International Union for the Protection of New Varieties of Plants

#### **Technical Committee**

Fifty-Sixth Session Geneva, October 26 and 27, 2020

to be considered by correspondence

#### TC/56/4 Rev.

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# DEVELOPMENT OF GUIDANCE AND INFORMATION MATERIALS – MATTERS FOR ADOPTION BY THE COUNCIL IN 2020

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 report on matters previously agreed by the Technical Committee (TC) to be put forward for adoption by the Council, in 2020, subject to approval by the CAJ<sup>1</sup>.

## 2. The TC is invited to 2:

- (a) note that, subject to agreement by the CAJ, the drafts of documents TGP/5 Section 6/3, TGP/7/8, TGP/14/5, TGP/15/3 and TGP/0/12 will be presented for adoption by the Council in 2020;
- (b) note that, subject to agreement by the CAJ, an agreed draft of document UPOV/EXN/DEN/1 will be presented for adoption by the Council in 2020b;
- (c) consider endorse the request by the TWV, at its fifty-fourth session, not to introduce Class 205B in document UPOV/EXN/DEN/1;
- (d) consider the proposal for propose the inclusion of software "Off-type Calculator" in document UPOV/INF/16/8, as recommended by the TWC and set out in paragraph 48 of this document;
  - (e) consider approve document UPOV/INF/16/9 Draft 42°;
- (f) note that, subject to agreement by the TC and the CAJ, an agreed draft of document UPOV/INF/16/9 will be presented for adoption by the Council in 2020;
- (g) note that no new information was received from members of the Union in response to Circular E-20/031 inviting them to provide or update information regarding the use of the software included in document UPOV/INF/16/8:
- (h) note that the Council, at its fifty-third ordinary session, held in Geneva, on November 1, 2019, adopted document UPOV/INF/22/6 "Software and equipment used by members of the Union";
- (i) consider approve document UPOV/INF/22/7 Draft 1, and/or request further guidance from other relevant bodies (e.g. CAJ and TWPs); and
- (j) note that, subject to agreement by the TC and the CAJ, an agreed draft of document UPOV/INF/22/7 will be presented for adoption by the Council in 2020.

The procedure for consideration of documents by correspondence is provided in Circular E-20/094 of July 23, 2020 (available at the TC/56, CAJ/77 and C/54 webpages).

3. The structure of this document is as follows:

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4. The following abbreviations are used in this document:

CAJ: Administrative and Legal Committee WG-DEN: Working Group on Variety Denominations

TC: Technical Committee

TWC: Technical Working Party on Automation and Computer Programs

TWV: Technical Working Party for Vegetables

TC-EDC: Enlarged Editorial Committee TWPs: Technical Working Parties

# **BACKGROUND**

- 5. The TC, at its fifty-fifth session, held in Geneva on October 28 and 29, 2019, and the CAJ, at its seventy-sixth session, held in Geneva on October 30, 2019, approved the program for the development of TGP documents, as set out in the Annex to documents TC/55/4 and CAJ/76/2, respectively, subject to the conclusions at their sessions (see document TC/55/25 Corr. "Report", paragraph 176, and document CAJ/76/9 "Report", paragraph 33).
- 6. The TC agreed to extend the coverage of document "TGP Documents" to cover all relevant information materials, to be presented in future sessions of the TC (see document TC/55/25 Corr. "Report", paragraph 177).

- 7. The approved guidance and information materials are published on the UPOV website at <a href="http://www.upov.int/upov\_collection/en/">http://www.upov.int/upov\_collection/en/</a>.
- 8. An overview of the development of guidance and relevant information materials is provided in document TC/56/14 "Development of guidance and information materials possible future revisions".

#### TGP DOCUMENTS

9. The following revisions of TGP documents were agreed by the Technical Committee, at its fifty-fifth session, to be proposed for adoption by the Council in 2020, subject to approval by the CAJ.

<u>Document TGP/5</u>: Experience and Cooperation in DUS Testing; Section 6: UPOV Report on Technical Examination and UPOV Variety Description (Revision) (document TGP/5: Section 6/3 Draft 1)

- 10. The TC, at its fifty-fifth session, agreed to propose a revision to document TGP/5, Section 6 "UPOV Report on Technical Examination and UPOV Variety Description", to include guidance on the purpose of the variety description developed at the time of the grant of the breeder's right and the status of the original variety description in relation to the verification of the conformity of plant material to a protected variety for enforcement of the breeder's right. The proposed revision of document TGP/5, Section 6, is reproduced in Annex I to this document (see document TC/55/25 Corr. "Report", paragraphs 231 and 232).
- 11. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/5: Section 6 to the Council. Document TGP/5: Section 6/3 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex I to this document (in revision mode), and the linguistic changes made by the relevant members of the Editorial Committee.
- 12. Subject to agreement of a draft of document TGP/5 by the CAJ, on the basis of document TGP/5: Section 6/3 Draft 1, an agreed draft of document TGP/5: Section 6/3 "TGP 5: Experience and Cooperation in DUS Testing; Section 6: UPOV Report on Technical Examination and UPOV Variety Description" will be presented for adoption by the Council, in 2020.
  - 13. The TC is invited to note that, subject to agreement by the CAJ, an agreed draft of document TGP/5: Section 6/3 "TGP5: Experience and Cooperation in DUS Testing", Section 6: "UPOV Report on Technical Examination and UPOV Variety Description" will be presented for adoption by the Council in 2020.

## Document TGP/7: Development of Test Guidelines (Revision) (document TGP/7/8 Draft 1)

Characteristics which only apply to certain varieties

14. The TC, at its fifty-fifth session, agreed to amend the guidance in document TGP/7, Guidance Note 18 (GN 18), to allow the exclusion of a characteristic from observation on the basis of a state of expression of a preceding pseudo-qualitative or quantitative characteristic, as set out in Annex II to this document (see document TC/55/25 Corr. "Report", paragraphs 144 to 147).

Presentation of full scale of notes for quantitative characteristics in Test Guidelines

- 15. The TC, at its fifty-fifth session, agreed to revise document TGP/7 to present all states of expression for quantitative characteristics in Test Guidelines (see document TC/55/25 Corr. "Report", paragraph 172).
- 16. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/7/8 to the Council. Document TGP/7/8 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex II to this document (in revision mode), and the linguistic changes made by the relevant members of the Editorial Committee.

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- 17. Subject to agreement of a draft of document TGP/7 by the CAJ, on the basis of document TGP/7/8 Draft 1, an agreed draft of document TGP/7/8 "Development of Test Guidelines" will be presented for adoption by the Council, in 2020.
  - 18. The TC is invited to note that, subject to agreement by the CAJ, an agreed draft of document TGP/7/8 "Development of Test Guidelines" will be presented for adoption by the Council in 2020.

# Document TGP/14: Glossary of Terms Used in UPOV Documents (Revision) (document TGP/14/5 Draft 1)

- 19. The TC, at its fifty-fifth session, agreed to revise the list of UPOV Color Groups in document TGP/14 "Glossary of Terms used in UPOV Documents" on the basis of the color groups set out in Annex III to this document (see document TC/55/25 Corr. "Report", paragraphs 157 to 160).
- 20. The TC agreed to revise document TGP/14, Section 2, Subsection 3: "Color", and Subsection 3: Annex: "Color names for the RHS Colour Chart", to reflect the introduction of the revised list of UPOV Color Groups, as set out in Annex III to this document (see document TC/55/25 Corr. "Report", paragraph 159).
- 21. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/14/5 to the Council. Document TGP/14/5 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex III to this document, and the linguistic changes made by the relevant members of the Editorial Committee.
- 22. Subject to agreement of a draft of document TGP/14 by the CAJ, on the basis of document TGP/14/5 Draft 1, an agreed draft of document TGP/14/5 "Glossary of Terms Used in UPOV Documents" will be presented for adoption by the Council, in 2020.
  - 23. The TC is invited to note that, subject to agreement by the CAJ, an agreed draft of document TGP/14/5 "Glossary of Terms Used in UPOV Documents" will be presented for adoption by the Council in 2020.

# <u>Document TGP/15: Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS) (Revision) (document TGP/15/3 Draft 1)</u>

- 24. The TC, at its fifty-fifth session, agreed to add a new example to document TGP/15 to illustrate a situation where the characteristic-specific marker did not provide complete information on the state of expression of a characteristic, as set out in Annex IV to this document (see document TC/55/25 Corr. "Report", paragraphs 161 to 165).
- 25. The TC noted that the new example "Characteristic-specific marker with incomplete information on state of expression" would become a second example of model "Characteristic-specific molecular markers" in document TGP/15.
- 26. The TC agreed that model "Genetic selection of similar varieties for the first growing cycle" should be presented in document TGP/15 as a second example of model "Combining phenotypic and molecular distances in the management of variety collections". The TC agreed that the terminology on different "Models" should be reviewed in the document.
- 27. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/15/3 to the Council. Document TGP/15/3 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex IV to this document, and the linguistic changes made by the relevant members of the Editorial Committee.
- 28. Subject to agreement of a draft of document TGP/15 by the CAJ, on the basis of document TGP/15/3 Draft 1, an agreed draft of document TGP/15/3 "Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)" will be presented for adoption by the Council, in 2020.

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29. The TC is invited to note that, subject to agreement by the CAJ, an agreed draft of document TGP/15/3 "Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)" will be presented for adoption by the Council in 2020.

Document TGP/0: List of TGP documents and latest issue dates (Revision) (document TGP/0/12 Draft 1)

- 30. The TC is invited to note that, in conjunction with the adoption of the revised TGP documents, the Council will be invited in 2020 to adopt a revision of document TGP/0 "List of TGP documents and latest issue dates" (document TGP/0/11) on the basis of document TGP/0/12 Draft 1.
  - 31. The TC is invited to note that, in conjunction with the adoption of the revised TGP documents, the Council will be invited in 2020 to adopt a revision of document TGP/0 "List of TGP documents and latest issue dates" (document TGP/0/11), on the basis of document TGP/0/12 Draft 1.

#### INFORMATION MATERIALS

32. The following revisions of information materials were agreed by the Technical Committee to be proposed for adoption by the Council in 2020, subject to approval by the CAJ.

Revision of document UPOV/INF/12 "Explanatory Notes on Variety Denominations under the UPOV Convention" (document UPOV/EXN/DEN)

- 33. The TC, at its fifty-fifth session, noted the comments by the TWPs at their sessions in 2019 and agreed with the proposals to revise the list of classes in document UPOV/INF/12/5, as follows:
  - (a) to split the current class 205 (Cichorium and Lactuca) into two new classes:
    - Class: Lactuca Cichorium endivia (Endive), Cichorium intybus var. foliosum (Salad Chicory)
    - Class: Cichorium intybus var. sativum (Industrial Chicory);
  - (b) genus Epichloe (formerly Neotyphodium) to be added to Class 203 (Agrostis, Dactylis, Festuca, Festulolium, Lolium, Phalaris, Phleum and Poa).
- 34. Subject to agreement of a draft of document UPOV/EXN/DEN/1 by the CAJ, on the basis of document UPOV/EXN/DEN/1 Draft 4, an agreed draft of document UPOV/EXN/DEN/1 "Explanatory Notes on Variety Denominations under the UPOV Convention" will be presented for adoption by the Council in 2020.

Developments at the Technical Working Party for Vegetables (TWV)

35. The TWV, at its fifty-fourth session, held from May 11 to 15, 2020, noted that the TC, at its fifty-fifth session, had agreed to propose the revision of the list of classes in document UPOV/INF/12/5 to remove Industrial Chicory from denomination class 205, creating a new denomination class 205B, as follows (see document TWV/54/9 "Report", paragraphs 65 to 67):

| Class 205   | Cichorium, Lactuca                | CICHO; LACTU  |
|-------------|-----------------------------------|---------------|
| [Class 205B | Cichorium intybus L. var. sativum | CICHO INT SAT |

36. The TWV noted that Class 205B separated two subspecies into different denomination classes: Leaf Chicory (CICHO\_INT\_FOL) in Class 205; and Industrial Chicory (CICHO\_INT\_SAT) in new Class 205B. The TWV agreed that approximately 1200 varieties with UPOV code CICHO\_INT in the PLUTO database could not be allocated with certainty to either one of the Classes.

