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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT**RADISH**

UPOV Code : RAPHA_SAT

Raphanus sativus L.***DE proposes to add. var. sativus***

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GUIDELINES**FOR THE CONDUCT OF TESTS****FOR DISTINCTNESS, UNIFORMITY AND STABILITY***prepared by experts from France**to be considered by the Technical Working Party for Vegetables at its forty-first session,
to be held in Nairobi, Kenya, from June 11 to 15, 2007*

Alternative Names:

| <i>Latin</i> | <i>English</i> | <i>French</i> | <i>German</i> | <i>Spanish</i> |
|----------------------------|----------------|------------------------|---------------|----------------|
| <i>Raphanus sativus</i> L. | Radish | Radis de tous les mois | Radieschen | Rabanito |

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

| <u>TABLE OF CONTENTS</u> | <u>PAGE</u> |
|--|-------------|
| 1. SUBJECT OF THESE TEST GUIDELINES..... | 3 |
| 2. MATERIAL REQUIRED | 3 |
| 3. METHOD OF EXAMINATION..... | 3 |
| 3.1 Number of growing cycles:..... | 3 |
| 3.2 Testing Place | 3 |
| 3.3 Conditions for Conducting the Examination..... | 3 |
| 3.4 Test Design | 4 |
| 3.5 Number of Plants / Parts of Plants to be Examined..... | 4 |
| 3.6 Additional Tests | 4 |
| 4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY | 4 |
| 4.1 Distinctness | 4 |
| 4.2 Uniformity..... | 5 |
| 4.3 Stability | 5 |
| 5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL..... | 6 |
| 6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS | 6 |
| 6.1 Categories of Characteristics..... | 6 |
| 6.2 States of Expression and Corresponding Notes..... | 6 |
| 6.3 Types of Expression | 7 |
| 6.4 Example Varieties | 7 |
| 6.5 Legend..... | 7 |
| 7. TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES..... | 8 |
| 8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS | 18 |
| 9. LITERATURE..... | 21 |
| 10. TECHNICAL QUESTIONNAIRE..... | 22 |

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Raphanus sativus* L.

DE proposes to add. var. sativus.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of seed.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

100 g or 100,000 seeds.

NL proposes 10 000 seeds instead of 100 000

DE proposes 15 000 seeds instead of 100 000 and to delete the amount in grams.

2.4 The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

NL proposes to use no calibrated seeds.

2.5 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.6 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 *Number of growing cycles:*

The minimum duration of tests should normally be two independent growing cycles.

3.2 *Testing Place*

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 "Examining Distinctness".

3.3 *Conditions for Conducting the Examination*

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.2 Type of observation

The recommended method of observing the characteristic is indicated by the following key in the second column of the Table of Characteristics:

MG: single measurement of a group of plants or parts of plants

MS: measurement of a number of individual plants or parts of plants

VG: visual assessment by a single observation of a group of plants or parts of plants

VS: visual assessment by observation of individual plants or parts of plants

3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 400 plants, which should be divided between two or more replicates.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 *Number of Plants / Parts of Plants to be Examined*

Unless otherwise indicated, all observations on single plants should be made on 40 plants or parts taken from each of 40 plants and any other observations made on all plants in the test.

3.6 *Additional Tests*

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.2 Uniformity

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.1 Cross-pollinated varieties

The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction. For the characteristics shape of root (characteristic 19) and coloration of skin (characteristic 22), a population standard of 2 % and an acceptance probability of 95 % should be applied. In the case of a sample size of 400 plants, 13 off-types are allowed.

4.2.2 Singles cross hybrids and inbred lines

For the assessment of uniformity of single cross hybrids and inbred lines, a population standard of 2 %, and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 400 plants, 13 off-types are allowed.

NL : The assessment of uniformity should be done on all characteristics.

4.2.3 Hybrids

The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction. In the case of single cross hybrids, the uniformity standards are set out in Section 4.2.2.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

4.3.3 Where appropriate, or in cases of doubt, the stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness is aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- Ploidy, (characteristic 1) (FR propose to delete) – (DE proposes to keep)*
- (a) Leaf: length, (characteristic 6) (FR propose to add) – **(not for NL – DE agrees with FR)**
- (b) Root: shape, (characteristic 19) (FR propose to add) – **(DE agrees)**
Root: shape of base, (characteristic 21) (FR propose to delete) – (DE agrees)
- (c) Root: coloration of skin, (characteristic 22)
- (d) Bicolored type - Root: extent of white tip, (characteristic 25)
- (e) Development in short days (characteristic 30) (FR propose to add)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

6. Introduction to the Table of Characteristics

6.1 *Categories of Characteristics*

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 *States of Expression and Corresponding Notes*

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.

