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| INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS  |
| Geneva |

Technical Committee

Fifty-Second Session
Geneva, March 14 to 16, 2016

definition of color groups from rhs colour charts

Document prepared by the Office of the Union

Disclaimer: this document does not represent UPOV policies or guidance

EXECUTIVE SUMMARY

 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.

 The TC is invited to note:

(a) the information presented and comments made at the TWPs in 2015;

(b) that the TWO agreed to request the expert from Germany to prepare a study with support from the experts from Australia, Canada, the European Union, the Netherlands, New Zealand and the United Kingdom on the possibility to use the Sixth Edition of the RHS Colour Chart for defining color groups for the purposes of grouping of varieties and organization of the growing trial;

(c) that the TWO agreed to request an expert from the United Kingdom to organize the compilation of examples of varieties without matching color in the Sixth Edition of the RHS Colour Chart (gaps) with a view to proposing new colors and possible harmonization on terminology; and

(d) that color names may have relevance for variety denominations and could have consequences for the acceptance of variety denominations for some UPOV members.

 The structure of this document is as follows:

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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

 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.

 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.”

 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.

 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”).

 The TC, at its fifty-first meeting, agreed to invite members of the Union to present to the TWPs, at their sessions in 2015, how varieties were allocated to color groups (see document TC/51/39 “Report”, paragraphs 168 to 170).

 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.

 The TC agreed that discussions on this matter should be under a separate agenda item, outside the context of revision of document TGP/14.

 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 were made available as document TWO/48/19 Add. “Addendum to definition of color groups from RHS Colour Charts”.

# Comments by the technical working parties

### Technical Working Party for Vegetables

 The TWV, at its forty-ninth session, held in Angers, France, from June 15 to 19, 2015, considered document TWV/49/19 “Definition of color groups from RHS Colour Charts”.

 The TWV agreed that there was a 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.

 The TWV agreed that the allocation of UPOV Color Groups for each RHS colour for grouping of varieties and organization of the growing trial, as set out in document TGP/14, was not relevant for the vegetable sector and therefore recommended to refer to color names and to use a simplified scale of color in its Test Guidelines (see document TWV/49/32 Rev. “Revised Report”, paragraphs 70 to 72).

### Technical Working Party on Automation and Computer Programs

 The TWC, at its thirty-third session, held in Natal, Brazil, from June 30 to July 3, 2015, considered document TWC/33/19 “Definition of color groups from RHS Colour Charts”.

 The TWC agreed with 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. The TWC was of the opinion that the applicants should be made aware of such development as reallocation of the material to another color group during the trial could lead to another growing cycle with comparing varieties from that new color group (see document TWC/33/30 “Report”, paragraphs 120 and 121).

### Technical Working Party for Agricultural Crops

 The TWA, at its forty-forth session, held in Obihiro, Japan, from July 6 to 10, 2015, considered document TWA/44/19 “Definition of color groups from RHS Colour Charts”.

 The TWA considered 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. The TWA noted that color charts were not routinely used for agricultural crops and agreed that, for the TWA crops, the organs observed and level of variation between the varieties meant that such a level of precision was not useful. The TWA agreed that it would be preferable to use simplified terms to describe color characteristics, such as single colors, color ranges and intensity of a colors in its Test Guidelines (see document TGP/14/2: Section 2: Botanical Terms, Subsection 3: Color: 2. Color) (see document TWA/44/23 “Report”, paragraphs 62 and 63).

### Technical Working Party for Fruit Crops

 The TWF, at its forty-sixth session, held in Mpumalanga, South Africa, from August 24 to 28, 2015, considered document TWF/46/19 “Definition of color groups from RHS Colour Charts”.

 The TWF noted that color charts were not routinely used for fruit crops and that varieties were allocated to color groups using the color groups in the Test Guidelines (Technical Questionnaire). The TWF agreed that growing trials for fruit crops were organized using varieties from the same color group and other color groups close to that of the candidate variety (“broad approach to color”).

 The TWF noted that the 50 UPOV Color Groups, as set out in document TGP/14, were currently being used by some authorities for the purpose of grouping varieties for DUS trials and agreed to request clarification on the reason for the explanation provided in document TGP/14 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” (see document TWF/46/29 Rev. “Revised Report”, paragraphs 81 to 83).

### Technical Working Party on Ornamental Plants

 The TWO, at its forty-eighth session, held in Cambridge, United Kingdom, from September 14 to 18, 2015, considered document TWO/48/19 “Definition of color groups from RHS Colour Charts”.

 The TWO received the following presentations:

|  |  |
| --- | --- |
| RHS Colour Chart | Royal Horticultural Society (RHS) |
| How varieties were allocated to color groups: Use of RHS Colour Chart | Japan |
| Color: gaps in the RHS Colour Chart? | United Kingdom |
| Definition of color groups from RHS Colour Charts: implementation for the purpose of variety denominations | European Union |

 A copy of the presentations is provided in document TWO/48/19 Add. “Addendum to definition of color groups from RHS Colour Charts”.

 The TWO noted that the latest edition of the RHS Colour Chart (Sixth Edition, 2015) provided a name for each individual color and agreed to request the expert from Germany to prepare a study with support from the experts from Australia, Canada, the European Union, the Netherlands, New Zealand and the United Kingdom on the possibility to use the Sixth Edition of the RHS Colour Chart for defining color groups for the purposes of grouping of varieties and organization of the growing trial. The TWO agreed that the overlapping of some colors should be taken into account. The TWO also agreed that the study should consider whether the allocation of UPOV Color Groups for each RHS color, as set out in document TGP/14, should be revised.

 The TWO noted that the Royal Horticultural Society (RHS) was considering the process for review of the Sixth Edition of the RHS Colour Chart prior to organizing the Seventh Edition and agreed to request an expert from the United Kingdom to organize the compilation of examples of varieties without matching color in the Sixth Edition of the RHS Colour Chart (gaps). The examples compiled would be submitted to the RHS with a view to propose new colors and possible harmonization on terminology.

 The TWO noted that color names may have relevance for variety denominations and could have consequences for the acceptance of variety denominations for some UPOV members (see document TWO/48/26 “Report”, paragraphs 54 to 59).

 *The TC is invited to note:*

 *(a) the information presented and comments made at the TWPs in 2015;*

 *(b) that the TWO agreed to request the expert from Germany to prepare a study with support from the experts from Australia, Canada, the European Union, the Netherlands, New Zealand and the United Kingdom on the possibility to use the Sixth Edition of the RHS Colour Chart for defining color groups for the purposes of grouping of varieties and organization of the growing trial;*

 *(c) that the TWO agreed to request an expert from the United Kingdom to organize the compilation of examples of varieties without matching color in the Sixth Edition of the RHS Colour Chart (gaps) with a view to proposing new colors and possible harmonization on terminology; and*

 *(d) that color names may have relevance for variety denominations and could have consequences for the acceptance of variety denominations for some UPOV members.*

[Annexes follow]

EXTRACT FROM DOCUMENT TGP/14/3: 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

* 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: main color of upper side | red | RHS 46C |  |
| 21 | Varieties with bi- or multicolored flowers only: Flower: secondary color of upper side | purple | RHS N 74B |  |
| 22 | Varieties with bi- or multicolored flowers only:Flower: distribution of secondary color | mainly on upper petal | 1 |
| 23 | Flower: eye zone | present | 9 |
| 24 | Flower: size of eye zone | large | 7 |
| 25 | Flower: main color 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 | rouge-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 | dunkelviolett | 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

| UPOVGroup 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 |

[…]

[Annex II follows]

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 QUESTIONNAIREto 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 II and of document]