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

**DRAFT**

**SWEET PEPPER, HOT PEPPER,  
PAPRIKA, CHILI**

UPOV Code: CAPSI\_ANN

*Capsicum annuum* L.

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

*prepared by an expert from Hungary*

*to be considered by the Technical Committee at its forty-second session,  
to be held in Geneva, Switzerland, from April 3 to 5, 2006*

Alternative Names:\*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Capsicum annuum</i> L.	Sweet Pepper, Hot Pepper, Paprika, Chili	Piment, Poivron	Paprika	Aji, Chile, Pimiento

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](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 *Capsicum annuum* L.

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:

2,500 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.

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

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

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.2 *Testing Place*

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

3.3 *Conditions for Conducting the Examination*

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

3.3.2 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 20 plants which should be divided between 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 *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 differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

#### 4.1.3 *Clear Differences*

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

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

#### 4.2 *Uniformity*

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 For the assessment of uniformity of cross-pollinated varieties, a population standard of 2% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, 2 off-types are allowed.

4.2.3 For the assessment of uniformity of hybrids, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, 1 off-type is allowed.

#### 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.

### 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) Seedling: anthocyanin coloration of hypocotyl (characteristic 1)
- (b) Plant: shortened internode (in upper part) (characteristic 4)
- (c) Fruit: color (before maturity) (characteristic 21)
- (d) Fruit: shape in longitudinal section (characteristic 28)
- (e) Fruit: color (at maturity) (characteristic 33)
- (f) Fruit: capsaicin in placenta (characteristic 45)
- (g) Resistance to Tobamovirus - Pathotype 0 (Tobacco Mozaic Virus (0)) (characteristic 48.1)

- (h) Resistance to Tobamovirus - Pathotype 1-2 (Tomato Mozaic Virus (1-2)) (characteristic 48.2)
- (i) Resistance to Tobamovirus - Pathotype 1-2-3 (Pepper Mild Mottle Virus (1-2-3)) (characteristic 48.3)
- (j) Resistance to Potato Virus Y (PVY) - Pathotype 0 (characteristic 49.1)

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

## 6. Introduction to the Table of Characteristics

### 6.1 *Categories of Characteristics*

#### 6.1.1 Standard Test Guidelines Characteristics

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

#### 6.1.2 Asterisked Characteristics

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

### 6.2 *States of Expression and Corresponding Notes*

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

### 6.3 *Types of Expression*

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

### 6.4 *Example Varieties*

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

## 6.5 *Legend*

(\*) Asterisk 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: single measurement of a group of plants or parts of plants - see Chapter 3.3.2

MS: measurement of a number of individual plants or parts of plants - see Chapter 3.3.2

VG: visual assessment by a single observation of a group of plants or parts of plants -  
see Chapter 3.3.2

VS: visual assessment by observation of individual plants or parts of plants -  
see Chapter 3.3.2

