green		hellblaugrün	
7	123C	light blue green		hellblaugrün	
7	123D	light blue green		hellblaugrün	
7	124C	light blue green		hellblaugrün	
7	124D	light blue green		hellblaugrün	
8	124B	blue green		blaugrün	
8	125C	blue green		blaugrün	
8	125D	blue green		blaugrün	
8	126D	blue green		blaugrün	
8	127D	blue green		blaugrün	
8	128B	blue green		blaugrün	
8	128C	blue green		blaugrün	
8	128D	blue green		blaugrün	
8	129B	blue green		blaugrün	
8	129C	blue green		blaugrün	
8	129D	blue green		blaugrün	
8	130C	blue green		blaugrün	
8	130D	blue green		blaugrün	
9	136C	brown green		braungrün	
9	137B	brown green		braungrün	
9	137C	brown green		braungrün	
9	137D	brown green		braungrün	
9	138A	brown green		braungrün	
9	138B	brown green		braungrün	
9	N 138B	brown green		braungrün	
9	N 138C	brown green		braungrün	
9	N 138D	brown green		braungrün	
9	139B	brown green		braungrün	
9	139C	brown green		braungrün	
9	146A	brown green		braungrün	
9	146B	brown green		braungrün	
9	146C	brown green		braungrün	

UPOV Group No.	RHS No.	English	français	deutsch	español
9	146D	brown green		braungrün	
9	147B	brown green		braungrün	
9	147C	brown green		braungrün	
9	147D	brown green		braungrün	
9	148A	brown green		braungrün	
9	148B	brown green		braungrün	
9	148C	brown green		braungrün	
9	148D	brown green		braungrün	
9	189A	brown green		braungrün	
9	191A	brown green		braungrün	
9	191B	brown green		braungrün	
9	193A	brown green		braungrün	
9	193B	brown green		braungrün	
9	194A	brown green		braungrün	
9	194B	brown green		braungrün	
9	194C	brown green		braungrün	
10	004D	light yellow		hellgelb	
10	005D	light yellow		hellgelb	
10	006D	light yellow		hellgelb	
10	008B	light yellow		hellgelb	
10	008C	light yellow		hellgelb	
10	008D	light yellow		hellgelb	
10	009C	light yellow		hellgelb	
10	009D	light yellow		hellgelb	
10	010A	light yellow		hellgelb	
10	010B	light yellow		hellgelb	
10	010C	light yellow		hellgelb	
10	010D	light yellow		hellgelb	
10	011B	light yellow		hellgelb	
10	011C	light yellow		hellgelb	
10	012C	light yellow		hellgelb	
10	012D	light yellow		hellgelb	
10	013D	light yellow		hellgelb	
10	014D	light yellow		hellgelb	
10	015D	light yellow		hellgelb	
10	016D	light yellow		hellgelb	
11	001A	yellow		gelb	
11	002A	yellow		gelb	
11	002B	yellow		gelb	
11	003A	yellow		gelb	
11	003B	yellow		gelb	
11	003C	yellow		gelb	
11	004A	yellow		gelb	
11	004B	yellow		gelb	
11	005A	yellow		gelb	
11	005B	yellow		gelb	
11	005C	yellow		gelb	
11	006A	yellow		gelb	
11	006B	yellow		gelb	

UPOV Group No.	RHS No.	English	français	deutsch	español
11	006C	yellow		gelb	
11	007A	yellow		gelb	
11	007B	yellow		gelb	
11	007C	yellow		gelb	
11	007D	yellow		gelb	
11	008A	yellow		gelb	
11	009A	yellow		gelb	
11	009B	yellow		gelb	
11	012A	yellow		gelb	
11	012B	yellow		gelb	
12	011D	light yellow orange		hellgelborange	
12	018B	light yellow orange		hellgelborange	
12	018C	light yellow orange		hellgelborange	
12	018D	light yellow orange		hellgelborange	
12	019B	light yellow orange		hellgelborange	
12	019C	light yellow orange		hellgelborange	
12	019D	light yellow orange		hellgelborange	
12	020C	light yellow orange		hellgelborange	
12	020D	light yellow orange		hellgelborange	
12	021D	light yellow orange		hellgelborange	
12	022B	light yellow orange		hellgelborange	
12	022C	light yellow orange		hellgelborange	
12	022D	light yellow orange		hellgelborange	
12	023C	light yellow orange		hellgelborange	
12	023D	light yellow orange		hellgelborange	
13	011A	yellow orange		gelborange	
13	013A	yellow orange		gelborange	
13	013B	yellow orange		gelborange	
13	013C	yellow orange		gelborange	
13	014A	yellow orange		gelborange	
13	014B	yellow orange		gelborange	
13	014C	yellow orange		gelborange	
13	015A	yellow orange		gelborange	
13	015B	yellow orange		gelborange	
13	015C	yellow orange		gelborange	
13	016A	yellow orange		gelborange	
13	016B	yellow orange		gelborange	
13	016C	yellow orange		gelborange	
13	017A	yellow orange		gelborange	
13	017B	yellow orange		gelborange	
13	017C	yellow orange		gelborange	
13	017D	yellow orange		gelborange	
13	018A	yellow orange		gelborange	
13	019A	yellow orange		gelborange	
13	020A	yellow orange		gelborange	
13	020B	yellow orange		gelborange	
13	021A	yellow orange		gelborange	
13	021B	yellow orange		gelborange	
13	021C	yellow orange		gelborange	

UPOV Group No.	RHS No.	English	français	deutsch	español
13	022A	yellow orange		gelborange	
13	023A	yellow orange		gelborange	
13	023B	yellow orange		gelborange	
13	N 025D	yellow orange		gelborange	
14	024A	orange		orange	
14	024B	orange		orange	
14	024C	orange		orange	
14	024D	orange		orange	
14	025A	orange		orange	
14	025B	orange		orange	
14	025C	orange		orange	
14	025D	orange		orange	
14	N 025B	orange		orange	
14	N 025C	orange		orange	
14	026A	orange		orange	
14	026B	orange		orange	
14	026C	orange		orange	
14	026D	orange		orange	
14	028B	orange		orange	
14	028C	orange		orange	
14	028D	orange		orange	
14	029A	orange		orange	
14	029B	orange		orange	
14	030D	orange		orange	
14	N 030D	orange		orange	
15	027A	orange pink		orangerosa	
15	027B	orange pink		orangerosa	
15	027C	orange pink		orangerosa	
15	027D	orange pink		orangerosa	
15	029C	orange pink		orangerosa	
15	029D	orange pink		orangerosa	
15	031D	orange pink		orangerosa	
15	032D	orange pink		orangerosa	
15	033D	orange pink		orangerosa	
15	035C	orange pink		orangerosa	
15	037A	orange pink		orangerosa	
15	037B	orange pink		orangerosa	
15	179D	orange pink		orangerosa	
16	035D	light red pink		hellrotrosa	
16	036A	light red pink		hellrotrosa	
16	036B	light red pink		hellrotrosa	
16	036C	light red pink		hellrotrosa	
16	036D	light red pink		hellrotrosa	
16	037C	light red pink		hellrotrosa	
16	037D	light red pink		hellrotrosa	
16	038A	light red pink		hellrotrosa	
16	038B	light red pink		hellrotrosa	
16	038C	light red pink		hellrotrosa	
16	038D	light red pink		hellrotrosa	