37. The TWV noted the concerns expressed by participants and agreed not to support the proposal to split denomination Class 205 at this stage. The TWV agreed that the proposal not to introduce Class 205B, be considered by the TC in 2020.

#### Proposal

- 38. It is proposed that the TC consider the request by the TWV, at its fifty-fourth session, not to split Class 205. In the context of the consideration by the CAJ in 2020 of a revision of document UPOV/INF/12/5 "Explanatory Notes on Variety Denominations under the UPOV Convention" (document UPOV/EXN/DEN/1 Draft 4), the CAJ has been informed of the background and proposal on this matter (see document CAJ/77/3).
  - 39. The TC is invited to:
  - (a) note that, subject to agreement by the CAJ, an agreed draft of document UPOV/EXN/DEN/1 will be presented for adoption by the Council in 2020; and
  - (b) consider endorse the request by the TWV, at its fifty-fourth session, not to introduce Class 205B in document UPOV/EXN/DEN/1.

Document UPOV/INF/16: Exchangeable Software (Revision) (document UPOV/INF/16/9 Draft 42)

## Adoption of document UPOV/INF/16/8

40. The Council, at its fifty-second ordinary session, held in Geneva, on November 2, 2018, adopted a revision of document UPOV/INF/16 "Exchangeable Software" (document UPOV/INF/16/8), on the basis of document UPOV/INF/16/8 Draft 1 (see document C/52/20 "Report", paragraph 20).

Revision of document UPOV/INF/16/8

# Inclusion of new software in document UPOV/INF/16

- 41. Section 2 of document UPOV/INF/16 "Exchangeable Software" provides the following:
  - "2. Procedure for inclusion of software

"Software proposed for inclusion in document UPOV/INF/16 by members of the Union is, in the first instance, presented for review by the Technical Working Party on Automation and Computer Programs (TWC). On the basis of such presentations and the experience of members of the Union, the TWC makes a recommendation to the Technical Committee (TC) on whether to include that software in document UPOV/INF/16. In the case of a positive recommendation by the TC and by the Administrative and Legal Committee (CAJ), the software will be listed in a draft of document UPOV/INF/16, to be considered for adoption by the Council. Document UPOV/INF/16 is adopted by the Council."

Consideration by the Technical Working Party on Automation and Computer Programs (TWC)

- 42. The TWC, at its thirty-seventh session, held in Hangzhou, China, from October 14 to 16, 2019, considered document TWC/37/5 "Risks associated with assessment of uniformity by off-types on the basis of more than one growing cycle" (see document TWC/37/12 "Report", paragraphs 11 to 15).
- 43. The TWC received a presentation on "Assessing uniformity by off-types: Calculator for number of off-types and risks". A copy of the presentation is provided in Annex I to document TWC/37/5.
- 44. The TWC noted that software was developed in Excel to calculate the number of off-types and risks associated with assessment of uniformity by off-types on the basis of more than one growing cycle, as provided in document TWC/37/5, Annex II.
- 45. The TWC welcomed the availability of software that enables determination of the maximum number of offtypes, both for when the acceptance probability is applied in each cycle separately, or over the two-cycle test.

- 46. The TWC agreed to propose that a sentence be added to document TGP/8 to explain that software was available for calculating the number of off-types for the combination of growing cycles.
- 47. The TWC agreed to propose that the software be made available for download from the UPOV website.

#### Proposal:

- 48. Following the recommendation by the TWC, at its thirty-seventh session, the following information about the software "Off-type Calculator" is proposed for inclusion in document UPOV/INF/16:
  - Category: "DUS trial design and data analysis"
  - Program name: Off-type Calculator
  - Programming language: Excel
  - Function (brief summary): This calculates maximum allowable numbers of off-types for one- and two-cycle tests, along with associated statistical risks.
  - Source & contact details: By email. Adrian Roberts, <u>a.roberts@bioss.ac.uk</u> or at <a href="https://www.upov.int/edocs/mdocs/upov/en/twc">https://www.upov.int/edocs/mdocs/upov/en/twc</a> 37/twc 37 5 annex ii.xlsx
- 49. Subject to agreement of a draft of document UPOV/INF/16/9 by the TC and the CAJ, on the basis of document UPOV/INF/16/9 Draft 42, an agreed draft of document UPOV/INF/16/9 "Exchangeable Software" will be presented for adoption by the Council in 2020.
  - 50. The TC is invited to:
  - (a) consider the proposal for propose the inclusion of software "Off-type Calculator" in document UPOV/INF/16/8, as recommended by the TWC and set out in paragraph 48 of this document;
  - (b) consider approve document UPOV/INF/16/9 Draft 42; and
  - (c) note that, subject to agreement by the TC and the CAJ, an agreed draft of document UPOV/INF/16/9 will be presented for adoption by the Council in 2020.

Invitation to provide information on the use of the software included in document UPOV/INF/16

- 51. Section 4 of document UPOV/INF/16 "Exchangeable Software" provides the following:
  - "4. Information on use by members of the Union
  - "4.1 A circular is issued to members of the Union on an annual basis, inviting them to provide information on their use of the software included in document UPOV/INF/16.
  - "4.2 The information on software use by members of the Union is indicated in the columns 'Member(s) of the Union using the software' and 'Application by user(s)'. With regard to the indication of 'Application by user(s)', members of the Union can indicate, for example, crops or types of crop for which the software is used."
- 52. On April 14, 2020, the Office of the Union issued Circular E-20/031 to the designated persons of the members of the Union in the TC, inviting them to provide or update information regarding the use of the software included in document UPOV/INF/16.
- 53. No new information was received from members of the Union in response to Circular E-20/031.
  - 54. The TC is invited to note that no new information was received from members of the Union in response to Circular E-20/031 inviting them to provide or update information regarding the use of the software included in document UPOV/INF/16/8.

<u>Document UPOV/INF/22: Software and Equipment Used by Members of the Union (Revision)</u> (document UPOV/INF/22/7 Draft 1)

Adoption of document UPOV/INF/22/6

55. The Council, at its fifty-third ordinary session, held in Geneva, on November 1, 2019, adopted a revision of document UPOV/INF/22 "Software and equipment used by members of the Union" (document UPOV/INF/22/6), on the basis of document UPOV/INF/22/6 Draft 1 (see document C/53/15 "Report", paragraph 34).

Revision of document UPOV/INF/22/6

#### Software for inclusion

- 56. The procedure for considering software and equipment proposed for inclusion in document UPOV/INF/22 is set out in document UPOV/INF/22/6, as follows:
  - "2.1 Software/equipment proposed for inclusion in this document by members of the Union is, in the first instance, presented to the Technical Committee (TC).
  - "2.2 The TC will decide whether to:
    - (a) propose to include the information in the document;
    - (b) request further guidance from other relevant bodies (e.g. the Administrative and Legal Committee (CAJ) and the Technical Working Parties (TWPs)); or
    - (c) propose not to include the information in the document.
  - "2.3 In the case of a positive recommendation by the TC and, subsequently by the CAJ, the software/equipment will be listed in a draft of the document, to be considered for adoption by the Council.

[...]

- "4.1 A circular is issued to members of the Union on an annual basis, inviting them to provide information on their use of the software/equipment included in this document."
- 57. On April 14, 2020, the Office of the Union issued Circular E-20/031 to the designated persons of the members of the Union in the TC, inviting them to provide or update information for document UPOV/INF/22.
- 58. The information received from Lithuania and Uruguay in response to circular E-20/031 is included in document UPOV/INF/22/7 Draft 1.
- 59. The TC will be invited to consider document UPOV/INF/22/7 Draft 1 and/or request further guidance from other relevant bodies (e.g. CAJ and TWPs).
- 60. Subject to agreement of a draft of document UPOV/INF/22/7 by the TC and the CAJ, on the basis of document UPOV/INF/22/7 Draft 1, an agreed draft of document UPOV/INF/22/7 "Software and Equipment Used by Members of the Union" will be presented for adoption by the Council in 2020.
  - 61. The TC is invited to:
  - (a) note that the Council, at its fifty-third ordinary session, held in Geneva, on November 1, 2019, adopted document UPOV/INF/22/6 "Software and equipment used by members of the Union";
  - (b) consider approve document UPOV/INF/22/7 Draft 1, and/or request further guidance from other relevant bodies (e.g. CAJ and TWPs); and
  - (c) note that, subject to agreement by the TC and the CAJ, an agreed draft of document UPOV/INF/22/7 will be presented for adoption by the Council in 2020.

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#### ANNEX I

# REVISIONS TO DOCUMENT TGP/5, SECTION 6 "UPOV REPORT ON TECHNICAL EXAMINATION AND UPOV VARIETY DESCRIPTION"

The TC, at its fifty-fifth session, considered document TC/55/11 (see document TC/55/25 Corr. "Report", paragraphs 231 and 232).

The following revision of document TGP/5 "Experience and Cooperation in DUS Testing", Section 6 "UPOV Report on Technical Examination and UPOV Variety Description" was agreed by the Technical Committee to be proposed for adoption by the Council at its fifty-fourth ordinary session, to be held in Geneva on October 30, 2020, subject to approval by the CAJ, at its seventy-seventh session, to be held in Geneva on October 28, 2020 (highlighting and strikethrough for deletions and highlighting and underline for addition):

[...]

## **UPOV VARIETY DESCRIPTION**

[...]

#### 16. Similar Varieties and Differences from These Varieties

| Denomination(s) of variety(ies) similar to the candidate variety | Characteristic(s) in which the candidate variety differs from the similar variety(ies) <sup>1)</sup> | State of expression of the characteristic(s) for the similar variety(ies) | State of expression of the characteristic(s) for the candidate variety <sup>21</sup> |
|--|--|---|--|
|--|--|---|--|

- 1) In the case of identical states of expression of both varieties, please indicate the size of the difference.
- 2) The state of expression of the candidate variety and similar variety(ies) relate to the DUS examination conducted at the testing station, place and period of testing indicated in 11 and 12.

17. Additional Information

- (a) Additional Data
- (b) Photograph (if appropriate)
- (c) RHS Colour Chart version used (if appropriate)
- (d) Remarks

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- 18. Explanatory Notes to the Annex: UPOV VARIETY DESCRIPTION
- (a) General (Annex: UPOV Variety Description)
- (i) Purpose of the original variety description

The purpose of the variety description developed at the time of the grant of the breeder's right (original variety description) can be summarized as follows:

- (a) to describe the characteristics of the variety; and
- (b) to identify and list similar varieties and differences from these varieties; combined with the information on the basis for (a) and (b), namely:
  - Date and document number of UPOV Test Guidelines;
  - Date and/or document number of Reporting Authority's test guidelines;
  - Reporting Authority;
  - Testing station(s) and place(s);
  - Period of testing;
  - Date and place of issue of document;
  - Group: (Table: Characteristics; States of Expression; Note; Remarks);
  - Additional Information:
    - (a) Additional Data
  - (b) Photograph (if appropriate)
    - (c) RHS Colour Chart version used (if appropriate)
    - (d) Remarks."
- (ii) Status of the original variety description in relation to the enforcement of the breeder's rights

Document UPOV/EXN/ENF/1 "Explanatory notes on the enforcement of breeders' rights under the UPOV Convention" explains as follows:

"SECTION II: Some possible measures for the enforcement of breeders' rights

"While the UPOV Convention requires members of the Union to provide for appropriate legal remedies for the effective enforcement of breeders' rights, it is a matter for breeders to enforce their rights."

