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# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

## TECHNICAL WORKING PARTY ON AUTOMATION AND COMPUTER PROGRAMS

### Thirty-Third Session Natal, Brazil, June 30 to July 3, 2015

#### DEFINITION OF COLOR GROUPS FROM RHS COLOUR CHARTS

*Document prepared by the Office of the Union*

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#### EXECUTIVE SUMMARY

1. The purpose of this document is to consider the use of RHS Colour Chart references to allocate varieties to color groups for the purposes of grouping of varieties and organization of the growing trial.
2. The TWC is invited to consider:
  - (a) the presentations by members of the Union on how varieties are allocated to color groups;
  - (b) the possibility to use RHS Colour Chart references as a basis for defining color groups for the purposes of grouping of varieties and organization of the growing trial; and
  - (c) whether the allocation of UPOV Color Groups for each RHS color, as set out in document TGP/14, could be used for grouping of varieties and organization of the growing trial.
3. The structure of this document is as follows:

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| DEVELOPMENTS IN 2015..... | 2 |

|          |                                                                                                                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANNEX I  | Extract from document TGP/14: Color names for the RHS Colour Chart                                                                                                                                        |
| ANNEX II | Example of Test Guidelines with a color characteristic represented by RHS Colour Chart number and color groups created in the Technical Questionnaire for the purpose of grouping varieties for DUS trial |

#### BACKGROUND

4. Document TGP/14 "Glossary of Terms Used in UPOV Documents" provides guidance on color names for the RHS Colour Chart for the purpose of harmonizing color names for variety descriptions. Paragraph 1.2 of document TGP/14, Section 2, Subsection 3, Annex, states that: "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." An extract of document TGP/14 with "Color names for the RHS Colour Chart" and "Allocation of UPOV Color Groups for each RHS Color " is provided as Annex I to this document.

5. Document TGP/7 "Development of Test Guidelines", GN 13 "Characteristics with specific functions", provides the following guidance on the use of color characteristics for grouping of varieties:

"In the case of color characteristics, where the states of expression in the Table of Characteristics are represented by the RHS Colour Chart number, color groups should be created for use of these characteristics as grouping characteristics. If the characteristic is included in the Technical Questionnaire, the color groups created for the characteristic for grouping purposes and for presenting the characteristic in the Technical Questionnaire should be the same."

6. An example of Test Guidelines with color characteristics represented by RHS Colour Chart numbers and color groups created in the Technical Questionnaire for the purpose of grouping varieties for DUS trials is presented as Annex II to this document.

#### DEVELOPMENTS IN 2015

7. The TC-EDC, at its meeting in January 2015, recommended that consideration be given to developing guidance in document TGP/14 on possibilities to use RHS Colour Chart references as a basis for defining color groups for the purposes of grouping of varieties and organization of the growing trial (Test Guidelines: Section 5 "Grouping characteristics") and characteristics of the variety to be indicated by the applicant (Test Guidelines: Technical Questionnaire, Section 5 "TQ Characteristics") (see document TC/51/5 "TGP Documents", paragraph 33).

8. The TC agreed to invite members of the Union to present to the TWPs, at their sessions in 2015, how varieties were allocated to color groups.

9. The TC also agreed that representatives of the Royal Horticultural Society (RHS) should be invited to participate in discussion on this matter during the session of the forty-eighth session of the Technical Working Party for Ornamental Plants and Forest Trees, to be held in Cambridge, the United Kingdom, from September 14 to 18, 2015, with a view to possible harmonization on terminology.

10. The TC agreed that discussions on this matter should be under a separate agenda item, outside the context of revision of document TGP/14 (see document TC/51/39 "Report", paragraphs 168 to 170).

11. By means of a Circular issued on May 5, 2015, the TC and TWP members were invited to present to the TWPs, at their sessions in 2015, information on the allocation of varieties to color groups for the purposes of grouping of varieties and organization of the growing trial (see Circular E-15/108). The presentations received will be provided as an addendum to this document.

12. *The TWC is invited to consider:*

*(a) the possibility to use RHS Colour Chart references as a basis for defining color groups for the purposes of grouping of varieties and organization of the growing trial;*

*(b) ongoing discussion on whether the allocation of UPOV Color Groups for each RHS color, as set out in document TGP/14, could be used for grouping of varieties and organization of the growing trial; and*

*(c) whether the allocation of UPOV Color Groups for each RHS color, as set out in document TGP/14, could be used for grouping of varieties and organization of the growing trial.*

[Annex follows]

## ANNEX

EXTRACT FROM DOCUMENT /14/2: SECTION 2: BOTANICAL TERMS  
Subsection 3: Color: Annex

## 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 896 **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. Information on the grouping of varieties for DUS trials can be found in document TGP/9/1 "Examining Distinctness" [*cross ref.*].