6.3 *Types of Expression*

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 *Example Varieties*

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 *Legend*

(*) Asterisked characteristic – see Section 6.1.2

QL Qualitative characteristic – see Section 6.3

QN Quantitative characteristic – see Section 6.3

PQ Pseudo-qualitative characteristic – see Section 6.3

MG, MS, VG, VS: See Chapter 3.3.2

(+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|---|---|---|--|--|---------------|
| 1. Ploidy (*) | Ploïdie | Ploidie | Ploidía | | |
| diploid | diploïde | diploid | diploide | Amored , Arista | 2 |
| tetraploid | tétraploïde | tetraploid | tetraploide | Boy, Simox | 4 |
| FR proposes to delete or at least delete “*”, (no more example variety for note 4 – tetraploïd., to delete Amored (deleted variety) for note 1, delete Boy and Simox (deleted varieties) for note 4. CZ agrees with a FR proposal. NL prefers maintain with Koraal as exemple variety for 4. DE proposes to keep with Presto, Erfurter Riesenrot as example varieties for 4. | | | | | |
| 2. Seedling: antho- (*) cyanin coloration of hypocotyl | Plantule: pigmen- tation anthocyani- que de l'hypocotyle | Keimpflanze: Anthocyanfärbung des Hypokotyls | Plántula: pigmen- tación antociánica del hipocotilo | | |
| QL absent | absente | fehlend | ausente | Belcanto, Kocto | 1 |
| VG present | présente | vorhanden | presente | Cerise | 9 |
| FR propose to add Belcanto, Kocto for note 1. DE proposes to add Breakfast for note 1. | | | | | |
| 3. Cotyledon: size | Cotylédon: taille | Keimblatt: Größe | Cotiledón: tamaño | | |
| QN small | petit | klein | pequeño | Cerise, Saxa 2 | 3 |
| VG medium | moyen | mittel | mediano | Korund, Rota | 5 |
| large | grand | groß | grande | Boy, Fanal , Apache | 7 |
| FR proposes to delete Boy and Fanal (deteled varieties) and add Apache for note 7. | | | | | |
| 4. Foliage: width of attachment | Feuillage: largeur de l'attache au collet | Laub: Breite des Ansatzes | Follaje: anchura de la inserción al cuello | | |
| QN narrow | fine | schmal | estrecha | Flamino | 3 |
| VG medium | moyenne | mittel | media | Amored Apache, Flambo | 5 |
| wide | large | breit | ancha | Rond écarlate | 7 |
| FR proposes to delete Amored, (deleted variety) and add Apache and Flambo for note 5. NL proposes to move after characteristic 16. | | | | | |
| 5. Leaf: attitude (*) | Feuille: port | Blatt: Haltung | Hoja: porte | | |
| QN erect | dressé | aufrecht | erecto | Clipo, Karissima, Salto | 1 |
| VG semi-erect | demi-dressé | halbaufrecht | semierecto | Balkar, Balored | 3 |
| horizontal | horizontal | waagerecht | horizontal | Bel Image, Ronde Witte | 5 |
| FR proposes to delete the “*”, to delete Salto (deleted variety) for note 1, and Balored (deleted variety) for note 3. NL proposes to add IpoX for note 1. DE proposes to add Falco for note 1, (delete Karissima) and to add Saxa 2 for note 3. | | | | | |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|----------------------------|--------------------------|---------------------|-----------------------|--|---------------|
| 6. Leaf: length (*) | Feuille: longueur | Blatt: Länge | Hoja: longitud | | |
| QN short | courte | kurz | corta | Cerise, Saxa 2 | 3 |
| MG medium | moyenne | mittel | media | Amored, Novo | 5 |
| long | longue | lang | larga | National 2 | 7 |

DE proposes to add MS and to add Falco and Ilka for note 7.

| | | | | | |
|-----------------------------|---------------------|---------------------------|--------------------------|----------------------|---|
| 7. Leaf blade: shape | Limbe: forme | Blattspreite: Form | Limbo: forma | | |
| QN narrow-obovate | obovale étroit | schmal eiförmig | verkehrt oboval estrecho | <i>Fakir, Korund</i> | 1 |
| VG obovate medium | Obovale moyen | verkehrt eiförmig | oboval | Content, Cyros | 3 |
| broad-obovate | obovale large | breit eiförmig | verkehrt oboval ancho | Balkar | 5 |

FR proposes to add Fakir and Korund for note 1.

NL proposes to add Masterred for note 1 + explanation.