In relation to the verification of plant material of a protected variety for the purposes of enforcement of the breeder's right, it should be recalled that the description of the variety characteristics in the original variety description and the basis for distinctness from the most similar variety are linked to the circumstances of the DUS examination, namely:

- Date and document number of UPOV Test Guidelines;
- Date and/or document number of Reporting Authority's test guidelines;
- Reporting Authority;
- Testing station(s) and place(s);
- Period of testing;
- Date and place of issue of document;
- Group: (Table: Characteristics; States of Expression; Note; Remarks).
- Additional Information:
  - (a) Additional Data
  - (b) Photograph (if appropriate)
  - (c) RHS Colour Chart version used (if appropriate)
  - (d) Remarks

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#### (iii) Amendment to the original variety description

Document TGP/4 "Constitution and Maintenance of Variety Collections" explains in section 3.1.1:

"With regard to descriptions based on the relevant UPOV Test Guidelines, it is important to note that UPOV Test Guidelines may be revised (see document TGP/7), possibly leading to the introduction of some new characteristics and the deletion of some others from the table of characteristics. Furthermore, the states of expression of a characteristic may be amended. Therefore, descriptions which have been prepared using different versions of the UPOV Test Guidelines for the same species or group of species may not be fully compatible. In these cases, the descriptions should be aligned as far as possible."

In some members of the Union the original variety description may be amended to adapt the description to render it comparable with descriptions of other varieties, produced under different circumstances. In such cases, all stakeholders should be informed.

Examination offices may update their variety data to reflect the evolution of Test Guidelines. Such updates are made for working purposes and do not affect the original variety description.

# (iv) Reference Number of the Reporting Authority

The reference number of the Reporting Authority should be repeated on each page of the report.

# (b) Ad Number 14 (Annex: UPOV Variety Description)

Only information on the group to which the variety belonged should be given or information on groupings other than by characteristics listed in Number 15. Grouping by characteristics mentioned in Number 15 should be indicated simply by marking the respective characteristic in Number 15 with the letter "G" before the number of the characteristic.

### (c) Ad Number 15 (Annex: UPOV Variety Description)

- (i) All characteristics of the UPOV Test Guidelines should be reproduced, including those which are not applicable and those which have not been recorded. Those not applicable should be marked "not applicable," those not recorded, "not recorded."
  - (ii) The asterisks from the UPOV Test Guidelines should be repeated on the form.
- (iii) Additional characteristics from the Reporting Authority's test guidelines should not be placed after the UPOV Test Guidelines characteristics, but in their sequence according to the UPOV principles, as the main purpose of the form is still for the authority's use. They do not need to be specially marked as they are sufficiently identified by the Reporting Authority's number.
- (iv) The list contains only a small column for brief remarks or for a reference to lengthier remarks which should be reproduced in a footnote.

## (d) Ad Number 16 (Annex: UPOV Variety Description)

Only those characteristics that show sufficient differences to establish distinctness should be given. Information on differences between two varieties should always contain the states of expression with their notes for both varieties; if possible, in columns if more varieties are mentioned.

[Annex II follows]

# TC/56/4 Rev.

#### ANNEX II

# REVISIONS TO DOCUMENT TGP/7 "DEVELOPMENT OF TEST GUIDELINES"

The following revisions of document TGP/7 "Development of Test Guidelines" were agreed by the Technical Committee to be proposed for adoption by the Council at its fifty-fourth ordinary session, to be held in Geneva on October 30, 2020, subject to approval by the CAJ, at its seventy-seventh session, to be held in Geneva on October 28, 2020 (highlighting and strikethrough for deletions and highlighting and underline for addition):

### Characteristics which only apply to certain varieties

The TC agreed to amend the guidance in document TGP/7, Guidance Note 18 (GN 18) to read as follows:

3. Characteristics which only apply to certain varieties

In some cases, the state of expression of a preceding qualitative characteristic determines that a subsequent characteristic is not applicable e.g. it would not be possible to describe the shape of leaf lobes for a variety which did not have leaf lobes.

In cases where this is not obvious, or where the characteristics are separated in the Table of Characteristics, the heading of the subsequent characteristic is preceded by an underlined reference to the types of varieties to which it applies, on the basis of the preceding characteristic.

The following examples demonstrate how the proposed approach might be used for qualitative (QL), pseudo-qualitative (PQ) and quantitative (QN) characteristics:

- (QL) Flower: type: single (1); double (2)
- (PQ) Only varieties with: Flower: type: single: Flower: shape
- (PQ) Flower head: type: single (1); semi-double (2); daisy-eyed double (3); double (4)
- (QN) Only varieties with: Flower head: type: daisy-eyed double or double: Flower head: height: short (3); medium (5); tall (7)
- (PQ) Plant: head formation: absent (1); open (2); closed (3)
- (QN) Only varieties with: Plant: head formation: open or closed: Time of head formation: very early (1); early (3); medium (5); late (7); very late (9)
- (QN) Presence of hairs: absent or very weak (1).
- (PQ) Only varieties with: Presence of hairs: Other than absent or very weak (1): Hair: color

The exclusion of characteristics from observation on the basis of a preceding pseudo-qualitative (PQ) or quantitative (QN) characteristic should be used with caution, taking into account the consequences for the examination of distinctness.

## Presentation of full scale of notes for quantitative characteristics in Test Guidelines

The TC, at its fifty-fifth session, considered documents TC/55/4 and TC/55/4 Add. and agreed to revise document TGP/7 to present all states of expression for quantitative characteristics in Test Guidelines (see document TC/55/25 Corr. "Report", paragraph 172).

# Extract of ANNEX 1: TG STRUCTURE AND UNIVERSAL STANDARD WORDING

- 6.2 States of Expression and Corresponding Notes
- 6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.
- 6.2.2 In the case of qualitative and pseudo qualitative characteristics (see Chapter 6.3), all All relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the

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# TC/56/4 Rev. Annex II, page 2

Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

| State            | Note |
|------------------|------|
| <del>small</del> | 3    |
| medium           | 5    |
| <del>large</del> | 7    |

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

| State                 | Note         |
|-----------------------|--------------|
| <del>very small</del> | 1            |
| very small to small   | <del>2</del> |
| <del>small</del>      | 3            |
| small to medium       | 4            |
| <del>medium</del>     | 5            |
| medium to large       | <del>6</del> |
| <del>large</del>      | 7            |
| large to very large   | 8            |
| <del>very large</del> | 9            |

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 "Development of Test Guidelines".

# Extract of ANNEX 3: GUIDANCE NOTES (GN)

GN 20 (Chapter 7) – Presentation of characteristics: States of expression according to type of expression of a characteristic

[...]

3.3 The "1-9" scale

3.3.1 Introduction

[...]

3.3.1.3 However, it is not necessary to present all the 9 states in the Table of Characteristics and the following abbreviated versions are, in general, more appropriate:

| Standard Range            |   |
|---------------------------|---|
| Version 1                 | ١ |
| 1 very weak               | - |
| (or: absent or very weak) | _ |
| <del>3 weak</del>         | 3 |
| 5 medium                  | Ę |
| <del>7 strong</del>       | 7 |
| 9 very strong             | - |

| Standard Range            |  |  |
|---------------------------|--|--|
| Version 2                 |  |  |
| 1 very weak               |  |  |
| (or: absent or very weak) |  |  |
| <del>3 weak</del>         |  |  |
| 5 medium                  |  |  |
| 7 strong                  |  |  |
| -                         |  |  |

| Standard Range      | Stand          |
|---------------------|----------------|
| Version 3           | <b>Version</b> |
|                     | -              |
| <del>3 weak</del>   | 3 v            |
| 5 medium            | <del>5 r</del> |
| <del>7 strong</del> | <del>7 s</del> |
| 9 very strong       | _              |

|   | Standard Range<br>Version 4 |   |
|---|-----------------------------|---|
| ŀ |                             |   |
| 3 | <del>weak</del>             |   |
| 5 | <del>medium</del>           |   |
| 7 | strong                      | _ |
|   |                             |   |

3.3.1.4 3.3.1.3 [xxx]

3.3.2 Wording of States

[...]

3.3.2.2.1 [xxx]

| State | Example 1         | Example 2 | Example 3 | Example 4              | Example 5 |
|-------|-------------------|-----------|-----------|------------------------|-----------|
|       | Size relative to: | Angle:    | Position: | Length in relation to: | Profile:  |

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| 1        | much smaller                          | very acute                          | at base                                | equal                                  | strongly concave                       |
|----------|---------------------------------------|-------------------------------------|--|--|--|
| 2        | much smaller to<br>moderately smaller | very acute to moderately acute      | at base to one quarter from base       | equal to slightly shorter              | strongly concave to moderately concave |
| 3        | moderately smaller                    | moderately acute                    | one quarter from base                  | slightly shorter                       | moderately concave                     |
| 4        | moderately smaller to same size       | moderately acute to right angle     | one quarter from base to in middle     | slightly shorter to moderately shorter | moderately concave to flat             |
| 5        | same size                             | right angle                         | in middle                              | moderately shorter                     | flat                                   |
| <u>6</u> | same size to moderately larger        | right angle to<br>moderately obtuse | in middle to one quarter from apex end | moderately shorter to much shorter     | flat to moderately convex              |
| 7        | moderately larger                     | moderately obtuse                   | one quarter from apex end              | much shorter                           | moderately convex                      |
| 8        | moderately larger to much larger      | moderately obtuse<br>to very obtuse | one quarter from apex end to at apex   | much shorter to very much shorter      | moderately convex to strongly convex   |
| 9        | much larger                           | very obtuse                         | at apex                                | very much shorter                      | strongly convex                        |

# 3.4 "Limited" range 1-5 scale

The 1-5 scale is often used where the range of expression of a characteristic is physically limited at both ends and it is not appropriate to divide the expression into more than three intermediate states. For example:

| State    | Example 1 Stem: attitude |
|----------|--------------------------|
| 1        | erect                    |
| <u>2</u> | erect to semi-erect      |
| 3        | semi-erect               |
| 4        | semi-erect to prostrate  |
| 5        | prostrate                |

The wording for states 2 and 4 is formulated in the same way as for the even states in the 1-9 scale (see Section 3.3.2.1.2).

# GN 25 (Chapter 7) – Recommendations for conducting the examination

[...]

2. The following examples are intended to illustrate the ways of considering the method of observation for characteristics such as time of flowering and counts.

# (a) Time of Flowering

|    | Time of flowering   |          |
|----|---------------------|----------|
|    | very early          | <u>1</u> |
|    | very early to early | 2        |
| QN | early               | 3        |
|    | early to medium     | <u>4</u> |
|    | medium              | 5        |
|    | medium to late      | <u>6</u> |
|    | late                | 7        |
|    | late to very late   | 8        |
|    | very late           | <u>9</u> |

TC/56/4 Rev.

#### ANNEX III

# REVISIONS TO DOCUMENT TGP/14 "GLOSSARY OF TERMS USED IN UPOV DOCUMENTS"

The following revisions of document TGP/14 "Glossary of terms used in UPOV documents" were agreed by the Technical Committee to be proposed for adoption by the Council at its fifty-fourth ordinary session, to be held in Geneva on October 30, 2020, subject to approval by the CAJ, at its seventy-seventh session, to be held in Geneva on October 28, 2020 (highlighting and strikethrough for deletions and highlighting and underline for addition):

Extract from document TGP/14, Section 2, Subsection 3: Color: 2. Color

#### 2.2.4 Color Chart

If it is necessary to describe a color with a color chart, UPOV uses the color chart from the Royal Horticultural Society (RHS), the "RHS Colour Chart" because of its worldwide availability. There are  $\frac{5}{6}$  editions of this color chart, dating from 1966, 1986, 1995, 2001, and 2007 and 2015. Since 2005, the "RHS Mini Colour Chart" has been published by the Flower Council Holland and is also frequently used by breeders. Other color charts might also be appropriate.

[...]

When using the RHS Colour Chart, the reference number of the RHS color, the <u>UPOV</u> color name and the edition of the chart should be mentioned in the variety description. A proposal for naming the colors has been made <u>Information on UPOV color names can be found</u> in the ANNEX <u>Annexes I and II to Subsection 3 of</u> this document."

