



These Test Guidelines have been superseded by a later version. The latest adopted version of Test Guidelines can be found at [http://www.upov.int/test\\_guidelines/en/list.jsp](http://www.upov.int/test_guidelines/en/list.jsp)

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Ces principes directeurs d'examen ont été remplacés par une version ultérieure. La version adoptée la plus récente des principes directeurs d'examen figure à l'adresse suivante : [http://www.upov.int/test\\_guidelines/fr/list.jsp](http://www.upov.int/test_guidelines/fr/list.jsp)

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Diese Prüfungsrichtlinien wurden durch eine neuere Fassung ersetzt. Die neueste angenommene Fassung von Prüfungsrichtlinien ist unter [http://www.upov.int/test\\_guidelines/de/list.jsp](http://www.upov.int/test_guidelines/de/list.jsp) zu finden.

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Las presentes directrices de examen han sido reemplazadas por una versión posterior. La versión de las directrices de examen de más reciente aprobación está disponible en [http://www.upov.int/test\\_guidelines/es/list.jsp](http://www.upov.int/test_guidelines/es/list.jsp).



TG/65/4 Rev.

INTERNATIONAL UNION  
FOR THE PROTECTION  
OF NEW VARIETIES OF  
PLANTS

UNION INTERNATIONALE  
POUR LA PROTECTION  
DES OBTENTIONS  
VÉGÉTALES

INTERNATIONALER  
VERBAND ZUM SCHUTZ  
VON PFLANZEN-  
ZÜCHTUNGEN

UNIÓN INTERNACIONAL  
PARA LA PROTECCIÓN  
DE LAS OBTENCIONES  
VEGETALES

**GUIDELINES**  
**FOR THE CONDUCT OF TESTS**  
**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

**KOHLRABI**

*(Brassica oleracea L. convar.  
acephala (DC.) Alef. var. gongylodes L.;*  
*Brassica oleracea L. Gongylodes Group)*

**GENEVA**  
**2002, 2016**

Copies of this document are available on request at the price of 10 Swiss francs each, including surface mail, from the Office of UPOV, 34, chemin des Colombettes, P.O. Box 18, 1211 Geneva 20, Switzerland

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## GUIDELINES

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### FOR DISTINCTNESS, UNIFORMITY AND STABILITY

#### KOHLRABI

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acephala (DC.) Alef. var. gongylodes L.;*  
*Brassica oleracea L. Gongylodes Group)*

These Guidelines should be read in conjunction with document TG/1/2, which contains explanatory notes on the general principles on which the Guidelines have been established.

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## I. Subject of these Guidelines

These Guidelines apply to all varieties of *Brassica oleracea* L. convar. *acephala* (DC.) Alef. var. *gongylodes* L. (*Brassica oleracea* L. *Gongylodes* Group).

## II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the seed required for testing the variety is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must make sure that all customs formalities are complied with. As a minimum, for each year of the test the following quantity of seed is recommended:

20 g. or at least 4,000 seeds.

2. The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should be stated by the applicant.

3. The plant material must not have undergone any treatment unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

## III. Conduct of Tests

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

2. The tests should normally be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

3. 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. The size of the plots should be such that plants or parts of plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the growing period. Each test should be designed to result in a total of at least 40 plants, which should be divided between two or more replicates. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

4. Additional tests for special purposes may be established.

## IV. Methods and Observations

1. Unless otherwise indicated, all observations determined by measurement, weighing or counting should be made on 40 plants or parts taken from each of 40 plants.

2. The assessment of uniformity for cross-pollinated varieties should be according to the recommendations in the General Introduction.
3. The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations in the General Introduction.
4. All observations on the plant and the leaf should be made before harvest maturity.
5. All observations on the kohlrabi should be made at harvest maturity.

#### V. Grouping of Varieties

1. The collection of varieties to be grown should be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety. Their various states of expression should be fairly evenly distributed throughout the collection.
2. It is recommended that the competent authorities use the following characteristics for grouping varieties:
  - (a) Seedling: anthocyanin coloration of cotyledons (characteristic 1);
  - (b) Harvest maturity (characteristic 23).

#### VI. Characteristics and Symbols

1. To assess distinctness, uniformity and stability, the characteristics and their states as given in the Table of Characteristics should be used.
2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of expression for each characteristic.
3. Legend:
  - (\*) Characteristics that should be used on all varieties in every growing period over which the examinations are made and always be included in the variety descriptions, except when the state of expression of a preceding characteristic or regional environmental conditions render this impossible.
  - (+) See Explanations on the Table of Characteristics in Chapter VIII.