(a) and (b) See Explanations on the Table of Characteristics in Chapter 8.1

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

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>1. VS (* (+)</b>	<b>Seedling: anthocyanin coloration of hypocotyl</b>	<b>Plantule: pigmentation anthocyanique de l'hypocotyle</b>	<b>Keimpflanze: Anthocyanfärbung des Hypokotyls</b>	<b>Plántula: pigmentación antociánica del hipocotilo</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Albaregia, Albena	1
	present	présente	vorhanden	presente	Lamuyo	9
<b>2. VG</b>	<b>Plant: habit</b>	<b>Plante: port</b>	<b>Pflanze: Stellung</b>	<b>Planta: porte</b>		
<b>PQ</b>	upright	érigé	aufrecht	erecto	De Cayenne, Doux long des Landes, Piquant d'Algérie	1
	semi-upright	demi-érigé	halbaufrecht	semierecto	Clovis, Sonar	2
	prostrate	étalé	liegend	postrado	Delphin, Trophy	3
<b>3. MS (+)</b>	<b>Plant: length of stem</b>	<b>Plante: longueur de la tige</b>	<b>Pflanze: Länge des Stengels</b>	<b>Planta: longitud del tallo</b>		
<b>QN</b>	short	courte	kurz	corta	Delphin, Trophy	3
	medium	moyenne	mittel	media	Belsir, Lamuyo	5
	long	longue	lang	larga	Lipari, Marconi, Rouge long ordinaire	7
<b>4. VS (* (+)</b>	<b>Plant: shortened internode (in upper part)</b>	<b>Plante: entre-nœud raccourci (à la partie supérieure)</b>	<b>Pflanze: verkürztes Internodium (im oberen Teil)</b>	<b>Planta: entrenudo acortado (en la parte superior)</b>		
<b>QL</b>	absent	absent	fehlend	ausente	California wonder, De Cayenne	1
	present	présent	vorhanden	presente	Fehér, Kalocsai 601, Kalocsai 702	9