For DE Korund is note 3. Delete Content.

| | | | | | |
|-------------------------------------|---|--------------------------------------|-------------------------------|-------------------------|---|
| 8. Leaf blade: shape of apex | Limbe: forme du sommet | Blattspreite: Form der Spitze | Limbo: forma del ápice | | |
| QN pointed | pointu | spitz | puntiagudo | <i>Korund, Paradiso</i> | 1 |
| VG intermediate | <i>Intermédiaire (or obtuse – UPOV)</i> | | | | 2 |
| rounded | arrondi | abgerundet | redondeado | Neckarperle, Sora | 3 |

FR proposes to add a note 2 – intermediate and to add Korund and Paradiso for note 1

NL proposes to add and explanation.

| | | | | | |
|--|--|--|---|--|---|
| 9. Leaf blade: hue of green color | Limbe: teinte de la couleur verte | Blattspreite: Ton der Grünfarbe | Limbo: tonalidad del color verde | | |
| QL absent | absente | fehlend | ausente | Saxa 2 | 1 |
| VG yellowish | jaunâtre | gelblich | amarillento | Atlas, Serrida , Scarlet Globe | 2 |
| greyish | grisâtre | gräulich | grisáceo | Balored , Flair, Polka | 3 |

UPOV and IT propose PQ instead of QL.

FR proposes to delete Atlas and Serrida (deleted varieties) for note 2 and to delete Balored (deleted variety) for note 3.

NL proposes to add IpoX for note 1, Florent for note 2 and Testo for note 3.

