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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

Turnip

UPOV Code: BRASS_RAP_RAP

Brassica rapa L. var. rapa (L.) Thell.

[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by (an) expert(s) from France

to be considered by the

Technical Working Party for Vegetables
at its forty-ninth session
to be held in Angers, France,
from 2015-06-15
to 2015-06-19

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Brassica rapa L. var. rapa (L.) Thell., Brassica rapa L. ssp. rapa; var. rapifera Metzg.	Turnip	Navet	Herbstrübe, Mairübe	Nabo

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.]

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of Brassica rapa L. var. rapa (L.) Thell..

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:

50 g
or
20 000 to 30 000 seeds

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.

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

2.5 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

3.1.1 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.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 60 plants, which should be divided between at least 2 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 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.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, 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, disregarding any off-type plants.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation 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

Type of observation: visual (V) or measurement (M)

“Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 Uniformity

4.2.1 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:

4.2.2 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.

For the assessment of uniformity of open-pollinated and hybrid varieties relative uniformity standards should be applied

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 further examined by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

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 are 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:

(a) Ploidy (characteristic 1)
(b) Stem: anthocyanin coloration (characteristic 2)
(c) Leaf: type (characteristic 6)
(d) Root: color of skin above soil (characteristic 18)
(e) Root: color of flesh (characteristic 22)
(f) Root: shape in longitudinal section (characteristic 25)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

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

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

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

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

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

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 Chapter 6.1.2
QL	Qualitative characteristic	– see Chapter 6.3
QN	Quantitative characteristic	– see Chapter 6.3
PQ	Pseudo-qualitative characteristic	– see Chapter 6.3
MG, MS, VG, VS		– see Chapter 4.1.5

(a)-(d) See Explanations on the Table of Characteristics in Chapter 8.

(+) See Explanations on the Table of Characteristics in Chapter 8.

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

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*) QL VS (a) **Ploidy**					
diploid	diploïde	diploid	diploide	Milan White	2
tetraploid	tétraploïde	tetraploid	tetraploide	Taronda	4
2. (*) QL VG 100-130 (a) **Stem: anthocyanin coloration**	**Tige: pigmentation anthocyanique**	**Trieb: Anthocyanfärbung**	**Tallo: pigmentación antociánica**		
absent	absente	fehlend	ausente	De Nancy à feuille entière	1
present	présente	vorhanden	presente	Scarlet Queen Red Stem	9
3. QN VG 100-130 (a) **Leaf: attitude**					
erect	dressé	aufrecht	erecto	Samson	1
semi-erect	demi-dressé	halbaufrecht	semierecto	Agressa	3
horizontal	horizontal	waagerecht	horizontal	Teltower Kleine	5
4. QN VG 100-130 (+) (a) **Leaf: reflexing of top**					
absent or very weak					1
weak					3
medium					5
strong				Noir long	7
very strong					9
5. (*) QN VG 100-130 (a) **Leaf: green color**					
very light					1
light				Leielander	3
medium					5
dark				Frisia	7
very dark				Aberdeen Green Top Yellow	9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. (*) QL VG 100-130 (+) (a) **Leaf: type**	**Feuille: type**	**Blatt: Typ**	**Hoja: tipo**		
entire				Polybra	1
lobed				Samson	2
7. QN VG 100-130 (+) (a) **Lobed-leaf varieties only:** **Leaf: number of lobes**					
few				Tokyo Top	3
medium				De Montesson	5
many				Aberdeen Green Top Yellow	7
8. QN VG 100-130 (a) (b) **Entire-leaf varieties only:** **Leaf: depth of incisions of margin**					
very shallow					1
shallow				Milan White	3
medium					5
deep				Tokyo Market	7
very deep				Polybra	9
9. QN VG 100-130 (a) **Leaf: undulation of margin**	**Feuille : ondulation du bord**	**Blatt: Randwellung**	**Hoja: ondulación del borde**		
absent or very weak				Tokyo Cross	1
weak				Tokyo Top	3
medium				Frisia	5
strong					7
very strong				Imperial Green Globe	9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10. QN VG 100-130 (a) (b) **Leaf: dentation of margin**	**Feuille: denture du bord**	**Blatt: Randzähnung**	**Hoja: dentado del borde**		
absent or very weak					1
weak				Milan White	3
medium				Polybra	5
strong				Taronda	7
very strong				Appin	9
11. (*) QN MS VG 100-130 (a) (c) **Leaf: length**	**Feuille: longueur**	**Blatt: Länge**	**Hoja: longitud**		
short				Milan White	3
medium				Tokyo Cross	5
long				Tyfon	7
12. QN MS VG 100-130 (a) (c) **Leaf: width**	**Feuille : largeur**	**Blatt: Breite**	**Hoja: anchura**		
narrow				De Milan rouge extra hâtif à chassis	3
medium					5
broad				Tyfon	7
13. QN MS VG 100-130 (a) (d) **Leaf: length of terminal lobe**					
short				Platte Witte Mei	3
medium				Snowball	5
long				Tyfon	7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. QN MS VG 100-130 (a) (d) **Leaf: width of terminal lobe**					
narrow				Platte Witte Mei	3
medium				Civasto R	5
broad				Massif	7
15. QN VG 100-130 (a) **Leaf: hairiness of upper side**					
absent or very weak				Appin	1
weak				Tokyo Market	3
medium				De Milan rouge extra hâtif à chassis	5
strong				Blanc dur d'hiver	7
very strong					9
16. QN VG 100-130 (a) **Leaf: anthocyanin coloration**	**Feuille : pigmentation anthocyanique**	**Blatt: Anthocyanfärbung**	**Hoja: pigmentación antociánica**		
absent or very weak				Leielander	1
weak					3
medium					5
strong					7
very strong					9
17. (*) QN VG 260-290 (+) (a) **Root: position in soil**	**Racine: position dans le sol**	**Rübe: Sitz im Boden**	**Raíz: posición en el suelo**		
very shallow				Milan White Forcing	1
shallow				Oasis	3
medium				Agressa	5
deep				Noir long	7
very deep				Teltower Kleine	9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18. (*) QN VG 240-260 (a) **Root: color of skin above soil**					
white				Tokyo Cross	1
green				Leielander	2
yellow					3
orange				Golden Ball	4
orange brown					5
red				Scarlet Queen Red Stem	6
reddish purple					7
bluish purple					8
19. QN VG 240-260 (a) **Root: intensity of coloration of skin above soil**					
light	claire	hell	claro		3
medium	moyenne	mittel	medio		5
dark	foncée	dunkel	oscuro		7
20. QN VG 240-260 (a) **Root: color of skin below ground**					
white				Taronda	1
yellow					2
red					3
purple					4