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>5. MS</b>	<b><u>Varieties with shortened internodes only:</u> Plant: number of internodes between the first flower and shortened internodes</b>	<b><u>Variétés à entre-nœuds raccourcis seulement:</u> Plante: nombre d'entre-nœuds entre la première fleur et les entre-nœuds raccourcis</b>	<b><u>Nur Sorten mit verkürzten Internodien:</u> Pflanze: Anzahl Internodien zwischen der ersten Blüte und den verkürzten Internodien</b>	<b><u>Variedades con entrenudos acortados únicamente:</u> Planta: número de entrenudos entre la primera flor y los entrenudos acortados</b>		
(+)						
<b>PQ</b>	none	aucun	keine	ninguno	Kalocsai 601	1
	one to three	un à trois	eins bis drei	uno a tres	Fehér	2
	more than three	plus de trois	mehr als drei	más de tres	Kalocsai 702	3
<b>6. MS</b>	<b><u>Varieties without shortened internodes only:</u> Plant: length of internode (on primary side shoots)</b>	<b><u>Variétés sans entre-nœuds raccourcis seulement:</u> Plante: longueur de l'entre-nœud (sur ramifications primaires)</b>	<b><u>Nur Sorten ohne verkürzte Internodien:</u> Pflanze: Länge des Internodiums (an Verzweigungen erster Ordnung)</b>	<b><u>Variedades sin entrenudos acortados únicamente:</u> Planta: longitud del entrenudo (en los brotes laterales principales)</b>		
<b>QN</b>	very short	très court	sehr kurz	muy corta	Albaregia	1
	short	court	kurz	corta	Bandero, Blondy, Danubia, Tenor	3
	medium	moyen	mittel	media	Dolmi, Florian, Órias	5
	long	long	lang	larga	Corno di toro rosso	7
	very long	très long	sehr lang	muy larga	Fenice, Kalocsai M, Sienor	9
<b>7.</b>	<b>Plant: anthocyanin coloration of nodes</b>	<b>Plante: pigmentation anthocyanique des nœuds</b>	<b>Pflanze: Anthocyanfärbung der Knoten</b>	<b>Planta: pigmentación antocianica los nudos</b>		
<b>QL</b>	absent	absent	fehlend	ausente	Albaregia	1
	present	présent	vorhanden	presente	California wonder	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>8. VS</b>	<b>Stem: intensity of anthocyanin coloration of nodes</b>	<b>Tige: intensité de la pigmentation anthocyanique des nœuds</b>	<b>Halm: Intensität der Anthocyanfärbung der Knoten</b>	<b>Tallo: intensidad de la pigmentación antocianica de los nudos</b>		
<b>QN</b>	very weak	très faible	sehr gering	muy débil		1
	weak	faible	gering	débil	California wonder, Clio, Doux d'Espagne, Doux long des Landes, Golden calwonder	3
	medium	moyenne	mittel	media	Clovis, Lamuyo, Sonar	5
	strong	forte	stark	fuerte	Piquant d'Algérie, Zarai	7
	very strong	très forte	sehr stark	muy fuerte	Alwin, Korai, Lito, Pusztagold	9
<b>9. VG</b>	<b>Stem: hairiness of nodes</b>	<b>Tige: pilosité des nœuds</b>	<b>Stengel: Behaarung der Knoten</b>	<b>Tallo: pilosidad de los nudos</b>		
<b>QN</b>	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Arlequin	1
	weak	faible	gering	débil	Andevalo, Clovis	3
	medium	moyenne	mittel	media	Doux très long des Landes, Farnese	5
	strong	forte	stark	fuerte	Fenice, Solario	7
	very strong	très forte	sehr stark	muy fuerte	Mino	9
<b>10. VS/ MS (+)</b>	<b>Plant: height</b>	<b>Plante: hauteur</b>	<b>Pflanze: Höhe</b>	<b>Planta: altura</b>		