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

| English                                                                  | français                                                               | deutsch                                                                    | español                                                                  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|--------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------|---------------|
| <b>1. Seedling:<br/>(*) anthocyanin<br/>coloration of<br/>cotyledons</b> | <b>Plantule:<br/>pigmentation<br/>anthocyanique des<br/>cotylédons</b> | <b>Keimpflanze:<br/>Anthocyanfärbung<br/>der Keimblätter</b>               | <b>Plántula:<br/>pigmentación<br/>antociánica de los<br/>cotiledones</b> |                                                                        |               |
| absent                                                                   | absente                                                                | fehlend                                                                    | ausente                                                                  | Expreß Forcer                                                          | 1             |
| present                                                                  | présente                                                               | vorhanden                                                                  | presente                                                                 | Azur-Star                                                              | 9             |
| <b>2. Seedling: intensity<br/>of green coloration<br/>of cotyledons</b>  | <b>Plantule: intensité<br/>de la couleur verte<br/>des cotylédons</b>  | <b>Keimpflanze:<br/>Intensität der<br/>Grünfärbung der<br/>Keimblätter</b> | <b>Plántula: intensidad<br/>del color verde del<br/>cotiledón</b>        |                                                                        |               |
| light                                                                    | faible                                                                 | hell                                                                       | clara                                                                    | Erko                                                                   | 3             |
| medium                                                                   | moyenne                                                                | mittel                                                                     | media                                                                    | Expreß Forcer                                                          | 5             |
| dark                                                                     | forte                                                                  | dunkel                                                                     | oscura                                                                   | Eder                                                                   | 7             |
| <b>3. Petioles: crossing<br/>(+)</b>                                     | <b>Pétioles:<br/>recouvrement</b>                                      | <b>Blattstiele:<br/>Überschlagen</b>                                       | <b>Pecíolos:<br/>cruzamiento</b>                                         |                                                                        |               |
| absent                                                                   | absent                                                                 | fehlend                                                                    | ausente                                                                  | Expreß Forcer                                                          | 1             |
| present                                                                  | présent                                                                | vorhanden                                                                  | presente                                                                 | Delikateß blauer                                                       | 9             |
| <b>4. Petiole: length<br/>(*)<br/>(+)</b>                                | <b>Pétiole: longueur</b>                                               | <b>Blattstiel: Länge</b>                                                   | <b>Pecíolo: longitud</b>                                                 |                                                                        |               |
| very short                                                               | très court                                                             | sehr kurz                                                                  | muy corto                                                                | Primavera weiß                                                         | 1             |
| short                                                                    | court                                                                  | kurz                                                                       | corto                                                                    | Quickstar, Spree                                                       | 3             |
| medium                                                                   | moyen                                                                  | mittel                                                                     | medio                                                                    | Patrick, Rolano                                                        | 5             |
| long                                                                     | long                                                                   | lang                                                                       | largo                                                                    | Delikateß blauer                                                       | 7             |
| very long                                                                | très long                                                              | sehr lang                                                                  | muy largo                                                                |                                                                        | 9             |
| <b>5. Petiole: thickness<br/>(in the middle)</b>                         | <b>Pétiole: épaisseur<br/>(au centre)</b>                              | <b>Blattstiel: Dicke<br/>(in der Mitte)</b>                                | <b>Pecíolo: grosor<br/>(en el medio)</b>                                 |                                                                        |               |
| thin                                                                     | mince                                                                  | dünn                                                                       | delgado                                                                  | Avanti, Kohyro                                                         | 3             |
| medium                                                                   | moyenne                                                                | mittel                                                                     | medio                                                                    | Noriko, Rolano                                                         | 5             |
| thick                                                                    | forte                                                                  | dick                                                                       | grueso                                                                   | Adriana                                                                | 7             |

| English                                                  | français               | deutsch                      | español                | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|----------------------------------------------------------|------------------------|------------------------------|------------------------|------------------------------------------------------------------------|---------------|
| <b>6. Petiole: attitude</b><br><b>(*)</b>                | <b>Pétiole: port</b>   | <b>Blattstiel: Haltung</b>   | <b>Pecíolo: porte</b>  |                                                                        |               |
| erect                                                    | dressé                 | aufrecht                     | erecto                 | Eder, Pader                                                            | 1             |
| semi-erect                                               | demi-dressé            | halbaufrecht                 | semierecto             | Erko, Lanro                                                            | 3             |
| horizontal                                               | horizontal             | waagerecht                   | horizontal             |                                                                        | 5             |
| <b>7. Leaf blade: attitude</b><br><b>(*)</b>             | <b>Limbe: port</b>     | <b>Blattspreite: Haltung</b> | <b>Limbo: porte</b>    |                                                                        |               |
| erect                                                    | dressé                 | aufrecht                     | erecto                 | Eder                                                                   | 1             |
| semi-erect                                               | demi-dressé            | halbaufrecht                 | semierecto             | Erko, Lanro                                                            | 3             |
| horizontal                                               | horizontal             | waagerecht                   | horizontal             |                                                                        | 5             |
| <b>8. Leaf blade: length</b><br><b>(*)</b><br><b>(+)</b> | <b>Limbe: longueur</b> | <b>Blattspreite: Länge</b>   | <b>Limbo: longitud</b> |                                                                        |               |
| very short                                               | très court             | sehr kurz                    | muy corto              |                                                                        | 1             |
| short                                                    | court                  | kurz                         | corto                  | Kohyro, Primavera weiß                                                 | 3             |
| medium                                                   | moyen                  | mittel                       | medio                  | Domino, Logo                                                           | 5             |
| long                                                     | long                   | lang                         | largo                  | Lanro, Noriko                                                          | 7             |
| very long                                                | très long              | sehr lang                    | muy largo              | Gigant, Superschmelz                                                   | 9             |
| <b>9. Leaf blade: width</b><br><b>(*)</b><br><b>(+)</b>  | <b>Limbe: largeur</b>  | <b>Blattspreite: Breite</b>  | <b>Limbo: anchura</b>  |                                                                        |               |
| very narrow                                              | très étroit            | sehr schmal                  | muy estrecho           |                                                                        | 1             |
| narrow                                                   | étroit                 | schmal                       | estrecho               | Knaufs Ideal                                                           | 3             |
| medium                                                   | moyen                  | mittel                       | medio                  | Expreß Forcer                                                          | 5             |
| broad                                                    | large                  | breit                        | ancho                  | Noriko                                                                 | 7             |
| very broad                                               | très large             | sehr breit                   | muy ancho              | Gigant, Superschmelz                                                   | 9             |