UPOV Group No.	RHS No.	English	français	deutsch	español
16	039C	light red pink		hellrotrosa	
16	039D	light red pink		hellrotrosa	
16	041D	light red pink		hellrotrosa	
16	049B	light red pink		hellrotrosa	
16	049C	light red pink		hellrotrosa	
16	049D	light red pink		hellrotrosa	
16	050D	light red pink		hellrotrosa	
17	043C	red pink		rotrosa	
17	043D	red pink		rotrosa	
17	047D	red pink		rotrosa	
17	048B	red pink		rotrosa	
17	048C	red pink		rotrosa	
17	048D	red pink		rotrosa	
17	049A	red pink		rotrosa	
17	050C	red pink		rotrosa	
17	051C	red pink		rotrosa	
17	051D	red pink		rotrosa	
17	052B	red pink		rotrosa	
17	052C	red pink		rotrosa	
17	052D	red pink		rotrosa	
18	054D	light blue pink		hellblaurosa	
18	055C	light blue pink		hellblaurosa	
18	055D	light blue pink		hellblaurosa	
18	056A	light blue pink		hellblaurosa	
18	056B	light blue pink		hellblaurosa	
18	056C	light blue pink		hellblaurosa	
18	056D	light blue pink		hellblaurosa	
18	062B	light blue pink		hellblaurosa	
18	062C	light blue pink		hellblaurosa	
18	062D	light blue pink		hellblaurosa	
18	063D	light blue pink		hellblaurosa	
18	065B	light blue pink		hellblaurosa	
18	065C	light blue pink		hellblaurosa	
18	065D	light blue pink		hellblaurosa	
18	068D	light blue pink		hellblaurosa	
18	069A	light blue pink		hellblaurosa	
18	069B	light blue pink		hellblaurosa	
18	070D	light blue pink		hellblaurosa	
18	073C	light blue pink		hellblaurosa	
18	073D	light blue pink		hellblaurosa	
19	062A	blue pink		blaurosa	
19	063B	blue pink		blaurosa	
19	063C	blue pink		blaurosa	
19	064C	blue pink		blaurosa	
19	064D	blue pink		blaurosa	
19	065A	blue pink		blaurosa	
19	066C	blue pink		blaurosa	
19	066D	blue pink		blaurosa	
19	N 066C	blue pink		blaurosa	

UPOV Group No.	RHS No.	English	français	deutsch	español
19	N 066D	blue pink		blaurosa	
19	067B	blue pink		blaurosa	
19	067C	blue pink		blaurosa	
19	067D	blue pink		blaurosa	
19	068A	blue pink		blaurosa	
19	068B	blue pink		blaurosa	
19	068C	blue pink		blaurosa	
19	070C	blue pink		blaurosa	
19	071D	blue pink		blaurosa	
19	072C	blue pink		blaurosa	
19	072D	blue pink		blaurosa	
19	073A	blue pink		blaurosa	
19	073B	blue pink		blaurosa	
19	074D	blue pink		blaurosa	
19	N 074C	blue pink		blaurosa	
19	N 074D	blue pink		blaurosa	
19	186C	blue pink		blaurosa	
19	186D	blue pink		blaurosa	
20	N 025A	orange red		orangerot	
20	028A	orange red		orangerot	
20	030A	orange red		orangerot	
20	030B	orange red		orangerot	
20	030C	orange red		orangerot	
20	N 030B	orange red		orangerot	
20	N 030C	orange red		orangerot	
20	031A	orange red		orangerot	
20	032A	orange red		orangerot	
20	032B	orange red		orangerot	
20	033B	orange red		orangerot	
20	035B	orange red		orangerot	
20	039A	orange red		orangerot	
20	039B	orange red		orangerot	
20	040C	orange red		orangerot	
20	040D	orange red		orangerot	
20	041B	orange red		orangerot	
20	041C	orange red		orangerot	
20	042D	orange red		orangerot	
20	044D	orange red		orangerot	
21	N 030A	red		rot	
21	033A	red		rot	
21	034A	red		rot	
21	N 034B	red		rot	
21	040A	red		rot	
21	040B	red		rot	
21	041A	red		rot	
21	042A	red		rot	
21	042B	red		rot	
21	042C	red		rot	
21	043A	red		rot	

UPOV Group No.	RHS No.	English	français	deutsch	español
21	043B	red		rot	
21	044A	red		rot	
21	044B	red		rot	
21	044C	red		rot	
21	045A	red		rot	
21	045B	red		rot	
21	045C	red		rot	
21	046B	red		rot	
21	046C	red		rot	
21	047A	red		rot	
21	047B	red		rot	
21	050A	red		rot	
22	N 034C	dark pink red		dunkelrosarot	
22	045D	dark pink red		dunkelrosarot	
22	046D	dark pink red		dunkelrosarot	
22	047C	dark pink red		dunkelrosarot	
22	048A	dark pink red		dunkelrosarot	
22	050B	dark pink red		dunkelrosarot	
22	051A	dark pink red		dunkelrosarot	
22	051B	dark pink red		dunkelrosarot	
22	052A	dark pink red		dunkelrosarot	
22	053C	dark pink red		dunkelrosarot	
22	053D	dark pink red		dunkelrosarot	
23	054A	purple red		purpurrot	
23	054B	purple red		purpurrot	
23	054C	purple red		purpurrot	
23	055A	purple red		purpurrot	
23	055B	purple red		purpurrot	
23	057A	purple red		purpurrot	
23	057B	purple red		purpurrot	
23	057C	purple red		purpurrot	
23	057D	purple red		purpurrot	
23	N 057A	purple red		purpurrot	
23	N 057B	purple red		purpurrot	
23	N 057C	purple red		purpurrot	
23	N 057D	purple red		purpurrot	
23	058B	purple red		purpurrot	
23	058C	purple red		purpurrot	
23	058D	purple red		purpurrot	
23	059D	purple red		purpurrot	
23	060D	purple red		purpurrot	
23	061C	purple red		purpurrot	
23	061D	purple red		purpurrot	
23	063A	purple red		purpurrot	
23	066A	purple red		purpurrot	
23	066B	purple red		purpurrot	
23	N 066A	purple red		purpurrot	
23	N 066B	purple red		purpurrot	
24	N 034A	dark purple red		dunkelpurpurrot	

UPOV Group No.	RHS No.	English	français	deutsch	español
24	046A	dark purple red		dunkelpurpurrot	
24	053A	dark purple red		dunkelpurpurrot	
24	053B	dark purple red		dunkelpurpurrot	
24	059A	dark purple red		dunkelpurpurrot	
24	059B	dark purple red		dunkelpurpurrot	
24	060A	dark purple red		dunkelpurpurrot	
24	060B	dark purple red		dunkelpurpurrot	
24	185A	dark purple red		dunkelpurpurrot	
24	N 186D	dark purple red		dunkelpurpurrot	
24	187B	dark purple red		dunkelpurpurrot	
24	187C	dark purple red		dunkelpurpurrot	
24	187D	dark purple red		dunkelpurpurrot	
25	178C	brown red		braunrot	
25	178D	brown red		braunrot	
25	179A	brown red		braunrot	
25	179B	brown red		braunrot	
25	180A	brown red		braunrot	
25	180B	brown red		braunrot	
25	180C	brown red		braunrot	
25	180D	brown red		braunrot	
25	181A	brown red		braunrot	
25	181B	brown red		braunrot	
25	181C	brown red		braunrot	
25	181D	brown red		braunrot	
25	182A	brown red		braunrot	
25	182B	brown red		braunrot	
25	182C	brown red		braunrot	
25	182D	brown red		braunrot	
26	N 077A	brown purple		braunpurpur	
26	178A	brown purple		braunpurpur	
26	178B	brown purple		braunpurpur	
26	183A	brown purple		braunpurpur	
26	183B	brown purple		braunpurpur	
26	183C	brown purple		braunpurpur	
26	183D	brown purple		braunpurpur	
26	184A	brown purple		braunpurpur	
26	184B	brown purple		braunpurpur	
26	184C	brown purple		braunpurpur	
26	184D	brown purple		braunpurpur	
26	185B	brown purple		braunpurpur	
26	185C	brown purple		braunpurpur	
26	185D	brown purple		braunpurpur	
26	186A	brown purple		braunpurpur	
26	186B	brown purple		braunpurpur	
26	187A	brown purple		braunpurpur	
27	058A	purple		purpur	
27	059C	purple		purpur	
27	060C	purple		purpur	
27	061A	purple		purpur	

