

TG/54/7 Rev. 2
ORIGINAL: English

DATE: 2004-03-31 + 2016-03-16

+ 2023-10-24

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS GENEVA

BRUSSELS SPROUT

(Brassica oleracea L. var. gemmifera DC.)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:*

Latin	English	French	German	Spanish
Brassica oleracea L. var. gemmifera DC.	Brussels sprout	Chou de Bruxelles	Rosenkohl	Col de Bruselas

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants" (hereinafter referred to as 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.]

TG/54/7 Rev. 2 Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 2 -

<u>TA</u>	BLE OF CONTENTS	<u>PAGE</u>
1.	SUBJECT OF THESE TEST GUIDELINES	3
2.	MATERIAL REQUIRED	
3.	METHOD OF EXAMINATION	
	3.1 Duration of Tests	
	3.2 Testing Place	
	3.3 Conditions for Conducting the Examination	
	3.4 Test Design	
	3.5 Number of Plants / Parts of Plants to be Examined	4
	3.6 Additional Tests	4
4.	ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY	4
	4.1 Distinctness	4
	4.2 Uniformity	5
	4.3 Stability	
5.	GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL	5
6.	INTRODUCTION TO THE TABLE OF CHARACTERISTICS	6
	6.1 Categories of Characteristics	6
	6.2 States of Expression and Corresponding Notes	6
	6.3 Types of Expression	6
	6.4 Example Varieties	7
	6.5 Legend	7
7.	TABLE OF CHARACTERISTICS/TABLEAU DES	
	CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES	
8.	EXPLANATIONS ON THE TABLE OF CHARACTERISTICS	
9.	LITERATURE	
10.	TECHNICAL QUESTIONNAIRE	16

$TG/54/7 \ Rev. \ 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24

- 3 -

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Brassica oleracea* L. var. *gemmifera* DC.

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 seeds or plants.
- 2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

for seed-propagated varieties: 20 g or at least 5,000 seeds; for vegetatively propagated varieties: 60 plants.

- 2.4 In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.
- 2.5 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.
- 2.6 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Duration of Tests

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

3.2 Testing Place

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be observed at that place, the variety may be tested at an additional place.

3.3 Conditions for Conducting the Examination

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.

$TG/54/7 \ Rev.\ 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24

- 4 -

3.3.1 Type of observation

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

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

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

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

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

3.4 Test Design

- 3.4.1 Each test should be designed to result in a total of at least 40 plants, which should be divided between two or more replicates.
- 3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test.

3.6 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The minimum duration of tests recommended in Section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

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

$TG/54/7 \; Rev. \; 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24

recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.2 Uniformity

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

4.2.1 Cross-pollinated varieties

The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.2 Vegetatively propagated varieties, single cross hybrids and self-pollinated varieties (inbred lines)

For the assessment of uniformity of vegetatively propagated varieties, single cross hybrids and self-pollinated varieties (inbred lines), a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 40 plants, 2 off-types are allowed.

4.2.3 Hybrids

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

4.3 Stability

- 4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.
- 4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.
- 4.3.3 The stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.

5. <u>Grouping of Varieties and Organization of the Growing Trial</u>

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

- 5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.
- 5.3 The following have been agreed as useful grouping characteristics:
 - (a) Plant: height (characteristic 1)
 - (b) Leaf blade: color (characteristic 5)
 - (c) Leaf blade: intensity of color (characteristic 6)
 - (d) Leaf blade: cupping (characteristic 8)
 - (e) Time of harvest maturity (characteristic 19)
 - (f) Male sterility (characteristic 21).
- 5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.
- 6. <u>Introduction to the Table of Characteristics</u>
- 6.1 Categories of Characteristics
 - 6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

6.3 Types of Expression

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

TG/54/7 Rev. 2 Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 7 -

6.4 Example Varieties

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

- 6.5 Legend
- (*) Asterisked characteristic see Section 6.1.2
- QL Qualitative characteristic see Section 6.3
- QN Quantitative characteristic see Section 6.3
- PQ Pseudo-qualitative characteristic see Section 6.3
- MG Single measurement of a group of plants or parts of plants see Section 3.3.1
- MS Measurement of a number of individual plants or parts of plants see Section 3.3.1
- VG Visual assessment by a single observation of a group of plants or parts of plants see Section 3.3.1
- VS Visual assessment by observation of individual plants or parts of plants see Section 3.3.1
- (+) See Explanations on the Table of Characteristics in Chapter 8