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|--|---|---|--|--|---------------|
| 10. Leaf blade: intensity of green color (*) | Limbe: intensité de la couleur verte | Blattspreite: Intensität der Grünfärbung | Limbo: intensidad del color verde | | |
| QN light | faible | hell | claro | Flamino, Gaudio | 3 |
| VG medium | moyenne | mittel | medio | Furabella, Helro | 5 |
| dark | forte | dunkel | oscuro | Foxyred Bamba, Clipo | 7 |
| FR proposes to add an “*” and to delete Foxyred (deleted variety) and add Bamba and Clipo for note 7. NL proposes to add Masterred for note 7. UPOV propose to harmonise example varieties for 9 and 10 : Scarlet globe and Flair for 3, Saxa 2 for 5 and Polka for 7. | | | | | |
| 11. Leaf blade: number of lobes (+) | Limbe: nombre de lobes | Blattspreite: Anzahl Lappen | Limbo: número de lóbulos | | |
| QN very few | très petit | sehr gering | muy bajo | Saxa 2 | 1 |
| MG few | petit | gering | bajo | Frühwunder , Ilka, Nelson | 3 |
| medium | moyen | mittel | medio | Cracou, Salto | 5 |
| many | grand | groß | alto | ? | 7 |
| FR proposes to delete the “*” and delete Frühwunder (deleted variety) for note 3, to delete Salto (deleted variety) for note 5. NL proposes to add Cherry Belle for note 7. For DE, Saxa 2 is note 4 and Ilka, Nelson note 5. | | | | | |
| 12. Leaf blade: incisions of margin | Limbe: découpures du bord | Blattspreite: Randeinschnitte | Limbo: incisiones del margen | | |
| QL absent | absentes | fehlend | ausente | | 1 |
| VG present | présentes | vorhanden | presente | | 9 |
| NL proposes to add Fury for note 1. DE proposes to delete if no example variety must be provided. | | | | | |
| 13. Leaf blade: depth of incisions of margin | Limbe: profondeur des découpures du bord | Blattspreite: Tiefe der Randeinschnitte | Limbo: profundidad de las incisiones del margen | | |
| QN shallow | faible | flach | superficiales | Apolo, Callisto | 3 |
| VG medium | moyenne | mittel | medias | Cracou | 5 |
| deep | forte | tief | profundas | Flamino, Saxa 2 | 7 |
| FR proposes to delete Callisto, (deleted variety) for note 3 and to add Flamino and Saxa 2 for note 7. NL proposes to add Fury for note 1. DE proposes to add Blanche transparente for note 3 and Falco for note 7. | | | | | |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|---|--|--|---|--|---------------|
| 14. Leaf blade: pubescence | Limbe: pubescence | Blattspreite: Behaarung | Limbo: pubescencia | | |
| QN weak | faible | gering | débil | Disco , Flamboyant 2 | 3 |
| VG medium | moyenne | mittel | media | <i>Cherry Belle, Fakir</i> | 5 |
| strong | forte | stark | fuerte | Delongpont , Rond écarlate | 7 |
| <i>FR proposes to delete Disco (deleted variety) for note 3, to add Cherry Belle and Fakir for note 5, to delete Delongpont (deleted variety for note 7. DE proposes to delete.</i> | | | | | |
| 15. Petiole: anthocyanin (*) coloration | Pétiole: pigmentation anthocyanique | Blattstiel: Anthocyanfärbung | Pecíolo: pigmentación antocianica | | |
| QL absent | absente | fehlend | ausente | Fakir | 1 |
| VG present | présente | vorhanden | presente | Flamboyant 2 | 9 |
| <i>DE proposes to add Falco for note 9.</i> | | | | | |
| 16. Petiole: intensity of anthocyanin coloration | Pétiole: intensité de la pigmentation anthocyanique | Blattstiel: Stärke der Anthocyanfärbung | Pecíolo: intensidad de la pigmentación antocianica | | |
| QN weak | faible | gering | débil | Flamino, Mirabeau | 3 |
| VG medium | moyenne | mittel | media | Forro | 5 |
| strong | forte | stark | fuerte | Pernot | 7 |
| <i>DE proposes to add Blanche transparente for note 3 and Erfuter Riesensot for note 5. UPOV proposes to combine the characteristics 15 and 16, (absent or very weak).</i> | | | | | |
| 17. Radish: Root thickness | Racine: grosseur | Knolle: Dicke | Rabanito: grosor | | |
| thin | fine | dünn | delgado | Gaudry 2 | 3 |
| medium | moyenne | mittel | medio | | 5 |
| thick | grosse | dick | grueso | Rond rose à très grand bout blanc | 7 |
| <i>FR proposes to delete this characteristic very link with earliness. NL agrees this proposition. DE proposes to keep with Blanche transparente for 3, Saxa 2 for 5 and Falco for 7.</i> | | | | | |
| 18. Radish: Root: width (+) of root | Racine: grosseur du pivot | Knolle: Dicke der Wurzel | Rabanito: grosor de la raíz | | |
| QN thin | fin | dünn | delgada | Clipo | 3 |
| VG medium | moyen | mittel | media | Apolo, Cerise, Flamboyant 2 | 5 |
| thick | gros | dick | gruesa | <i>Pontvil, Rond rose à très grand bout blanc</i> | 7 |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|--|--|-------------------------|-------------------------------------|--|---------------|