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. (*) QL VG (a) **Root: thick cork layer around skin**					
absent					1
present				Noir long	9
22. (*) PQ VG 240-280 (a) **Root: color of flesh**					
white				Agressa	1
yellow					2
23. QN VG 240-280 (a) **Root: intensity of yellow color of flesh**					
light					3
medium					5
dark				Petrowski	7
24. QL VG 240-280 (a) **Root: anthocyanin coloration of flesh**					
absent				Marteau	1
present				Scarlet Queen Red Stem	9
25. (*) PQ VG 260-280 (a) **Root: shape in longitudinal section**					
triangular				Grelos de Santiago	
transverse narrow elliptic				Platte Witte Mei	1
transverse elliptic				Milan White	2
circular				Rondo	3
obovate					4
square				Champion Green Top, Yellow	5
broad oblong					6
narrow oblong				Long d'Alsace	7
obtriangular					8
triangular				Grelos de Santiago	9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
26. (*) QN MS VG 260-280 (a) **Root: length**	**Racine: longueur**	**Rübe: Länge**	**Raíz: longitud**		
very short				Milan White	1
short				The Wallace	3
medium				Dynamo	5
long				Taronda	7
very long					9
27. (*) QN MS VG 260-280 (a) **Root: diameter (at widest point)**					
small				Hakutaka	3
medium				Rondo	5
large				Massif	7
28. (*) QN VG 260-280 (+) (a) **Root: position of widest point**					
above middle				Marteau	1
at middle				Taronda	2
below middle				Blanc dur d'hiver	3
29. QL VG 260-280 (+) (a) **Root: curvature of vertical axis**					
absent				Taronda	1
present				De Croissy	9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
30. (*) QN VG 260-280 (a) **Root: shape of top**					
strongly indented					1
indented				Milan White Forcing	3
flat				Milan White	5
raised				Taronda	7
strongly raised				Agressa	9
31. (*) PQ VG 260-280 (+) (a) **Root: shape of base**					
indented				Milan White Forcing	1
truncate				Milan White	3
rounded				Frisia	5
obtuse					7
pointed				Noir long	9
32. QN MG VG 220-260 (a) **Root: time of harvest maturity**					
early				Oasis	3
medium					5
late				Aberdeen Green Top Yellow	7
33. QN VG 280-400 (a) **Plant : number of sprouts on the top of the root**					
one or very few				Taronda	1
few				Largo de Alsacia	3
medium				Globo blanco de Lugo	5
many				Grelos de Santiago	7
very many					9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34. QN MG VG 370 (a) **Plant : Time of flowering**					
very early				Greleiro Temporâo	1
early					3
medium				Marteau	5
late				Bola de nieve	7
very late					9