TG/54/7 Rev. 2 Brussels Sprout/Chou de Bruxelles/Rosenkohl/Col de Bruselas, 2004-03-31+ 2016-03-16 + 2023-10-24 - 8 -

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

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. (*)	VG/ MG	Plant: height	Plante: hauteur	Pflanze: Höhe	Planta: altura		
QN		short	basse	niedrig	baja	Jade Cross	3
		medium	moyenne	mittel	media	Cascade	5
		tall	haute	hoch	alta	Bridge	7
2.	VG	Plant: tendency to form a head	Plante: tendance à former une tête	Pflanze: Neigung zur Kopfbildung	Planta: tendencia a formar un repollo		
QN		absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Masterline	1
		weak	faible	gering	débil	Cyrus	3
		medium	moyenne	mittel	media	Bridge	5
		strong	forte	stark	fuerte	Cor	7
		very strong	très forte	sehr stark	muy fuerte	Oliver	9
3. (*)	VG	Leaf blade: size	Limbe: taille	Blattspreite: Größe	Limbo: tamaño		
QN		small	petit	klein	pequeño	Angus	3
		medium	moyen	mittel	mediano	Peer Gynt	5
		large	grand	groß	grande	Braveheart	7
4.	VG	Leaf blade: length	Limbe: longueur	Blattspreite: Länge	Limbo: longitud		
QN		short	court	kurz	corto	Prince Marvel	3
		medium	moyen	mittel	medio	Cascade	5
		long	long	lang	largo	Braveheart	7
5. (*)	VG	Leaf blade: color	Limbe: couleur	Blattspreite: Farbe	Limbo: color		
PQ		green	vert	grün	verde	Masterline	1
		blue green	vert-bleu	blaugrün	verde azulado	Angus	2
		purple	pourpre	purpur	púrpura	Rubine	3

TG/54/7 Rev. 2 Brussels Sprout/Chou de Bruxelles/Rosenkohl/Col de Bruselas, 2004-03-31+ 2016-03-16 + 2023-10-24 - 9 -

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6. (*)	VG	Leaf blade: intensity of color	Limbe: intensité de la couleur	Blattspreite: Intensität der Farbe	Limbo: intensidad del color		
QN		light	claire	hell	claro	Origus, Prince Marvel	3
		medium	moyenne	mittel	medio	Angus, Boxer	5
		dark	foncée	dunkel	oscuro	Estate, Placido, Rubine	7
7.	VG	Leaf blade: waxiness	Limbe: glaucescence	Blattspreite: Wachsschicht	Limbo: cerosidad		
QN		weak	faible	gering	débil	Evesham Special	3
		medium	moyenne	mittel	media	Peer Gynt	5
		strong	forte	stark	fuerte	Cavalier	7
8. (*)	VG	Leaf blade: cupping	Limbe: courbure	Blattspreite: Wölbung	Limbo: acopado		
QN		moderately convex	modérément convexe	mäßig konvex	moderadamente convexo		3
		plane	plane	flach	plano	Braveheart	5
		moderately concave	modérément concave	mäßig konkav	moderadamente cóncavo	Estate	7
		strongly concave	fortement concave	stark konkav	muy cóncavo	Explorer	9
9.	VG	Leaf blade: blistering	Limbe: cloqûre	Blattspreite: Blasigkeit	Limbo: abullonado		
QN		weak	faible	gering	débil	Cavalier	3
		medium	moyenne	mittel	medio	Masterline	5
		strong	forte	stark	fuerte	Breeze	7
10.	VG	Leaf blade: reflexing of margin	Limbe: enroulement du bord	Blattspreite: Randbiegung	Limbo: curvatura del margen		
QL		absent	absent	fehlend	ausente	Lunet, Masterline	1
		present	présent	vorhanden	presente	Breeze, Odessa	9