| English                                                                       | français                                                                                | deutsch                                                                            | español                                                                              | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------|
| <b>10. Leaf blade: shape of apex (+)</b>                                      | <b>Limbe: forme de la partie apicale</b>                                                | <b>Blattspreite: Form des oberen Teils</b>                                         | <b>Limbo: forma del ápice</b>                                                        |                                                                        |               |
| acute                                                                         | aigüe                                                                                   | schmal spitz                                                                       | aguda                                                                                |                                                                        | 1             |
| pointed                                                                       | pointue                                                                                 | spitz                                                                              | puntiaguda                                                                           |                                                                        | 2             |
| obtuse                                                                        | obtuse                                                                                  | stumpf                                                                             | obtusa                                                                               | Avanti, Expreß Forcer                                                  | 3             |
| rounded                                                                       | arrondie                                                                                | abgerundet                                                                         | redondeada                                                                           | Noriko, Spree                                                          | 4             |
| broadly rounded                                                               | arrondie large                                                                          | breit abgerundet                                                                   | redondeada ancha                                                                     | Gigant, Superschmelz                                                   | 5             |
| <b>11. Leaf blade: divisions to midrib (on lower part of leaf) (*) (+)</b>    | <b>Limbe: incisions jusqu'à la nervure principale (partie inférieure de la feuille)</b> | <b>Blattspreite: Einschnitte bis zur Mittelrippe (am unteren Teil des Blattes)</b> | <b>Limbo: divisiones de la nervadura principal (en la parte inferior de la hoja)</b> |                                                                        |               |
| absent or very few                                                            | absentes ou très peu                                                                    | fehlend oder sehr wenige                                                           | ausentes o muy escasas                                                               |                                                                        | 1             |
| few                                                                           | peu                                                                                     | wenige                                                                             | escasas                                                                              | Azur-Star                                                              | 3             |
| medium                                                                        | moyennes                                                                                | mittel                                                                             | medias                                                                               | Noriko                                                                 | 5             |
| many                                                                          | nombreuses                                                                              | viele                                                                              | numerosas                                                                            | Avanti, Korist                                                         | 7             |
| very many                                                                     | très nombreuses                                                                         | sehr viele                                                                         | muy numerosas                                                                        | Lanro                                                                  | 9             |
| <b>12. Leaf blade: number of margin incisions (on upper part of leaf) (+)</b> | <b>Limbe: nombre d'incisions du bord (partie supérieure de la feuille)</b>              | <b>Blattspreite: Anzahl Randeinschnitte (am oberen Teil des Blattes)</b>           | <b>Limbo: número de incisiones del borde (en la parte superior de la hoja)</b>       |                                                                        |               |
| absent or very few                                                            | nul ou très petit                                                                       | fehlend oder sehr gering                                                           | ausentes o muy escasas                                                               |                                                                        | 1             |
| few                                                                           | petit                                                                                   | gering                                                                             | escasas                                                                              | Azur-Star                                                              | 3             |
| medium                                                                        | moyen                                                                                   | mittel                                                                             | medias                                                                               | Expreß Forcer                                                          | 5             |
| many                                                                          | grand                                                                                   | groß                                                                               | numerosas                                                                            |                                                                        | 7             |
| very many                                                                     | très grand                                                                              | sehr groß                                                                          | muy numerosas                                                                        |                                                                        | 9             |