| <i>FR proposes to replace Radish by Root and to add Pontvil and Rond rose à très grand bout blanc for note 7.</i> <i>NL not agrees to replace Radish by Root.</i> <i>DE proposes to add Saxa 2 for 3, Blanche transparente for 5 and Erfurter Riesensoot for 7.</i> | | | | | |
| 19. Radish: Root: shape | Racine: forme | Knolle: Form | Rabanito: forma | | |
| (*) | | | | | |
| (+) | | | | | |
| PQ transverse elliptic | elliptique transverse | quer elliptisch | elíptica transversal | Fakir, Rond rose à très grand bout blanc | 1 |
| VG circular | circulaire | rund | circular | Cerise, Tinto | 2 |
| elliptic | elliptique | elliptisch | elíptica | <i>Pico</i> | 3 |
| obovate | obovale | verkehrt eiförmig | oboval | <i>Lavergne</i> | 4 |
| broad rectangular | rectangulaire large | breit rechteckig | rectangular ancha | Delongpont, De Pontoise , Bamba, Pernot | 5 |
| Medium rectangular | Rectangulaire moyen | rechteckig | rectangular | Clipo, Fluo, Salto | 6 |
| narrow rectangular | rectangulaire étroite | schmal rechteckig | rectangular estrecha | Albion , Apolo, Flamboyant 2 | 7 |
| narrow obtriangular | obtriangulaire étroite | schmal dreieckig | verkehrt obtriangular estrecha | ? | 8 |
| iciclical | en glaçon | eiszapfenförmig | en estalactita | Blanche transparente | 9 |
| <i>FR proposes to replace Radish by Root and to add Pico for note 3, add Lavergne for note 4, deleted Delongpont and De Pontoise (deleted varieties) and add Bamba for note 5, delete Salto (deleted variety) for note 6, delete Albion (deleted variety) and add Flamboyant 2 for note 7, no example variety??? For note 8.</i> <i>IT proposes to add a new shape : Pearshaped, (example variety : Roche).</i> <i>DE proposes to add Falco for 2 and White Braakfost for 6.</i> | | | | | |
| 20. Radish : Root: shape of crown | Racine: forme de la partie supérieure | Knolle: Kopfform | Rabanito: forma de la corona | | |
| concave | concave | konkav | cóncava | | 1 |
| plane | plane | flach | plana | Ascari, Amored | 2 |
| convex | convexe | konvex | convexa | Arista | 3 |
| <i>FR propose to delete this characteristic if not, deleted Ascari and Amored, (deteted varieties) and to replace by Root : shape of shoulder</i> <i>DE - NL agree</i> <i>QN – VG</i> (+) 1 – flat Bamba, Saxa 2, 2 – flat to rounded Belcanto, Flair 3 – rounded Flamino 4 – rounded to conical De dix-huit jours 5 – conical Pernot | | | | | |
| <i>DE proposes to add Falco for 1 and Blanche transparente for 5.</i> | | | | | |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|--|--|---------------------------------------|---|--|---------------|
| 21. Radish: Root: shape of base (*) (+) | Racine : forme de la base | Knolle: Form der Basis | Rabanito : forma de la base | | |
| PQ narrow acute | pointue étroite | schmal spitz | puntiaguda estrecha | Blanche transparente | 1 |
| or medium acute | pointue | spitz | puntiaguda | Flambo | 2 |
| QN obtuse | obtuse | stumpf | obtusa | <i>De dix-huit jours</i> | 3 |
| VG rounded | arrondie | abgerundet | redondeada | Bamba, Callisto | 4 |
| flat | aplatie | flach | plana | À forcer rond écarlate | 5 |
| <i>FR proposes to replace Radish by Root and to add De dix-huit jours for note 3.</i> <i>DE proposes to add Falco for 4 and White Breakfast for 3.</i> <i>UPOV proposes to replace flat by truncate.</i> | | | | | |
| 22. Radish: Root: coloration of skin (*) | Racine: couleur de l'épiderme | Knolle: Farbe der Haut | Rabanito: color de la epidermis | | |
| QL one colored | unicolore | einfarbig | monocolor | Balored , Cerise, Saxa 2 | 1 |
| VG bi-colored | bicolore | zweifarbzig | bicolor | Flamboyant 2 | 2 |
| <i>FR proposes to replace Radish by root and to delete Balored (deleted variety) and add Saxa 2 for note 1.</i> <i>UPOV proposes to change the name to Root : number of colors of skin.</i> | | | | | |
| 23. Radish: Root color of upper part (*) | Racine: couleur de la partie supérieure | Knolle: Farbe des oberen Teils | Rabanito: color de la parte superior | | |
| PQ white | blanche | weiß | blanco | Blanche transparente | 1 |
| VG pink | rose | rosa | rosa | <i>Rond rose à très grand bout blanc</i> | 2 |
| red | rouge | rot | rojo | <i>Bamba, Flamboyant 2</i> | 3 |
| violet | violette | violett | violeta | <i>Pernot</i> | 4 |
| <i>FR proposes to replace Radish by Root and to add Rond rose à très grand bout blanc for note 2, add Flamboyant 2 and Bamba for note 3, add Pernot for note 4.</i> <i>NL proposes an other color more violet than Pernot.</i> <i>CZ proposes to add "yellow" example varieties Zlata, Helios.</i> <i>DE proposes to add Falco for 3.</i> | | | | | |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|--|--|---|---|--|---------------|