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

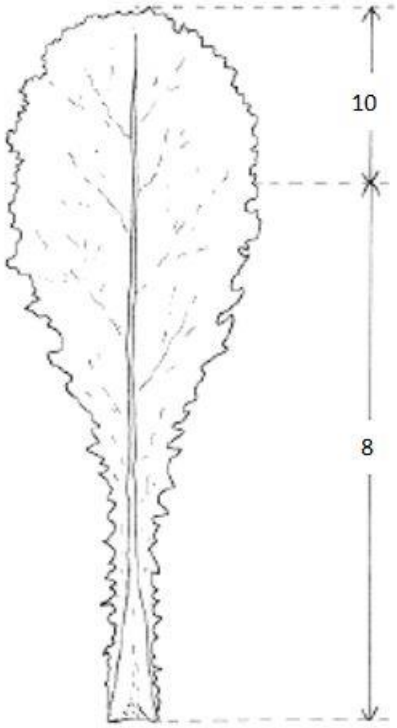
Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a)

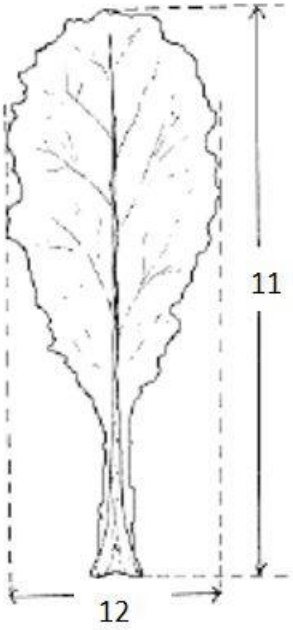
Key to Growth Stages

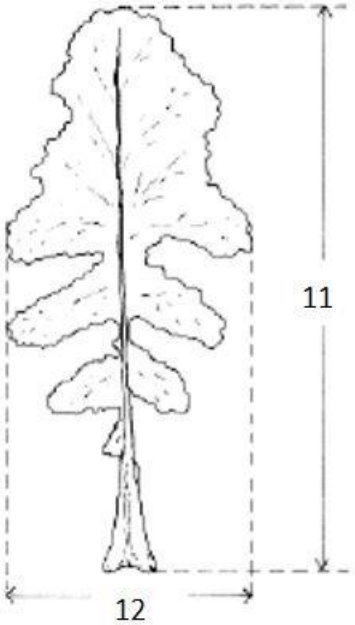
00	Dry seed	
1-10	Germination and emergence through soil	
	Seedling growth	
12	Elongation of emerging shoot	
15	Elongation and opening of cotyledons	
20	Cotyledons fully opened	
30	Cotyledons fully opened and full development of first true leaf	
40	Second leaf fully developed	
50	Third leaf fully developed and initial senescence of cotyledons	
60	Fourth leaf fully developed and partial senescence of cotyledons	
70	Fifth leaf fully developed and advanced senescence/drop of cotyledons	
	Leaf development	
80	Sixth leaf fully developed	
90	Seventh leaf fully developed;	initial senescence of first true leaf in early cultivars
100	Eighth leaf fully developed;	30 % senescence of first true leaf
110	Ninth leaf fully developed;	60% senescence of first true leaf
120	Tenth leaf fully developed;	complete senescence and drop of first true leaf
130	Eleventh leaf fully developed.	
	Root development	
200	Slight swelling of the root at ground level	
220	Development of a small swollen root above ground level	
240	Swollen root increasing in size but not fully developed	
260	Root fully developed with no cork on skin	
270	Root fully developed with 40% cork development on skin	
280	Root fully developed with 80 - 100% cork development	
290	Root flesh becoming pithy and fibrous	
300	Root flesh pithy and fibrous	
	Flowering and seed production on main stem	
310	Initial formation and elongation of the flowering stem	
330	Elongation of the flowering stem with clear space between leaves	
350	First bud formation and further elongation of stem	
360	Terminal inflorescence in bud	
370	Terminal inflorescence with first open flower	
380	Terminal inflorescence partially flowering	
400	Terminal inflorescence fully flowering	
420	Development of siliqua with elongation of flowering stem	
430	Lowest fully developed siliqua green	
450	Lowest fully developed siliqua senescing and going brown	
475	Lowest fully developed siliqua dry with seed beginning to dry	
500	Lowest fully developed siliqua dry with mature dry seed	

