



TC/52/22

ORIGINAL: English

DATE: January 27, 2016

# 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

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 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.

3. The structure of this document is as follows:

BACKGROUND .....	2
COMMENTS BY THE TECHNICAL WORKING PARTIES .....	2
Technical Working Party for Vegetables .....	2
Technical Working Party on Automation and Computer Programs .....	3
Technical Working Party for Agricultural Crops .....	3
Technical Working Party for Fruit Crops .....	3
Technical Working Party on Ornamental Plants .....	3

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.

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”).

8. 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).

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.

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 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

12. 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”.

13. 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.

14. 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

15. 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".

16. 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

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

18. 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

19. 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".

20. 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").

21. 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

22. 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".

23. 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

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

25. 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.

26. 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.

27. 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).

28. *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

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	Varieties with bi- or multicolored flowers only: Flower: <b>secondary color</b> of upper side	purple	RHS N 74B	
22	Varieties with bi- or multicolored flowers only: 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	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	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

[...]

[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"

[...]

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

[...]

<p><b>5.5i Leaf blade: color covering the second largest surface area (if present)</b></p> <p>RHS Colour Chart (indicate reference number)</p> <p><b>5.5ii Leaf blade: color covering the second largest surface area (if present)</b></p> <p>white 1[ ]</p> <p>light yellow 2[ ]</p> <p>medium yellow 3[ ]</p> <p>dark yellow 4[ ]</p> <p>light green 5[ ]</p> <p>medium green 6[ ]</p> <p>dark green 7[ ]</p> <p>blue green 8[ ]</p>
--

[...]

[End of Annex II and of document]