| English                                                                         | français                                                                         | deutsch                                                                     | español                                                                                 | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------|
| <b>13. Leaf blade: depth of margin incisions (on upper part of leaf)</b><br>(+) | <b>Limbe: profondeur des incisions du bord (partie supérieure de la feuille)</b> | <b>Blattspreite: Tiefe der Randeinschnitte (am oberen Teil des Blattes)</b> | <b>Limbo: profundidad de las incisiones del borde (en la parte superior de la hoja)</b> |                                                                        |               |
| absent or very shallow                                                          | nulle ou très faible                                                             | fehlend oder sehr flach                                                     | ausentes o muy poco profundas                                                           |                                                                        | 1             |
| shallow                                                                         | faible                                                                           | flach                                                                       | poco profundas                                                                          | Oste                                                                   | 3             |
| medium                                                                          | moyenne                                                                          | mittel                                                                      | medias                                                                                  | Expreß Forcer                                                          | 5             |
| deep                                                                            | profonde                                                                         | tief                                                                        | profundas                                                                               | Soko                                                                   | 7             |
| very deep                                                                       | très profonde                                                                    | sehr tief                                                                   | muy profundas                                                                           |                                                                        | 9             |
| <b>14. Leaf blade: shape in cross section</b>                                   | <b>Limbe: forme en coupe transversale</b>                                        | <b>Blattspreite: Form im Querschnitt</b>                                    | <b>Limbo: forma en sección transversal</b>                                              |                                                                        |               |
| concave                                                                         | concave                                                                          | konkav                                                                      | cóncava                                                                                 |                                                                        | 1             |
| plane                                                                           | droite                                                                           | eben                                                                        | plana                                                                                   | Expreß Forcer                                                          | 2             |
| convex                                                                          | convexe                                                                          | konvex                                                                      | convexa                                                                                 | Azur-Star, Erko                                                        | 3             |
| <b>15. Leaf blade: blistering</b><br>(*)                                        | <b>Limbe: cloûre</b>                                                             | <b>Blattspreite: Blasigkeit</b>                                             | <b>Limbo: abullonado</b>                                                                |                                                                        |               |
| weak                                                                            | faible                                                                           | gering                                                                      | débil                                                                                   | Avanti                                                                 | 3             |
| medium                                                                          | moyenne                                                                          | mittel                                                                      | media                                                                                   | Spree                                                                  | 5             |
| strong                                                                          | forte                                                                            | stark                                                                       | fuerte                                                                                  | Lanro                                                                  | 7             |
| <b>16. Leaf blade: waxiness</b>                                                 | <b>Limbe: pruine</b>                                                             | <b>Blattspreite: Wachsschicht</b>                                           | <b>Limbo: cerosidad</b>                                                                 |                                                                        |               |
| weak                                                                            | faible                                                                           | gering                                                                      | débil                                                                                   |                                                                        | 3             |
| medium                                                                          | moyenne                                                                          | mittel                                                                      | media                                                                                   | Expreß Forcer                                                          | 5             |
| strong                                                                          | forte                                                                            | stark                                                                       | fuerte                                                                                  | Blaril                                                                 | 7             |
| <b>17. Leaf blade: hue of green color</b><br>(*)                                | <b>Limbe: teinte de la couleur verte</b>                                         | <b>Blattspreite: Ton der Grünfärbung</b>                                    | <b>Limbo: tono del color verde</b>                                                      |                                                                        |               |
| absent                                                                          | absente                                                                          | fehlend                                                                     | ausente                                                                                 | Erko, Noriko                                                           | 1             |
| greyish                                                                         | grisâtre                                                                         | gräulich                                                                    | grisáceo                                                                                | Expreß Forcer, Lanro                                                   | 2             |
| bluish                                                                          | bleuâtre                                                                         | bläulich                                                                    | azulado                                                                                 | Azur-Star                                                              | 3             |