| 24. Radish: Root (*) expression of red color of upper part | Racine: expression de la couleur rouge de la partie supé- rieure | Knolle: Ausprägung der roten Farbe des oberen Teils | Rabanito: expresión del color rojo en la parte superior | | |
| PQ vermilion | vermillon | zinnober | bermellón | Flamino, <i>Flamboyant 2</i> | 1 |
| VG scarlet | écarlate | scharlach | escarlata | Fakir, Rota | 2 |
| carmine | carmin | karmin | carmin | Parat, <i>National 2</i> | 3 |
| <p><i>FR proposes to replace Radish by Root and to add Flamboyant 2 for note 1 and add National 2 for note 3.</i> <i>IT proposes to replace expression by Hue.</i> <i>DE proposes to add Falco for 2 and Ilka for 3.</i> <i>NL proposes to add and explanation with RHS color.</i> <i>UPOV proposes to combine characteristics 23 and 24.</i></p> <p><i>IT proposes to add a new characteristic : Intensity of color of upper part, (except for white radish).</i></p> | | | | | |
| 25. Bi-colored radishes (*) only: Radish Root: extent of white tip | Radis bicolores seulement: Racine: extension du bout blanc | Nur zweifarbige Radieschen: Knolle: Ausdehnung des Weißanteils | Sólo raíces bicolor: Rabanito: extensión del extremo blanco | | |
| QN very small | très faible | sehr gering | muy pequeña | Demi-long écarlate à très petit bout blanc 2 | 1 |
| VG small | faible | gering | pequeña | Delikat, Flamino | 3 |
| medium | moyenne | mittel | media | Fakir, Pépito | 5 |
| large | forte | groß | grande | Seraphin , <i>Pernot clair</i> | 7 |
| very large | très forte | sehr groß | muy grande | Rond rose à très grand bout blanc 2 | 9 |
| <p><i>FR proposes to replace Radish by root and delete Seraphin (deleted variety) and add Pernot clair for note 7.</i> <i>NL proposes to add and explanation and to add Roodkopje for note 9.</i> <i>UPOV proposes to change to : only varieties with bicolored roots.</i></p> | | | | | |
| 26. Radish: Root thickness of cortex | Racine: épaisseur du cortex | Knolle: Dicke der Rinde | Rabanito: grosor de la corteza | | |
| QN thin | fin | dünn | delgada | Karissima | 3 |
| VG medium | moyen | mittel | media | Boy, Fanal , Korund | 5 |
| thick | épais | dick | gruesa | Ilka | 7 |
| <p><i>FR proposes to delete this characteristic. If not, delete Boy and Fanal (deleted varieties)</i> <i>DE proposes to add Saxa 2 for note 3, move Ilka for 7 to 5 and add Blanche transparente for 7.</i> <i>UPOV proposes to add an explanation.</i></p> | | | | | |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|--|--------------------------------------|---|--|--|---------------|
| 27. Radish: Root color of flesh | Racine: couleur de la chair | Knolle: Fleischfarbe | Rabanito: color de la pulpa | | |
| QN translucent | blanc vitreux | glasigweiß | traslúcido | Albion , <i>De dix-huit jours</i> | 1 |
| VG opaque | blanc mat | mattweiß | opaco | Hilmar , <i>Bamba, Saxa 2</i> | 2 |
| <i>FR proposes to replace Radish by Root and delete Albion (deleted variety) and add De dix-huit jours for note 1, delete Hilmar (deleted variety) and add Bamba, Saxa 2, for note 2.</i> <i>IT proposes to add a new state of expression, red; (example variety : Roche) and to add an “*”.</i> <i>NL proposes to add an explanation.</i> <i>DE proposes to add Blanche transparente for 1, Falco for 2, Karissima for 3, (delete Rota) and add Falco for 5.</i> | | | | | |
| 28. Time of harvest (*) maturity | Époque de maturité de récolte | Zeitpunkt der Erntereife | Época de madurez para cosecha | | |
| QN very early | très précoce | sehr früh | muy temprana | <i>Fluo, Salto</i> | 1 |
| VG early | précoce | früh | temprana | Apolo, Rota | 3 |
| medium | moyenne | mittel | media | Cerise | 5 |
| late | tardive | spät | tardía | Flamboyant 2 | 7 |
| very late | très tardive | sehr spät | muy tardía | ? | 9 |
| <i>FR proposes to add Fluo and Salto for note 1, no example variety??? for note 9.</i> | | | | | |
| 29. Radish: Root (*) tendency to become pithy | Racine: tendance à se creuser | Knolle: Neigung zum Pelzigwerden | Rabanito: tendencia a ahuecarse | | |
| QN absent or very weak | nulle ou très faible | fehlend oder gering | sehr ausente o muy débil | Alttox, Carnita | 1 |
| MG Weak | faible | gering | débil | Apolo, Flambo, Parat | 3 |
| medium | moyenne | mittel | media | Aviso | 5 |
| strong | forte | stark | fuerte | Boy , Cherry Belle | 7 |
| very strong | très forte | sehr stark | muy fuerte | <i>De dix-huit jours</i> | 9 |
| <i>FR proposes to delete the “*” and to delete Boy (deleted variety) for note 7, and add De dix-huit jours for note 9.</i> <i>IT agrees.</i> <i>DE agrees and proposes to add Ilka for 1, Falco for 3 and Blanche transparente for 7.</i> <i>UPOV proposes to add and explanation.</i> | | | | | |

