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**INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS**

GENEVA

**DRAFT**

**CABBAGE**

*(Brassica oleracea L. convar. capitata (L.) Alef.)*

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

*to be considered by the  
Technical Working Party for Vegetables at its thirty-seventh session,  
to be held in Roelofarendsveen, Netherlands, from June 23 to 27, 2003*

Alternative Names: \*

<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
Brassica oleracea L. convar. capitata (L.) Alef.)	Cabbage	Chou pommé	Kopfkohl	Col, Repollo

**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](http://www.upov.int)), for the latest information.]

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## 1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of Brassica oleracea L. convar. capitata (L.) Alef. var. alba DC., B. oleracea L. convar. capitata (L.) Alef. var. rubra DC. and B. oleracea L. convar. capitata (L.) Alef. var. sabauda DC. and hybrids between these three groups.

## 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:

5000 seeds.

2.4 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.]

2.5 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 [similar] 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.

#### 3.3.x Type of observation – visual or measurement

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 should be made on 20 plants or parts taken from each of 20 plants.

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

### 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.x] **ASW 8** [The assessment of uniformity [for cross-pollinated varieties] should be according to the recommendations for cross-pollinated varieties in the General Introduction.]

[4.2.x] [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.]

[4.2.x] [For the assessment of uniformity of seed-propagated varieties, the recommendations in the General Introduction for / [cross-pollinated] / [hybrid] varieties should be followed, as appropriate.]

[4.2.x] [For the assessment of uniformity, 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.]

*Different standard for inbred lines? How to deal with this category?*

### 4.3 *Stability*

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

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

#### 4.4 *Disease characteristics*

When resistance characteristics are used for assessing distinctness, homogeneity and stability, records must be taken under conditions of controlled infection..

*This sentence should be kept.*

### 5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

- (a) Head: shape of longitudinal section (characteristic 18)
- (b) Head: diameter (characteristic 21)
- (c) Head: density (characteristic 31)
- (d) Time of harvest maturity (characteristic 34)

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

### 6. Introduction to the Table of Characteristics

#### 6.1 *Categories of Characteristics*

##### 6.1.1 Standard Test Guidelines Characteristics

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

##### 6.1.2 Asterisked Characteristics

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

## 6.2 *States of Expression and Corresponding Notes*

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

## 6.3 *Types of Expression*

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

## 6.4 *Example Varieties*

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

6.4.2 Unless the characteristic itself is limited to one subspecies, the example varieties are always followed by an indication of the subspecies they belong to, as follows:

(W): white cabbage

(R): red cabbage

(S): Savoy cabbage.

## 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

(+) 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
<b>1.1 VG</b> <b>(*)</b>	<b><u>White cabbage</u></b> <b><u>only Plant: height</u></b>	<b><u>Chou cabus</u></b> <b><u>seulement Plante:</u></b> <b><u>hauteur</u></b>	<b><u>Nur Weisskohl:</u></b> <b><u>Pflanze: Höhe</u></b>			
	very short	très basse	sehr niedrig			1
	short	basse	niedrig		Gouden Akker, Minicole	3
	medium	moyenne	mittel		Marner Lagerweiss, Strukton	5
	tall	haute	hoch		Amager hochstrunkig, Turner, Zerlina	7
	very tall	très haute	sehr hoch		Filderkraut	9
<b>1.2 VG</b> <b>(*)</b>	<b><u>Red cabbage only:</u></b> <b><u>Plant: height</u></b>	<b><u>Chou rouge</u></b> <b><u>seulement: Plante:</u></b> <b><u>hauteur</u></b>	<b><u>Nur Rotkohl:</u></b> <b><u>Pflanze: Höhe</u></b>			
	very short	très basse	sehr niedrig		Langedijker Aller- vroegste, Primero	1
	short	basse	niedrig		Marner Frührotkohl, Ruby Ball	3
	medium	moyenne	mittel		Allrot, Roxy	5
	tall	haute	hoch		Langedijker Bewaar 3, Langedijker Herfst, Rovita	7
	very tall	très haute	sehr hoch			9
<b>1.3 VG</b> <b>(*)</b>	<b><u>Savoy cabbage</u></b> <b><u>only: Plant: height</u></b>	<b><u>Chou de Milan</u></b> <b><u>seulement: Plante:</u></b> <b><u>hauteur</u></b>	<b><u>NurWirsing:</u></b> <b><u>Pflanze: Höhe</u></b>			
	very short	très basse	sehr niedrig			1
	short	basse	niedrig		Fitis, Vorbote 2	3
	medium	moyenne	mittel		Marner Grünkopf	5
	tall	haute	hoch		Hammer, Roi de l'hiver 2	7
	very tall	très haute	sehr hoch		Bloemendaalse Gele	9