TG/54/7~Rev.~2Brussels Sprout/Chou de Bruxelles/Rosenkohl/Col de Bruselas, 2004-03-31+ 2016-03-16 + 2023-10-24 - 10 -

eiförmig obovate obovale verkehrt eiförmig oboval broad obovate obovale large breit verkehrt oboval ancha Odessa eiförmig			English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
horizontal horizontal waagerecht horizontal Angus semi pendulous demi-retombant halbhängend semi-colgante Odessa 12. VG Petiole: length compared to blade limbe Pétiole: longueur par rapport au limbe Verhältnis zur Peciolo: longitud en relación con el limbo Blattspreite QN moderately shorter modérément plus court equal égal gleich lang igual Masterline moderately longer modérément plus long modérément plus long modérément plus long modérément plus long moderately longer modérément plus long modérément plus long modérément plus long modérément plus long modérately longer modérément plus long modérément plus long modérately longer modérately longer modérément plus long modérately longer modérément plus long modérately longer modérately longer modérément plus long large l'étale: QN Petiole: anthocyanin Pétiole: pigmentation anthocyanique anthocyanifarbung pigmentación anthocyanique ausente o muy débil Revenge gering débil Brecze medium moyenne mittel media Odessa strong forte stark fuerte Prince Marvel very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section longitudinale CHOIS sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section longitudinale CHOIS sehr stark muy fuerte Rasalon PQD narrow obovate obovale détroite schmal verkehrt cifòrmig oboval estrecha Explorer cifòrmig obovale broad obovate obovale large breit verkehrt cifòrmig oboval ancha Odessa		VG	Petiole: attitude	Pétiole: port	Blattstiel: Haltung	Pecíolo: porte		
12. VG Petiole: length compared to blade Petiole: longueur par rapport au limbe Petiole: moderadamente más Petiole: moderadam	QN		semi erect	demi-dressé	halbaufrecht	semierecto	Montgomery	3
12. VG Petiole: length compared to blade par rapport au limbe Petiole: longueur par rapport au limbe Petiole: longueur par rapport au limbe Petiole: longitud en relación con el limbo Petiole: longitud en relación con el limbo Petiole: longitud en relación con el limbo Petiole: longitudinal en coloration Petiole: longitu			horizontal	horizontal	waagerecht	horizontal	Angus	5
Per compared to blade limbe li			semi pendulous	demi-retombant	halbhängend	semi-colgante	Odessa	7
court corto equal égal gleich lang igual Masterline moderately longer modérément plus long moderately longer modérément plus long 13. VG Petiole: anthocyanin Pétiole: pigmentation anthocyanique anthocyanique QN absent or very weak faible under gering débil Breeze medium moyenne mittel media Odessa strong forte stark fuerte Prince Marvel very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section (+) PQ narrow obovate obovale étroite schmal verkehrt eiförmig obovate broad obovate obovale large breit verkehrt eiförmig oboval ancha Odessa Explorer	12.	VG	_	par rapport au	Verhältnis zur	_		
moderately longer moderáment plus longer maßig länger moderadamente más largo 13. VG Petiole: anthocyanin coloration pigmentation anthocyanique pigmentation anthocyanique manthocyanique ausente o muy débil Revenge gering medium moyenne mittel media Odessa strong forte stark fuerte Prince Marvel very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section longitudinale (+) PQ narrow obovate obovale defroite schmal verkehrt ciförmig oboval estrecha breit verkehrt ciförmig Deciolo: pecíolo: pigmentación antociánica Pecíolo: pigmentación autociánica Pecíolo: pigmentación antociánica Pecíolo: pigmentación antociánica Pecíolo: pigmentación antociánica Pecíolo	QN		moderately shorter	•	mäßig kürzer		Braveheart	3
13. VG Petiole: anthocyanin coloration			equal	égal	gleich lang	igual	Masterline	5
Coloration pigmentation anthocyanique pigmentación antociánica Revenge gering débil Breeze weak faible gering débil Breeze medium moyenne mittel media Odessa strong forte stark fuerte Prince Marvel very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section (+)			moderately longer	_	mäßig länger		Odessa	7
weak faible gering débil Breeze medium moyenne mittel media Odessa strong forte stark fuerte Prince Marvel very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section longitudinale (+) PQ narrow obovate obovale étroite schmal verkehrt eiförmig oboval broad obovate obovale large breit verkehrt eiförmig oboval ancha Odessa	13.	VG	•	pigmentation		pigmentación		
medium moyenne mittel media Odessa strong forte stark fuerte Prince Marvel very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section longitudinale (+) PQ narrow obovate obovale étroite schmal verkehrt eiförmig oboval broad obovate obovale verkehrt eiförmig oboval broad obovate obovale large breit verkehrt eiförmig Odessa Explorer eiförmig oboval ancha Odessa	QN		absent or very weak	nulle ou très faible		ausente o muy débil	Revenge	1
strong forte stark fuerte Prince Marvel very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section (+) PQ narrow obovate obovale étroite schmal verkehrt eiförmig obovale broad obovate obovale large breit verkehrt eiförmig oboval ancha Odessa			weak	faible	gering	débil	Breeze	3
very strong très forte sehr stark muy fuerte Rasalon 14. VG Sprout: shape in longitudinal section longitudinale Längsschnitt PQ narrow obovate obovale étroite schmal verkehrt eiförmig oboval obovate obovale verkehrt eiförmig oboval broad obovate obovale large breit verkehrt eiförmig oboval ancha Odessa			medium	moyenne	mittel	media	Odessa	5
14. VG Sprout: shape in longitudinal section Bourgeon: forme en knospe: Form im section longitudinale Längsschnitt Yema: forma en sección longitudinal			strong	forte	stark	fuerte	Prince Marvel	7
PQ narrow obovate obovale étroite schmal verkehrt eiförmig oboval estrecha Explorer			very strong	très forte	sehr stark	muy fuerte	Rasalon	9
PQ narrow obovate obovale étroite schmal verkehrt eiförmig oboval estrecha Explorer eiförmig obovale verkehrt eiförmig oboval broad obovate obovale large breit verkehrt eiförmig oboval ancha Odessa eiförmig	14.	VG		O	_			
eiförmig obovate obovale verkehrt eiförmig oboval broad obovate obovale large breit verkehrt oboval ancha Odessa eiförmig	(+)			8	g			
broad obovate obovale large breit verkehrt oboval ancha Odessa eiförmig	PQ		narrow obovate	obovale étroite		oboval estrecha	Explorer	1
eiförmig			obovate	obovale	verkehrt eiförmig	oboval		2
simular simulaire busisfirmis simular Describer			broad obovate	obovale large		oboval ancha	Odessa	3
circular circulaire kreisformig circular Braveneart			circular	circulaire	kreisförmig	circular	Braveheart	4