UPOV Group No.	RHS No.	English	français	deutsch	español
27	061B	purple		purpur	
27	064A	purple		purpur	
27	064B	purple		purpur	
27	067A	purple		purpur	
27	070A	purple		purpur	
27	070B	purple		purpur	
27	071A	purple		purpur	
27	071B	purple		purpur	
27	071C	purple		purpur	
27	072A	purple		purpur	
27	072B	purple		purpur	
27	074A	purple		purpur	
27	074B	purple		purpur	
27	074C	purple		purpur	
27	N 074A	purple		purpur	
27	N 074B	purple		purpur	
27	N 079C	purple		purpur	
28	N 082A	violet		violett	
28	N 082B	violet		violett	
28	N 082C	violet		violett	
28	N 082D	violet		violett	
28	075A	violet		violett	
28	075B	violet		violett	
28	075C	violet		violett	
28	075D	violet		violett	
28	077A	violet		violett	
28	077B	violet		violett	
28	077C	violet		violett	
28	077D	violet		violett	
28	N 077B	violet		violett	
28	N 077D	violet		violett	
28	078A	violet		violett	
28	078B	violet		violett	
28	078C	violet		violett	
28	078D	violet		violett	
28	N 078A	violet		violett	
28	N 078B	violet		violett	
28	N 078C	violet		violett	
28	N 078D	violet		violett	
28	N 079D	violet		violett	
28	080A	violet		violett	
28	080B	violet		violett	
28	080C	violet		violett	
28	080D	violet		violett	
28	N 080A	violet		violett	
28	N 080B	violet		violett	
28	N 080C	violet		violett	
28	N 080D	violet		violett	
28	081A	violet		violett	
28	081B	violet		violett	

UPOV Group No.	RHS No.	English	français	deutsch	español
28	081C	violet		violett	
28	081D	violet		violett	
28	N 081A	violet		violett	
28	N 081B	violet		violett	
28	N 081C	violet		violett	
28	N 081D	violet		violett	
28	082A	violet		violett	
28	082B	violet		violett	
28	082C	violet		violett	
28	082D	violet		violett	
28	084A	violet		violett	
28	084B	violet		violett	
28	087A	violet		violett	
28	087B	violet		violett	
28	087C	violet		violett	
28	087D	violet		violett	
28	N 087A	violet		violett	
28	N 087B	violet		violett	
28	N 087C	violet		violett	
28	N 087D	violet		violett	
28	088D	violet		violett	
29	N 077C	dark violet		dunkelviolet	
29	079A	dark violet		dunkelviolet	
29	079B	dark violet		dunkelviolet	
29	079C	dark violet		dunkelviolet	
29	079D	dark violet		dunkelviolet	
29	N 079A	dark violet		dunkelviolet	
29	N 079B	dark violet		dunkelviolet	
29	083A	dark violet		dunkelviolet	
29	083B	dark violet		dunkelviolet	
29	086A	dark violet		dunkelviolet	
29	N 092A	dark violet		dunkelviolet	
30	069C	light blue violet		hellblauviolett	
30	069D	light blue violet		hellblauviolett	
30	076A	light blue violet		hellblauviolett	
30	076B	light blue violet		hellblauviolett	
30	076C	light blue violet		hellblauviolett	
30	076D	light blue violet		hellblauviolett	
30	084C	light blue violet		hellblauviolett	
30	084D	light blue violet		hellblauviolett	
30	085A	light blue violet		hellblauviolett	
30	085B	light blue violet		hellblauviolett	
30	085C	light blue violet		hellblauviolett	
30	085D	light blue violet		hellblauviolett	
31	083C	blue violet		blauviolett	
31	083D	blue violet		blauviolett	
31	086B	blue violet		blauviolett	
31	086C	blue violet		blauviolett	
31	086D	blue violet		blauviolett	

UPOV Group No.	RHS No.	English	français	deutsch	español
31	088A	blue violet		blauviolett	
31	088B	blue violet		blauviolett	
31	088C	blue violet		blauviolett	
31	N 088A	blue violet		blauviolett	
31	N 088B	blue violet		blauviolett	
31	N 088C	blue violet		blauviolett	
31	N 088D	blue violet		blauviolett	
31	089C	violet blue		blauviolett	
31	089D	violet blue		blauviolett	
31	N 089C	blue violet		blauviolett	
31	N 089D	blue violet		blauviolett	
31	090A	blue violet		blauviolett	
31	090B	blue violet		blauviolett	
31	090C	blue violet		blauviolett	
31	090D	blue violet		blauviolett	
31	N 092D	blue violet		blauviolett	
32	091B	light violet blue		hellviolettblau	
32	091C	light violet blue		hellviolettblau	
32	091D	light violet blue		hellviolettblau	
32	092B	light violet blue		hellviolettblau	
32	092C	light violet blue		hellviolettblau	
32	092D	light violet blue		hellviolettblau	
32	093D	light violet blue		hellviolettblau	
32	094D	light violet blue		hellviolettblau	
32	095D	light violet blue		hellviolettblau	
32	097B	light violet blue		hellviolettblau	
32	097C	light violet blue		hellviolettblau	
32	097D	light violet blue		hellviolettblau	
32	100D	light violet blue		hellviolettblau	
33	089A	violet blue		violettblau	
33	089B	violet blue		violettblau	
33	N 089A	violet blue		violettblau	
33	N 089B	violet blue		violettblau	
33	091A	violet blue		violettblau	
33	092A	violet blue		violettblau	
33	N 092B	violet blue		violettblau	
33	N 092C	violet blue		violettblau	
33	093A	violet blue		violettblau	
33	093B	violet blue		violettblau	
33	093C	violet blue		violettblau	
33	094A	violet blue		violettblau	
33	094B	violet blue		violettblau	
33	094C	violet blue		violettblau	
33	095A	violet blue		violettblau	
33	095B	violet blue		violettblau	
33	095C	violet blue		violettblau	
33	096A	violet blue		violettblau	
33	096B	violet blue		violettblau	
33	096C	violet blue		violettblau	

UPOV Group No.	RHS No.	English	français	deutsch	español
33	096D	violet blue		violettblau	
33	097A	violet blue		violettblau	
34	101D	light blue		hellblau	
34	104D	light blue		hellblau	
34	106B	light blue		hellblau	
34	106C	light blue		hellblau	
34	106D	light blue		hellblau	
34	107C	light blue		hellblau	
34	107D	light blue		hellblau	
34	108A	light blue		hellblau	
34	108B	light blue		hellblau	
34	108C	light blue		hellblau	
34	108D	light blue		hellblau	
34	109D	light blue		hellblau	
34	N 109D	light blue		hellblau	
34	112A	light blue		hellblau	
34	112B	light blue		hellblau	
35	098A	blue		blau	
35	098B	blue		blau	
35	098C	blue		blau	
35	098D	blue		blau	
35	099C	blue		blau	
35	099D	blue		blau	
35	100A	blue		blau	
35	100B	blue		blau	
35	100C	blue		blau	
35	101A	blue		blau	
35	101B	blue		blau	
35	101C	blue		blau	
35	102B	blue		blau	
35	102C	blue		blau	
35	102D	blue		blau	
35	103D	blue		blau	
35	104A	blue		blau	
35	104B	blue		blau	
35	104C	blue		blau	
35	105A	blue		blau	
35	105B	blue		blau	
35	105C	blue		blau	
35	105D	blue		blau	
35	106A	blue		blau	
35	107A	blue		blau	
35	107B	blue		blau	
35	109A	blue		blau	
35	109B	blue		blau	
35	109C	blue		blau	
35	N 109A	blue		blau	
35	N 109B	blue		blau	
35	N 109C	blue		blau	