<b>QN (b)</b>	very short	très basse	sehr niedrig	muy baja	Kalocsai 601	1
	short	basse	niedrig	baja	Albaregia	3
	medium	moyenne	mittel	media	HRF	5
	tall	haute	hoch	alta	Century, Orias	7
	very tall	très haute	sehr hoch	muy alta	Hot chili	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>11. MS/ VG</b>	<b>Leaf: length of blade</b>	<b>Feuille: longueur du limbe</b>	<b>Blatt: Länge der Blattspreite</b>	<b>Hoja: longitud del limbo</b>		
<b>QN</b>	very short	très courte	sehr kurz	muy corta	Macska sárga, Tüzes piros	1
	short	courte	kurz	corta	De Cayenne, Szentesi cseresznye	3
	medium	moyenne	mittel	media	Atol, Blondy, Marconi, Merit Anthea	5
	long	longue	lang	larga	Cupido, Dolmy, Encore, Mazurka, Monte	7
	very long	très longue	sehr lang	muy larga	Predi, Solario	9
<b>12. MS/ VG</b>	<b>Leaf: width of blade</b>	<b>Feuille: largeur du limbe</b>	<b>Blatt: Breite der Blattspreite</b>	<b>Hoja: anchura del limbo</b>		
<b>QN</b>	very narrow	très étroite	sehr schmal	muy estrecha	Macska sárga, Recio, Tüzes piros	1
	narrow	étroite	schmal	estrecha	De Cayenne, Pusztagold Szentesi cseresznye	3
	medium	moyenne	mittel	media	Albargia, Balaton, Danubia, Marconi, Merit	5
	broad	large	breit	ancha	California wonder, Golden calwonder, Sienor, Solario	7
<b>13. VG</b>	<b>Leaf: intensity of green color</b>	<b>Feuille: intensité de la couleur verte</b>	<b>Blatt: Intensität der Grünfärbung</b>	<b>Hoja: intensidad del color verde</b>		
<b>QN</b>	very light	très claire	sehr hell	muy claro	Amaryllis, Lombardo	1
	light	claire	hell	claro	Piquant d'Algérie, Pusztagold	3
	medium	moyenne	mittel	medio	Doux long des Landes, Merit	5
	dark	foncée	dunkel	oscuro	Dolmy, Tinto	7
	very dark	très foncée	sehr dunkel	muy oscuro	Hot chili, Recio, Soleor	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>14. VS</b>	<b>Leaf: shape</b>	<b>Feuille: forme</b>	<b>Blatt: Form</b>	<b>Hoja: forma</b>		
(+)						
	lanceolate	lancéolée	lanzettlich	lanceolada	Diavolo, Recio	1
<b>PQ</b>	ovate	ovale	eiförmig	oval	Balico, Sonar	2
	broad elliptic	cordiforme	herzförmig	cordiforme	Solario	3
<b>15. VG</b>	<b>Leaf: undulation of margin</b>	<b>Feuille: ondulation du bord</b>	<b>Blatt: Randwellung</b>	<b>Hoja: ondulación del margen</b>		
<b>QN</b>	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	De Cayenne	1
	weak	faible	gering	débil	Doux très long des Landes	3
	medium	moyenne	mittel	media	Tenor	5
	strong	forte	stark	fuerte	Sucette de Provence, Tosca	7
	very strong	très forte	sehr stark	muy fuerte	Farya	9
<b>16. VG</b>	<b>Leaf: blistering</b>	<b>Feuille: cloqure</b>	<b>Blatt: Blasigkeit</b>	<b>Hoja: abullonado</b>		
<b>QN</b>	very weak	très faible	sehr gering	muy débil	Century, Recio, Sofiane	1
	weak	faible	gering	débil	Pusztagold	3
	medium	moyenne	mittel	medio	Merit	5
	strong	forte	stark	fuerte	Greygo, PAZ pallagi	7
	very strong	très forte	sehr stark	muy fuerte	Florian	9
<b>17. VG</b>	<b>Leaf: profile in cross section</b>	<b>Feuille: profil en section transversale</b>	<b>Blatt: Profil im Querschnitt</b>	<b>Hoja: perfil en sección transversal</b>		
(+)						
<b>QN</b>	strongly concave	fortement concave	stark konkav	muy cóncavo	Slávy	1