| English                                                  | français                                    | deutsch                                         | español                                          | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|----------------------------------------------------------|---------------------------------------------|-------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|---------------|
| <b>18. Leaf blade: intensity of green color (*)</b>      | <b>Limbe: intensité de la couleur verte</b> | <b>Blattspreite: Intensität der Grünfärbung</b> | <b>Limbo: intensidad del color verde</b>         |                                                                        |               |
| very light                                               | très claire                                 | sehr hell                                       | muy claro                                        |                                                                        | 1             |
| light                                                    | claire                                      | hell                                            | claro                                            |                                                                        | 3             |
| medium                                                   | moyenne                                     | mittel                                          | medio                                            | Noriko, Quickstar                                                      | 5             |
| dark                                                     | foncée                                      | dunkel                                          | oscuro                                           | Avanti, Lanro                                                          | 7             |
| very dark                                                | très foncée                                 | sehr dunkel                                     | muy oscuro                                       | Pader                                                                  | 9             |
| <b>19. Kohlrabi: number of inner leaves (+)</b>          | <b>Rave: nombre de feuilles intérieures</b> | <b>Kohlrabi: Anzahl der inneren Blätter</b>     | <b>Colinabo: número de hojas interiores</b>      |                                                                        |               |
| few                                                      | petit                                       | gering                                          | escasas                                          | Erko                                                                   | 3             |
| medium                                                   | moyen                                       | mittel                                          | medias                                           | Expreß Forcer                                                          | 5             |
| many                                                     | grand                                       | groß                                            | numerosas                                        | Lanro                                                                  | 7             |
| <b>20. Kohlrabi: color of skin (*)</b>                   | <b>Rave: couleur de l'épiderme</b>          | <b>Kohlrabi: Farbe der Haut</b>                 | <b>Colinabo: color de la epidermis</b>           |                                                                        |               |
| white green                                              | vert blanc                                  | weißgrün                                        | verde blanquecino                                | Expreß Forcer, Lanro                                                   | 1             |
| green                                                    | vert                                        | grün                                            | verde                                            | Erko, Noriko                                                           | 2             |
| pale violet                                              | violet clair                                | hellviolett                                     | violeta pálido                                   |                                                                        | 3             |
| dark violet                                              | violet foncé                                | dunkelviolet                                    | violeta oscuro                                   | Azur-Star                                                              | 4             |
| <b>21. Kohlrabi: shape (in longitudinal section) (*)</b> | <b>Rave: forme (coupe longitudinale)</b>    | <b>Kohlrabi: Form (im Längsschnitt)</b>         | <b>Colinabo: forma (en sección longitudinal)</b> |                                                                        |               |
| transverse narrow elliptic                               | elliptique transversal étroit               | quer schmal elliptisch                          | elíptica transversal estrecha                    | Erko                                                                   | 1             |
| transverse elliptic                                      | elliptique transversal                      | quer elliptisch                                 | elíptica transversal                             | Azur-Star, Quickstar                                                   | 2             |
| transverse broad elliptic                                | elliptique transversal large                | quer breit elliptisch                           | elíptica transversal ancha                       | Noriko                                                                 | 3             |
| circular                                                 | rond                                        | rund                                            | circular                                         | Blaril                                                                 | 4             |
| broad elliptic                                           | elliptique large                            | breit elliptisch                                | elíptica ancha                                   |                                                                        | 5             |

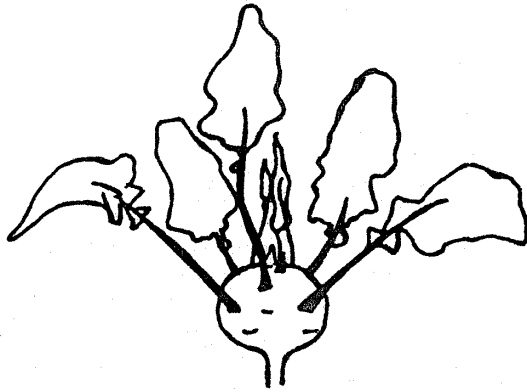
| English                                              | français                     | deutsch                                | español                          | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------------------------------------------------|------------------------------|----------------------------------------|----------------------------------|------------------------------------------------------------------------|---------------|
| <b>22. Kohlrabi: shape of apex (+)</b>               | <b>Rave: forme du sommet</b> | <b>Kohlrabi: Form des oberen Endes</b> | <b>Colinabo: forma del ápice</b> |                                                                        |               |
| indented                                             | concave                      | eingesunken                            | hundido                          | Expreß Forcer                                                          | 3             |
| level                                                | plane                        | eben                                   | plano                            | Avanti, Spree                                                          | 5             |
| raised                                               | convexe                      | vorgewölbt                             | elevado                          | Gigant, Superschmelz                                                   | 7             |
| <b>23. Harvest maturity (*) (+)</b>                  | <b>Maturité de récolte</b>   | <b>Erntereife</b>                      | <b>Madurez para la cosecha</b>   |                                                                        |               |
| very early                                           | très précoce                 | sehr früh                              | muy temprana                     | Expreß Forcer                                                          | 1             |
| early                                                | précoce                      | früh                                   | temprana                         | Azur-Star, Quickstar                                                   | 3             |
| medium                                               | moyenne                      | mittel                                 | media                            | Lanro                                                                  | 5             |
| late                                                 | tardive                      | spät                                   | tardía                           | Delikateß blauer                                                       | 7             |
| very late                                            | très tardive                 | sehr spät                              | muy tardía                       | Blaril                                                                 | 9             |
| <b>24. VG/ MS<sup>1</sup> Male sterility (*) (+)</b> | <b>Stérilité mâle</b>        | <b>Männliche Sterilität</b>            | <b>Androesterilidad</b>          |                                                                        |               |
| <b>QL<sup>2</sup></b> absent                         | absente                      | fehlend                                | ausente                          | Expreß Forcer, Lanro                                                   | 1             |
| present                                              | présente                     | vorhanden                              | presente                         | Erika, Morre, Oasis                                                    | 9             |

<sup>1</sup> See document TGP/7 “Development of Test Guidelines”, Annex 3 “Guidance Notes (GN) for the TG Template”, GN 25 “Recommendations for conducting the examination” ([http://www.upov.int/edocs/tgpdocs/en/tgp\\_7.pdf](http://www.upov.int/edocs/tgpdocs/en/tgp_7.pdf))

