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DEFINITION OF COLOR GROUPS FROM RHS COLOUR CHARTS

Document prepared by an expert from Germany

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TWO 49: Definitions of Color Groups from RHS Colour Charts

- In 2015 the TWO considered document TWO/48/19 and received some presentations on the use of the RHS Colour Chart.
- The TWO agreed to request an expert from Germany to prepare a study on the possibility to use the Sixth Edition of the RHS Colour Chart for defining color groups for the purpose of grouping of varieties and organization of the growing trial and answer the question whether the allocation of UPOV Color Groups for each RHS color, as set out in document TGP/14, should be revised (see document TWO/48/26, page 6).

Introduction

- The following table gives an overview of the existing groups for the RHS Colour Chart:

		Number of entries or groups	Example	Use
level of precision high	RHS Colour Chart Number	920	49A	Used for precise description of colors of plant parts.
	RHS Colour Name (sixth edition only)	190	Strong Pink	
	UPOV Color Group (up to the fifth edition)	50	group 17, Red Pink	Used in the variety description to translate the RHS Colour Chart number into a color name.
low	RHS Color Group (heading on each sheet, 29 in the sixth edition)	29	Red Group	Used by the CPVO for checking colors in proposals for variety denominations.

Changes in the Sixth Edition of the RHS Colour Chart compared to previous versions

- The Sixth Edition of the RHS Colour Chart (subsequent: Sixth Edition) includes 24 new color patches on six sheets (N45, NN74, N75, N78, N95, N148), and a revision of N137 (now NN137).
- For the first time each patch has a color name. Some background information about the naming can be found in the General Information of the RHS Colour Chart Guide:

“Colour names

Although colour names may mean different colours to different people, in this sixth edition colour names have been provided for each patch. Feedback from users of the Chart strongly supported the addition of colour names to help with preparing descriptions and to avoid the confusion that arises from using colour-group names. The colour names have been taken from A Contribution Toward the Standardization of Color Names in Horticulture by R. D. Huse & K. L. Kelley (American Rhododendron Society, 1984) by kind permission of Donald Voss and the American Rhododendron Society. These colour names have been determined objectively using CIE co-ordinates and the Munsell Colour Chart.”

6. The 190 different color names were formed by using attributes like “very light, very pale, light, pale, moderate, medium, vivid, brilliant, deep, and strong”. A list of all names used can be found in the annex.

Additional information:

The naming of the colors in the Sixth Edition seems in several cases not appropriate. The new patch NN74C for example is named “Light Reddish Purple” although its color is darker than NN74D which is named “Strong Reddish Purple”. Mr. John David from the RHS is aware of this and plans to check the color names for the next edition.

Color Names in the Sixth Edition compared to UPOV Color Names

7. In document TGP/14/3 “Glossary of Terms used in UPOV Documents, Section 2: Botanical Terms: Subsection 3: Color: Annex” the following explanation is given for the UPOV Color Names:

“For the purpose of naming the RHS Colour Chart in a variety description UPOV has defined 50 Color Groups consisting of either the [pure color] / [colour 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).”

8. An example in which differences in the color names in the two systems could occur can be found in the following table. The color of the patches is very similar:

RHS Colour Chart No	Color Name Sixth Edition	UPOV Color Name
158C	Yellowish white	Light yellow brown
158D	Yellowish white	Light yellow brown
159C	Pale orange yellow	Light yellow brown
159D	Pale yellowish pink	Light yellow brown

9. In the Sixth Edition color names are used which do not always reflect the color similarity of the patches. The UPOV system consists of fewer color groups and therefore similar colors have the same name.

10. Because of what is mentioned above and because it is not useful for UPOV purposes to distinguish between the terms “light” and “pale”, “moderate” and “medium”, “vivid” and “brilliant”, “deep” and “strong”, it seems to be not appropriate to use the RHS Colour Names of the Sixth Edition for UPOV purposes.

11. *The TWO is invited to discuss this conclusion.*

Is it necessary to revise the allocation of UPOV Color Groups for each RHS color?

12. In document TGP/14/3 “Glossary of Terms used in UPOV Documents, Section 2: Botanical Terms: Subsection 3: Color: Annex”, it is stated that:

“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.”

As the 1986 version has been used for the initial grouping, experts from the Netherlands and Germany checked the allocation of the patches of the Sixth Edition to the initial grouping.

13. Some charts of the 1986 edition and the later versions have a different color than the same chart in the 2015 edition. Therefore the Sixth Edition seems to be a good starting point for the discussion on a new list of UPOV Color Groups. The other option would be to add the new patches to the existing list.