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") and in the 2007 edition (marked with "NN") 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/196/2 Rev.)

| No. | Characteristic                                                                                            | State of expression   |           | Note |
|-----|-----------------------------------------------------------------------------------------------------------|-----------------------|-----------|------|
| 20  | Flower: <b>main color</b> of upper side                                                                   | red                   | RHS 46C   |      |
| 21  | <u>Varieties with bi- or multicolored flowers only:</u><br>Flower: <b>secondary color</b> of upper side   | purple                | RHS N 74B |      |
| 22  | <u>Varieties with bi- or multicolored flowers only:</u><br>Flower: <b>distribution of secondary color</b> | mainly on upper petal |           | 1    |
| 23  | Flower: eye zone                                                                                          | present               |           | 9    |
| 24  | Flower: size of eye zone                                                                                  | large                 |           | 7    |
| 25  | Flower: <b>main color</b> 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               | blanc              | weiss           | blanco                    |
| 2              | light green         | vert clair         | hellgrün        | verde claro               |
| 3              | medium green        | vertmoyen          | mittel grün     | verde medio               |
| 4              | dark green          | vert foncé         | dunkelgrün      | verde oscuro              |
| 5              | yellow green        | vert-jaune         | gelbgrün        | verde amarillento         |
| 6              | grey green          | vert-gris          | graugrün        | verde grisáceo            |
| 7              | light blue green    | vert-bleu clair    | hellblaugrün    | verde azulado claro       |
| 8              | blue green          | vert-bleu          | blaugrün        | verde azulado             |
| 9              | brown green         | vert-brun          | braungrün       | verde amarronado          |
| 10             | light yellow        | jaune clair        | hellgelb        | amarillo claro            |
| 11             | yellow              | jaune              | gelb            | amarillo                  |
| 12             | light yellow orange | orangé-jaune clair | hellgelborange  | naranja amarillento claro |
| 13             | yellow orange       | orangé-jaune       | gelborange      | naranja amarillento       |
| 14             | orange              | orange             | orange          | naranja                   |
| 15             | orange pink         | rose-orangé        | orangerosa      | rosa anaranjado           |
| 16             | light red pink      | rose-rouge clair   | hellrotrosa     | rosa rojizo claro         |
| 17             | red pink            | rose-rouge         | rotrosa         | rosa rojizo               |
| 18             | light blue pink     | rose-bleu clair    | hellblaurosa    | rosa azulado claro        |
| 19             | blue pink           | rose-bleu          | blaurosa        | rosa azulado              |
| 20             | orange red          | rouge-orangé       | orangerot       | rojo anaranjado           |
| 21             | red                 | rouge              | rot             | rojo                      |
| 22             | dark pink red       | rouge-rose foncé   | dunkelrosarot   | rojo rosado oscuro        |
| 23             | purple red          | rouge-pourpre      | purpurrot       | rojo púrpura              |
| 24             | dark purple red     | pourpre foncé      | dunkelpurpurrot | rojo púrpura oscuro       |
| 25             | brown red           | rouge-brun         | braunrot        | rojo amarronado           |
| 26             | brown purple        | pourpre-brun       | braunpurpur     | púrpura amarronado        |
| 27             | purple              | pourpre            | purpurn         | púrpura                   |
| 28             | violet              | violet             | violett         | violeta                   |
| 29             | dark violet         | violet foncé       | dunkelviolet    | violeta oscuro            |
| 30             | light blue violet   | violet-bleu clair  | hellblauviolett | violeta azulado claro     |
| 31             | blue violet         | violet-bleu        | blauviolett     | violeta azulado           |
| 32             | light violet blue   | bleu-violet clair  | hellviolettblau | azul violáceo claro       |
| 33             | violet blue         | bleu-violet        | violettblau     | azul violáceo             |
| 34             | light blue          | bleu clair         | hellblau        | azul claro                |
| 35             | medium blue         | bleu moyen         | mittelblau      | azul medio                |
| 36             | dark blue           | bleu foncé         | dunkelblau      | azul oscuro               |
| 37             | light green blue    | bleu-vert clair    | hellgrünblau    | azul verdoso claro        |
| 38             | green blue          | bleu-vert          | grünblau        | azul verdoso              |
| 39             | grey blue           | bleu-gris          | graublau        | azul grisáceo             |
| 40             | light brown         | brun clair         | hellbraun       | marrón claro              |
| 41             | medium brown        | brun moyen         | mittelbraun     | marrón medio              |
| 42             | dark brown          | brun foncé         | dunkelbraun     | marrón oscuro             |
| 43             | light yellow brown  | brun-jaune clair   | hellgelbbraun   | marrón amarillento claro  |
| 44             | yellow brown        | brun-jaune         | gelbbraun       | marrón amarillento        |
| 45             | orange brown        | brun-orange        | orangebraun     | marrón anaranjado         |
| 46             | grey brown          | brun-gris          | graubraun       | marrón grisáceo           |
| 47             | green brown         | brun-vert          | grünbraun       | marrón verdoso            |
| 48             | grey                | gris               | grau            | gris                      |
| 49             | green grey          | gris-vert          | grüngrau        | gris verdoso              |
| 50             | black               | noir               | schwarz         | negro                     |

[...]