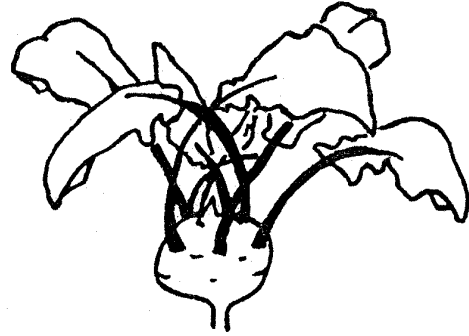
<sup>2</sup> See document TGP/7 “Development of Test Guidelines”, Annex 3 “Guidance Notes (GN) for the TG Template”, GN 20 “Presentation of characteristics: States of expression according to type of expression of a characteristic”, 2. “Qualitative Characteristics” ([http://www.upov.int/edocs/tgpdocs/en/tgp\\_7.pdf](http://www.upov.int/edocs/tgpdocs/en/tgp_7.pdf))

VIII. Explanations on the Table of Characteristics

Ad. 3: Petioles: crossing



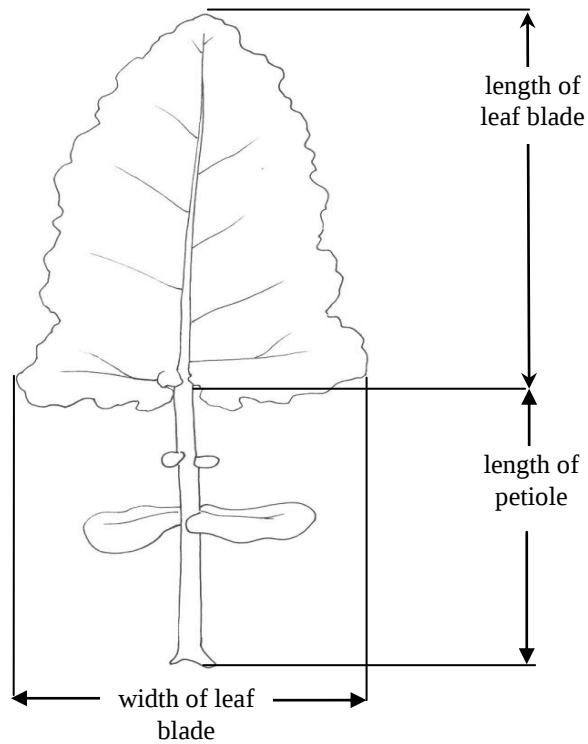
1  
absent



9  
present

Ad. 4: Petiole: length

Ad. 8 and 9: Leaf blade: length and width



Ad. 10: Leaf blade: shape of apex



1  
acute



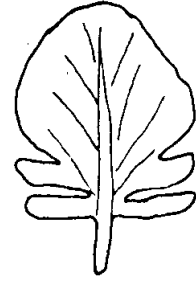
2  
pointed



3  
obtuse

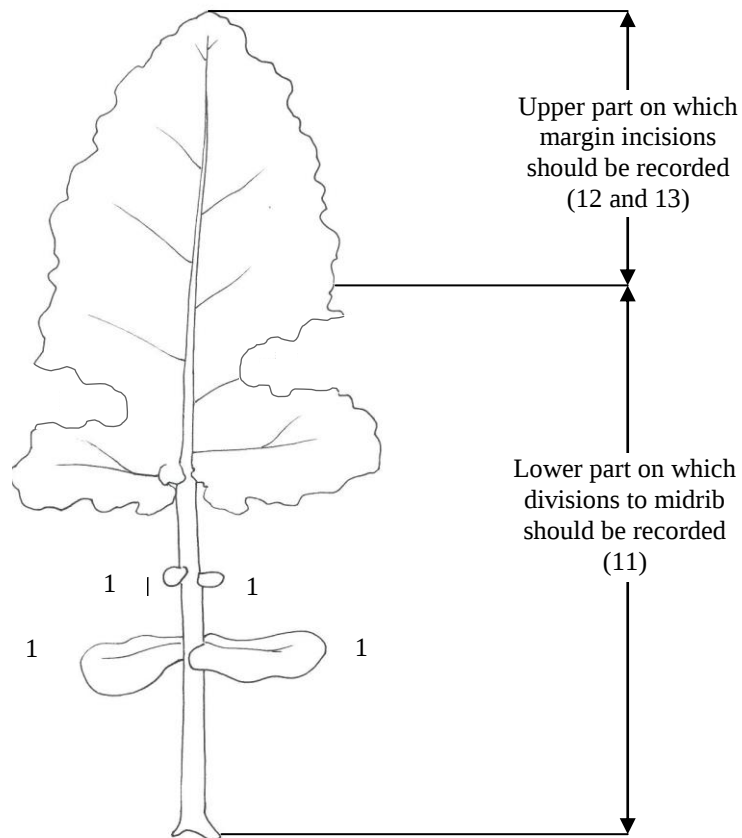


4  
rounded



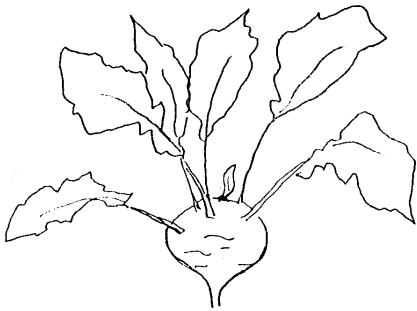
5  
broadly rounded

Ad. 11-13: Leaf blade: divisions to midrib (11), margin incisions (12 and 13)