14. *The TWO is invited to consider creating a new list of UPOV Color Groups for naming of colors rather than adding the new color charts to the existing groups.*

15. If the TWO comes to the conclusion to continue with the 50 UPOV Color Groups used so far, the 24 new color patches need to be added to these groups. A proposal for this can be found in the following table.

New	RHS No	Proposal for UPOV color name	Group	New	RHS No	Proposal for UPOV color name	Group
2015	N45A	red	21	2015	N95A	blue	35
2015	N45B	red	21	2015	N95B	blue	35
2015	N45C	red	21	2015	N95C	violet blue	33
2015	N45D	red	21	2015	N95D	violet blue	33
2015	NN74A	purple	27	2015	NN137A	dark green	4
2015	NN74B	purple	27	2015	NN137B	dark green	4
2015	NN74C	purple	27	2015	NN137C	dark green	4
2015	NN74D	blue pink	19	2015	NN137D	brown green	9
2015	N75A	violet	28	2015	N148A	brown green	9
2015	N75B	violet	28	2015	N148B	brown green	9
2015	N75C	violet	28	2015	N148C	brown green	9
2015	N75D	violet	28	2015	N148D	brown green	9
2015	NN78A	purple	27				
2015	NN78B	purple	27				
2015	NN78C	purple	27				
2015	NN78D	purple	27				

Can the Sixth Edition be used for defining color groups for the purpose of grouping of varieties and organizing the growing trial?

16. So far the purpose of the UPOV Color Groups was to harmonize color names in variety descriptions (see document TGP/14/3 "Glossary of Terms used in UPOV Documents, Section 2: Botanical Terms: Subsection 3: Color: Annex", paragraph 1.1).

17. The TC requested the TWO to check whether the Sixth Edition could be used for defining color groups for grouping of varieties and organizing the growing trial.

18. Color can be defined in terms of three elements hue (distinguishes the different colors), saturation (the element of color that indicates the purity or grayness of the color) and intensity (distinguishes the total amount of light that is reflected by the color, how the color is perceived by the eye on a light to dark scale – see document TGP/14/3 "Glossary of Terms used in UPOV Documents, Section 2: Botanical Terms: Subsection 3"). Since there are three dimensions for every color it is not possible to arrange them on a single linear scale. This is also reflected by the pseudo-qualitative type of expression of color characteristics.

19. A list of color groups which is created for harmonizing color names is focused on grouping varieties which have the same color (hue) combined with the intensity. The difference between the groups can be smaller compared to a list that is created for grouping of varieties. When grouping varieties a very clear and large difference between the colors is required.

Example:

For harmonization of color names it seems appropriate to have groups like violet blue and blue violet. The different name provides the information that one group is bluer and less violet than the other. However, with respect to grouping of varieties for the growing trial both groups would be considered as violet.

20. If a list for grouping of varieties were to be created, the question would be whether this list could be created in a way that it could be used for all genera and species.

21. Examples for the differences between the color groups in grouping characteristics of different Test Guidelines are listed in the following table:

Test Guidelines	Osteospermum (TG/175/5)	Pelargonium (TG/28/9 corr.)	Plectranthus (TG/315/1)	Hosta (TG/299/1)
Characteristic	Ray floret: main color of middle part	Lower petal: color of middle of upper side	Flower: main color	Leaf blade: color covering the largest surface area
Color groups for grouping	white yellow orange pink red purple violet	white orange red orange red purple blue pink	white pink reddish purple purple violet violet blue	white light yellow medium yellow dark yellow light green medium green dark green blue green

22. The TWO is invited to discuss whether a new list of UPOV Color Groups should be created for:

- (a) grouping of varieties only;
- (b) harmonizing color names and grouping of varieties.

[Annex follows]