Extract from document TGP/14, Section 2, Subsection 3: Color: 5. Literature

### 5. LITERATURE

RHS Colour Chart, 2007 2015, Royal Horticultural Society, London, UK (www.rhs.org.uk)

Extract from document TGP/14, Section 2, Subsection 3: Color: ANNEXES I AND II

### ANNEX I

# COLOR NAMES FOR THE SIXTH EDITION (2015) OF 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 following table gives an overview of the existing "groups" for the sixth edition of the RHS Colour Chart:

|                    | _                                       | Number of<br>entries or<br>groups | <u>Example</u>     | <u>Use</u>  |
|--------------------|---|-----------------------------------|--------------------|---|
| high               | RHS Colour Chart Number                 | 920                               | <u>49A</u>         | Used for precise description of colors of plant parts.                                      |
| ecisio             | RHS Colour Name                         | 190                               | Strong Pink        | not used for UPOV purposes  |
| level of precision | UPOV Color Name                         | <u>73</u>                         | Pink<br>(group 29) | Used in the variety description to translate the RHS Colour Chart number into a color name. |
| NO<br>NO           | RHS Color Group (heading on each sheet) | 29                                | Red Group          | not used for UPOV purposes  |

- 1.2 3 In the editions one to five (1966 until 2007) The RHS Colour Chart containeds up to 896 colors, which are were 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 its own color name "groups" which are presented in this document.
- 1.4 In the sixth edition (2015) of the RHS Colour Chart for the first time each patch has a color name. However, these color names do not always reflect the color similarity of the patches and therefore it seemed not appropriate to use these names for UPOV purposes.
- 1.5 On the basis of the sixth edition of the RHS Colour Chart UPOV has identified 73 color "groups" which are presented in this document. For naming of the RHS Colour Charts in the editions one to five (1966 to 2007), see Annex II to Subsection 3 to 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/9/4 "Examining Distinctness".
- 1.3-6 The names used for the 50 73 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 appendix I to Annex I, in which the RHS Colors are listed according to the UPOV Color Group to which they belong: e.g. RHS 46C belongs to group 24 35 "medium red", RHS N 74B belongs to group 27 42 "medium purple" and RHS N 57A belongs to group 23 37 "medium purple red" (Sixth edition (2015) of the RHS Colour Chart).

# 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  | medium red            | RHS 46C   |      |
| 21  | <u>Varieties with bi- or multicolored flowers only:</u> Flower: secondary color of upper side | medium 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  | medium purple red     | RHS N 57A |      |