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>2.1 VG</b>	<b><u>White cabbage only:</u> Plant: maximum diameter (including outer leaves)</b>	<b><u>Chou cabus seulement:</u> Plante: diamètre maximal (y compris les feuilles externes)</b>	<b><u>Nur Weisskohl:</u> Pflanze: maximaler Durchmesser (einschliesslich Umblätter)</b>			
	small	petit	klein		Wiam, Minicole	3
	medium	moyen	mittel		Marnier Augustkohl, Minicole	5
	large	grand	gross		Roem van Enkhuizen 2, Robuster	7
<b>2.2 VG</b>	<b><u>Red cabbage only:</u> Plant: maximum diameter (as for 2.1)</b>	<b><u>Chou rouge seulement:</u> Plante: diamètre maximal (comme pour 2.1)</b>	<b><u>Nur Rotkohl:</u> Pflanze: maximaler Durchmesser (wie unter 2.1)</b>			
	small	petit	klein		Frührot, Primero	3
	medium	moyen	mittel		Allrot, Ruby Ball	5
	large	grand	gross		Marnier Septemberrot, Rovita	7
<b>2.3 VG</b>	<b><u>Savoy cabbage only:</u> Plant: maximum diameter (as for 2.1)</b>	<b><u>Chou de Milan seulement:</u> Plante: diamètre maximal (comme pour 2.1)</b>	<b><u>Nur Wirsing:</u> Pflanze: maximaler Durchmesser (wie unter 2.1)</b>			
	small	petit	klein		Vorbote 2	3
	medium	moyen	mittel		Marnier Grünkopf	5
	large	grand	gross		Hammer	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>3. VG</b>	<b>Plante: length of outer stem</b>	<b>Plante: longueur du pied</b>	<b>Pflanze: Länge des Aussenstrunks</b>			
	short	court	kurz		Braunschweiger(W), Spivoy(S), Vorox(R), Minicole (W)	3
	medium	moyen	mittel		Belvoy(S), Lange- dijker Bewaar 2(R), September(W), Bartolo (W)	5
	long	long	lang		Amager hochstrunkig (W), Pampa(S), Robuster (W)	7
<b>4. VG (* )</b>	<b>Plant: attitude of outer leaves</b>	<b>Plante: port des feuilles externes</b>	<b>Pflanze: Stellung der Umblätter</b>			
	erect	dressé	aufrecht		Filderkraut (W), Slawdena (W)	3
	semi-erect	demi-dressé	halbaufrecht		Braunschweiger (W)	5
	horizontal	horizontal	waagerecht		Christmas Drumhead {W}, Spring Hero (W)	7
<b>5.1 VG (* )</b>	<b><u>White cabbage only: Outer leaf: size</u></b>	<b><u>Chou cabus seulement: Feuille externe: taille</u></b>	<b><u>Nur Weisskohl: Umblatt: Grösse</u></b>			
	small	petite	klein		Golden Cross	3
	medium	moyenne	mittel		Braunschweiger, Marner Lagerweiss, Atria	5
	large	grande	gross		Thurner, Robustor	7
<b>5.2 VG (* )</b>	<b><u>Red cabbage only: Outer leaf: size</u></b>	<b><u>Chou rouge seulement: Feuille externe: taille</u></b>	<b><u>Nur Rotkohl: Umblatt: Grösse</u></b>			
	small	petite	klein		Langedijker Aller vroegste, Primero	3
	medium	moyenne	mittel		Langedijker Vroege, Ruby Ball	5
	large	grande	gross		Marner Lagerrot, Langedijker Herfst, Rovita	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>5.3 VG</b> (* )	<b><u>Savoy cabbage</u></b> <b><u>only: Outer leaf:</u></b> <b><u>size</u></b>	<b><u>Chou de Milan</u></b> <b><u>seulement: Feuille</u></b> <b><u>externe: taille</u></b>	<b><u>Nur Wirsing:</u></b> <b><u>Umblatt: Grösse</u></b>			
	small	petite	klein		Promasa	3
	medium	moyenne	mittel		Belvoy	5
	large	grande	gross		Vertus 3	7
<b>6. VG</b>  (+)	<b><u>Outer leaf: shape</u></b> <b><u>of blade</u></b>	<b><u>Feuille externe:</u></b> <b><u>forme du limbe</u></b>	<b><u>Umblatt: Form</u></b> <b><u>der Spreite</u></b>			
	broad elliptic	elliptique large	breit elliptisch		Filderkraut (W)	1
	broad ovate	ovale large	breit eiförmig		September (W)	2
	circular	arrondi	rund		Wiam (W)	3
	transverse broad elliptic	elliptique transverse large	quer breit elliptisch		Rookie (R)	4
	broad obovate	obovale large	breit verkehrt eiförmig		Marksman(W)	5
<b>7. VG</b>	<b><u>Outer leaf: profile</u></b> <b><u>of upper side of</u></b> <b><u>blade</u></b>	<b><u>Feuille externe:</u></b> <b><u>profil de la face</u></b> <b><u>supérieure du</u></b> <b><u>limbe</u></b>	<b><u>Umblatt: Profil</u></b> <b><u>der</u></b> <b><u>Spreitenoberseite</u></b>			
	concave	concave	konkav		Celsa (S), Slawdena (W)	1
	plane	plan	eben		Allrot (R), Golden Cross (W)	2