(b) Characteristic 8: part on which the depth of incisions of margin should be recorded
Characteristic 10: part on which the dentation of margin should be recorded

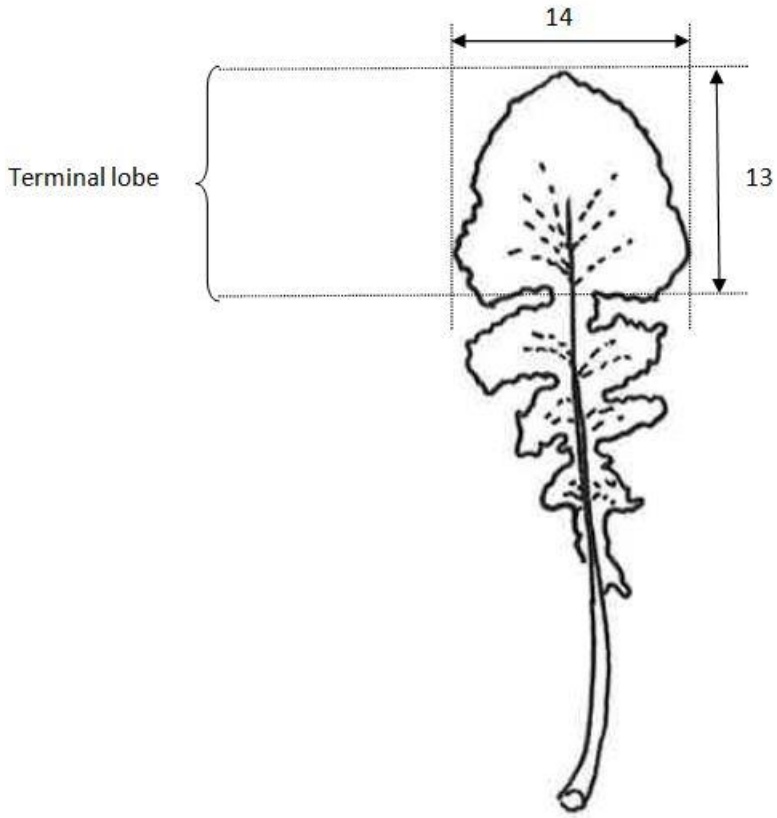


(c) 11: Leaf: length
12: Leaf: width





(d) 13: Leaf: length of terminal lobe
14: Leaf: width of terminal lobe



8.2 Explanations for individual characteristics

Ad. 4: Leaf: reflexing of top

1 - absent or very weak

3 - weak

5 - medium

7 - strong

9 - very strong

Ad. 6: Leaf: type

Assessment of leaf lobing should be undertaken on several leaves of the plant.
Plants with absent lobes have usually obovate and spatulate shaped leaves. These have continuous lamina tissue to the base of the leaf, no terminal lobe and may be strongly incised.

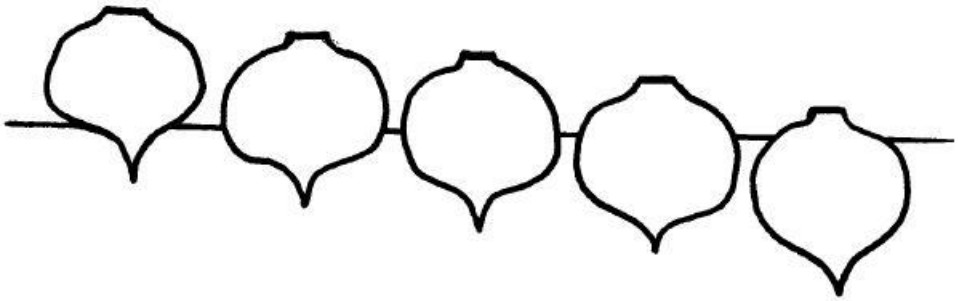
1 - entire

2 - lobed

Ad. 7: Lobed-leaf varieties only: Leaf: number of lobes

Parts of the leaf blade are considered as lobes if their length is at least equivalent to the width of the leaf petiole at their point of attachment and if both notches of the blade have at least half the length of the lobe itself.