# 3. UPOV Color Groups (Sixth edition (2015) of the RHS Colour Chart)

# 3.1 The 50 73 UPOV Color Groups are as follows:

| Tangais   Deutsch   Deut   |                   |                    |                  |                 |                          |
|--|-------------------|--------------------|------------------|-----------------|--------------------------|
| 2 light green vert concé 4 dark green vert foncé 5 light yellow green 6 medium yellow green 6 medium yellow green 7 light grey green 8 medium grey green vert-girs chair 8 medium grey green vert-girs chair 9 dark grey green 9 dark grey green 10 light bleu green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark brown green 16 light yellow green 17 medium yellow green 18 medium grey green 19 dark blue voiet 10 light brown green 10 light brown green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark k prown green 16 light yellow orange 17 medium yellow graen 18 dark yellow orange 19 light vellow orange 20 medium yellow orange 21 dark yellow orange 22 light orange pink 23 medium orange pink 24 dark orange orange-jaune locial 25 light orange pink 26 medium orange pink 27 medium green pink 28 medium orange pink 29 pink 30 light red pink 40 rose-bleu clair 41 medium brown green 42 dark orange 43 medium orange pink 44 light tollou pink 45 rose-bleu clair 46 medium brown green 47 medium yellow orange 48 medium orange pink 49 medium preple 40 dark orange 41 dark yellow orange 42 dark orange 43 medium orange pink 44 light orange pink 45 rose-bleu clair 46 medium bue pink 47 rose-bleu clair 48 medium brown purple 49 pink 40 rose-bleu clair 41 medium bue pink 41 grey berea 42 medium purple 43 dark purple 44 light lotel 45 medium brown purple 46 dark vellow violet violet toncé 47 light brown green 48 medium purple 49 medium purple 40 medium purple 41 dark brown grupple 42 medium purple 43 dark purple 44 light violet 45 medium violet violet toncé 46 dark violet violet toncé 47 light bleu violet 48 medium violet violet toncé 49 dark bleu violet 40 dark bleu violet 41 light violet 42 medium violet blue 43 dark purple 44 light violet 45 medium violet blue 46 light violet blue 47 light blue violet 48 medium blue violet 49 dark blue violet 40 dark blue violet 40 dark blue violet 41 light violet 42 medium purple 43 dark blue violet 44 light violet 45 me | UPOV<br>Group No. |                    | français         |                 | español                  |
| 8 medium grey green 9 dark grey green 10 light blue green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark brown green 16 light yellow 17 medium yellow 18 dark yellow 19 light yellow orange 19 dark yellow orange 20 medium orange 21 dark yellow orange 22 light orange pink 23 medium orange pink 24 dark orange 25 light orange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 gight reappe pink 22 rose-rouge dair 23 medium reappink 24 dark orange 25 light roange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 rose-rouge clair 22 light roange pink 23 dark blue pink 24 medium puple read 25 medium reappink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 30 light blue pink 31 medium blue pink 41 rose-rouge clair 52 medium puple read 53 orange read 54 dark puple 55 medium reappink 56 dark read 57 medium puple read 58 medium puple read 59 pink 50 medium puple read 50 dark puple lead 51 dark puple lead 52 medium puple read 53 dark blue violet 54 medium blue violet 55 medium violet 56 dark violet blue 56 light violet blue 57 medium green blue 57 medium green blue 58 medium violet 59 light violet blue 59 light violet blue 50 lig | 1                 |                    |                  |                 |                          |
| 8 medium grey green 9 dark grey green 10 light blue green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark brown green 16 light yellow 17 medium yellow 18 dark yellow 19 light yellow orange 19 dark yellow orange 20 medium orange 21 dark yellow orange 22 light orange pink 23 medium orange pink 24 dark orange 25 light orange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 gight reappe pink 22 rose-rouge dair 23 medium reappink 24 dark orange 25 light roange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 rose-rouge clair 22 light roange pink 23 dark blue pink 24 medium puple read 25 medium reappink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 30 light blue pink 31 medium blue pink 41 rose-rouge clair 52 medium puple read 53 orange read 54 dark puple 55 medium reappink 56 dark read 57 medium puple read 58 medium puple read 59 pink 50 medium puple read 50 dark puple lead 51 dark puple lead 52 medium puple read 53 dark blue violet 54 medium blue violet 55 medium violet 56 dark violet blue 56 light violet blue 57 medium green blue 57 medium green blue 58 medium violet 59 light violet blue 59 light violet blue 50 lig | 2                 |                    |                  |                 |                          |
| 8 medium grey green 9 dark grey green 10 light blue green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark brown green 16 light yellow 17 medium yellow 18 dark yellow 19 light yellow orange 19 dark yellow orange 20 medium orange 21 dark yellow orange 22 light orange pink 23 medium orange pink 24 dark orange 25 light orange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 gight reappe pink 22 rose-rouge dair 23 medium reappink 24 dark orange 25 light roange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 rose-rouge clair 22 light roange pink 23 dark blue pink 24 medium puple read 25 medium reappink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 30 light blue pink 31 medium blue pink 41 rose-rouge clair 52 medium puple read 53 orange read 54 dark puple 55 medium reappink 56 dark read 57 medium puple read 58 medium puple read 59 pink 50 medium puple read 50 dark puple lead 51 dark puple lead 52 medium puple read 53 dark blue violet 54 medium blue violet 55 medium violet 56 dark violet blue 56 light violet blue 57 medium green blue 57 medium green blue 58 medium violet 59 light violet blue 59 light violet blue 50 lig | 3                 |                    | •                | -               |                          |
| 8 medium grey green 9 dark grey green 10 light blue green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark brown green 16 light yellow 17 medium yellow 18 dark yellow 19 light yellow orange 19 dark yellow orange 20 medium orange 21 dark yellow orange 22 light orange pink 23 medium orange pink 24 dark orange 25 light orange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 gight reappe pink 22 rose-rouge dair 23 medium reappink 24 dark orange 25 light roange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 rose-rouge clair 22 light roange pink 23 dark blue pink 24 medium puple read 25 medium reappink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 30 light blue pink 31 medium blue pink 41 rose-rouge clair 52 medium puple read 53 orange read 54 dark puple 55 medium reappink 56 dark read 57 medium puple read 58 medium puple read 59 pink 50 medium puple read 50 dark puple lead 51 dark puple lead 52 medium puple read 53 dark blue violet 54 medium blue violet 55 medium violet 56 dark violet blue 56 light violet blue 57 medium green blue 57 medium green blue 58 medium violet 59 light violet blue 59 light violet blue 50 lig | 4                 |                    |                  |                 |                          |
| 8 medium grey green 9 dark grey green 10 light blue green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark brown green 16 light yellow 17 medium yellow 18 dark yellow 19 light yellow orange 19 dark yellow orange 20 medium orange 21 dark yellow orange 22 light orange pink 23 medium orange pink 24 dark orange 25 light orange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 gight reappe pink 22 rose-rouge dair 23 medium reappink 24 dark orange 25 light roange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 rose-rouge clair 22 light roange pink 23 dark blue pink 24 medium puple read 25 medium reappink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 30 light blue pink 31 medium blue pink 41 rose-rouge clair 52 medium puple read 53 orange read 54 dark puple 55 medium reappink 56 dark read 57 medium puple read 58 medium puple read 59 pink 50 medium puple read 50 dark puple lead 51 dark puple lead 52 medium puple read 53 dark blue violet 54 medium blue violet 55 medium violet 56 dark violet blue 56 light violet blue 57 medium green blue 57 medium green blue 58 medium violet 59 light violet blue 59 light violet blue 50 lig | 5                 |                    | -                |                 |                          |
| 8 medium grey green 9 dark grey green 10 light blue green 11 medium blue green 12 dark blue green 13 light brown green 14 medium brown green 15 dark brown green 16 light yellow 17 medium yellow 18 dark yellow 19 light yellow orange 19 dark yellow orange 20 medium orange 21 dark yellow orange 22 light orange pink 23 medium orange pink 24 dark orange 25 light orange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 gight reappe pink 22 rose-rouge dair 23 medium reappink 24 dark orange 25 light roange pink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 29 pink 20 medium reappink 21 rose-rouge clair 22 light roange pink 23 dark blue pink 24 medium puple read 25 medium reappink 26 medium reappink 27 light reappink 28 medium reappink 29 pink 30 light blue pink 31 medium blue pink 41 rose-rouge clair 52 medium puple read 53 orange read 54 dark puple 55 medium reappink 56 dark read 57 medium puple read 58 medium puple read 59 pink 50 medium puple read 50 dark puple lead 51 dark puple lead 52 medium puple read 53 dark blue violet 54 medium blue violet 55 medium violet 56 dark violet blue 56 light violet blue 57 medium green blue 57 medium green blue 58 medium violet 59 light violet blue 59 light violet blue 50 lig | 6<br>7            |                    |                  |                 |                          |
| 9 dark grey green vert-bleu clair hellblaugrün verde griskeeo oscuro verbelu clair hellblaugrün verde azulado oscuro medium blue green vert-bleu moyen mittelblaugrün verde azulado oscuro durkelblaugrün verde azulado oscuro hellbraungrün verde azulado oscuro hellbraungrün verde azulado oscuro hellbraungrün verde azulado oscuro durkelbaugrün verde azulado oscuro hellbraungrün verde amarronado claro wert-brun moyen durkelbaugrün verde amarronado claro wert-brun foncé durkelbraungrün verde amarronado oscuro medium yellow jaune loncé durkelbelborange marrillo medio durkelgelb amarillo oscuro medium yellow orange orange-jaune foncé orange-jaune fonce orange-jaune fonce orange dair orange jaune fonce orange dair orange jaune fonce orange dair orange fonce orange fo |                   |                    |                  |                 | 3                        |
| 10 light blue green vert-bleu clair medium blue green vert-bleu foncé vert-bleu foncé vert-bleu foncé vert-brun clair light prown green vert-brun clair hellbraungrün verde azulado medio dunkelblaugrün verde azulado medio dunkelblaugrün verde azulado medio dunkelblaugrün verde azulado medio dunkelblaugrün verde amarronado claro medium brown green vert-brun foncé dunkelbraungrün verde amarronado coscuro dunkelpraungrün verde amarronado socuro dunkelpraungrün verde amarronado socuro dunkelpraungrün verde amarronado coscuro dunkelpraungrün verde amarronado socuro mittelorangrün verde amarronado socuro dunkelpraungrün verde amarronado socuro mittelpraungrün verde amarronado socuro mittelpraungrün verde amarronado socuro dunkelpraungrün verde amarronado socuro mittelpraungrün verde amarronado socuro marranja amarillento medio dunkelpraungrün verde amarronado socuro mittelpraungrün verde amarronado socuro mittelpraungrün verde amarronado socuro mittelpraungrün verde amarronado socuro mittelpraungrün verde amarronado socuro mittelpraungrü | 9                 |                    |                  |                 |                          |
| medium biue green vert-bleu moyen wert-bleu foncé durk blue green vert-brun clair wert-beur foncé durkelbaugrün verde azulado oscuro verde amarronado claro verde amarronado claro verde amarronado socuro durkelbaugrün verde amarronado socuro verde amarronado socuro verde amarronado socuro verde amarronado socuro durkelpulo verde amarronado socuro verde amarronado socuro verde amarronado socuro verde amarronado socuro durkelpulo verde amarronado socuro verde amarronado socuro verde amarronado socuro verde amarronado socuro durkelpulo verde amarronado socuro verde amarronado socuro verde amarronado socuro verde amarronado socuro durkelpulo verde amarronado socuro verde amarronado medio durkelporange marranja darco verde amarronado medio verde amarronado socuro verde amarronado socuro verde amarronado socuro verde amarronado socuro verde amarronado medio verde amarronado medio verde amarronado socuro verde amarronado medio verde amarronado medio verde medium brow purple pourpre foncé verde medium brow purple pourpre foncé verde medium brow purple pourpre fo |                   |                    |                  |                 |                          |
| dark blue green vert-bur clair belibraungrün verde azulado oscuro verde martonado claro verde martonado claro verde dark brown green vert-brun foncé dark brown green light yellow jaune dair hellgelb amarillo claro medium yellow jaune foncé dark yellow orange orange-jaune clair medium yellow orange dark yellow orange orange-jaune moyen mittelgelborange naranja amarillento derdo orange-jaune moyen mittelgelborange naranja amarillento medio dark orange pink fose orange-jaune foncé dunkelgelb orange naranja amarillento medio orange-jaune foncé dunkelgelborange naranja amarillento medio orange foncé dunkelgelborange naranja amarillento medio orange foncé dunkelorange naranja amarillento medio naranja orange foncé dunkelorange naranja amarillento medio naranja orange foncé dunkelorange naranja maranja mara |                   |                    |                  |                 |                          |
| light brown green vert-brun clair vert-brun clair vert-brun foncé dark brown green vert-brun foncé dark vellow jaune clair laune moyen mittelgelb amarillo medio dark yellow orange dark yellow orange dark yellow orange dark yellow orange orange-jaune moyen dark yellow orange dark yellow orange orange-jaune moyen mittelgelborange naranja amarillento claro orange-jaune moyen mittelgelborange naranja amarillento claro orange-jaune moyen mittelgelborange naranja amarillento claro orange-jaune moyen mittelgelborange naranja amarillento oscuro orange clair orange prink rose orange dair nose orange dair nose orange moyen mittelorange naranja oscuro orange moyen mittelorange naranja oscuro orange norage moyen mittelorange naranja oscuro orange norage moyen mittelorange naranja oscuro orange norage moyen mittelorange naranja oscuro orange clair orose orange dair nose-orange dair nose-orange dair nose-orange moyen mittelorange naranja oscuro orange norange nore hellorangerosa nosa anaranjado claro orange red pink rose-bleu moyen mittelorangenosa nosa azulado claro orange red rouge orange moyen mittelorangenosa nosa azulado claro orange red rouge orange mittellorangenosa nosa azulado claro nose-bleu foncé dunkelbaurosa rosa azulado oscuro nose-bleu foncé dunkelbaurosa rosa azulado oscuro noge-orange foncé dunkelpurpurnot noge-orange foncé dunkelpurpurno purpura marronado medio violet tolair hellitolett violeta nogen dunkelpurpurno purpura marronado medio dunkelpurpurno purp |                   |                    |                  |                 | verde azulado oscuro     |
| 15 dark brown green ight vellow jaune clair ight yellow jaune clair medium yellow jaune moyen jaune clair medium yellow orange ight yellow orange medium vellow orange orange-jaune moyen orange-jaune foncé orange-jaune foncé orange-jaune foncé orange-jaune foncé orange-jaune foncé orange-jaune foncé orange clair medium orange orange moyen orange foncé orange  |                   |                    | vert-brun clair  |                 | verde amarronado claro   |
| light yellow range orange dark yellow orange orange dark yellow orange orange dark yellow orange orange dark yellow orange orange-jaune foncé orange-jaune foncé orange-jaune foncé orange-jaune foncé orange-jaune moyen orange dark yellow orange orange clair medium orange pink rose orange foncé orange clair orse orange foncé orange clair orse orange dark yellow pink rose-obleu clair medium blue pink rose-obleu clair orange proven orange red rouge orangé clair hellorange orange moyen orange clair orse-orange moyen orange clair orse-orange moyen orange pink rose-obleu clair orse-orange moyen orange pink rose-obleu clair orange pink rose-obleu clair orange pink rose-obleu clair orange pink adr k bure pink rose-obleu moyen orange pink dark bure pink orange pink rose-obleu clair orange pink rose-obleu clair orange pink dark bure pink rose-obleu clair orange red rouge orangé orangerot rojo anaranjado rojo | 14                | medium brown green | vert-brun moyen  | mittelbraungrün | verde amarronado medio   |
| 17 medium yellow jaune moyen jaune foncé dark yellow orange orange-jaune clair orange-jaune foncé dark yellow orange orange-jaune moyen orange dair orange orange orange dair orange pink rose-orange clair orose orange foncé light orange pink rose-orange dair rose-orange moyen medium orange pink rose-orange moyen moyen pink rose-rouge moyen moyen orange m |                   |                    |                  |                 |                          |