	convex	convexe	konvex		Comparsa (S)	3
<b>8.1 VG</b> (* )	<b><u>White cabbage</u></b> <b><u>only: Outer leaf:</u></b> <b><u>blistering</u></b>	<b><u>Chou cabus</u></b> <b><u>seulement: Feuille</u></b> <b><u>externe: cloûte</u></b>	<b><u>Nur Weisskohl:</u></b> <b><u>Umblatt:</u></b> <b><u>Blasigkeit</u></b>			
	absent or very weak	nulle ou très faible	fehlend oder sehr gering		Slawdena	1
	weak	faible	gering		Copenhagen Market 2	3
	medium	moyenne	mittel		Fieldrocket	5
	strong	forte	stark		Roem van Enkhuizen 3	7
	very strong	très forte	sehr stark			9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>8.2 VG</b> <b>(*)</b>	<b><u>Red cabbage only:</u></b> <b>Outer leaf:</b> <b>blistering</b>	<b><u>Chou rouge</u></b> <b>seulement:</b> Feuille <b>externe:</b> cloûtre	<b><u>Nur Rotkohl:</u></b> <b>Umblatt:</b> <b>Blasigkeit</b>			
	absent or very weak	nulle ou très faible	fehlend oder sehr gering		Rookie	1
	weak	faible	gering		Langedijker Bewaar 3	3
	medium	moyenne	mittel		Langedijker Herfst	5
	strong	forte	stark		Kissendrup	7
	very strong	très forte	sehr stark			9
<b>8.3 VG</b> <b>(*)</b>	<b><u>Savoy cabbage</u></b> <b>only: Outer leaf:</b> <b>blistering</b>	<b><u>Chou de Milan</u></b> <b>seulement:</b> Feuille <b>externe:</b> cloûtre	<b><u>Nur Wirsing:</u></b> <b>Umblatt:</b> <b>Blasigkeit</b>			
	absent or very weak	nulle ou très faible	fehlend oder sehr gering		De Pointoise 2	1
	weak	faible	gering		Celsa	3
	medium	moyenne	mittel		Savoy King	5
	strong	forte	stark		Hammer	7
	very strong	très forte	sehr stark		Novusa, Roi de l'hiver 2	9
<b>9.1 VG</b> <b>(*)</b>	<b><u>White and red</u></b> <b>cabbage only:</b> <b>Outer leaf: size of</b> <b>blisters</b>	<b><u>Chou cabus et chou</u></b> <b>rouge seulement:</b> <b>Feuille externe:</b> <b>taille des cloûtres</b>	<b><u>Nur Weisskohl</u></b> <b>und Rotkohl:</b> <b>Umblatt: Grösse</b> <b>der Blasen</b>			
	small	petites	klein		Allrot (R), Hispi (W)	3
	medium	moyennes	mittel		Kissendrup (R), Roem van Enkhuizen 2 (W)	5
	large	grandes	gross		Jason(W)	7
<b>9.2 VG</b> <b>(*)</b>	<b><u>Savoy cabbage</u></b> <b>only: Outer leaf:</b> <b>size of blisters</b>	<b><u>Chou de</u></b> <b>Milanseulement:</b> <b>Feuille externe:</b> <b>taille des cloûtres</b>	<b><u>Nur Wirsing:</u></b> <b>Umblatt: Grösse</b> <b>der Blasen</b>			
	small	petites	klein		Roi de l'hiver 2	3
	medium	moyennes	mittel		Hammer	5
	large	grandes	gross		Vertus 2	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>10. VG</b> (* )	<b><u>Savoy cabbage</u> only: Outer leaf: crimping</b>	<b><u>Chou de Milan</u> seulement: Feuille externe: frisure</b>	<b><u>Nur Wirsing:</u> Umblatt: Kräuselung</b>			
	weak	faible	gering		Dauerwirsing	3
	medium	moyenne	mittel		Savoy King	5
	strong	forte	stark		Hammer	7
<b>11. VG</b> (* )	<b>Outer leaf: color (with wax)</b>	<b>Feuille externe: couleur (avec pruine)</b>	<b>Umblatt: Farbe (mit Wachs)</b>			
	yellow green	vert jaune	gelbgrün		April (W)	1
	green	verte	grün		Hammer (S)	2
	grey green	vert gris	graugrün		Roi de l'hiver 2 (S), Bison (W), Gloria (W)	3
	blue green	vert bleu	blaugrün		Market Price (W)	4
	violet	violette	violett		Langedijker Bewaar 2 (R)	5
<b>12. VG</b> (* )	<b>Outer leaf: intensity of color</b>	<b>Feuille externe: intensité de la couleur</b>	<b>Umblatt: Intensität der Farbe</b>			
	light	claire	hell			3
	medium	moyenne	mittel			5
	dark	foncée	dunkel			7
<b>13. VG</b>	<b><u>Red cabbage only:</u> Outer leaf: green flush</b>	<b><u>Chou rouge</u> seulement: Feuille externe: teinte verte diffuse</b>	<b><u>Nur Rotkohl:</u> Umblatt: grüner Anflug</b>			
	absent	absente	fehlend		Kissendrup, Autoro	1
	present	présente	vorhanden		Roxy, Kempero	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>14. VG</b>	<b>Outer leaf: waxiness</b>	<b>Feuille externe: pruine</b>	<b>Umblatt: Wachsschicht</b>			
	absent or very weak	nulle ou très faible	fehlend oder sehr gering		First of June (W)	1