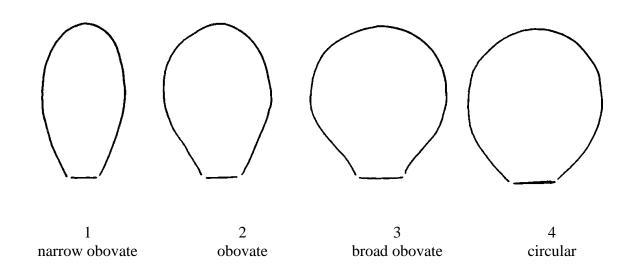
		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15.	VG	Sprout: color	Bourgeon: couleur	Knospe: Farbe	Yema: color		
PQ		green	vert	grün	verde	Estate	1
		blue green	vert-bleu	blaugrün	verde azulado	Cascade	2
		purple	pourpre	purpur	púrpura	Rubine	3
16.	VG	Sprout: intensity of color	Bourgeon: intensité de la couleur	Knospe: Intensität der Farbe	Yema: intensidad del color		
QN		light	claire	hell	claro	Prince Marvel	3
		medium	moyenne	mittel	medio	Estate	5
		dark	foncée	dunkel	oscuro	Placido, Rubine	7
17.	VG	Sprout: density at harvest maturity	Bourgeon: densité à maturité de récolte	Knospe: Dichte bei Erntereife	Yema: densidad en la madurez para la cosecha		
QN		loose	lâche	locker	laxa	Steffiline	3
		medium	moyenne	mittel	media	Angus	5
		dense	dense	dicht	densa	Prelent	7
18.	VG	Stem: spacing of sprouts	Tige: espacement entre les bourgeons	Sproß: Abstand zwischen den Knospen	Tallo: espaciado entre las yemas		
QN		narrow	faible	gering	estrecho	Estate, Prelent	3
		medium	moyen	mittel	medio	Cavalier, Cor	5
		wide	large	groß	ancho	Silverline	7
19. (*)	VG	Time of harvest maturity	Époque de maturité de récolte	Zeitpunkt der Erntereife	Época de madurez para la cosecha		
QN		very early	très précoce	sehr früh	muy temprana	Lancer, Oliver	1
		early	précoce	früh	temprana	Masterline, Peer Gynt	3
		medium	moyenne	mittel	media	Lunet, Odessa	5
		late	tardive	spät	tardía	Braveheart, Bridge	7
		very late	très tardive	sehr spät	muy tardía	Ulysses	9