UPOV Group No.	RHS No.	English	français	deutsch	español
35	110A	blue		blau	
35	110B	blue		blau	
36	099A	dark blue		dunkelblau	
36	099B	dark blue		dunkelblau	
36	102A	dark blue		dunkelblau	
36	103A	dark blue		dunkelblau	
36	103B	dark blue		dunkelblau	
36	103C	dark blue		dunkelblau	
37	110C	light green blue		hellgrünblau	
37	110D	light green blue		hellgrünblau	
37	111C	light green blue		hellgrünblau	
37	111D	light green blue		hellgrünblau	
37	112C	light green blue		hellgrünblau	
37	112D	light green blue		hellgrünblau	
37	113C	light green blue		hellgrünblau	
37	113D	light green blue		hellgrünblau	
37	117A	light green blue		hellgrünblau	
37	117B	light green blue		hellgrünblau	
37	117C	light green blue		hellgrünblau	
37	117D	light green blue		hellgrünblau	
37	118C	light green blue		hellgrünblau	
37	118D	light green blue		hellgrünblau	
37	119D	light green blue		hellgrünblau	
37	120D	light green blue		hellgrünblau	
37	121C	light green blue		hellgrünblau	
37	121D	light green blue		hellgrünblau	
37	122D	light green blue		hellgrünblau	
38	111A	green blue		grünblau	
38	111B	green blue		grünblau	
38	113A	green blue		grünblau	
38	113B	green blue		grünblau	
38	114A	green blue		grünblau	
38	114B	green blue		grünblau	
38	114C	green blue		grünblau	
38	114D	green blue		grünblau	
38	115A	green blue		grünblau	
38	115B	green blue		grünblau	
38	116A	green blue		grünblau	
38	116B	green blue		grünblau	
38	116C	green blue		grünblau	
38	116D	green blue		grünblau	
38	118A	green blue		grünblau	
38	118B	green blue		grünblau	
38	119A	green blue		grünblau	
38	121A	green blue		grünblau	
39	115C	grey blue		graublau	
39	115D	grey blue		graublau	
39	119B	grey blue		graublau	
39	119C	grey blue		graublau	

UPOV Group No.	RHS No.	English	français	deutsch	español
39	122A	grey blue		graublau	
39	122B	grey blue		graublau	
39	122C	grey blue		graublau	
40	166C	light brown		hellbraun	
40	166D	light brown		hellbraun	
40	N 170A	light brown		hellbraun	
40	N 170B	light brown		hellbraun	
40	N 170C	light brown		hellbraun	
40	173C	light brown		hellbraun	
40	173D	light brown		hellbraun	
40	174B	light brown		hellbraun	
40	174C	light brown		hellbraun	
40	174D	light brown		hellbraun	
40	176D	light brown		hellbraun	
40	177C	light brown		hellbraun	
40	177D	light brown		hellbraun	
41	165A	brown		braun	
41	166A	brown		braun	
41	166B	brown		braun	
41	171A	brown		braun	
41	172A	brown		braun	
41	172B	brown		braun	
41	173A	brown		braun	
41	174A	brown		braun	
41	175A	brown		braun	
41	175B	brown		braun	
41	175C	brown		braun	
41	175D	brown		braun	
41	176A	brown		braun	
41	176B	brown		braun	
41	176C	brown		braun	
41	177A	brown		braun	
41	177B	brown		braun	
41	200D	brown		braun	
42	N 186C	dark brown		dunkelbraun	
42	N 199B	dark brown		dunkelbraun	
42	200A	dark brown		dunkelbraun	
42	200B	dark brown		dunkelbraun	
42	200C	dark brown		dunkelbraun	
42	N 200A	dark brown		dunkelbraun	
43	158A	light yellow brown		hellgelbbraun	
43	158B	light yellow brown		hellgelbbraun	
43	158C	light yellow brown		hellgelbbraun	
43	158D	light yellow brown		hellgelbbraun	
43	159A	light yellow brown		hellgelbbraun	
43	159B	light yellow brown		hellgelbbraun	
43	159C	light yellow brown		hellgelbbraun	
43	159D	light yellow brown		hellgelbbraun	
43	160A	light yellow brown		hellgelbbraun	

UPOV Group No.	RHS No.	English	français	deutsch	español
43	160B	light yellow brown		hellgelbbraun	
43	160C	light yellow brown		hellgelbbraun	
43	160D	light yellow brown		hellgelbbraun	
43	161A	light yellow brown		hellgelbbraun	
43	161B	light yellow brown		hellgelbbraun	
43	161C	light yellow brown		hellgelbbraun	
43	161D	light yellow brown		hellgelbbraun	
43	162A	light yellow brown		hellgelbbraun	
43	162B	light yellow brown		hellgelbbraun	
43	162C	light yellow brown		hellgelbbraun	
43	162D	light yellow brown		hellgelbbraun	
43	163B	light yellow brown		hellgelbbraun	
43	163C	light yellow brown		hellgelbbraun	
43	163D	light yellow brown		hellgelbbraun	
43	164D	light yellow brown		hellgelbbraun	
43	165D	light yellow brown		hellgelbbraun	
44	163A	yellow brown		gelbbraun	
44	N 163C	yellow brown		gelbbraun	
44	N 163D	yellow brown		gelbbraun	
44	164A	yellow brown		gelbbraun	
44	164B	yellow brown		gelbbraun	
44	164C	yellow brown		gelbbraun	
44	165B	yellow brown		gelbbraun	
44	165C	yellow brown		gelbbraun	
44	167A	yellow brown		gelbbraun	
44	167B	yellow brown		gelbbraun	
44	167C	yellow brown		gelbbraun	
44	167D	yellow brown		gelbbraun	
44	N 167A	yellow brown		gelbbraun	
44	N 167B	yellow brown		gelbbraun	
44	N 167C	yellow brown		gelbbraun	
44	N 167D	yellow brown		gelbbraun	
44	168C	yellow brown		gelbbraun	
44	168D	yellow brown		gelbbraun	
44	N 172D	yellow brown		gelbbraun	
45	031B	orange brown		orangebraun	
45	031C	orange brown		orangebraun	
45	032C	orange brown		orangebraun	
45	033C	orange brown		orangebraun	
45	034B	orange brown		orangebraun	
45	034C	orange brown		orangebraun	
45	034D	orange brown		orangebraun	
45	N 034D	orange brown		orangebraun	
45	035A	orange brown		orangebraun	
45	N 163A	orange brown		orangebraun	
45	N 163B	orange brown		orangebraun	
45	168A	orange brown		orangebraun	
45	168B	orange brown		orangebraun	
45	169A	orange brown		orangebraun	

UPOV Group No.	RHS No.	English	français	deutsch	español
45	169B	orange brown		orangebraun	
45	169C	orange brown		orangebraun	
45	169D	orange brown		orangebraun	
45	170A	orange brown		orangebraun	
45	170B	orange brown		orangebraun	
45	170C	orange brown		orangebraun	
45	170D	orange brown		orangebraun	
45	N 170D	orange brown		orangebraun	
45	171B	orange brown		orangebraun	
45	171C	orange brown		orangebraun	
45	171D	orange brown		orangebraun	
45	172C	orange brown		orangebraun	
45	172D	orange brown		orangebraun	
45	N 172A	orange brown		orangebraun	
45	N 172B	orange brown		orangebraun	
45	N 172C	orange brown		orangebraun	
45	173B	orange brown		orangebraun	
45	179C	orange brown		orangebraun	
46	199A	grey brown		graubraun	
46	199B	grey brown		graubraun	
46	199C	grey brown		graubraun	
46	199D	grey brown		graubraun	
46	N 199A	grey brown		graubraun	
46	N 199C	grey brown		graubraun	
46	N 199D	grey brown		graubraun	
47	151A	green brown		grünbraun	
47	151B	green brown		grünbraun	
47	151C	green brown		grünbraun	
47	151D	green brown		grünbraun	
47	152A	green brown		grünbraun	
47	152B	green brown		grünbraun	
47	152C	green brown		grünbraun	
47	152D	green brown		grünbraun	
47	153A	green brown		grünbraun	
47	153B	green brown		grünbraun	
47	153C	green brown		grünbraun	
47	153D	green brown		grünbraun	
48	156A	grey		grau	
48	156B	grey		grau	
48	156C	grey		grau	
48	156D	grey		grau	
48	157A	grey		grau	
48	157B	grey		grau	
48	157C	grey		grau	
48	N 187B	grey		grau	
48	N 187C	grey		grau	
48	N 187D	grey		grau	
48	194D	grey		grau	
48	195A	grey		grau	