	weak	faible	gering		Derby Day (W), Octoking (W)	3
	medium	moyenne	mittel		Celtic (S), Wiam (W)	5
	strong	forte	stark		Turner(W), Bison (W)	7
	very strong	très forte	sehr stark		Rivera (W), Indaro (R)	9
<b>15. VG</b>	<b>Outer leaf: undulation of margin</b>	<b>Feuille externe: ondulation du bord</b>	<b>Umblatt: Wellung des Randes</b>			
	absent or very weak	nulle ou très faible	fehlend oder sehr gering		Minicole (W)	1
	weak	faible	gering		Holsteiner platter (W)	3
	medium	moyenne	mittel		Dacato (S), Saturn (W)	5
	strong	forte	stark		Snovoy (S)	7
	very strong	très forte	sehr stark		Roxy (R)	9
<b>16. (to be deleted)</b>	<b>Outer leaf: incisions of margin</b>	<b>Feuille externe: incisions du bord</b>	<b>Umblatt: Randeinschnitte</b>			
	absent	absentes	fehlend		Krypton (W)	1
	present	présentes	vorhanden		Bartolo (W)	9
<b>17. VG</b>	<b>Outer leaf: reflexion of margin</b>	<b>Feuille externe: réflexion du bord du limbe</b>	<b>Umblatt: Biegung des Randes</b>			
	absent	absente	fehlend		Slawdena (W)	1
	present	présente	vorhanden		Rinda (W)	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>18. VG</b> <b>(*)</b>	<b>Head: shape of longitudinal section</b>	<b>Pomme: forme de la section longitudinale</b>	<b>Kopf: Form des Längs schnitts -</b>			
(+)	transverse narrow elliptic	aplatie	quer schmal elliptisch		Braunschweiger (W)	1
	transverse elliptic	arrondie aplatie	quer elliptisch		De Pointoise 2 (S), Centurion, Conquistador	2
	circular	circulaire	rund		Roem van Enkhuizen 2 (W), Octoking	3
	broad elliptic	elliptique large	breit elliptisch		Langedijker Herfst (R)	4
	broad obovate	obovale large	breit verkehrt eiförmig		Langedijker Bewaar (W)	5
	broad ovate	ovale large	breit eiförmig		Cape Horn (W)	6
	angular ovate	ovale à sommet pointu	spitz eiförmig		Hispi (W), Filderkraut	7
<b>19. VG</b>	<b>Head: shape of base in longitudinal section</b>	<b>Pomme: forme de la base en section longitudinale</b>	<b>Kopf: Form der Basis im Längsschnitt</b>			
(+)	raised	proéminente	vorgewölbt			1
	level	droite	gerade			3
	arched	arquée	eingesenkt			5
<b>20. VG</b>	<b>Head: length</b>	<b>Pomme: longueur</b>	<b>Kopf: Länge</b>			
	short	courte	kurz		Marnier Allfrüh (W), Vorbote 2 (S)	3
	medium	moyenne	mittel		Belvoy (S), Pampa (S)	5
	long	longue	lang		Offenham 3 (W)	7
<b>21. VG</b> <b>(*)</b>	<b>Head: diameter</b>	<b>Pomme: diamètre</b>	<b>Kopf: Durchmesser</b>			
	small	petit	klein		Marnier Allfrüh (W), Vorbote 2 (S)	3
	medium	moyen	mittel		Celsa (S), Pampa (S)	5
	large	grand	gross		Braunschweiger (W), Quintal d'Alsace (W)	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>22. VG</b>	<b>Head: position of maximum diameter</b>	<b>Pomme: position du diamètre maximal</b>	<b>Kopf: Position des maximalen Durchmessers</b>			
	towards top	vers le sommet	zur Spitze hin		Slawdena (W)	1
	at middle	au milieu	in der Mitte		Derby Day (W), Gouden Akker (W)	2
	towards base	vers la base	zur Basis hin		Hispi (W)	3
<b>23. VG</b>	<b>Head: cover</b>	<b>Pomme: couverture</b>	<b>Kopf: Schluss</b>			
(+)	uncovered	découverte	nicht gedeckt		Late Putjes (S)	1
	partially covered	partiellement couverte	teilweise gedeckt		Holsteiner platter (W)	2
	covered	couverte	gedeckt		Langedijker Bewaar 2 (R)	3
<b>24. VG (*)</b>	<b><u>Savoy cabbage</u> only: Head: blistering of cover leaf</b>	<b><u>Chou de Milan</u> seulement: Pomme: frisure de la feuille de couverture</b>	<b><u>Nur Wirsing:</u> Kopf: Kräuselung des Deckblattes</b>			
	absent or very weak	nulle ou très faible	fehlend oder sehr gering		De Pointoise 2	1
	weak	faible	gering		Celtic	3
	medium	moyenne	mittel		Julius	5
	strong	forte	stark		Hammer	7
	very strong	très forte	sehr stark		Roi de l'hiver 2	9
<b>25. VG</b>	<b>Head: reflexion of margin of cover leaf</b>	<b>Pomme: réfléchissement du bord de la feuille de couverture</b>	<b>Kopf: Randbiegung des Deckblattes</b>			
	absent	absent	fehlend		Morgan (W), Apex (W)	1
	present	présent	vorhanden		Orbit (W)	9