TG/54/7~Rev.~2Brussels Sprout/Chou de Bruxelles/Rosenkohl/Col de Bruselas, 2004-03-31+ 2016-03-16 + 2023-10-24 - 12 -

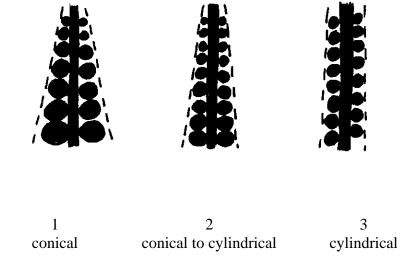
		present	présente	vorhanden	presente	Abacus, Platinus	9
QL		absent	absente	fehlend	ausente	Attis, Pontus	1
(+)							
21.	VS/ MS	Male sterility	Stérilité mâle	Männliche Sterilität	Androesterilidad		
		cylindrical	cylindrique	zylindrisch	cilíndrica	Angus, Braveheart	3
		conical to cylindrical	cónique à cylindrique	kegelförmig bis zylindrisch	cónica à cilíndrica	Regent, Setterline	2
QN		conical	conique	kegelförmig	cónica	Falstaff	1
(+)		sprout column	partie avec des bourgeons	einschließlich der Knospen	parte con las yemas		
20.	VG	Stem: profile of	Tige: profil de la	Sproß: Profil	Tallo: perfil de la		
		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota

8. Explanations on the Table of Characteristics

Ad. 14: Sprout: shape in longitudinal section



Ad. 20: Stem: profile of sprout column



TG/54/7 Rev. 2 Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 14 -

Ad. 21: Male sterility

To be tested in a field trial and/or in a DNA marker test¹.

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

Field trial:

Observations should be made on fully opened flowers. Tapping or shaking the flowering stem will release pollen, which, if present, can be observed on dark colored paper or card. The absence of pollen production is an indication of male sterility. The presence of pollen production is an indication of male fertility.



male fertile (pollen present)

male sterile (pollen absent)

DNA marker test:

If the cytoplasmic male sterility (CMS) marker is absent, the variety is expected to have male fertile flowers. If the CMS marker is present, the variety is expected to have male sterile flowers.

In cases where the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers due to another mechanism.

¹ 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.

$TG/54/7 \ Rev. \ 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 15 -

9. <u>Literature</u>

Tsunoda, S. Hinata, K. and Gomez-Campo, C. 1990: "Brassica Crops and Wild Allies - Biology and Breeding." Japan Scientific Societies Press, Tokyo, Japan

$TG/54/7 \ Rev. \ 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 16 -

10. <u>Technical Questionnaire</u>

TECH	HNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
			Application date: (not to be filled in by the applicant)
		CHNICAL QUESTIONS ection with an application	NAIRE on for plant breeders' rights
rights variet	s, and where the parent lines a	re to be submitted as a paire should be complet	an application for plant breeders' part of the examination of the hybrid ed for each of the parent lines, in
1.	Subject of the Technical Que	stionnaire	
	1.1 Latin Name	Prassica oleracea L. var	. gemmifera DC.
	1.2 Common Name	Brussels Sprout	
2.	Applicant		
	Name		
	Address		
	Telephone No.		
	Fax No.		
	E-mail address		
	Breeder (if different from ap	olicant)	
	L		
3.	Proposed denomination and	oreeder's reference	
	Proposed denomination (if available)		
	Breeder's reference		