UPOV Group No.	RHS No.	English	français	deutsch	español
48	195B	grey		grau	
48	195C	grey		grau	
48	195D	grey		grau	
48	196A	grey		grau	
48	196B	grey		grau	
48	196C	grey		grau	
48	196D	grey		grau	
48	197A	grey		grau	
48	197B	grey		grau	
48	197C	grey		grau	
48	197D	grey		grau	
48	198A	grey		grau	
48	198B	grey		grau	
48	198C	grey		grau	
48	198D	grey		grau	
48	N 200B	grey		grau	
48	N 200C	grey		grau	
48	N 200D	grey		grau	
48	201A	grey		grau	
48	201B	grey		grau	
48	201C	grey		grau	
48	201D	grey		grau	
48	202B	grey		grau	
48	202C	grey		grau	
48	202D	grey		grau	
49	188A	green grey		grüngrau	
49	188B	green grey		grüngrau	
49	188C	green grey		grüngrau	
49	188D	green grey		grüngrau	
49	189B	green grey		grüngrau	
49	189C	green grey		grüngrau	
49	189D	green grey		grüngrau	
49	N 189A	green grey		grüngrau	
49	N 189B	green grey		grüngrau	
49	N 189C	green grey		grüngrau	
49	N 189D	green grey		grüngrau	
49	190A	green grey		grüngrau	
49	190B	green grey		grüngrau	
49	190C	green grey		grüngrau	
49	190D	green grey		grüngrau	
49	191C	green grey		grüngrau	
49	191D	green grey		grüngrau	
49	192A	green grey		grüngrau	
49	192B	green grey		grüngrau	
49	192C	green grey		grüngrau	
49	192D	green grey		grüngrau	
49	193C	green grey		grüngrau	
49	193D	green grey		grüngrau	

UPOV Group No.	RHS No.	English	français	deutsch	español
50	N 186A	black		schwarz	
50	N 186B	black		schwarz	
50	N 187A	black		schwarz	
50	202A	black		schwarz	

[Annex II follows]

ANNEX II

(a) CONCLUSIONS OF THE WORKSHOP ON
DOCUMENT TGP/14 SECTION 2, SUBSECTION 3 “COLOR”

The following is a 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, in Lisbon, Portugal, under the chairmanship of Mr. Ton Kwakkenbos (Community Plant Variety Office of the European Community (CPVO)). A copy of the documents and information discussed at the Workshop can be found at http://www.upov.int/restrict/en/two/index_two41.htm.

STRATEGIES FOR COLOR CHARACTERISTICS

1. 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

2. 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			
	(+)			
	<i>Option 1</i>	<i>Option 2*</i>	<i>Option 3</i>	
PQ	green	1	UPOV Color Group	(1-50) RHS Colour Chart
	yellow	2		
	red	3		
		etc	* option subsequently deleted	

3. 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 references 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			
	(+)			
	<i>Example 1</i>	<i>Example 2</i>	<i>Example 3</i>	
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

4. 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

5. 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		
	<i>Option 1</i>		<i>Option 2</i>
PQ	green	1	RHS Colour Chart
	yellow	2	
	red	3	
			etc

6. 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.

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

(d) Color Change Over Time

8. 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

9. 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.

10. 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

11. 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.

12. 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)”.

13. 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”

14. 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.

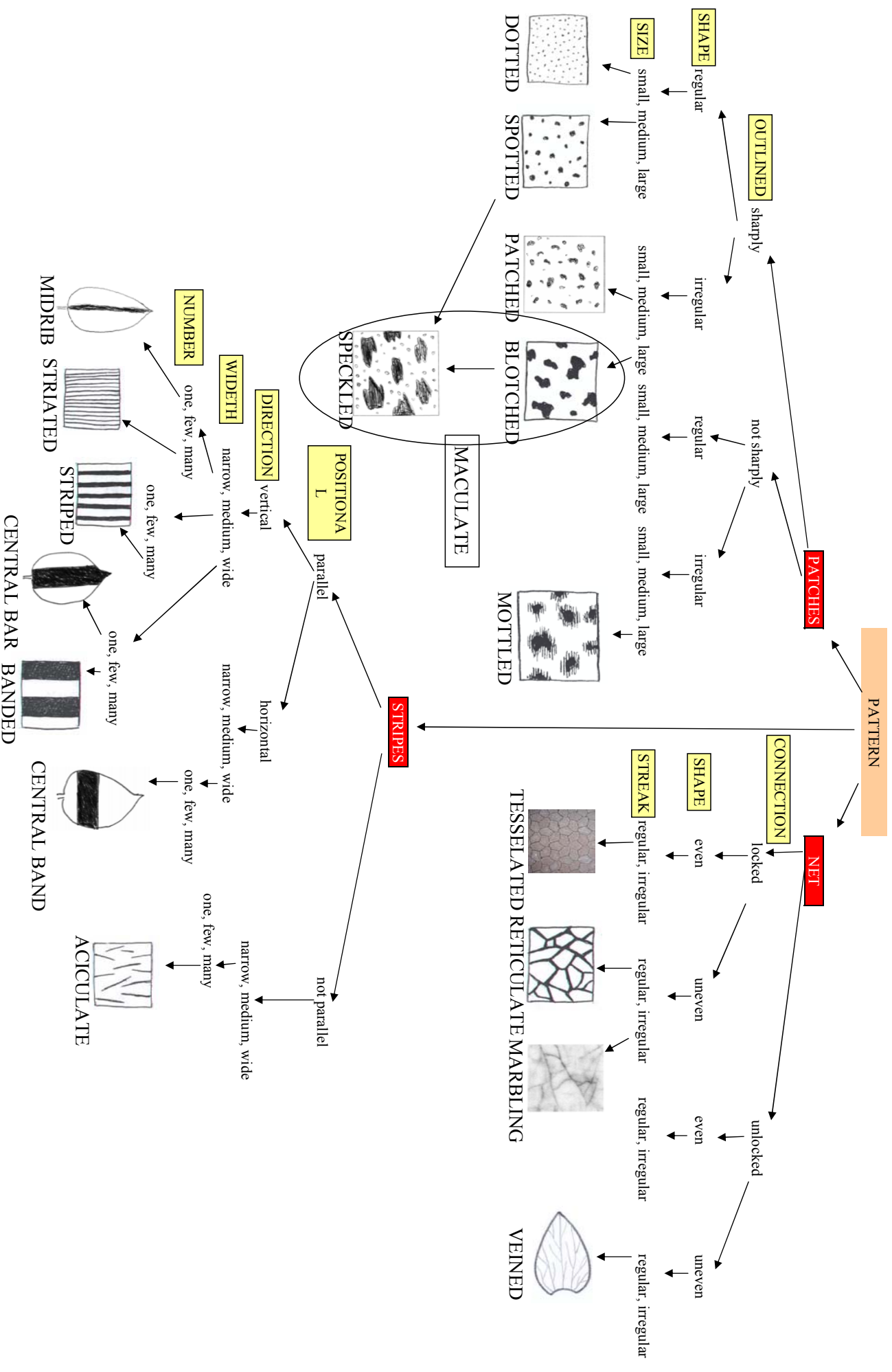
15. The TGP/14 Workshop agreed that an explanation of the meaning of “conspicuousness” in terms of the individual factors (e.g. color contrast, relative size etc.) should be provided.

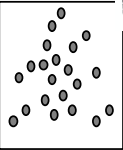
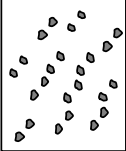
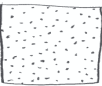
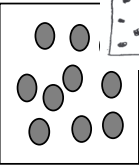
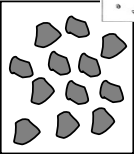
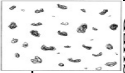
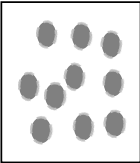
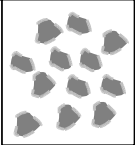
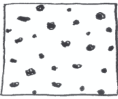
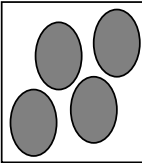
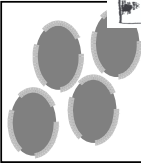
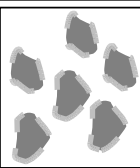
(g) COLOR CHART

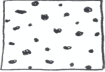
16. The TGP/14 Workshop noted that a new version of the RHS Colour Chart had been published and that it was understood that some color charts had been added in the new (2007) version. It agreed that document TGP/14, including Annexes I and II should be updated accordingly.