ANNEX

LIST OF COLOR NAMES USED IN THE SIXTH EDITION OF THE RHS COLOUR CHART

No	Color Name	No	Color Name
1	Black	57	Greenish Grey
2	Bluish Black	58	Greenish White
3	Bluish White	59	Greyish Brown
4	Brilliant Yellow	60	Greyish Olive Green
5	Brilliant Blue	61	Greyish Purple
6	Brilliant Bluish Green	62	Greyish Purplish Blue
7	Brilliant Green	63	Greyish Purplish Red
8	Brilliant Greenish Blue	64	Greyish Red
9	Brilliant Greenish Yellow	65	Greyish Reddish Brown
10	Brilliant Orange	66	Greyish Reddish Orange
11	Brilliant Orange Yellow	67	Greyish Reddish Purple
12	Brilliant Purple	68	<u>Greyish Violet</u> /Dark Purple
13	Brilliant Purplish Blue	69	Greyish Yellow Green
14	Brilliant Violet	70	Light Blue
15	Brilliant Yellow	71	Light Bluish Green
16	Brilliant Yellow Green	72	Light Brownish Grey
17	Brilliant Yellowish Green	73	Light Green
18	Brownish Grey	74	Light Greenish Blue
19	Brownish Orange	75	Light Greenish Grey
20	Brownish Orange	76	Light Greenish Yellow
21	Dark Blue	77	Light Grey
22	Dark Bluish Green	78	Light Greyish Olive
23	Dark Green	79	Light Olive
24	Dark Greenish Blue	80	Light Olive Brown
25	Dark Greenish Yellow	81	Light Olive Grey
26	Dark Greyish Green	82	Light Orange
27	Dark Greyish Green/ <u>Greyish Green</u>	83	Light Orange Yellow
28	Dark Greyish Purple	84	Light Pink
29	Dark Greyish Red	85	Light Purple
30	Dark Greyish Reddish Brown	86	<u>Light Purple</u> /Light Reddish Purple
31	Dark Greyish Yellow	87	Light Purplish Blue
32	Dark Greyish Yellowish Brown	88	Light Purplish Grey
33	Dark Orange	89	Light Purplish Pink
34	Dark Pink	90	Light Reddish Brown
35	Dark Purple	91	Light Reddish Purple
36	Dark Purplish Grey	92	Light Violet
37	Dark Purplish Pink	93	Light Yellow
38	Dark Purplish Red	94	Light Yellow Green
39	Dark Red	95	Light Yellowish Brown
40	Dark Reddish Orange	96	Light Yellowish Green
41	Dark Violet	97	Light Yellowish Pink
42	Dark Yellowish Green	98	Medium Grey
43	Dark Yellowish Pink	99	Moderate Blue
44	Deep Blue	100	Moderate Bluish Green
45	Deep Greenish Yellow	101	Moderate Brown
46	Deep Orange Yellow	102	Moderate Green
47	Deep Pink	103	Moderate Greenish Blue
48	Deep Purple	104	Moderate Olive Brown
49	Deep Purplish Blue	105	Moderate Olive Green
50	Deep Purplish Pink	106	Moderate Orange
51	Deep Purplish Red	107	Moderate Orange Yellow
52	Deep Red	108	Moderate Pink
53	Deep Reddish Purple	109	Moderate Purple
54	Deep Violet	110	Moderate Purplish Pink
55	Deep Yellowish Green	111	Moderate Purplish Red
56	Deep Yellowish Pink	112	Moderate Red

No	Color Name	No	Color Name
113	Moderate Reddish Brown	152	Strong Purplish Red
114	Moderate Reddish Orange	153	Strong Red
115	Moderate Reddish Purple	154	Strong Reddish Orange
116	Moderate Violet	155	Strong Reddish Purple
117	Moderate Violet/ <u>Dark Violet</u>	156	Strong Violet
118	Moderate Yellow	157	Strong Yellow
119	Moderate Yellow Green	158	Strong Yellow Green
120	Moderate Yellowish Brown	159	Strong Yellowish Brown
121	Moderate Yellowish Green	160	Strong Yellowish Green
122	<u>Moderate Yellowish Green</u> /Pale Green	161	Strong Yellowish Pink
123	Moderate Yellowish Pink	162	Very Light Blue
124	Pale Blue	163	Very Light Bluish Green
125	Pale Green	164	Very Light Green
126	Pale Greenish Yellow	165	Very Light Greenish Blue
127	Pale Greenish Yellow	166	Very Light Purple
128	Pale Orange Yellow	167	Very Light Purplish Blue
129	Pale Pink	168	Very Pale Blue
130	Pale Purple	169	Very Pale Green
131	Pale Purplish Pink	170	Very Pale Purple
132	Pale Yellow	171	Very Pale Purplish Blue
133	Pale Yellow Green	172	Very Pale Violet
134	Pale Yellowish Pink	173	Vivid Blue
135	Pinkish Grey	174	Vivid Greenish Yellow
136	Pinkish White	175	Vivid Orange
137	Pinkish White	176	Vivid Orange Yellow
138	Purplish Grey	177	Vivid Purplish Blue
139	Reddish Grey	178	Vivid Purplish Pink
140	Strong Blue	179	Vivid Purplish Red
141	Strong Bluish Green	180	Vivid Red
142	Strong Brown	181	Vivid Reddish Orange
143	Strong Green	182	Vivid Reddish Purple
144	Strong Greenish Blue	183	Vivid Violet
145	Strong Greenish Yellow	184	Vivid Yellow
146	Strong Orange	185	Vivid Yellow Green
147	Strong Orange Yellow	186	Vivid Yellowish Green
148	Strong Pink	187	Vivid Yellowish Pink
149	Strong Purple	188	White
150	Strong Purplish Blue	189	Yellowish Grey
151	Strong Purplish Pink	190	Yellowish White

[End of Annex and of document]