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>26. VG</b> (* )	<b>Head: color of cover leaf</b>	<b>Pomme: couleur de la feuille de couverture</b>	<b>Kopf: Farbe des Deckblattes</b>			
	yellow green	vert jaune	gelbgrün		April (W), Octoking (W)	1
	green	verte	grün		Hammer (S)	2
	grey green	vert gris	graugrün		Roi de l'hiver 2 (S)	3
	blue green	vert bleu	blaugrün			4
	violet	violette	violett		Kissendrup (R)	5
<b>27. VG</b>	<b>Head: intensity of color of cover leaf</b>	<b>Pomme: intensité de la couleur de la feuille de couverture</b>	<b>Kopf: Intensität der Farbe des Deckblattes</b>			
	light	claire	hell			3
	medium	moyenne	mittel			5
	dark	foncée	dunkel			7
<b>28. VG</b>	<b><u>White cabbage and Savoy cabbage only:</u> Head: anthocyanin coloration of cover leaf</b>	<b><u>Chou cabus et chou de Milan seulement:</u> Pomme: pigmentation anthocyanique de la feuille de couverture</b>	<b><u>Nur Weisskohl und Wirsing:</u> Anthocyanfärbung des Deckblattes</b>			
	absent or very weak	absente ou très faible	fehlend oder sehr gering		Hammer (S)	1
	weak	faible	gering		Slawdena (W)	3
	medium	moyenne	mittel		De Pointoise 2 (S)	5
	strong	forte	stark		Marabel (S)	7
	very strong	très forte	sehr stark			9
<b>29. VG</b> (* )	<b>Head: internal color</b>	<b>Pomme: couleur interne</b>	<b>Kopf: Innenfarbe</b>			
	whitish	blanchâtre	weisslich		Slawdena (W)	1
	yellowish	jaunâtre	gelblich		Langedijker Bewaargele (S)	2
	greenish	verdâtre	grünlich			3
	violet	Violette	violett		Coeur de boeuf gros(W)	4