Ad. 17: Root: position in soil



1 very shallow | 3 shallow | 5 medium | 7 deep | 9 very deep

Ad. 25: Root: shape in longitudinal section

1 - transverse narrow elliptic

2 - transverse elliptic

3 - circular

4 - obovate

5 - square

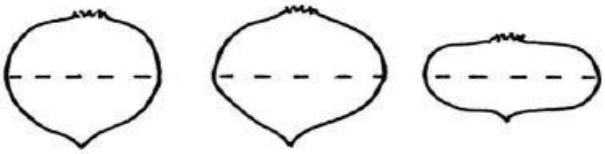
6 - broad oblong

7 - narrow oblong

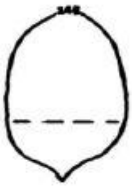
8 - obtriangular

Ad. 28: Root: position of widest point

1 - above middle



2 - at middle



3 - below middle

Ad. 29: Root: curvature of vertical axis

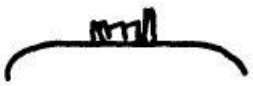
This characteristic refers to the curvature of the vertical axis for roots that are taller than they are wide.

1
absent

9
present

Ad. 30: Root: shape of top

1 - strongly indented



3 - indented

5 - flat

7 - raised

Ad. 31: Root: shape of base

1 - indented

3 - truncate

5 - rounded

7 - obtuse

9 - pointed

9. Literature

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10. Technical Questionnaire

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

	Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire			
1.1.1	Botanical Name	Brassica rapa L. var. rapa (L.) Thell.	
1.1.2	Common Name	Turnip	
1.1.3			

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Cross-pollination [ ]
(b) Hybrid [ ]
(c) Other [ ]
(please provide details)

.....
: :
: :
:.....:

4.2.2 Other [ ]

(please provide details)

.....
: :
: :
:.....:

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).

	Characteristics	Example Varieties	Note
5.1 (1)	**Ploidy**		
	diploid	Milan White	2[ ]
	tetraploid	Taronda	4[ ]
5.2 (2)	**Stem: anthocyanin coloration**		
	absent	De Nancy à feuille entière	1[ ]
	present	Scarlet Queen Red Stem	9[ ]
5.3 (6)	**Leaf: type**		
	entire	Polybra	1[ ]
	lobed	Samson	2[ ]
5.4 (18)	**Root: color of skin above soil**		
	white	Tokyo Cross	1[ ]
	green	Leielander	2[ ]
	yellow		3[ ]
	orange	Golden Ball	4[ ]
	orange brown		5[ ]
	red	Scarlet Queen Red Stem	6[ ]
	reddish purple		7[ ]
	bluish purple		8[ ]
5.5 (22)	**Root: color of flesh**		
	white	Agressa	1[ ]
	yellow		2[ ]
5.6 (25)	**Root: shape in longitudinal section**		
	triangular	Grelos de Santiago	0[ ]
	transverse narrow elliptic	Platte Witte Mei	1[ ]
	transverse elliptic	Milan White	2[ ]
	circular	Rondo	3[ ]
	obovate		4[ ]
	square	Champion Green Top, Yellow	5[ ]
	broad oblong		6[ ]
	narrow oblong	Long d'Alsace	7[ ]
	obtriangular		8[ ]
	triangular	Grelos de Santiago	9[ ]

6. Similar varieties and differences from these varieties

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.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example			

Comments:

7. Additional information which may help in the examination of the variety

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?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

Main use:
- Root vegetable [ ]
- Stem consumption [ ]
- Stubble or Forage Turnip [ ]

Time of sowing:
- Spring sown [ ]
- Summer sown [ ]
- Autumn sown [ ]

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 (b) is yes, please attach a copy of the authorization.

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 [ ]	No [ ]
(b)	Chemical treatment (e.g. growth retardant, pesticide)	Yes [ ]	No [ ]
(c)	Tissue culture	Yes [ ]	No [ ]
(d)	Other factors	Yes [ ]	No [ ]

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]