FR proposes to add one characteristic :

30. Root : development in short days

(*)

| | | |
|------------------|---------------|--|
| <i>QN Note 3</i> | <i>weak</i> | <i>De dix-huit jours, Flamboyant 2</i> |
| <i>Note 5</i> | <i>medium</i> | <i>Bamba, Cracou</i> |
| <i>VG Note 7</i> | <i>strong</i> | <i>Helro, Tinto.</i> |

NL and DE propose to add an explanation.

CZ. Please to add an explanation. Is this char. corresponding with bolting ? Is it necessary to sep up an additional test ?

IT agrees without “” and proposes to add an explanation*

UPOV proposes to add add explanation and changes the name to “Root” : development during short days”.

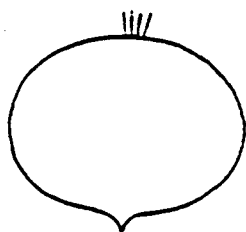
8. Explanations on the Table of Characteristics

Ad. 11: Leaf blade: number of lobes:

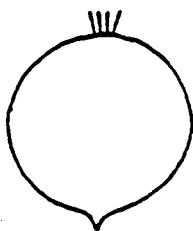
Parts of the leaf blade are considered as lobes if the cutting is at least half the distance between the margin of the leaf and the mid-rib.

UPOV and DE propose to have a drawing.

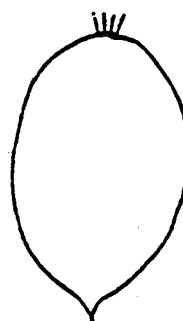
Ad. 19: Root: shape



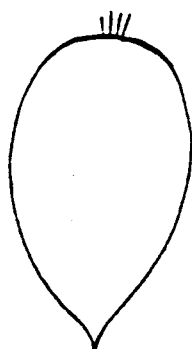
1
transverse elliptic



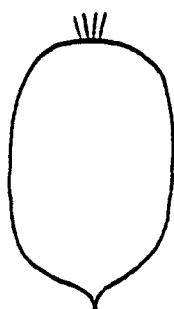
2
circular



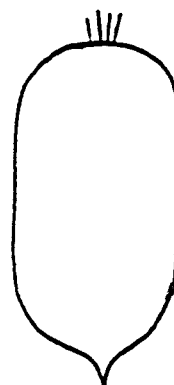
3
elliptic



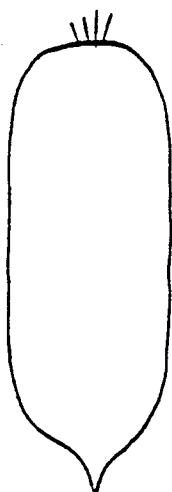
4
obovate



5
broad rectangular



6
rectangular



7
narrow rectangular



8
narrow obtriangular

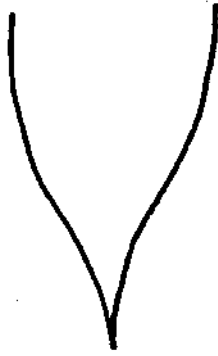


9
iciclical

Ad. 21: Root: shape of base



1
narrow acute



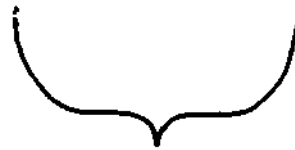
2
acute



3
obtuse



4
rounded



5
flat

9. Literature

No specific literature.

10. Technical Questionnaire

| | | |
|--|--|---|
| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
| | | Application date: (not to be filled in by the applicant) |
| <p style="text-align: center;">TECHNICAL QUESTIONNAIRE</p> <p style="text-align: center;">to be completed in connection with an application for plant breeders' rights</p> <p>In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.</p> | | |
| 1. Subject of the Technical Questionnaire | | |
| 1.1 Botanical name | <input type="text" value="Raphanus sativus L."/> | |
| 1.2 Common name | <input type="text" value="Radish"/> | |
| 2. Applicant | | |
| Name | <input type="text"/> | |
| Address | <input type="text"/> | |
| Telephone No. | <input type="text"/> | |
| Fax No. | <input type="text"/> | |
| E-mail address | <input type="text"/> | |
| Breeder (if different from applicant) | <input type="text"/> | |
| 3. Proposed denomination and breeder's reference | | |
| Proposed denomination (if available) | <input type="text"/> | |
| Breeder's reference | <input type="text"/> | |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|--|-----------------|-------------------|
| <p>#4. Information on the breeding scheme and propagation of the variety</p> <p>4.1 Breeding scheme</p> <p>Variety resulting from:</p> <p>4.1.1 Crossing</p> <p>(a) controlled cross [] (please state parent varieties)</p> <p>(b) partially known cross [] (please state known parent variety(ies))</p> <p>(c) unknown cross []</p> <p>4.1.2 Mutation [] (please state parent variety)</p> <p>4.1.3 Discovery and development [] (please state where and when discovered and how developed)</p> <p>4.1.4 Other [] (please provide details)</p> <p>4.2 Method of propagating the variety</p> <p>4.2.1 Seed-propagated varieties</p> <p>(a) Self-pollination []</p> <p>(b) Cross-pollination [] (i) population [] (ii) synthetic variety []</p> <p>(c) Hybrid []</p> <p>(d) Other [] (please provide details)</p> <p>4.2.2 Other [] (please provide details)</p> | | |

Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

| TECHNICAL QUESTIONNAIRE | | Page {x} of {y} | Reference Number: |
|---|--|--|-------------------|
| <p>5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).</p> | | | |
| | Characteristics | Example Varieties | Note |
| 5.1 (1) | Ploidy | | |
| | diploid | Arista | 2[] |
| | tetraploid | Simox | 4[] |
| | <i>Fr propose to delete</i> | | |
| 5.2 (10) | Leaf blade : intensity of green color | | |
| | light | Flamino, Gaudo | 3[] |
| | medium | Furabella, Helro | 5[] |
| | dark | Bamba, Clipo | 7[] |
| | <i>Fr propose to add</i> | | |
| 5.3 (19) | Radish: shape | | |
| | transverse elliptic | Fakir, Rond rose à très grand bout blanc | 1[] |
| | circular | Cerise, Tinto | 2[] |
| | elliptic | Pico | 3[] |
| | obovate | Lavergne | 4[] |
| | broad rectangular | Bamba, Pernot | 5[] |
| | rectangular | Clipo, Fluo | 6[] |
| | narrow rectangular | Apolo, Flamboyant 2 | 7[] |
| | narrow obtriangular | ? | 8[] |
| | iciclical | Blanche transparente | 9[] |
| 5.4 (22) | Radish: coloration of skin | | |
| | one colored | Cerise, Saxa 2 | 1[] |
| | bi-colored | Flamboyant 2 | 2[] |

| TECHNICAL QUESTIONNAIRE | | Page {x} of {y} | Reference Number: |
|--|--|---|-------------------|
| | Characteristics | Example Varieties | Note |
| 5.5 (23) | Radish: color of upper part | | |
| | white | Blanche transparente | 1[] |
| | pink | Rond rose à très grand bout blanc | 2[] |
| | red | Bamba, Flamboyant 2 | 3[] |
| | violet | Pernot | 4[] |
| 5.6 (25) | Bi-colored radishes only: Radish: extent of white tip | | |
| | very small | Demi-long écarlate à très petit bout long 2 | 1[] |
| | small | Delikat, Flamino | 3[] |
| | medium | Fakir, Pépito | 5[] |
| | large | Séraphin | 7[] |
| | very large | Rond rose à très grand bout blanc 2 | 9[] |
| 5.7 (28) | Time of harvest maturity | | |
| | very early | Fluo, Salto | 1[] |
| | early | Apolo, Rota | 3[] |
| | medium | Cerise | 5[] |
| | late | Flamboyant 2 | 7[] |
| | very late | ? | 9[] |
| 5.8 (30) | Root : development in short days | | |
| | weak | De dix-huit jours, Flamboyant 2 | 3[] |
| | medium | Bamba, Cracou | 5[] |
| | strong | Helro, Tinto | 7[] |
| <i>FR propose to add this characteristic</i> | | | |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: | |
|---|---|--|---|
| <p>6. Similar varieties and differences from these varieties</p> <p><i>Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.</i></p> | | | |
| Denomination (s) of variety (ies) similar to your candidate variety | Characteristic (s) in which your candidate variety differs from the similar variety (ies) ^{o)} | Describe the expression of the characteristic (s) for the similar variety | Describe the expression of the characteristic (s) for your candidate variety |
| <i>Example</i> | <i>10. Leaf blade : intensity of green color</i> | <i>medium (5)</i> | <i>dark (7)</i> |
| | | | |
| | | | |
| Comments : | | | |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|--|-----------------|-------------------|
| <p>#7. Additional information which may help in the examination of the variety</p> <p>7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?</p> <p>Yes [] No []</p> <p>(If yes, please provide details)</p> <p>7.2 Are there any special conditions for growing the variety or conducting the examination?</p> <p>Yes [] No []</p> <p>(If yes, please provide details)</p> <p>7.3 Other information</p> | | |
| <p>8. Authorization for release</p> <p>(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?</p> <p>Yes [] No []</p> <p>(b) Has such authorization been obtained?</p> <p>Yes [] No []</p> <p>If the answer to (b) is yes, please attach a copy of such an authorization.</p> | | |

Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

| | | |
|-------------------------|-----------------|-------------------|
| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|-------------------------|-----------------|-------------------|

9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

| | | |
|---|----------------------------------|---------------------------------|
| (a) Microorganisms (e.g. virus, bacteria, phytoplasma) | Yes [<input type="checkbox"/>] | No [<input type="checkbox"/>] |
| (b) Chemical treatment (e.g. growth retardant, pesticide) | Yes [<input type="checkbox"/>] | No [<input type="checkbox"/>] |
| (c) Tissue culture | Yes [<input type="checkbox"/>] | No [<input type="checkbox"/>] |
| (d) Other factors | Yes [<input type="checkbox"/>] | No [<input type="checkbox"/>] |

Please provide details for where you have indicated “yes”.

.....

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant's name

Signature

Date

[End of document]