ALLOCATION OF UPOV COLOR GROUPS FOR EACH RHS COLOR IN RHS REFERENCE ORDER

RHS COLORS (RHS COLOUR CHART, EDITIONS 1986, 1995, 2001 AND 2007)  
BY UPOV COLOR GROUPS

| UPOV Group No. | No. RHS | English             | français           | deutsch        | español                   |
|----------------|---------|---------------------|--------------------|----------------|---------------------------|
| 11             | 001A    | yellow              | jaune              | gelb           | amarillo                  |
| 5              | 001B    | yellow green        | vert-jaune         | gelbgrün       | verde amarillento         |
| 5              | 001C    | yellow green        | vert-jaune         | gelbgrün       | verde amarillento         |
| 5              | 001D    | yellow green        | vert-jaune         | gelbgrün       | verde amarillento         |
| 11             | 002A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 002B    | yellow              | jaune              | gelb           | amarillo                  |
| 5              | 002C    | yellow green        | vert-jaune         | gelbgrün       | verde amarillento         |
| 5              | 002D    | yellow green        | vert-jaune         | gelbgrün       | verde amarillento         |
| 11             | 003A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 003B    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 003C    | yellow              | jaune              | gelb           | amarillo                  |
| 5              | 003D    | yellow green        | vert-jaune         | gelbgrün       | verde amarillento         |
| 11             | 004A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 004B    | yellow              | jaune              | gelb           | amarillo                  |
| 5              | 004C    | yellow green        | vert-jaune         | gelbgrün       | verde amarillento         |
| 10             | 004D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 11             | 005A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 005B    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 005C    | yellow              | jaune              | gelb           | amarillo                  |
| 10             | 005D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 11             | 006A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 006B    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 006C    | yellow              | jaune              | gelb           | amarillo                  |
| 10             | 006D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 11             | 007A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 007B    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 007C    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 007D    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 008A    | yellow              | jaune              | gelb           | amarillo                  |
| 10             | 008B    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 008C    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 008D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 11             | 009A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 009B    | yellow              | jaune              | gelb           | amarillo                  |
| 10             | 009C    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 009D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 010A    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 010B    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 010C    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 010D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 13             | 011A    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 10             | 011B    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 011C    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 12             | 011D    | light yellow orange | orangé jaune clair | hellgelborange | naranja amarillento claro |
| 11             | 012A    | yellow              | jaune              | gelb           | amarillo                  |
| 11             | 012B    | yellow              | jaune              | gelb           | amarillo                  |
| 10             | 012C    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 10             | 012D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 13             | 013A    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 13             | 013B    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 13             | 013C    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 10             | 013D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 13             | 014A    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 13             | 014B    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 13             | 014C    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 10             | 014D    | light yellow        | jaune clair        | hellgelb       | amarillo claro            |
| 13             | 015A    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |
| 13             | 015B    | yellow orange       | orangé jaune       | gelborange     | naranja amarillento       |

[...]

EXAMPLE OF TEST GUIDELINES WITH A COLOR CHARACTERISTICS REPRESENTED BY RHS  
COLOUR CHART NUMBERS AND COLOR GROUPS CREATED IN THE TECHNICAL QUESTIONNAIRE  
FOR THE PURPOSE OF GROUPING VARIETIES FOR DUS TRIALS

Document TG/299/1 "Hosta" (09/04/2014)

"5.3 The following have been agreed as useful grouping characteristics:

[...]

(b) Leaf blade: color covering the largest surface area, with the following groups:

white  
light yellow  
medium yellow  
dark yellow  
light green  
medium green  
dark green  
blue green"

[...]

|                                                                                                         |
|---------------------------------------------------------------------------------------------------------|
| TECHNICAL QUESTIONNAIRE<br>to be completed in connection with an application for plant breeders' rights |
|---------------------------------------------------------------------------------------------------------|

[...]

**5.5i Leaf blade: color covering the second largest surface area (if present)**

RHS Colour Chart (indicate reference number)

**5.5ii Leaf blade: color covering the second largest surface area (if present)**

|               |      |
|---------------|------|
| white         | 1[ ] |
| light yellow  | 2[ ] |
| medium yellow | 3[ ] |
| dark yellow   | 4[ ] |
| light green   | 5[ ] |
| medium green  | 6[ ] |
| dark green    | 7[ ] |
| blue green    | 8[ ] |

[...]

[End of Annex and of document]