[Appendix to Annex II (a) follows]

SCHEME FOR DETERMINING COLOR PATTERN TERMS



Annex 2					
PATCHES outline shape size	(sharply / not sharply) (regular / irregular) (small / medium / large)				
	sharply		not sharply		
OUTLINED SIZE\SHAPE	regular	irregular	regular	irregular	
small					
	 DOTTED				
medium		  PATCHED			
	 SPOTTED				
large		  BLOTCHED	  MOTTLED		


+

=

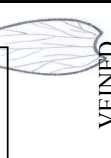
SPECKLED

Annex 3

STRIPES

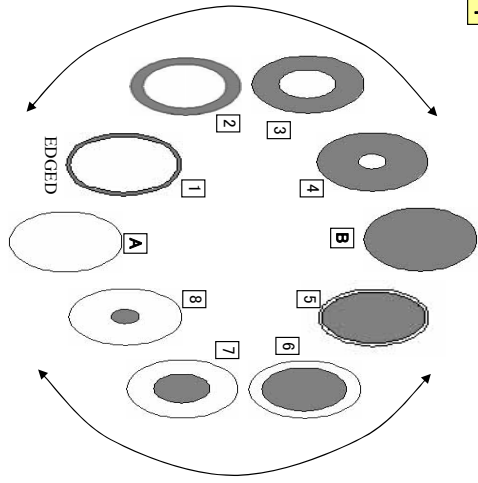
positional relation (parallel / not parallel)
direction (vertical / horizontal)
width (narrow / medium / wide)
number (one / few / many)

position		parallel			not parallel		
direction		vertical			horizontal		
width \ number		one	few	many	one	few	many
narrow							
medium							
wide							

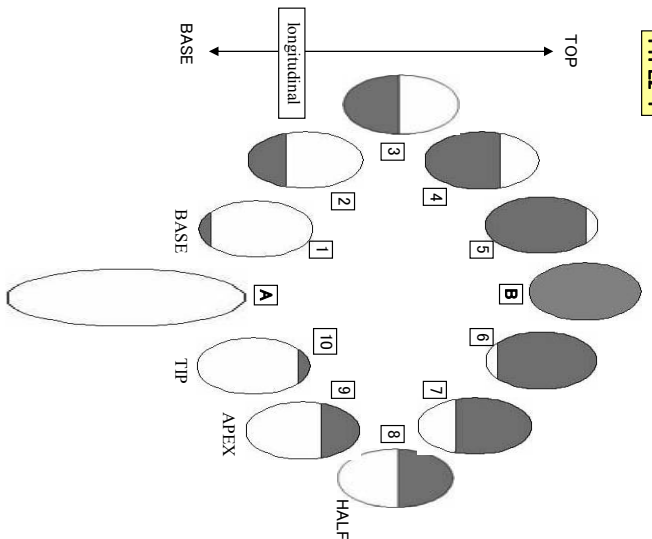
Annex 4			
NET	connection shape/grid	(locked / unlocked) (even/ uneven) / (regular / irregular)	
		grid	lockedunlocked
even	regular	regular	  TESSELATED
		irregular	
uneven	regular	regular	  RETICULATE  VEINED
		irregular	  MARBLING

DISTRIBUTION

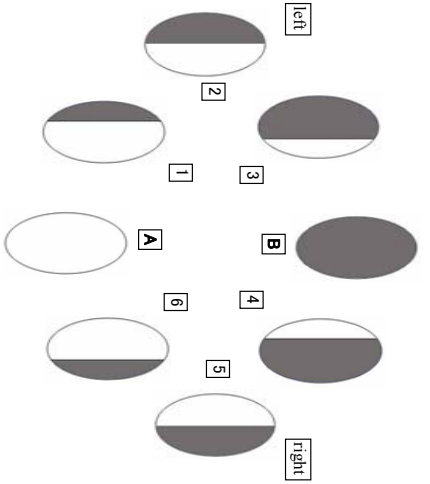
TYPE 1-1



TYPE2-1



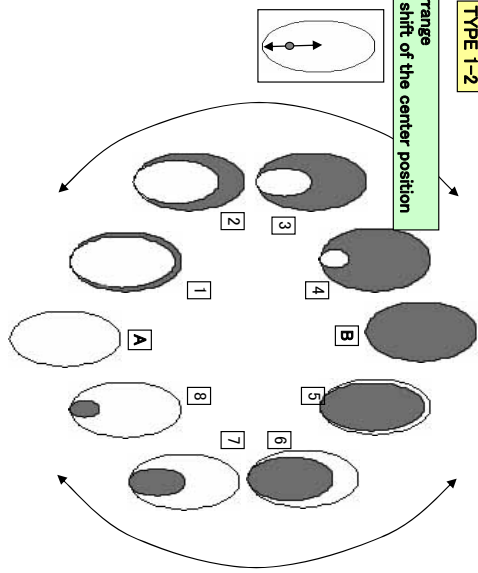
TYPE 3-1



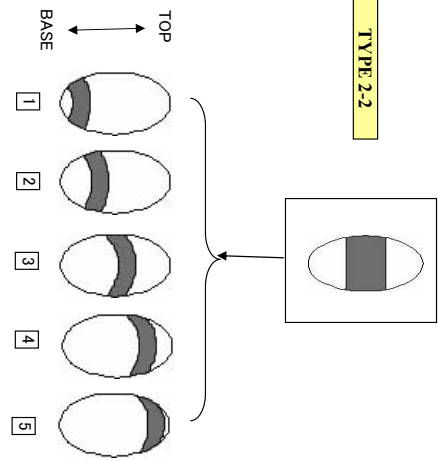
TRANSVERSE

TYPE 1-2

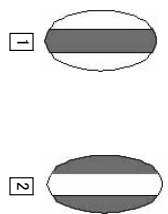
arrange
: shift of the center position



TYPE 2-2

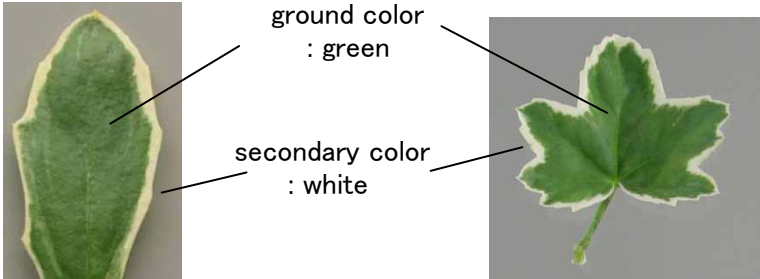


TYPE 3-2



EXAMPLE(LEAF)