1 = divisions to midrib

Ad. 19: Kohlrabi: number of inner leaves



3  
few

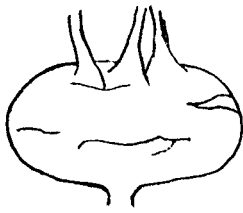


5  
medium

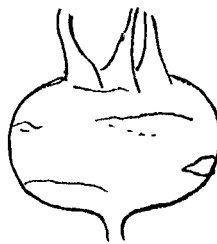


7  
many

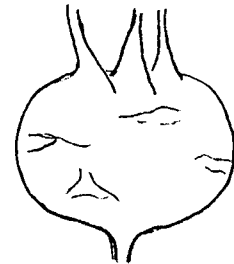
Ad. 21: Kohlrabi: shape (in longitudinal section)



1  
transverse narrow elliptic



2  
transverse elliptic



3  
transverse broad elliptic



4  
circular

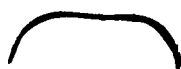


5  
broad elliptic

Ad. 22: Kohlrabi: shape of apex



3  
indented



5  
level



7  
raised

Ad. 23: Harvest maturity

Harvest maturity is considered as being reached if 50% of kohlrabis reach 7 cm diameter in the greenhouse or 8 cm diameter in the open field.

Ad. 24: Male sterility

To be tested in a field trial and/or in a DNA marker test.

Field trial:

Check presence of pollen on stamen: if pollen on stamen is present then male sterility is absent; if pollen on stamen is absent then male sterility is present.

DNA marker test and/or field trial:

All varieties declared male sterile in the TQ can be examined in a field trial or in a DNA marker test<sup>3</sup>. In the case of a DNA marker test, if the CMS marker appears to be not present, a field trial should be performed to observe whether the variety is male sterile (on another mechanism) or fertile. All varieties declared fertile are to be tested in a field trial.

In case of a field trial, type of observation is VG. In case of a DNA marker test, type of observation is MS.

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<sup>3</sup> The description of the method to test male sterility for Brassica (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.

## IX. Literature

Becker, G. (1962): Kohlrabi in: Handbuch der Pflanzenzüchtung, Band VI, 2. Auflage, Paul Parey Verlag, Berlin –Hamburg, 201-203.

Becker-Dillingen, J. (1950): Kohlrabi in: Handbuch des gesamten Gemüsebaues, 5. Auflage, Parey Verlag, Berlin – Hamburg, 331-342.

Hahn, P. und Schmitt, U. (1951): Kohlrabi in: Kohl- und Wurzelgemüse, Arten- und Sortenkunde, Band 2, 1. Auflage, Deutscher Bauernverlag, Berlin, 108-138.

Kampe, K.; Basse, H.; Glaschke, B. und Schreiber, F. (1956): Kohlrabi in: Gemüsesorten, II. Teil (Kohl-, Blatt- und Wurzelgemüse), 1. Auflage, Parey Verlag, Berlin – Hamburg, 44-51.

Wiebe, H.-J. (1989): Vernalisation von wichtigen Gemüsearten – Ein Überblick. Gartenbauwissenschaft 54 (3), Ulmer Verlag, Stuttgart, 97-104.

Vogel, G. (1996): Kohlrabi in: Handbuch des speziellen Gemüsebaues. Ulmer Verlag, Stuttgart, 304 – 323.

X. Technical Questionnaire

|                                                                                                                                                                                                                        |                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
|                                                                                                                                                                                                                        | Reference Number<br>(not to be filled in by the applicant) |
|                                                                                                                                                                                                                        |                                                            |
| <p style="text-align: center;">TECHNICAL QUESTIONNAIRE<br/>to be completed in connection with an application for plant breeders' rights</p>                                                                            |                                                            |
| <p>1. Species      <i>Brassica oleracea</i> L. convar. <i>acephala</i> (DC.) Alef. var. <i>gongylodes</i> L.<br/>(<i>Brassica oleracea</i> L. <i>Gongylodes</i> Group)</p> <p style="text-align: center;">KOHLRABI</p> |                                                            |
| <p>2. Applicant (Name and address)</p>                                                                                                                                                                                 |                                                            |
| <p>3. Proposed denomination or breeder's reference</p>                                                                                                                                                                 |                                                            |