	moderately concave	modérément concave	mäßig konkav	moderadamente cóncavo	Doux italien, Favolor	3
	flat	plat	flach	plano	De Cayenne, Recio	5
	moderately convex	modérément convexe	mäßig konvex	moderadamente convexo	Albaregia	7
	strongly convex	fortement convexe	stark konvex	muy convexo	Tinto	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>18. VG</b>	<b>Leaf: glossiness</b>	<b>Feuille: brillance</b>	<b>Blatt: Glanz</b>	<b>Hoja: brillo</b>		
<b>QN</b>	very weak	très faible	sehr gering	muy débil	Diavolo	1
	weak	faible	gering	débil	De Cayenne, Doux très long des Landes	3
	medium	moyenne	mittel	medio	Alby, Eolo	5
	strong	forte	stark	fuerte	Andevalo, Floridor	7
	very strong	très forte	sehr stark	muy fuerte	Cubor, Petit marseillais	9
<b>19. VS</b> (*) (+)	<b>Peduncle: attitude</b>	<b>Pédoncule: port</b>	<b>Blütenstiel: Haltung</b>	<b>Pedúnculo: porte</b>		
<b>PQ</b>	erect	dressé	aufrecht	erecto	Fehér, Red Chili	1
	semi-drooping	intermédiaire	intermediär	intermedio	Blondy	2
	drooping	retombant	hängend	colgante	Heldor, Lamuyo	3
<b>20. VS</b>	<b>Flower: anthocyanin coloration in anther</b>	<b>Fleur: pigmentation anthocyanique de l'anthère</b>	<b>Blüte: Anthocyanfärbung des Staubbeutel</b>	<b>Flor: pigmentación antociánica de la antera</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Danza	1
	present	présente	vorhanden	presente	Lamuyo	9
<b>21. VS</b> (*)	<b>Fruit: color (<u>before</u> maturity)</b>	<b>Fruit: couleur (<u>avant</u> maturité)</b>	<b>Frucht: Farbe (<u>vor</u> der Reife)</b>	<b>Fruto: color (<u>antes</u> de la madurez)</b>		
<b>PQ (a)</b>	greenish white	blanc verdâtre	grünlichweiß	blanco verdoso	Blanc d'Espagne, Twiggy	1
	yellow	jaune	gelb	amarillo	Fehér, Sweet banana	2
	green	vert	grün	verde	California wonder, Lamuyo	3
	purple	pourpre	purpurn	púrpura	Nigra, Violetta	4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>22. VS (*)</b>	<b>Fruit: intensity of color (<u>before</u> maturity)</b>	<b>Fruit: intensité de la couleur (<u>avant</u> maturité)</b>	<b>Frucht: Intensität der Farbe (<u>vor</u> der Reife)</b>	<b>Fruto: intensidad del color (<u>antes</u> de la madurez)</b>		
<b>QN (a)</b>	very light	très claire	sehr hell	muy clara		1
	light	claire	hell	clara		3
	medium	moyenne	mittel	media		5
	dark	foncée	dunkel	oscura		7
	very dark	très foncée	sehr dunkel	muy oscura		9
<b>23. VS</b>	<b>Fruit: anthocyanin coloration</b>	<b>Fruit: pigmentation anthocyanique</b>	<b>Frucht: Anthocyanfärbung</b>	<b>Fruto: pigmentación antociánica</b>		
<b>QL (a)</b>	absent	absente	fehlend	ausente	Lamuyo	1
	present	présente	vorhanden	presente	Alabástrom, Purple beauty, Violette	9
<b>24. VS</b>	<b>Fruit: attitude</b>	<b>Fruit: port</b>	<b>Frucht: Haltung</b>	<b>Fruto: porte</b>		
<b>PQ (b)</b>	erect	dressé	aufrecht	erecto	Kalocsai 601, Red Chili	1
	horizontal	horizontal	waagrecht	horizontal	PAZ szentesi, Vinedale	2
	drooping	retombant	hängend	colgante	De Cayenne, Lamuyo	3
<b>25. VS/MS</b>	<b>Fruit: length</b>	<b>Fruit: longueur</b>	<b>Frucht: Länge</b>	<b>Fruto: longitud</b>		
<b>QN (b)</b>	very short	très courte	sehr kurz	muy corta	Cherry Sweet, Topgirl	1