| dark yellow orange orange-jaune foncé orange-jaune lo neligelborange medium yellow orange orange-jaune moyen orange dark yellow orange orange-jaune moyen orange-jaune foncé orange clair ight orange orange orange foncé orange clair medium orange orange moyen orange foncé orange clair orose orangé clair rose orangé moyen rose orangé moyen pink rose-rouge moyen ilight red pink rose-bleu clair medium blue pink rose-bleu moyen dark burple red rouge-pourpre foncé adark red medium purple red adark brown purple adark brown purple dark brown purple dark brown purple que dark brown purple pourpre-brun foncé medium purple pourpre foncé rouge-brun foncé medium purple pourpre foncé dark violet violet clair medium purple puppra dark brown purple pourpre foncé rouge-brun foncé dark violet violet dark violet violet dark blue bleu-violet moyen durkelblauviolett violeta azulado claro violeta zulado claro mittelburulett violeta azulado claro violeta azulado cocuro violeta azulado cocuro violeta azulado cocuro violeta azulado claro mittelpirublau azul violáceo oscuro bleu-violet moyen mittelpirublau azul violáceo claro medium preen blue bleu-violet moyen mittelpirublau azul violáceo oscuro bleu-violet foncé ble |                   |                    | •                |                 |                          |
| light yellow orange orange-jaune clair orange-jaune moyen orange-jaune moyen orange dark yellow orange orange-jaune moyen orange light orange orange clair orange orange clair orange orange orange clair orange orange orange moyen orange orange moyen orange moyen orange pink rose orange foncé dight orange pink rose orangé moyen ilight red pink rose-rouge clair orange moyen light red pink rose-rouge clair orange moyen pink rose-rouge clair orange moyen ilight blue pink rose-bleu clair medium blue pink rose-bleu clair orange red rouge orangé orange orange moyen orange rosa araulado claro orange moyen orange rosa orange moyen orange rosa araulado claro orange rosa orange rosa araulado oscuro orange rosa orange rosa orange rosa araulado oscuro orange rosa orange rosa araulado oscuro orange rosa orange rosa araulado oscuro orange rosa orange rosa orange rosa orange rosa orange rosa orange rosa orange |                   |                    |                  |                 |                          |
| medium purple moyen cosa pink rose-bleu clair hellbraurosa rosa azulado oscuro rosa dark purple red rouge-pourpre foncé dark purple dark violet wiolet dair medium purple dark brown purple dark wiolet wiolet dair wields dark violet dark violet dark violet dark blue bleu violet blue bleu violet blue bleu violet blue bleu violet dark blue bleu violet blue bleu violet dark blue bleu violet bleu bleu violet dark blue bleu violet bleu bleu violet dark blue bleu violet dark bleu violet dark blue bleu violet dark bleu violet dark blue bleu violet totair hellotau azul violáceo oscuro medium green blue bleu violet dair hellotau azul violáceo oscuro beleu-vert clair hellotau azul violáceo oscuro beleu-vert oscur mottet bleu azul violáceo oscuro beleu-vert oscur bleu-vert oscur o |                   |                    |                  |                 |                          |
| dark yellow orange orange-jaune foncé dunkelgelborange naranja amarillento oscuro orange clair nedium orange orange moyen mittelorange naranja acuro naranja acuro orange foncé dunkelorange naranja oscuro prose orange foncé dunkelorange naranja oscuro naranja oscuro dunkelorange naranja oscuro naranja oscuro dunkelorange naranja oscuro nedium orange pink rose orangé clair nedium orange pink rose orangé moyen pilpt nedium red pink nose-rouge clair nedium blue pink rose-rouge clair nedium blue pink rose-bleu moyen mittelorosa rosa rojizo medio rosa zullado oscuro rosa aculado oscuro rosa rojizo medio rojo anaranjado |                   |                    |                  |                 |                          |
| 22 light orange orange clair hellorange naranja claro medium orange orange moyen mittelorange naranja caro naranja claro orange fonce dunkelorange naranja oscuro hellorange pink rose orangé clair hellorangerosa rosa anaranjado claro rose orangé moyen mittelorangerosa rosa anaranjado claro medium red pink rose-rouge clair hellorangerosa rosa rojizo claro medium red pink rose-rouge moyen mittelorosa rosa rojizo claro pink rose-rouge moyen mittelorosa rosa rojizo claro rosa ora rojizo medio rosa dark blue pink rose-bleu moyen mittellolaurosa rosa azulado medio dunkellolaurosa rosa azulado oscuro orange red rouge orangé orangerot rojo anaranjado rojo anaranjado orange red rouge moyen mittellolaurosa rosa azulado oscuro rojo claro mittelloro rojo claro mittelloro rojo claro mittelloro rojo caro mittelloro rojo oscuro mittelloro rojo oscuro mittelloro rojo oscuro mittelloro rojo oscuro mittelloro rojo púrpura oscuro brovan rod dark red rouge-pourpre foncé dunkelloro rojo púrpura oscuro brovan purple pourpre-brun moyen dunkellorumum púrpura medio dunkellorumum púrpura amarronado oscuro mittellorumum púrpura amarronado oscuro mittellorumum púrpura amarronado oscuro mittellorumum púrpura amarronado oscuro dunkellorumum púrpura amarronado oscuro dunkellorumum púrpura amarronado oscuro mittellorumum púrpura amarronado oscuro mittellorumum púrpura medio dunkellorumum púrpura amarronado oscuro dunkellorumum púrpura amarronado oscuro dunkellorumum púrpura medio dunkellorumum púrpura oscuro violeta claro medium violet violet foncé dunkellorumum púrpura medio dunkellorumum púrpura medio dunkellorumum púrpura medio dunkellorumum púrpura oscuro brovata dark purple pourpre foncé dunkellorumum púrpura coscuro berúpura oscuro berúpura oscuro dunkellorumum púrpura oscuro berúpura oscuro berúpura oscuro berúpura oscuro dunkellorumum púrpura oscuro berúpura oscuro dunkellorumum púrpura oscuro berúpura oscuro dunkellorumum púrpura oscuro berúpura me |                   |                    |                  |                 | -                        |
| medium orange orange moyen orange foncé dunkelorange naranja medio orange foncé dunkelorange naranja medio orange foncé medium orange pink rose orangé clair hellorangerosa rosa anaranjado claro rose orangé moyen mittelorangerosa rosa anaranjado claro rosa medium red pink rose-rouge moyen mittelorangerosa rosa ararajado medio rosa pink rose-rouge moyen mittelorangerosa rosa ararajado medio rosa orangé moyen mittelorangerosa rosa ararajado medio rosa orange rosa rojac medio rosa pink rose-bleu clair hellorangerosa rosa rojizo daro rosa orange rosa rojac medio rosa orange rosa rojac medio rosa orange rosa orange rosa orange rosa azulado claro mittelolaurosa rosa azulado oscuro rosa orange rosa orange rosa orangerot rojo anaranjado orange rod dunkelblaurosa rosa azulado oscuro rojo anaranjado orange rod dunkellorangerot rojo claro rojo claro rouge clair hellrot rojo claro medium purple rod dark red rouge moyen mittelpurpurrot rojo purpura medio dunkelrot rojo oscuro mittelpurpurrot rojo purpura medio dunkelpurpurrot rojo purpura oscuro dunkelpurpurrot rojo purpura oscuro porpre-brun moyen dunkelpurpurrot rojo purpura oscuro dunkelpurpurro mittelpurpurn mittelpurpurn purpura amarronado medio dunkelpurpurn mittelpurpurn purpura amarronado oscuro mittelpurpurn purpura medio dunkelpurpurn purpura medio du |                   |                    |                  |                 | · ·                      |
| dark orange ight orange foncé medium orange pink rose orangé dair hellorangerosa rosa anaranjado medio rose orangé moyen mittelorangerosa rosa anaranjado medio rose-rouge clair hellortosa rosa rojizo claro rosa orangé moyen mittelorangerosa rosa anaranjado medio rose-rouge clair hellortosa rosa rojizo claro rosa pink rose-rouge clair hellortosa rosa rojizo claro rosa pink rose-bleu clair hellotanosa rosa azulado claro mittelorangerosa rosa azulado claro rosa dight blue pink rose-bleu moyen mittelorangerosa rosa azulado claro rosa dark blue pink rose-bleu moyen mittelbaurosa rosa azulado medio rosa orange rosa azulado oscuro rosa orange rosa azulado oscuro rosa orange rosa azulado oscuro rosa azulado oscuro rosa orange rosa azulado oscuro rosa orangerot rojo anaranjado rojo claro mittellor rojo claro medium purple red rouge-pourpre moyen mittellorot rojo medio dunkellorot rojo oscuro mittellorot rojo púrpura medio dunkelpurpurrot rojo púrpura medio dunkelpurpurrot rojo púrpura medio dunkelpurpurrot pourpre pourpre-brun foncé dunkelpurpurro púrpura amarronado oscuro mittelpurpur purpura medio dunkelpurpur púrpura amarronado oscuro mittelpurpur púrpura medio dunkelpurpur púrpura medio dunkelpurpur púrpura medio dunkelpurpur púrpura medio dunkelpurpur púrpura oscuro rojo amarronado oscuro mittelpurpur púrpura medio dunkelpurpur púrpura dunkelpurpur púrpura medio dunkelpurpur púrpur | 22                |                    | _                |                 |                          |
| light roange pink rose orangé clair medium orange pink rose orangé moyen mittellorangerosa rosa anaranjado claro rosa orangé moyen mittellorangerosa rosa anaranjado medio rosa rojizo claro rosa rojizo medio rosa pink rose-rouge moyen rosa rosa azulado claro rosa gigita medium blue pink rose-bleu clair hellblaurosa rosa azulado claro rosa dark blue pink rose-bleu moyen mittellolaurosa rosa azulado claro rosa azulado claro rosa dark blue pink rose-bleu foncé dunkelblaurosa rosa azulado claro rosa azulado claro rosa azulado claro rosa dark blue pink rose-bleu foncé dunkelblaurosa rosa azulado claro rosa azulado oscuro rosa azulado oscuro rosa orange red rouge clair hellrot rojo claro rojo anaranjado rosa azulado claro rosa dark blue bleu-vert moyen mittellorurosa rosa azulado claro rosa azulado claro rosa azulado oscuro rosa orangerot rojo anaranjado rosa azulado claro rosa azulado claro rosa orangerot rojo anaranjado rosa azulado claro rosa orangerot rojo claro rosa orangerot rojo claro rojo claro rojo claro rojo claro rojo claro rojo oscuro dunkelrot rojo oscuro mittelpurpurrot rojo púrpura medio dunkelrot rojo púrpura medio dunkelrot rojo púrpura medio dunkelrot rojo púrpura medio dunkelpurpurrot rojo púrpura medio dunkelpurpurrot rojo púrpura medio dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura marronado redio dunkelpurpurn púrpura socuro dunkelpurpurn púrpura marronado redio dunkelpurpurn púrpura socuro rojo anaranjado rosuro dunkelpurpurn púrpura marronado redio dunkelpurpurn púrpura acuro socuro dunkelpurpurn púrpura socuro rojo púrpura oscuro rojo púrpura oscuro rojo púrpura oscuro dunkelpurpurn púrpura medio dunkelpurpur púrpura socuro dunkelpurpur púrpura púrpura púrpura púrpura púrpura púrpura púrpura medio dunkelpurpur púrpura púrpura púrpura pú |                   |                    |                  |                 |                          |
| medium orange pink rose orangé moyen rose-rouge dair rosa-roizzo claro rosa-roizzo daro nedio rosa-roizzo medio rosa rojizzo medio rosa pink rose-bleu clair helltotrosa rosa azulado claro rosa light blue pink rose-bleu moyen mittelblaurosa rosa azulado medio dark blue pink rose-bleu moyen mittelblaurosa rosa azulado medio dunkelblaurosa rosa azulado oscuro rosa orange red rouge orangé orangerot rojo anaranjado rojo claro rojo anaranjado rojo claro rojo medio dunkelrot rojo púrpura oscuro mittelpurpurrot rojo púrpura oscuro dunkelpurpurrot rojo púrpura oscuro púrpura medio dunkelpurpurrot rojo púrpura oscuro rojo medium brown purple pourpre-brun foncé dunkelpurpurrot rojo púrpura amarronado medio dunkelpurpurrot púrpura amarronado medio dunkelpurpurrot púrpura medio dunkelpurpurn púrpura oscuro mittelpurpurn púrpura oscuro mittelpurpurn púrpura medio dunkelpurpurn púrpura medio dunkelpurpurn púrpura medio dunkelpurpurn púrpura medio dunkelpurpurn púrpura oscuro dunkelpurpurn púrpura oscuro mittelpurpurn púrpura medio dunkelpurpurn púrpura medio dunkelpurpurn púrpura medio dunkelpurpurn púrpura oscuro dunkelpurpurn púrpura oscuro dunkelpurpurn púrpura oscuro mittelpurpurn púrpura medio dunkelpurpurn | 25                |                    |                  |                 |                          |
| light red pink rose-rouge dair medium red pink rose-rouge myen rosa orojaco daro pink rose rose rosa rosa rosa rosa rosa rosa rosa rosa  |                   |                    |                  |                 | -                        |
| medium red pink rose-rouge moyen rose pink rose rose or rose o | 27                |                    |                  |                 |                          |
| pink rose rose rosa rosa rosa rosa sulado claro rose-bleu clair hellblaurosa rosa azulado claro mittelblaurosa rosa azulado claro mittelblaurosa rosa azulado coscuro rosa azulado coscuro rosa azulado medio rose-bleu foncé dunkelblaurosa rosa azulado oscuro rosa azulado cascuro rosa azulado oscuro rosa azulado oscuro rosa azulado casculado socuro rosa azulado oscuro rosa azulado oscuro rosa azulado oscuro rosa azulado roscuro rosa azulado oscuro rojo anaranjado rosa azulado roscuro dunkelrot rojo anaranjado rosa rosa azulado roscuro dunkelpurpur rojo anaranjado rojo anaranjado rojo anaranjado rojo anaranjado rojo anaronado rojo oscuro rojo oscuro rojo púrpura medio dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado roscuro rojo púrpura medio dunkelpurpurn púrpura amarronado roscuro rojo púrpura medio dunkelpurpurn púrpura amarronado roscuro rojo dunkelpurpurn púrpura amarronado roscuro rojo púrpura medio dunkelpurpurn púrpura amarronado roscuro rojo púrpura medio dunkelpurpurn púrpura amarronado roscuro rojo púrpura medio rojo púrpura medio dunkelpurpurn púrpura dunkelpurpurn púrpura accuro rojo púrpura medio rojo pú |                   |                    | _                | mittelrotrosa   |                          |
| aredium blue pink rose-bleu moyen durkelblaurosa rosa azulado medio durk blue pink rose-bleu foncé dunkelblaurosa rosa azulado oscuro rosa orange red rouge orangé orangerot rojo anaranjado rojo claro rouge dair hellrot rojo claro medium red rouge moyen mittelrot rojo claro medium purple red rouge-pourpre moyen dark purple red rouge-pourpre foncé dunkelpurpurrot rojo púrpura medio dark purple red rouge-pourpre foncé dunkelpurpurrot rojo púrpura medio dark purple pourpre-brun moyen dunkelpurpurm púrpura amarronado medio dark brown purple pourpre-brun foncé dunkelpurpurm púrpura amarronado oscuro medium purple pourpre foncé dunkelpurpurm púrpura medio dark purple pourpre foncé dunkelpurpurm púrpura medio dunkelpurpurm púrpura oscuro violet clair hellviolett violeta claro violet moyen mittelviolett violeta dark violet violet moyen mittelviolett violeta azulado claro dunkelblauviolett violeta azulado claro dunkelblauviolett violeta azulado oscuro dunkelblau azul violáceo oscuro dunkelbiau azul claro medium blue bleu clair hellbiau azul claro medium green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert clair bleu-vert clair medium green blue bleu-vert clair |                   |                    | rose             | rosa            |                          |
| dark blue pink rose-bleu foncé dunkelblaurosa rosa azulado oscuro rouge orangé orange red rouge orangé orangerot rojo anaranjado rojo claro rojo claro rojo elaro roj |                   |                    | rose-bleu clair  | hellblaurosa    | rosa azulado claro       |
| orange red rouge orangé orangerot rojo anaranjado rouge clair hellrot rojo claro rojo anaranjado rouge dair hellrot rojo claro mittelrot rojo medio dark red rouge foncé dunkelrot rojo oscuro rojo púrpura medio dark purple red rouge-pourpre foncé dunkelpurpurrot rojo púrpura oscuro pourpere brun moyen medium purple pourpre-brun moyen dark brown purple pourpre-brun foncé dunkelbraunpurpurn púrpura amarronado medio dark purple pourpre moyen dunkelbraunpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura acsuro dunkelpurpurn púrpura acsuro dunkelpurpurn púrpura oscuro dunkelpurpurn púrpura acsuro violet clair hellviolett violeta claro violeta dark violet violet moyen mittelviolett violeta oscuro dunkelpurpurn púrpura oscuro dunkelpurpurn púrpura acsuro violeta dark violet violet nocé dunkelviolett violeta azulado claro violeta dark blue violet violet-bleu clair hellblauviolett violeta azulado oscuro dark blue violet violet clair hellviolettblau azul violáceo claro dark violet blue bleu-violet toncé dunkelblauviolett violeta azulado oscuro dunkelviolettblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro dunkelblau azul violáceo oscuro medio dunkelblau azul verdoso claro medium green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso claro mittelgrünblau azul verdoso claro        |                   |                    | ,                |                 |                          |