| <p>4. Information on origin, maintenance and reproduction of the variety</p> <p>4.1 Method of maintenance and reproduction</p> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 60%;"> <p>(i) hybrid</p> <p>(ii) open-pollinated variety</p> <p>(iii) other</p> </div> <div style="width: 35%;"> <p>[ ]</p> <p>[ ]</p> <p>[ ]</p> </div> </div> <p>4.2 Other information</p> |                   |  |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--|------|
| <p>5. Characteristics of the variety to be given (the number in brackets refers to the corresponding characteristics in the Test Guidelines; please mark the state of expression which best corresponds)</p>                                                                                                                                                                                                                  |                   |  |      |
| Characteristics                                                                                                                                                                                                                                                                                                                                                                                                               | Example Varieties |  | Note |
| <p><b>5.1 Seedling: anthocyanin coloration of cotyledons (1)</b></p>                                                                                                                                                                                                                                                                                                                                                          |                   |  |      |
| absent                                                                                                                                                                                                                                                                                                                                                                                                                        | Expreß Forcer     |  | 1[ ] |
| present                                                                                                                                                                                                                                                                                                                                                                                                                       | Azur-Star         |  | 9[ ] |
| <p><b>5.2 Leaf blade: divisions to midrib (on lower part of leaf) (11)</b></p>                                                                                                                                                                                                                                                                                                                                                |                   |  |      |
| absent or very few                                                                                                                                                                                                                                                                                                                                                                                                            |                   |  | 1[ ] |
| few                                                                                                                                                                                                                                                                                                                                                                                                                           | Azur-Star         |  | 3[ ] |
| medium                                                                                                                                                                                                                                                                                                                                                                                                                        | Noriko            |  | 5[ ] |
| many                                                                                                                                                                                                                                                                                                                                                                                                                          | Avanti, Korist    |  | 7[ ] |
| very many                                                                                                                                                                                                                                                                                                                                                                                                                     | Lanro             |  | 9[ ] |
| <p><b>5.3 Leaf blade: blistering (15)</b></p>                                                                                                                                                                                                                                                                                                                                                                                 |                   |  |      |
| weak                                                                                                                                                                                                                                                                                                                                                                                                                          | Avanti            |  | 3[ ] |
| medium                                                                                                                                                                                                                                                                                                                                                                                                                        | Spree             |  | 5[ ] |
| strong                                                                                                                                                                                                                                                                                                                                                                                                                        | Lanro             |  | 7[ ] |

| Characteristics                                               | Example Varieties    | Note |
|---------------------------------------------------------------|----------------------|------|
| <b>5.4 Leaf blade: intensity of green color<br/>(18)</b>      |                      |      |
| very light                                                    |                      | 1[ ] |
| light                                                         |                      | 3[ ] |
| medium                                                        | Noriko, Quickstar    | 5[ ] |
| dark                                                          | Avanti, Lanro        | 7[ ] |
| very dark                                                     | Pader                | 9[ ] |
| <b>5.5 Kohlrabi: color of skin<br/>(20)</b>                   |                      |      |
| white green                                                   | Expreß Forcer, Lanro | 1[ ] |
| green                                                         | Erko, Noriko         | 2[ ] |
| pale violet                                                   |                      | 3[ ] |
| dark violet                                                   | Azur-Star            | 4[ ] |
| <b>5.6 Kohlrabi: shape (in longitudinal section)<br/>(21)</b> |                      |      |
| transverse narrow elliptic                                    | Erko                 | 1[ ] |
| transverse elliptic                                           | Azur-Star, Quickstar | 2[ ] |
| transverse broad elliptic                                     | Noriko               | 3[ ] |
| circular                                                      | Blaril               | 4[ ] |
| broad elliptic                                                |                      | 5[ ] |
| <b>5.7 Harvest maturity<br/>(23)</b>                          |                      |      |
| very early                                                    | Expreß Forcer        | 1[ ] |
| early                                                         | Azur-Star, Quickstar | 3[ ] |
| medium                                                        | Lanro                | 5[ ] |
| late                                                          | Delikateß blauer     | 7[ ] |
| very late                                                     | Blaril               | 9[ ] |

6. Similar varieties and differences between these varieties

| Denomination of similar variety                                                                                                    | Characteristic in which the similar variety is different <sup>o)</sup> | State of expression of similar variety | State of expression of candidate variety |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------|------------------------------------------|
| <p><sup>o)</sup> In the case of identical states of expressions of both varieties, please indicate the size of the difference.</p> |                                                                        |                                        |                                          |

7. Additional information which may help to distinguish the variety

7.1 Resistance to pests and diseases

7.2 Special conditions for the examination of the variety

Variety for glasshouse culture 1 [ ]

Variety for field production at      spring      2 [ ]  
                                                         summer      3 [ ]  
                                                         autumn      4 [ ]

7.3 Other information

A representative photograph of one or more leaf blades of the variety may be added to the Technical Questionnaire.

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ]

No [ ]

(b) Has such authorization been obtained?

Yes [ ]

No [ ]

If the answer to that question is yes, please attach a copy of such an authorization.

[End of document]