	short	courte	kurz	corta	Delphin, Petit carré doux	3
	medium	moyenne	mittel	media	Fehér, Lamuyo	5
	long	longue	lang	larga	Doux d'Espagne, Majister	7
	very long	très longue	sehr lang	muy larga	Arabal, Corno di toro, Marconi	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>26. VS/ MS</b>	<b>Fruit: diameter</b>	<b>Fruit: diamètre</b>	<b>Frucht: Durchmesser</b>	<b>Fruto: diámetro</b>		
<b>QN (b)</b>	very small	très petit	sehr klein	muy pequeño	De Cayenne, Recio	1
	small	petit	klein	pequeño	Doux long des Landes	3
	medium	moyen	mittel	medio	Doux italien, Corno di toro	5
	large	grand	groß	grande	Clovis, Lamuyo	7
	very large	très grand	sehr groß	muy grande	Floridor, Ibleor, Inca, Joly rosso, Quadrato d'Asti, Surpas	9
<b>27. MS (* )</b>	<b>Fruit: ratio length/diameter</b>	<b>Fruit: rapport longueur/diamètre</b>	<b>Frucht: Verhältnis Länge/Durchmesser</b>	<b>Fruto: relación entre la longitud y el diámetro</b>		
<b>QN (b)</b>	very small	très faible	sehr klein	muy pequeña	Liebesapfel, PAZ szentesi, Rotopa	1
	small	faible	klein	pequeña	Bucano, Topgirl	3
	medium	moyen	mittel	media	Adra, Cherry Sweet, Daniel, Delphin, Edino	5
	large	élevé	groß	grande	Heldor, Lamuyo, Magister, Tenno, Vidi	7
	very large	très élevé	sehr groß	muy grande	De Cayenne, Kusamon, Spadi	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>28. VS</b> (*) (+)	<b>Fruit: shape in longitudinal section</b>	<b>Fruit: forme de la section longitudinale</b>	<b>Frucht: Form des Längsschnitts</b>	<b>Fruto: forma en sección longitudinal</b>		
<b>PQ (b)</b>	oblate	aplatis	flach	plana	Liebesapfel, PAZ szentesi, Topepo rosso	1
	round	arrondie	rund	redonda	Cherry Sweet	2
	cordate	cordiforme	herzförmig	acorazonada	Daniel	3
	square	quadrangulaire	quadratisch	cuadrada	Delphin, Yolo Wonder	4
	rectangular	rectangulaire	rechteckig	rectangular	Clovis, Nocera rosso	5
	trapezoid	trapézoïdale	trapezförmig	trapezoidal	Delta, Piperade	6
	triangular	triangulaire	dreieckig	triangular	Fehér, Marconi	7
	narrow triangular	triangulaire étroite	schmal dreieckig	triangular estrecha	De Cayenne, Demon	8
	hornshaped	en corne	hornförmig	en forma de cuerno	Tauro	9
<b>29. VS</b>	<b>Fruit: shape in cross section (at level of placenta)</b>	<b>Fruit: forme de la section transversale (au niveau du placenta)</b>	<b>Frucht: Form des Querschnitts (auf Höhe der Plazenta)</b>	<b>Fruto: forma en sección transversal (a nivel de la placenta)</b>		
<b>PQ (b)</b>	elliptic	elliptique	elliptisch	elíptica	Sweet banana	1
	angular	angulaire	eckig	angular	Vinedale	2
	circular	arrondie	rund	circular	Cherry Sweet, Doux long des Landes	3
<b>30. VS</b> (+)	<b>Fruit: sinuation of pericarp at basal part</b>	<b>Fruit: sinuosité du péricarpe sur la partie basale</b>	<b>Frucht: Wellung des Perikarps am basalen Teil</b>	<b>Fruto: sinuosidad del pericarpio de la parte basal</b>		
<b>QN</b>	absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Delphin, Kalocsai V-2, Milord	1
	weak	faible	gering	débil	Donat	3
	medium	moyenne	mittel	media	Duna, Banán	5
	strong	forte	stark	fuerte	Alfa	7
	very strong	très forte	sehr stark	muy fuerte	Édes spiral, Doux italien	9