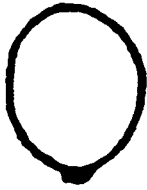
	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>30. VG</b>	<b><u>Red Cabbage</u> only: Head: intensity of internal color</b>	<b><u>Chou rouge</u> seulement: Pomme: intensité de la couleur interne</b>	<b><u>Nur Rotkohl:</u> Kopf: Intensität der Innenfarbe</b>			
	light	claire	hell			3
	medium	moyenne	mittel			5
	dark	foncée	dunkel			7
<b>31. VG (* )</b>	<b>Head: density</b>	<b>Pomme: densité</b>	<b>Kopf: Dichte</b>			
	very loose	très lâche	sehr locker		Mignon (W)	1
	loose	lâche	locker		Hornspi (W)	3
	medium	moyenne	mittel		Dacato (S), Spivoy (S)	5
	dense	dense	dicht		Pampa (S)	7
	very dense	très dense	sehr dicht		Slawdena (W)	9
<b>32. VG</b>	<b>Head: internal structure</b>	<b>Pomme: structure interne</b>	<b>Kopf: Innenstruktur</b>			
	fine	fine	fein		Slawdena (W), Quintal d'Alsace (W)	3
	medium	moyenne	mittel		Langedijker Herbst (R)	5
	coarse	grossière	grob		Roem van Enkhuizen 2 (W), Filderkraut (W)	7
<b>33. VG (* )</b>	<b>Head: length of interior stem (in relation to length of head)</b>	<b>Pomme: longueur du trognon (par rapport à la longueur de la pomme)</b>	<b>Kopf: Länge des Innenstrunkes (im Verhältnis zur Länge des Kopfes)</b>			
	short	court	kurz		Erdeno (W)	3
	medium	moyen	mittel		Slawdena (W)	5
	long	long	lang		Belvoy (S), Braunschweiger (W)	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>34.1 VG</b> (* )	<b><u>White cabbage</u> only: Time of harvest maturity</b>	<b><u>Chou cabus</u> seulement: Epoque de maturité de récolte</b>	<b><u>Nur Weisskohl:</u> Zeitpunkt der Erntereife</b>			
	very early	très précoce	sehr früh		Golden Cross	1
	early	précoce	früh		Green Express, Hijula	3
	medium	moyenne	mittel		Roem van Enkhuizen 2	5
	late	tardive	spät		Holsteiner platter, Marnier Lagerweiss, Strukton	7
	very late	très tardive	sehr spät		Bartolo	9
<b>34.2 VG</b>	<b><u>Red cabbage only:</u> Time of harvest maturity</b>	<b><u>Chou rouge</u> seulement: Epoque de maturité de récolte</b>	<b><u>Nur Rotkohl:</u> Zeitpunkt der Erntereife</b>			
	early	précoce	früh		Langedijker Vroege, Normiro, Ruby Ball	3
	medium	moyenne	mittel		Langedijker Herbst, Marnier Septemberrot, Aurore	5
	late	tardive	spät		Langedijker Bewaar 2, Marnier Lagerrot, Huzaro	7
<b>34.3 VG</b>	<b><u>Savoy cabbage</u> only: Time of harvest maturity</b>	<b><u>Chou de Milan</u> seulement: Epoque de maturité de récolte</b>	<b><u>Nur Wirsing:</u> Zeitpunkt der Erntereife</b>			
	very early	très précoce	sehr früh		Spivoy	1
	early	précoce	früh		Walasa	3
	medium	moyenne	mittel		Belvoy	5
	late	tardive	spät		Hammer	7
	very late	très tardive	sehr spät		Alexander's No.1	9