Ex.1



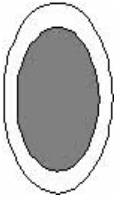
ground color
: green

secondary color
: white

DISTRIBUTION

TYPE 1-1

6



COLOR PATTERN



MARGINA ZONE

Ex.2



ground color
: green

secondary color
: white

DISTRIBUTION

TYPE 3-2

2



or

PATTERN

STRIPES

PARALLEL

VERTICAL

WIDE

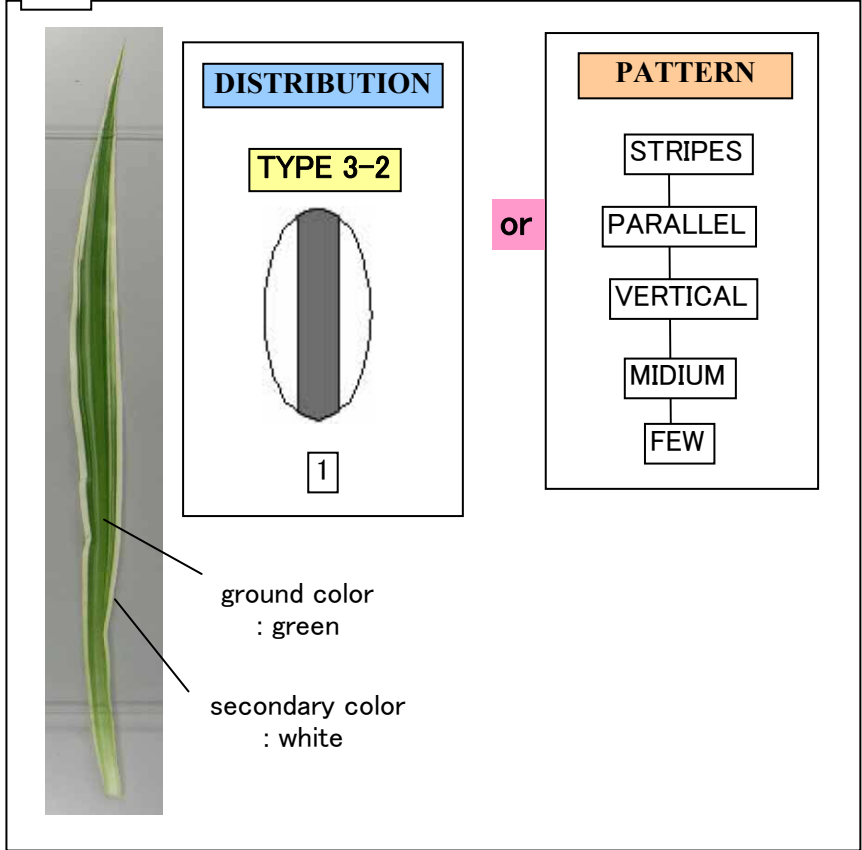
ONE

COLOR PATTERN

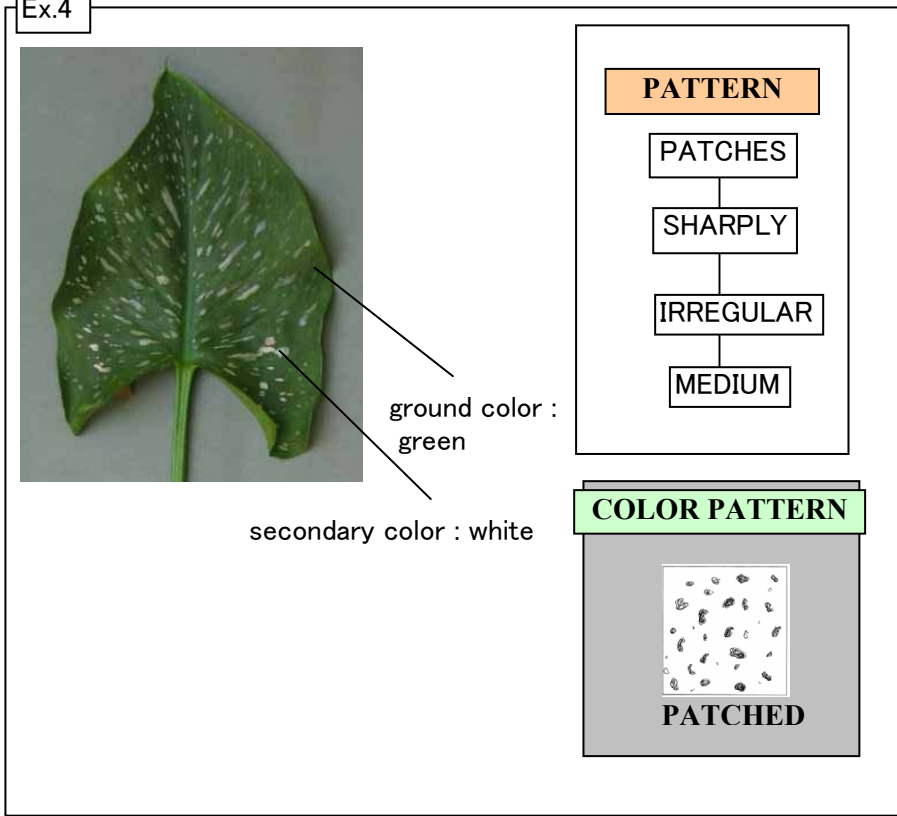


CENTRAL BAR

Ex.3



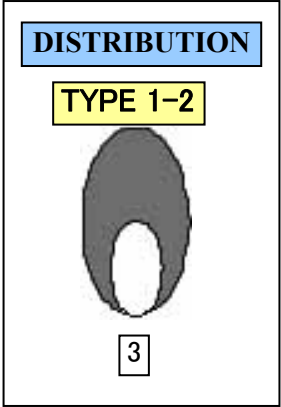
Ex.4



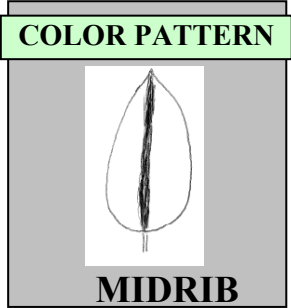
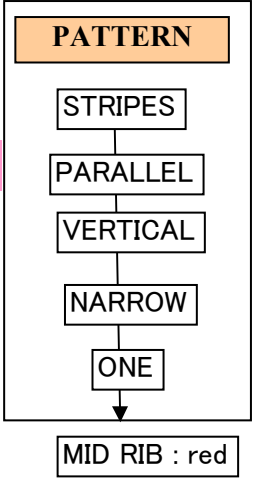
Ex.5



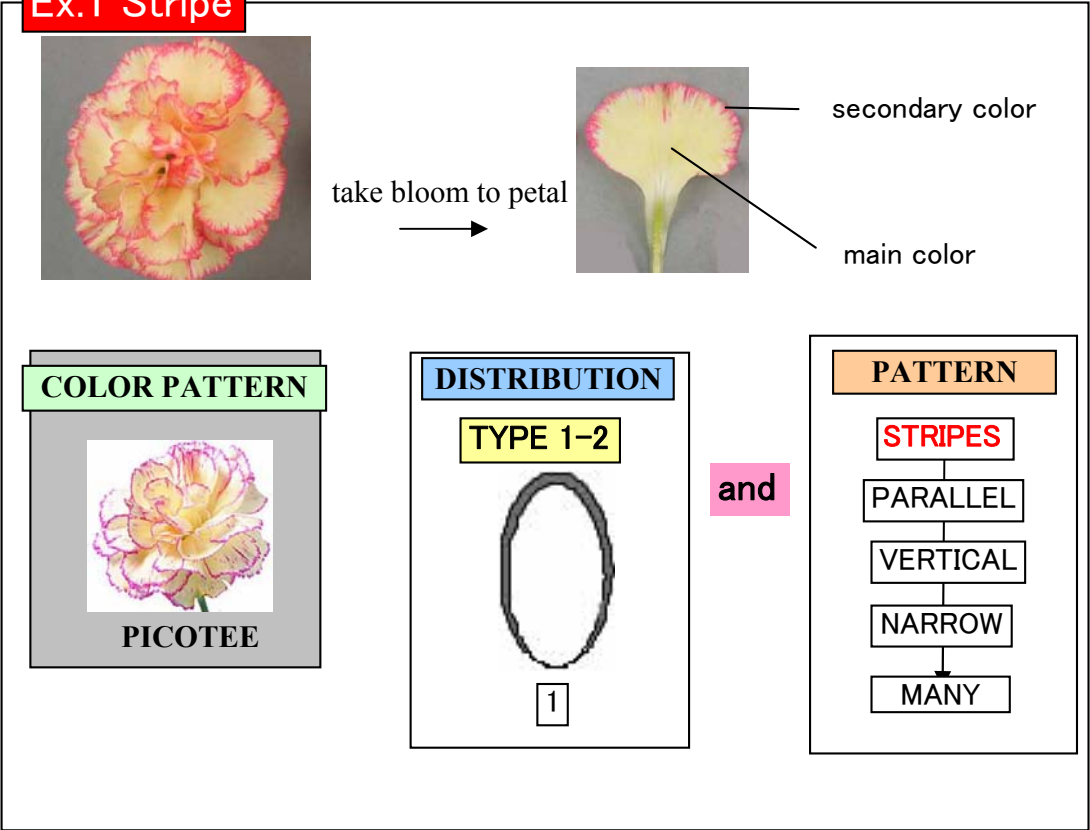
ground color : green
secondary color : yellow
tertiary color : red