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>31. VS</b>	<b>Fruit: sinuation of pericarp</b>	<b>Fruit: sinuosité du péricarpe</b>	<b>Frucht: Wellung des Perikarps</b>	<b>Fruto: sinuosidad del pericarpio</b>		
(+)						
<b>QN (b)</b>	absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Delphin, Milord	1
	weak	faible	gering	débil	Clovis, Sonar	3
	medium	moyenne	mittel	media	Ursus	5
	strong	forte	stark	fuerte	De Cayenne, Doux italien	7
	very strong	très forte	sehr stark	muy fuerte	Arabal	9
<b>32. VS</b>	<b>Fruit: texture of surface</b>	<b>Fruit: texture de la surface</b>	<b>Frucht: Textur der Oberfläche</b>	<b>Fruto: textura de la superficie</b>		
(*)						
<b>QN (b)</b>	smooth	lisse	glatt	lisa	Milord	1
	slightly wrinkled	légèrement ridée	leicht gerieft	ligeramente arrugada	Doux long des Landes	2
	strongly wrinkled	fortement ridée	stark gerieft	fuertemente arrugada	Sierra Nevada	3
<b>33. VS</b>	<b>Fruit: color (at maturity)</b>	<b>Fruit: couleur (à maturité)</b>	<b>Frucht: Farbe (bei Reife)</b>	<b>Fruto: color (a la madurez)</b>		
(*)						
<b>PQ (b)</b>	yellow	jaune	gelb	amarillo	Golden calwonder, Heldor	1
	orange	orange	orange	naranja	Ariane	2
	red	rouge	rot	rojo	Fehér, Lamuyo	3
	brown	brun	braun	marrón	Brupa, Negral	4
	green	vert	grün	verde	Green6203	5
<b>34. VG</b>	<b>Fruit: intensity of color (at maturity)</b>	<b>Fruit: intensité de la couleur (à maturité)</b>	<b>Frucht: Intensität der Farbe (bei Reife)</b>	<b>Fruto: intensidad del color (a la madurez)</b>		
(*)						
<b>QN (b)</b>	light	claire	hell	clara		3
	medium	moyenne	mittel	media		5
	dark	foncée	dunkel	oscura		7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>35. VG</b>	<b>Fruit: glossiness</b>	<b>Fruit: brillance</b>	<b>Frucht: Glanz</b>	<b>Fruto: brillo</b>		
<b>QN (b)</b>	very weak	très faible	sehr gering	muy débil	Macska sárga, Pikanta	1
	weak	faible	gering	débil	Doux très long des Landes	3
	medium	moyenne	mittel	medio	Carré doux extra hâtif, Lamuyo, Sonar	5
	strong	forte	stark	fuerte	Doux italien, Trophy	7
	very strong	très forte	sehr stark	muy fuerte	Floridor, Kappy	9
<b>36. VG (*)</b>	<b>Fruit: stalk cavity</b>	<b>Fruit: dépression pédonculaire</b>	<b>Frucht: Stielhöhle</b>	<b>Fruto: cavidad peduncular</b>		
<b>QL (b)</b>	absent	absente	fehlend	ausente	Corinto, Corno di toro, Sweet banana, Sucette de Provence	1
	present	présente	vorhanden	presente	Bingor, Lamuyo	9
<b>37. VS</b>	<b>Fruit: depth of stalk cavity</b>	<b>Fruit: profondeur de la dépression pédonculaire</b>	<b>Frucht: Tiefe der Stielhöhle</b>	<b>Fruto: profundidad de la cavidad peduncular</b>		
<b>QN (b)</b>	very shallow	très peu profonde	sehr flach	muy poco profunda	Flush, Kaméleon, Niagara	1
	shallow	peu profonde	flach	poco profunda	Delphin, Doux italien, Fehér, Latino	3
	medium	moyenne	mittel	media	Lamuyo, Magister	5
	deep	profonde	tief	profunda	Osir, Quadrato d'Asti rosso, Surpas	7
	very deep	très profonde	sehr tief	muy profunda	Cancun, Cubor, Pablor, Shy Beauty	9
<b>38. VS</b>	<b>Fruit: shape of apex</b>	<b>Fruit: forme du sommet</b>	<b>Frucht: Form der Spitze</b>	<b>Fruto: forma del ápice</b>		
<b>PQ (b)</b>	very acute	très pointue	sehr spitz	muy aguda	De Cayenne, Hot chili	1
	moderately acute	pointue	spitz	aguda		2
	rounded	arrondie	abgerundet	redondeada	Cherry Sweet	3
	moderately depressed	déprimée	eingesenkt	hundida	Quadrato d'Asti rosso	4