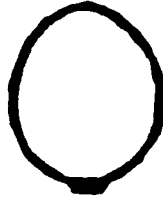
	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>35. VG</b>	<b>Time of bursting of head after maturity</b>	<b>Epoque de l'éclatement de la pomme après maturité</b>	<b>Zeitpunkt des Platzens des Kopfes nach der Reife</b>			
	early	précoce	früh		Winnigstadt (W)	3
	medium	moyenne	mittel		Pluton, Ruby Ball (R)	5
	late	tardive	spät		Quisto (W)	7
<b>36. VS</b>	<b>Resistance to race 1 of Fusarium oxysporum f. sp. conglutinans</b>	<b>Résistance à la race 1 de Fusarium oxysporum f. sp. conglutinans</b>	<b>Resistenz gegen Pathotyp 1 von Fusarium oxysporum f. sp. conglutinans</b>			
(+)	absent	absente	fehlend		Roem van Enkhuizen 2 (W)	1
	present	présente	vorhanden		Delight YR (W), Gloria (W)	9

8. Explanations on the Table of Characteristics

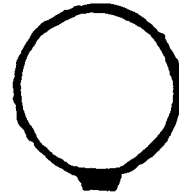
Ad.6: Outer leaf: shape of blade



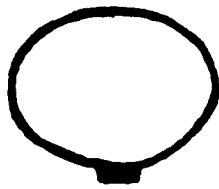
1  
broad elliptic



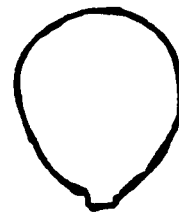
2  
broad ovate



3  
circular



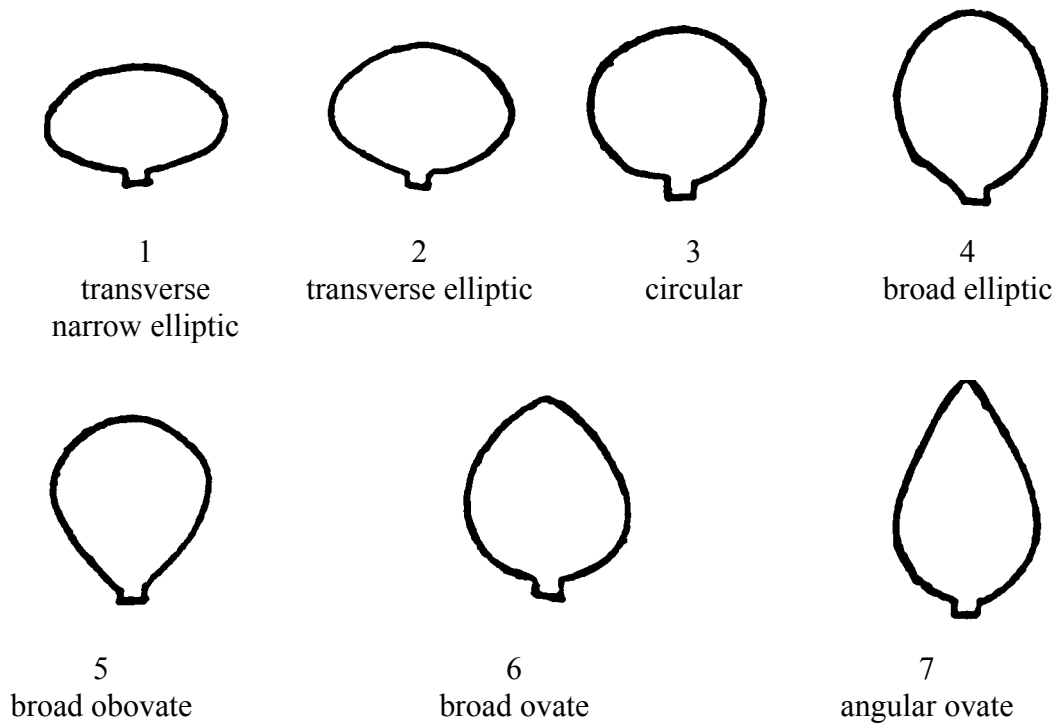
4  
transverse broad elliptic



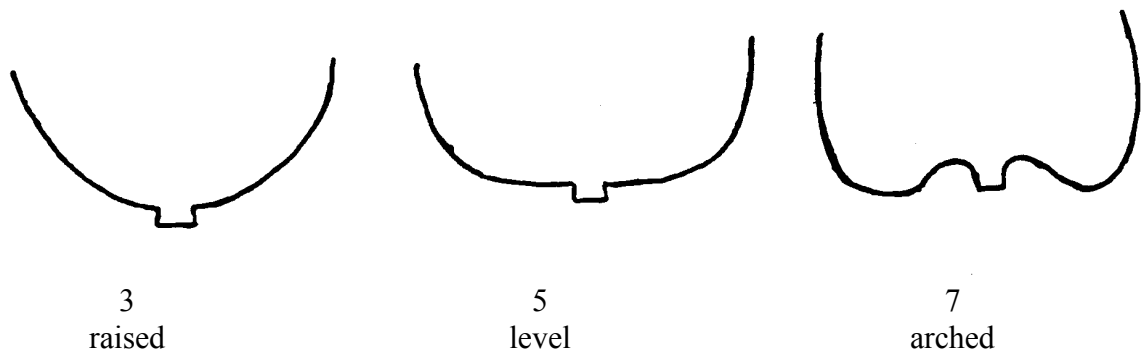
5  
broad obovate

The leaf should be flattened out as far as possible before observation.

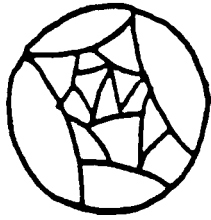
Ad.18: Head: shape of longitudinal section



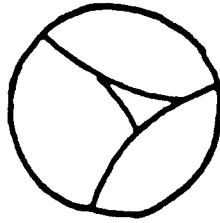
Ad. 19: Head: shape of base in longitudinal section



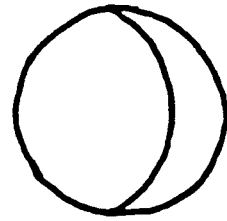
Ad. 23: Head: cover



1  
uncovered



2  
semi-covered



3  
covered

Ad. 36: Resistance to race 1 of *Fusarium oxysporum* f. sp. *conglutinans*

Maintenance of races

Type of medium:	on agar medium at 20°C
Special conditions	multiplication by passing on parts of the agar medium to liquid Czapek-Dox-Broth. This liquid medium must be shaken permanently.

Execution of test

Growth stage of plants:	young plants, about two weeks after sowing
Temperature:	about 25°C
Light:	normal glasshouse conditions
Growing method:	seeds sown in peat soil at rather low temperature
Method of inoculation:	roots of lifted young plants are soaked during 5 minutes in a suspension of spores and parts of mycelium, thereafter replanting
Duration of test:	
- from sowing to inoculation:	2 weeks
- from inoculation to reading:	first symptoms 7 days after inoculation, final reading 18 days after inoculation
Number of plants tested:	30
Remarks:	The disease might be a quarantine-disease in some countries. Race 1 of this pathogen is common; very rarely other races occur.

9. Literature

Higgins, J., Sparks, T.H., Evans, J.L. and Law, J.R., 1986: "Crop Identification of Some Brassica oleracea Cultivars," Acta Horticulturae, 182, pp. 285-291

Jensma, J.R., 1956: "Cabbage Varieties," Instituut voor de veredeling van tuinbouwgewassen, Wageningen, NL

Nieuwhof, 1969: "Cole Crops: Botany, Cultivation and Utilization," London, Leonard Hill, GB

Tsunoda, S., Hinaka, K. and Gomez-Campo, C., 1980: "Brassica Crops and Wild Allies- Biology and Breeding," Japan Scientific Societies Press, Tokyo, JP



10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
<p>TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p> <p><b>ASW 13</b> [In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.]</p>		
1. Subject of the Technical Questionnaire		
1.1 Latin Name	<input type="text" value="Brassica oleracea L. convar. capitata (L.) Alef."/>	
1.2 Common Name	<input type="text" value="Cabbage"/>	
2. Applicant		
Name	<input type="text"/>	
Address	<input type="text"/>	
Telephone No.	<input type="text"/>	
Fax No.	<input type="text"/>	
E-mail address	<input type="text"/>	
Breeder (if different from applicant)	<input type="text"/>	
3. Proposed denomination and breeder's reference		
Proposed denomination (if available)	<input type="text"/>	
Breeder's reference	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme **ASW 15**

[Variety resulting from:

4.1.1 Crossing

- (a) controlled cross [ ]  
(please state parent varieties)
- (b) partially known cross [ ]  
(please state known parent variety(ies))
- (c) totally unknown cross [ ]