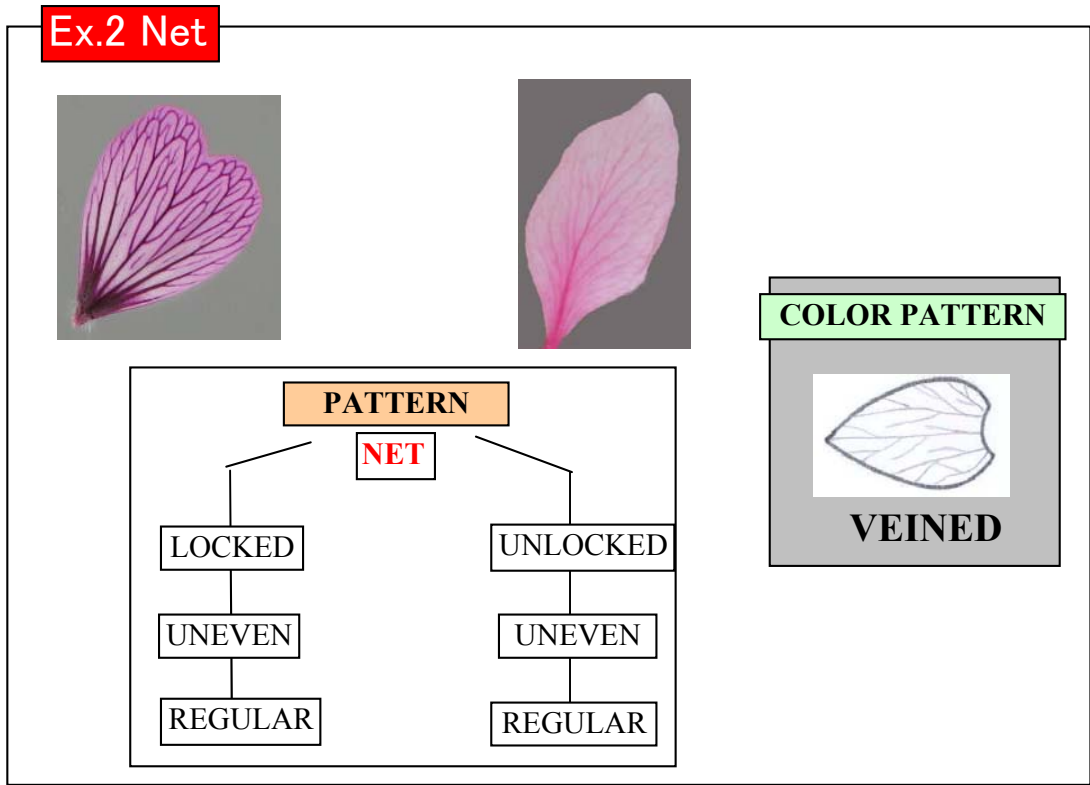
plus



Ex.1 Stripe



Ex.2 Net



Ex.3 Patch



take bloom to petal
→



main color

secondary color

PATTERN

PATCHES

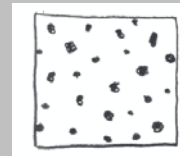
SHARPLY

REGULAR



MEDIUM

COLOR PATTERN



SPOTTED

[Annex II (b) follows]

ANNEX II

(b) COMMENTS OF THE TECHNICAL WORKING PARTIES ON
DOCUMENT TGP/14/1 DRAFT 6 SECTION 2, SUBSECTION 3 “COLOR” AND ON THE
CONCLUSIONS OF THE WORKSHOP ON DOCUMENT TGP/14 SECTION 2,
SUBSECTION 3 “COLOR”

TWA	The Technical Working Party for Agricultural Crops (TWA) proposed that document TGP/14/1 Section 2, Subsection 3 “Color” should include guidance on characteristics and states of expression for green color and, in particular, should avoid the creation of a separate characteristic for intensity of particular hues of green (c.f. draft Test Guidelines for Pea (document TG/7/10(proj.5): Chars. 7 and 8)
TWF	The Technical Working Party for Fruit Crops (TWF) supported the proposals set out in document TWF/39/3 Add. (Annex II to this document). With regard to characteristics for color changes over time, it noted that that matter would be discussed at its next session in relation to Peach. It was also noted that any such characteristics would need to fulfill the UPOV requirements for a characteristic. The TWF proposed that the example of anthocyanin coloration in the flesh of peach could be used to illustrate the need to consider both the intensity and distribution of anthocyanin coloration in some cases.
TWO	The Technical Working Party for Ornamental Plants and Forest Trees (TWO) agreed that the definitions of the components of color should be deleted from document TGP/14/1 Draft 6 Section 2, Subsection 3 “Color”, II.1, 2.1. The TWO agreed to start using the proposals set out in document TWF/39/3 Add. (Annex II to this document) in the preparation of draft Test Guidelines for 2009. It noted that it would be necessary to develop a new state of expression in color pattern characteristics to describe the area of color which was previously described as the “main” color, (e.g. continuous dispersion). It was also agreed that the example in 4.2 of document TWF/39/3 Add. (Annex II to this document) should be amended to read “Petal: shape of color [1]/[2] area. The TWO agreed that it would still be important to retain the possibility to have a characteristic for number of colors in order to have a simple overall characteristic, but which was not used as the starting point to describe color pattern. It also agreed that it would be important to retain the option, where appropriate, to describe the color pattern by describing colors in specified parts of the plants (e.g. color of margin, color of basal zone etc.). With regard to anthocyanin coloration, it was agreed that an example of characteristics should be included in TGP/14. In order to develop and test the approach to color characteristics proposed in document TWO/41/3 Add. (Annex II to this document), the TWO agreed to have an exercise on color in Alstroemeria, Canna and Phalaenopsis to see if characteristics based on that approach would be more effective than the traditional approach. The TWO agreed that the European Community

	should coordinate a subgroup to develop proposals for an exercise to be conducted by the TWO, in which the two approaches would be evaluated. The experts present at the session, from Australia, France, Germany, Japan, Mexico, Netherlands (Kees Grashoff), New Zealand, United Kingdom and the Office of the Union agreed to participate in the subgroup. The first draft of characteristics, to be prepared by the European Community according to the proposed new approach, would be circulated to the subgroup for comment by October 31, 2008, with 4 weeks for comments. On the basis of the comments, a new draft would be prepared by the European Community and checked by the subgroup. A circular presenting the exercise would be sent by the Office of the Union to the TWO by the end of February 2008, with 6 weeks for completion². The completed exercises by the TWO experts would be sent to the European Community, with a copy to the Office of the Union. The European Community would then prepare a TWO document, containing the compiled results of the exercise, 6 weeks before the forty-second session of the TWO.
TWV	The Technical Working Party for Vegetables (TWV) agreed that consideration should be given to including “flecking” as a color pattern in the scheme in the annex to document TWV/42/3 Add. (Annex II to this document). With regard to document TWV/42/3 Add. (Annex II to this document), “(d) Color Change Over Time”, the TWV agreed that characteristic 2 “Fruit: succession of colors” should be considered as a possible option for consideration in relation to relevant Test Guidelines.

[End of Annex II and of document]

² The exercise on color in *Alstroemeria*, *Canna* and *Phalaenopsis* can be found on the TWO/42 website (http://www.upov.int/restrict/en/two/index_two42.htm).