| light red rouge clair nedium red rouge moyen mittelrot rojo claro rojo medio dark red rouge foncé dunkelrot rojo oscuro medium purple red rouge-pourpre moyen dunkelpurpurrot rojo púrpura medio rojo púrpura medio rojo púrpura medio rojo púrpura medio rojo púrpura oscuro rojo púrpura oscuro rojo púrpura oscuro rojo púrpura oscuro rojo púrpura medio dark purple pourpre-brun moyen mittelbraunpurpurn púrpura amarronado medio dark purple pourpre moyen mittelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura medio dark purple pourpre moyen mittelpurpurn púrpura medio dark purple pourpre foncé dunkelpurpurn púrpura medio dark violet violet clair hellviolett violeta claro dunkelpurpurn púrpura oscuro violeta claro dunkelpurpurn púrpura oscuro violeta claro medium violet violet moyen mittelviolett violeta claro violeta clair hellblauviolett violeta azulado claro medium blue violet violet-bleu clair hellblauviolett violeta azulado medio dark blue violet blue bleu-violet clair hellviolettblau azul violáceo claro dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dark blue bleu moyen mittelblau azul daro azul medio dark blue bleu moyen mittelblau azul daro azul medio dunkelblau azul violáceo oscuro bleu medium green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| medium red rouge moyen mittelrot rojo medio dark red rouge foncé dunkelrot rojo oscuro medium purple red rouge-pourpre moyen dark purple red rouge-pourpre foncé dunkelpurpurrot rojo púrpura medio mittelpurpurrot rojo púrpura oscuro mittelpurpurrot rojo púrpura oscuro mittelpurpurrot rojo amarronado medio dark brown purple pourpre-brun moyen dark brown purple pourpre-brun foncé dunkelbraunpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura medio dunkelpurpurn púrpura dunkelpurpurn púrpura medio dunkelpurpurn púrpura dunkelpurpurn púrpura medio dunkelpurpurn púrpura dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado dunkelpurpurn púrpura dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura dunkelpurpurn púrpura dunkelpurpurn púrpura dunkelpurpurn púrpura dunkelpurp |                   |                    |                  |                 | -                        |
| dark red rouge foncé dunkelrot rojo oscuro medium purple red rouge-pourpre moyen dunkelpurpurrot rojo púrpura medio dark purple red rouge-pourpre foncé dunkelpurpurrot rojo púrpura oscuro pourpre-brun moyen mittelbraunpurpurn púrpura amarronado medio dark brown purple pourpre-brun foncé dunkelpurpurn púrpura amarronado oscuro dark purple pourpre moyen mittelpurpurn púrpura amarronado oscuro dark purple pourpre foncé dunkelpurpurn púrpura amarronado oscuro dark purple pourpre foncé dunkelpurpurn púrpura amarronado oscuro dark purple pourpre foncé dunkelpurpurn púrpura amarronado oscuro dark violet violet dair hellviolett violeta claro dark violet violet moyen mittelviolett violeta azulado claro dark blue violet violet-bleu moyen mittelblauviolett violeta azulado oscuro dark blue violet blue bleu-violet moyen mittelviolettlau azul violáceo claro dark violet blue bleu-violet moyen mittelviolettlau azul violáceo oscuro dark violet blue bleu-violet moyen mittelblau dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dark violet blue bleu-violet moyen mittelblau dark violet blue bleu-violet moyen mittelblau azul violáceo oscuro dark violet blue bleu-violet moyen mittelblau azul violáceo oscuro dark blue bleu clair hellblau azul violáceo oscuro dark blue bleu moyen mittelblau azul violáceo oscuro dark blue bleu foncé dunkelblau azul violáceo oscuro dark blue bleu foncé dunkelblau azul violáceo oscuro dark blue bleu foncé dunkelblau azul violáceo oscuro dark brea marronado mittelbrau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro dunkelpripurn púrpura amarronado dunkelpripurpurn púrpura amarronado mittelbraunpurpurn púrpura amarronado dunkelpurpurn púrpura amarronado nedio dunkelpurpurn púrpura amarronado mittelbraunpurpurn púrpura amarronado nedio dunkelpurpurn púrpura violet violeta claro neticloration nittelbraunpurpurn púrpura  |                   |                    |                  |                 |                          |
| medium purple red dark purple red rouge-pourpre moyen brown red rouge-brun moyen pourpre-brun moyen dunkelbraunpurpurn púrpura amarronado medio dark brown purple pourpre moyen mittelbraunpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado oscuro dunkelpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado medio dunkelpurpurn púrpura amarronado oscuro mittelpurpurn púrpura amarronado medio dunkelpurpurn púrpura pú |                   |                    |                  |                 |                          |
| dark purple red rouge-pourpre foncé brown red rouge-brun moyen medium brown purple pourpre-brun moyen dark brown purple pourpre-brun foncé dark purple pourpre medium purple pourpre moyen dark purple pourpre moyen dark purple pourpre foncé dunkelbraunpurpurn púrpura amarronado oscuro medium violet violet clair hellviolett violeta claro dark violet dark violet violet foncé dark violet violet-bleu clair hellblauviolett violeta azulado claro dark blue violet blue bleu-violet foncé dunkelviolettlau azul violáceo oscuro medium violet blue bleu-violet foncé dunkelviolettlau azul violáceo oscuro medium violet blue bleu clair hellblau azul violáceo oscuro medium blue violet bleu clair hellblau azul darco scuro folight blue bleu clair hellblau azul violáceo oscuro medium blue bleu clair hellblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro medium blue bleu clair hellblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro medium blue bleu clair hellblau azul violáceo oscuro dunkelblau azul darco scuro hellblau azul violáceo oscuro dunkelblau azul medio dark blue bleu clair hellblau azul darco scuro dunkelblau azul oscuro hellblau azul oscuro hellblau azul oscuro medium green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio azul verdoso medio azul verdoso medio mittelgrünblau azul verdoso medio azul verdoso medio medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio   |                   |                    | _                |                 |                          |
| brown red rouge-brun pourpre-brun moyen dark brown purple pourpre-brun foncé dunkelbraunpurpurn púrpura amarronado oscuro medium purple pourpre moyen dunkelbraunpurpurn púrpura amarronado oscuro medium purple pourpre foncé dunkelpurpurn púrpura oscuro dunkelpurpurn púrpura oscuro violet clair hellviolett violeta claro violet moyen mittelpurpurn púrpura oscuro violet acaro violet moyen mittelpurpurn púrpura oscuro violet acaro violet moyen mittelviolett violeta medio dark violet violet moyen mittelviolett violeta azulado claro violet acaro dunkelpurpur purpura oscuro violeta medio violeta medio dark violet moyen mittelviolett violeta azulado claro violeta aculado claro medium blue violet violet-bleu clair hellblauviolett violeta azulado oscuro dark blue violet blue bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet moyen mittelviolettblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro medium blue bleu clair hellblau azul claro medium blue bleu moyen mittelblau azul medio dark blue bleu moyen mittelblau azul oscuro dunkelblau azul oscuro light green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| medium brown purple pourpre-brun moyen dark brown purple pourpre-brun foncé dunkelbraunpurpurn púrpura amarronado medio púrpura amarronado oscuro medium purple pourpre moyen mittelpurpurn púrpura medio púrpura amarronado oscuro medium purple pourpre foncé dunkelpurpurn púrpura oscuro light violet violet clair hellviolett violeta dark violet medium violet wiolet moyen mittelviolett violeta medio dark violet violet foncé dunkelviolett violeta azulado claro medium blue violet violet-bleu moyen mittelblauviolett violeta azulado medio dark blue violet violet-bleu foncé dunkelblauviolett violeta azulado oscuro light violet blue bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet moyen mittelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro light blue bleu clair hellblau azul violáceo oscuro dunkelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro light blue bleu clair hellblau azul violáceo oscuro light blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelviolett azul medio light green blue bleu foncé dunkelblau azul violáceo claro medium green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert clair hellgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| dark brown purple pourpre-brun foncé dunkelbraunpurpurn púrpura amarronado oscuro medium purple pourpre moyen mittelpurpurn púrpura medio púrpura oscuro dunkelpurpurn púrpura oscuro dunkelpurpurn púrpura oscuro violeta claro violeta claro medium violet violet moyen mittelviolett violeta medio dark violet violet foncé dunkelviolett violeta oscuro light blue violet violeta violeta moyen mittelblauviolett violeta azulado claro medium blue violet violet-bleu foncé dunkelblauviolett violeta azulado oscuro light violet blue bleu-violet clair hellviolettblau azul violáceo oscuro bleu-violet blue bleu-violet moyen mittelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro light blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro bleu clair hellblau azul violáceo oscuro sulight blue bleu clair hellblau azul violáceo oscuro bleu dark blue bleu moyen mittelblau azul medio dark blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelblau azul violáceo claro medium blue bleu moyen mittelblau azul violáceo claro dunkelblau azul violáceo claro medium green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| medium purple pourpre moyen dunkelpurpurn púrpura medio púrpura oscuro dunkelpurpurn púrpura oscuro violet clair hellviolett violeta claro medium violet violet foncé dunkelviolett violeta oscuro dunkelviolett violeta oscuro dunkelviolett violeta azulado claro dunkelviolett violeta azulado claro medium blue violet violet-bleu moyen mittelblauviolett violeta azulado medio dark blue violet violet-bleu foncé dunkelviolett violeta azulado oscuro light violet blue bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet moyen mittelblauviolett violeta azulado oscuro bleu-violet foncé dunkelviolettblau azul violáceo claro medium violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro hellblau azul violáceo oscuro bleu-violet foncé dunkelviolettblau azul violáceo oscuro bleu clair hellblau azul violáceo oscuro dunkelviolettblau azul violáceo oscuro bleu clair hellblau azul violáceo oscuro bleu clair hellblau azul medio dark blue bleu moyen mittelblau azul medio azul oscuro dunkelblau azul verdoso claro medium green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  | 41                |                    |                  |                 |                          |
| dark purple pourpre foncé dunkelpurpurn púrpura oscuro light violet violet dair hellviolett violeta claro dark violet violet moyen mittelviolett violeta medio dark violet violet foncé dunkelviolett violeta oscuro light blue violet violet-bleu clair hellblauviolett violeta azulado claro medium blue violet violet-bleu moyen mittelblauviolett violeta azulado medio dark blue violet violet-bleu foncé dunkelblauviolett violeta azulado oscuro light violet blue bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet moyen mittelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro light blue bleu clair hellblau azul claro medium blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelblau azul oscuro light green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio   |                   |                    |                  |                 |                          |
| medium violet violet moyen mittelviolett violeta medio dark violet violet foncé dunkelviolett violeta oscuro light blue violet violet-bleu clair hellblauviolett violeta azulado claro medium blue violet violet-bleu moyen mittelblauviolett violeta azulado medio dark blue violet violet-bleu foncé dunkelblauviolett violeta azulado oscuro light violet blue bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet moyen mittelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro light blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro light blue bleu clair hellblau azul claro medium blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelblau azul oscuro light green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio   | 43                | dark purple        |                  |                 |                          |
| dark violet violet foncé dunkelviolett violeta oscuro light blue violet violet-bleu clair hellblauviolett violeta azulado claro medium blue violet violet-bleu moyen mittelblauviolett violeta azulado medio dark blue violet violet-bleu foncé dunkelblauviolett violeta azulado oscuro light violet blue bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet moyen mittelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro light blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro medium blue bleu moyen mittelblau azul claro dark blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelblau azul oscuro light green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio   | 44                | light violet       |                  |                 |                          |
| light blue violet violet-bleu clair hellblauviolett violeta azulado claro 48 medium blue violet violet-bleu moyen mittelblauviolett violeta azulado medio 49 dark blue violet violet-bleu foncé dunkelblauviolett violeta azulado oscuro 50 light violet blue bleu-violet clair hellviolettblau azul violáceo claro 51 medium violet blue bleu-violet moyen mittelviolettblau azul violáceo medio 52 dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro 53 light blue bleu clair hellblau azul claro 54 medium blue bleu moyen mittelblau azul medio 55 dark blue bleu foncé dunkelblau azul oscuro 56 light green blue bleu-vert clair hellgrünblau azul verdoso claro 57 medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| medium blue violet violet-bleu moyen dark blue violet violet-bleu foncé dunkelblauviolett violeta azulado medio violeta azulado oscuro bleu-violet blue bleu-violet dair hellviolettblau azul violáceo claro medium violet blue bleu-violet foncé dunkelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro bleu clair hellblau azul claro medium blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelviolettblau azul medio dark blue bleu foncé dunkelblau azul medio azul oscuro bleu foncé dunkelblau azul oscuro bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio   |                   |                    |                  |                 |                          |
| dark blue violet violet-bleu foncé dunkelblauviolett violeta azulado oscuro bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet foncé dunkelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro bleu clair hellblau azul claro medium blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelblau azul oscuro bleu foncé dunkelblau azul oscuro bleu foncé dunkelblau azul oscuro bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio   |                   |                    |                  |                 |                          |
| light violet blue bleu-violet clair hellviolettblau azul violáceo claro medium violet blue bleu-violet moyen mittelviolettblau azul violáceo medio dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro blight blue bleu clair hellblau azul claro medium blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelblau azul oscuro light green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| 51 medium violet blue bleu-violet moyen mittelviolettblau azul violáceo medio 52 dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro 53 light blue bleu clair hellblau azul claro 54 medium blue bleu moyen mittelblau azul medio 55 dark blue bleu foncé dunkelblau azul oscuro 56 light green blue bleu-vert clair hellgrünblau azul verdoso claro 57 medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| 52 dark violet blue bleu-violet foncé dunkelviolettblau azul violáceo oscuro 53 light blue bleu clair hellblau azul claro 54 medium blue bleu moyen mittelblau azul medio 55 dark blue bleu foncé dunkelblau azul oscuro 56 light green blue bleu-vert clair hellgrünblau azul verdoso claro 57 medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| light blue bleu clair hellblau azul claro medium blue bleu moyen mittelblau azul medio dark blue bleu foncé dunkelblau azul oscuro light green blue bleu-vert clair hellgrünblau azul verdoso claro medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| 54 medium blue bleu moyen mittelblau azul medio 55 dark blue bleu foncé dunkelblau azul oscuro 56 light green blue bleu-vert clair hellgrünblau azul verdoso claro 57 medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| 55 dark blue bleu foncé dunkelblau azul oscuro 56 light green blue bleu-vert clair hellgrünblau azul verdoso claro 57 medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| 56 light green blue bleu-vert clair hellgrünblau azul verdoso claro<br>57 medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio  |                   |                    |                  |                 |                          |
| 57 medium green blue bleu-vert moyen mittelgrünblau azul verdoso medio   |                   |                    |                  |                 |                          |
|  |                   |                    |                  |                 |                          |
|  | 58                | dark green blue    |                  | dunkelgrünblau  | azul verdoso oscuro      |
| 59 light brown brun clair hellbraun marrón claro   | 59                |                    |                  |                 |                          |
| 60 medium brown brun moyen mittelbraun marrón medio  |                   |                    |                  |                 |                          |
| 61 dark brown brun foncé dunkelbraun marrón oscuro   |                   |                    |                  |                 |                          |
| 62 light yellow brown brun-jaune clair hellgelbbraun marrón amarillento claro  | 62                | light yellow brown | brun-jaune clair | neligelbbraun   | marron amarıllento claro |