4.1.2 Mutation [ ]  
(please state parent variety)

4.1.3 Discovery [ ]  
(please state where, when and how developed)

4.1.4 Other [ ]  
(please provide details)]

4.2 Method of propagating the variety

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
<b>5.1a</b> <u>White cabbage only</u> <b>Plant: height</b> <b>(1.1)</b>		
very short		1[ ]
short	Gouden Akker, Minicole	3[ ]
medium	Marnier Lagerweiss, Strukton	5[ ]
tall	Amager hochstrunkig, Thurner, Zerlina	7[ ]
very tall	Filderkraut	9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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<b>5.1b <u>Red cabbage only:</u> Plant: height</b> <b>(1.2)</b>			
very short		Langedijker Aller- vroegste, Primero	1[ ]
short		Marner Frührotkohl, Ruby Ball	3[ ]
medium		Allrot, Roxy	5[ ]
tall		Langedijker Bewaar 3, Langedijker Herfst, Rovita	7[ ]
very tall			9[ ]
<b>5.1c <u>Savoy cabbage only:</u> Plant: height</b> <b>(1.3)</b>			
very short			1[ ]
short		Fitis, Vorbote 2	3[ ]
medium		Marner Grünkopf	5[ ]
tall		Hammer, Roi de l'hiver 2	7[ ]
very tall		Bloemendaalse Gele	9[ ]
<b>5.2a <u>White cabbage only:</u> Outer leaf: size</b> <b>(5.1)</b>			
small		Golden Cross	3[ ]
medium		Braunschweiger, Marner Lagerweiss, Atria	5[ ]
large		Thurner, Robustor	7[ ]
<b>5.2b <u>Red cabbage only:</u> Outer leaf: size</b> <b>(5.2)</b>			
small		Langedijker Aller vroegste, Primero	3[ ]
medium		Langedijker Vroege, Ruby Ball	5[ ]
large		Marner Lagerrot, Langedijker Herfst, Rovita	7[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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**5.2c Savoy cabbage only: Outer leaf: size**  
**(5.3)**

small	Promasa	3[ ]
medium	Belvoy	5[ ]
large	Vertus 3	7[ ]

**5.3a White cabbage only: Outer leaf: blistering**  
**(8.1)**

absent or very weak	Slawdena	1[ ]
weak	Copenhagen Market 2	3[ ]
medium	Fieldrocket	5[ ]
strong	Roem van Enkhuizen 3	7[ ]
very strong		9[ ]

**5.3b Red cabbage only: Outer leaf: blistering**  
**(8.2)**

absent or very weak	Rookie	1[ ]
weak	Langedijker Bewaar 3	3[ ]
medium	Langedijker Herfst	5[ ]
strong	Kissendrup	7[ ]
very strong		9[ ]

**5.3c Savoy cabbage only: Outer leaf: blistering**  
**(8.3)**

absent or very weak	De Pointoise 2	1[ ]
weak	Celsa	3[ ]
medium	Savoy King	5[ ]
strong	Hammer	7[ ]
very strong	Novusa, Roi de l'hiver 2	9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
<b>5.4 Outer leaf: color (with wax)</b> <b>(11)</b>			
yellow green		April (W)	1[ ]
green		Hammer (S)	2[ ]
grey green		Roi de l'hiver 2 (S), Bison (W), Gloria (W)	3[ ]
blue green		Market Price (W)	4[ ]
violet		Langedijker Bewaar 2 (R)	5[ ]
<b>5.5 Outer leaf: intensity of color</b> <b>(12)</b>			
light			3[ ]
medium			5[ ]
dark			7[ ]
<b>5.6 Head: shape of longitudinal section</b> <b>(18)</b>			
transverse narrow elliptic		Braunschweiger (W)	1[ ]
transverse elliptic		De Pointoise 2 (S) Centurion, Conquistador	2[ ]
circular		Roem van Enkhuizen 2 (W), Octoking	3[ ]
broad elliptic		Langedijker Herfst (R)	4[ ]
broad obovate		Langedijker Bewaar (W)	5[ ]
broad ovate		Cape Horn (W)	6[ ]
angular ovate		Hispi (W), Filderkraut	7[ ]
<b>5.7 Head: diameter</b> <b>(21)</b>			
small		Marnier Allfrüh (W), Vorbote 2 (S)	3[ ]
medium		Celsa (S), Pampa (S)	5[ ]
large		Braunschweiger (W), Quintal d'Alsace (W)	7[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
<b>5.8 Head: density (31)</b>			
very loose		Mignon (W)	1[ ]
loose		Hornspi (W)	3[ ]
medium		Dacato (S), Spivoy (S)	5[ ]
dense		Pampa (S)	7[ ]
very dense		Slawdena (W)	9[ ]
<b>5.9a <u>White cabbage only</u>: Time of harvest maturity (34.1)</b>			
very early		Golden Cross	1[ ]
early		Green Express, Hijula	3[ ]
medium		Roem van Enkhuizen 2	5[ ]
late		Holsteiner platter, Marner Lagerweiss, Strukton	7[ ]
very late		Bartolo	9[ ]
<b>5.9b <u>Red cabbage only</u>: Time of harvest maturity (34.2)</b>			
early		Langedijker Vroege, Normiro, Ruby Ball	3[ ]
medium		Langedijker Herfst, Marner Septemberrot, Autoro	5[ ]
late		Langedijker Bewaar 2, Marner Lagerrot, Huzaro	7[ ]
<b>5.9c <u>Savoy cabbage only</u>: Time of harvest maturity (34.3)</b>			
very early		Spivoy	1[ ]
early		Walasa	3[ ]
medium		Belvoy	5[ ]
late		Hammer	7[ ]
very late		Alexander's No.1	9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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 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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
---	---	--	--

<i>Example</i>	<i>(example to be inserted) (example to be inserted)</i>		
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Comments:

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TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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, please give details:

7.3 Other information

**ASW 16** A representative color photograph of the variety should accompany 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 (b) is yes, please attach a copy of the authorization.



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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 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 or pesticide) | Yes [ ] | No [ ] |
| (c) Tissue culture  | Yes [ ] | No [ ] |
| (d) Other factors   | Yes [ ] | No [ ] |

Please provide details of 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]