$TG/54/7 \ Rev. \ 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 17 -

TEC	CHNI	CAL Q	UESTIONNAIRE	Page {x} of {y}	Reference Number:
4.	4. Information on the breeding scheme and propagation of the variety				
	4.1	Breed	ling scheme		
		Varie	ty resulting from:		
		4.1.1	Crossing		
			(a) controlled control	ross parent varieties)	[]
			(b) partially kno	own cross	[]
			(c) unknown cr	known parent variety(oss	[]
		4.1.2	Mutation (please state parer	nt variety)	[]
		4.1.3	Discovery and de- (please state wher and how develope	e and when discovered	[]
		4.1.4	Other (please provide de	etails)	[]
	4.2	Meth	od of propagating the	e variety	
		4.2.1	Seed-propagated va	rieties	
			(a) Self-pollination(b) Cross-pollination		[]
			(i) population		[]
			(ii) synthetic	variety	[]
			(c) Hybrid(d) Other		[]
			(d) Other (please provide	le details)	[]
		4.2.2	Vegetatively propag	rated varieties	[]
		4.2.3	Other (please provide deta	ils)	[]

TG/54/7 Rev. 2 Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 18 -

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

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
		Example varieties	Note
5.1 (1)	Plant: height		
	short	Jade Cross	3[]
	medium	Cascade	5[]
	tall	Bridge	7[]
5.2 (5)	Leaf blade: color		
	green	Masterline	1[]
	blue green	Angus	2[]
	purple	Rubine	3[]
5.3 (6)	Leaf blade: intensity of color		
	light	Origus, Prince Marvel	3[]
	medium	Angus, Boxer	5[]
	dark	Estate, Placido, Rubine	7[]
5.4 (8)	Leaf blade: cupping		
	moderately convex		3[]
	plane	Braveheart	5[]
	moderately concave	Estate	7[]
	strongly concave	Explorer	9[]

TG/54/7 Rev. 2 Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 19 -

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

	Characteristics	Example Varieties	Note
5.5 (19)	Time of harvest maturity		
	very early	Lancer, Oliver	1[]
	early	Masterline, Peer Gynt	3[]
	medium	Lunet, Odessa	5[]
	late	Bridge, Braveheart	7[]
	very late	Ulysses	9[]
5.6 (21)	Male sterility		
	absent	Attis, Pontus	1[]
	present	Abacus, Platinus	9[]

6. Similar varieties and differences from these varieties

Please use the table, and space provided for comments, below 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	Characteristic(s) in	Describe the expression	Describe the expression
variety(ies) similar to	which your candidate	of the characteristic(s)	of the characteristic(s)
your candidate variety	variety differs from the	for the similar	for your candidate
	similar variety(ies)	variety(ies)	variety
Example	Plant: height	short	medium
Comments:			

$TG/54/7 \ Rev. \ 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 20 -

TEC	HNICA	L QUES	STIONNAIRE	Page {	x} of {	y}	Reference Number:
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	Special conditions for the examination of the variety						
	7.2.1 Are there any special conditions for growing the variety or conducting the examination?						
		Yes	[]		No	[]	
	7.2.2	If yes	s, please give det	ails:			
7.3	Other	informa	tion				
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.						

$TG/54/7 \ Rev. \ 2$ Brussels Sprout, 2004-03-31 + 2016-03-16 + 2023-10-24 - 21 -

TECH	INICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:			
9. Information on plant material to be examined. 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 express request	The plant material should not ssion of the characteristics of st such treatment. If the plant n	the variety, unless the naterial has undergone respect, please indic	creatment which would affect the e competent authorities allow or such treatment, full details of the ate below, to the best of your bjected to:			
	(a) Microorganisms (e.g. vir	us, bacteria, phytoplasi	ma) Yes [] No []			
	(b) Chemical treatment (e.g.	growth retardant or pe	sticide) Yes [] No []			
	(c) Tissue culture		Yes [] No []			
	(d) Other factors		Yes [] No []			
	Please provide details of where you have indicated "yes":					
10.	•	st of my knowledge, the	e information provided in this form			
	Applicant's name					
	Signature		Date			

[End of document]