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| UPOV<br>Group No. | English             | français         | deutsch         | español                  |
|-------------------|---------------------|------------------|-----------------|--------------------------|
| 63                | medium yellow brown | brun-jaune moyen | mittelgelbbraun | marrón amarillento medio |
| 64                | orange brown        | brun orangé      | orangebraun     | marrón anaranjado        |
| 65                | grey brown          | brun-gris        | graubraun       | marrón grisáceo          |
| 66                | light green brown   | brun-vert clair  | hellgrünbraun   | marrón verdoso claro     |
| 67                | medium green brown  | brun-vert moyen  | mittelgrünbraun | marrón verdoso medio     |
| 68                | dark green brown    | brun-vert foncé  | dunkelgrünbraun | marrón verdoso oscuro    |
| 69                | yellow grey         | gris-jaune       | gelbgrau        | gris amarillento         |
| 70                | brown grey          | gris-brun        | braungrau       | gris amarronado          |
| 71                | purple grey         | gris-pourpre     | purpurgrau      | gris púrpura             |
| 72                | grey                | gris             | grau            | gris                     |
| 73                | black               | noir             | schwarz         | negro                    |

3.2 The appendices to this document Annex I allocate the colors in the sixth edition (2015) of 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 UPOV Color Groups According to RHS Colour Chart Reference (2015 Edition)

Appendix II: RHS Colors Contained in each UPOV Color Group (Sixth Edition (2015) of the RHS Colour Chart)

3.3 Annex II presents the UPOV Color Groups allocated to the previous editions of the RHS Colour Chart (1986, 1995, 2001 and 2007). The appendices to Annex II allocate the colors in the previous editions of the RHS Colour Chart to the appropriate UPOV Color Groups as follows:

Appendix I: UPOV Color Groups According to Previous Editions of the RHS Colour Chart Reference (1986, 1995, 2001 and 2007 Editions)

Appendix II: RHS Colors Contained in each UPOV Color Group (1986, 1995, 2001 and 2007 Editions of the RHS Colour Chart)

[Annex IV follows]

#### TC/56/4 Rev.

#### ANNEX IV

REVISIONS TO DOCUMENT TGP/15 "GUIDANCE ON THE USE OF BIOCHEMICAL AND MOLECULAR MARKERS IN THE EXAMINATION OF DISTINCTNESS, UNIFORMITY AND STABILITY (DUS)"

The TC, at its fifty-fifth session, agreed that a new example "Characteristic-specific marker with incomplete information on state of expression" should be included in document TGP/15, as amended by the TC-EDC, and noted that the new example would become a second example of model "Characteristic-specific molecular markers" in document TGP/15.

The TC agreed that model "Genetic selection of similar varieties for the first growing cycle" should be presented in document TGP/15 as a second example of model "Combining phenotypic and molecular distances in the management of variety collections". The TC agreed that the terminology on different "Models" should be reviewed in the document (see document TC/55/25 Corr. "Report", paragraphs 163 to 165).

On the above basis, the following revision of document TGP/15 "Guidance on the use of biochemical and molecular markers in the examination of distinctness, uniformity and stability (DUS)" is proposed for adoption by the Council at its fifty-fourth ordinary session, to be held in Geneva on October 30, 2020, subject to approval by the CAJ, at its seventy-seventh session, to be held in Geneva on October 28, 2020 (highlighting and strikethrough for deletions and highlighting and underline for addition):

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ANNEX III MODEL: GENETIC SELECTION OF SIMILAR VARIETIES FOR THE FIRST GROWING CYCLE EXAMPLE: FRENCH BEAN

## Extract of: 2. APPLICATION MODELS

2.1.1 [...]

- (e) markers linked to different regulatory elements for the same gene conferring expression of the same characteristic are different methods for examining the same characteristic:
- <u>2.1.2</u> Annex I to this document "Gene Specific Marker for Herbicide Tolerance" provides an examples of the use of characteristic-specific molecular markers.
- 2.1.3 It is a matter for the relevant authority to consider if the assumptions are met when applying the model and examples, as presented in Annex I of this document.
- 2.1.<u>4</u>. In order to include a method based on the model in Annex I of this document in Test Guidelines the relevant Technical Working Party and the TC would need to agree that the requirement for reliability of the link between the gene and the expression of the characteristic was satisfied.
- 2.2 Combining Phenotypic and Molecular Distances in the Management of Variety Collections (see Annex II)

# Example 1: Parent lines in Maize (see Annex II, example 1)

2.2.1 [xxx]

- 2.3 Example 2: Genetic Selection of Similar Varieties for the First Growing Cycle (see Annex III Annex II, example 2)
- 2.3.1 2.2.4 This approach involves a step to check for genetic similarity before the first growing cycle.
- 2.3.2 2.2.5 In cases where the minimum duration of tests is normally two growing cycles, a selection of similar varieties in the variety collection for comparison with candidate varieties in the first growing cycle is made according to genetic similarity. As a next step, the information provided by the applicant in the Technical Questionnaire (TQ) is used to see if some of the genetically similar varieties do not have to be compared in a growing trial because of differences in DUS characteristics.
- 2.3.3 2.2.6 On the basis of the variety description of DUS characteristics produced in the first growing cycle, a further search is made of varieties in the variety collection to identify any similar varieties that were not compared in the first growing cycle and which should be compared with the candidate variety in the second growing cycle.
- 2.3.4 2.2.7 Annex III Example 2 in Annex II to this document "Genetic Selection of Similar Varieties for the First Growing Cycle" provides an example of the genetic selection of similar varieties for the first growing cycle.

#### MODEL: CHARACTERISTIC-SPECIFIC MOLECULAR MARKERS

# EXAMPLE 2: GENE SPECIFIC MARKER WITH INCOMPLETE INFORMATION ON STATE OF EXPRESSION FOR DISEASE RESISTANCE IN TOMATO

#### prepared by experts from The Netherlands

#### Example

- 1. Resistance to Tomato mosaic virus (ToMV) Strain 0 in Tomato is conferred by the presence of allele *Tm1* from gene Tm1 or alleles *Tm2* or *Tm2*² from gene Tm2.
- 2. A single marker identifies the presence of resistance alleles Tm2 and  $Tm2^2$  and the susceptible allele tm2. Marker  $Tm2/2^2$  is positioned in the protein coding sequence.
- 3. A variety will be resistant to ToMV Strain 0 if resistance allele *Tm2* or resistance allele *Tm2* is present.
- 4. A variety with homozygous allele *tm2* will be susceptible to ToMV Strain 0 unless resistance is coded by resistance allele *Tm1*. In this case, resistance to ToMV Strain 0 cannot be assessed by a DNA marker test because there is no reliable marker for gene Tm1.

Table 1: Schematic overview of resistance to Tomato mosaic virus and resistance alleles:

| Genetic<br>background            | <u>tm2/tm2</u><br><u>and</u><br><u>tm1/tm1</u> | Tm2/Tm2 or Tm2²/Tm2² or Tm2²/Tm2 or Tm2²/Tm2 or Tm2/tm2 or Tm2²/tm2  and  Tm1/Tm1 or Tm1/tm1 or tm1/tm1 | <u>tm2/tm2</u> and <u>Tm1/Tm1 or Tm1/tm1</u> |
|----------------------------------|--|---|--|
| Marker Tm2/2 <sup>2</sup>        | susceptible allele                             | resistant allele  | susceptible allele                           |
| Resistance to<br>ToMV - Strain 0 | absent   | present   | present                                      |

- 5. If a variety is claimed to be resistant to ToMV Strain 0, the DNA marker test may be performed. In cases where the resistance is based on the presence of the allele *Tm2* or *Tm2*<sup>2</sup>, the DNA marker test could replace the traditional bioassay.
- 6. If the DNA marker test does not confirm the resistance claim or if the variety is claimed to be susceptible, a bioassay must be performed.

[End of Annex IV and of document]

a The changes in the formulation of decision paragraphs reflects adjustments resulting from the procedure of consideration of documents by correspondence (see Circular E-20/094 of July 23, 2020).

b Comments received on Document UPOV/EXN/DEN/1 Draft 4, in reply to Circular E-20/122 of August 21, 2020, were not of straightforward nature and, therefore, this document would not be proposed for adoption by the Council in 2020.

On September 1, 2020, France requested to change "christophe.chevalier@geves.fr" by "christelle.lavaud@geves.fr". Document UPOV/INF/16/9 Draft 2 reflects the requested change.