	very depressed	très déprimée	stark eingesenkt	muy hundida	Kerala, Monte, Osir	5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>39. VS</b>	<b>Fruit: depth of interocular grooves</b>	<b>Fruit: profondeur des dépressions interoculaires</b>	<b>Frucht: Tiefe der Furchen zwischen den Kammern</b>	<b>Fruto: profundidad de los surcos interoculares</b>		
<b>(+)</b>						
<b>QN (b)</b>	absent or very shallow	nulles ou très peu profondes	fehlend oder sehr flach	ausente o muy poco profunda	De Cayenne	1
	shallow	peu profondes	flach	poco profunda	Milord, Topgirl	3
	medium	moyennes	mittel	media	Clovis, Lamuyo, Marconi	5
	deep	profondes	tief	profunda	Majister, Surpas	7
<b>40. MS</b>	<b>Fruit: number of locules</b>	<b>Fruit: nombre de loges</b>	<b>Frucht: Anzahl Kammern</b>	<b>Fruto: número de lóculos</b>		
<b>(*)</b>						
<b>PQ (b)</b>	predominantly two	le plus souvent deux	vorwiegend zwei	predominante dos	De Cayenne	1
	equally two and three	également deux et trois	gleichermaßen zwei und drei	igualmente dos y tres	Fehér	2
	predominantly three	le plus souvent trois	vorwiegend drei	predominante tres	Century	3
	equally three and four	également trois et quatre	gleichermaßen drei und vier	igualmente tres y cuatro	Lamuyo, Sonar	4
	predominantly four and more	le plus souvent quatre et plus	vorwiegend vier und mehr	predominante cuatro y más	Palio, PAZ szentesi	5
<b>41. VG</b>	<b>Fruit: thickness of flesh</b>	<b>Fruit: épaisseur de la chair</b>	<b>Frucht: Dicke des Fleisches</b>	<b>Fruto: espesor de la pulpa</b>		
<b>(*)</b>						
<b>QN (b)</b>	very thin	très mince	sehr dünn	muy delgado	De Cayenne, Macska sárga, Petit marseillais, Recio	1
	thin	mince	dünn	delgado	Banán, Carré doux extra hâtif, Doux long des Landes	3
	medium	moyenne	mittel	medio	Fehér, Lamuyo	5
	thick	épaisse	dick	grueso	Andevalo, Bingor, Daniel, Topgirl	7
	very thick	très épaisse	sehr dick	muy grueso	Dragox Roda, Regolo, Solario	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>42. VS/ MS</b>	<b>Stalk: length</b>	<b>Pédoncule: longueur</b>	<b>Fruchtsiel: Länge</b>	<b>Pedúnculo: longitud</b>		
<b>QN (b)</b>	very short	très courte	sehr kurz	muy corta	Greygo, Golden calwonder	1
	short	courte	kurz	corta	Surpas, Yolo Wonder, Zenith	3
	medium	moyenne	mittel	media	Fehér, Sonar	5
	long	longue	lang	larga	De Cayenne, Sierra Nevada, Sweet banana	7
	very long	très longue	sehr lang	muy larga	Farnese, Lipari, Oasis	9
<b>43. VS/ MS</b>	<b>Stalk: thickness</b>	<b>Pédoncule: grosseur</b>	<b>Fruchtsiel: Dicke</b>	<b>Pedúnculo: espesor</b>		
<b>QN (b)</b>	very thin	très mince	sehr dünn	muy delgado	De Cayenne, Doux long des Landes, Macska sárga, Recio	1
	thin	mince	dünn	delgado	Sweet banana	3
	medium	moyenne	mittel	medio	Doux italien, Surpas	5
	thick	épaisse	dick	grueso	Lamuyo, Trophy Palio	7
	very thick	très épaisse	sehr dick	muy grueso	Domingo, Galaxy, Paraiso	9
<b>44. VS (+)</b>	<b>Calyx: aspect</b>	<b>Calice: aspect</b>	<b>Kelch: Aussehen</b>	<b>Cáliz: aspecto</b>		
<b>QL (b)</b>	non enveloping	non enrobant	nicht umhüllend	no envolvente	Lamuyo, Sonar	1
	enveloping	enrobant	umhüllend	envolvente	De Cayenne, Sweet banana	2
<b>45. MS (* (+)</b>	<b>Fruit: capsaicin in placenta</b>	<b>Fruit: capsaicine dans le placenta</b>	<b>Frucht: Capsaicin in der Plazenta</b>	<b>Fruto: capsaicina en la placenta</b>		
<b>QL (b)</b>	absent	absent	fehlend	ausente	Sonar	1
	present	présent	vorhanden	presente	De Cayenne	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>46. VS</b>	<b>Time of beginning of flowering (first flower on second flowering node)</b>	<b>Époque de début de floraison (première fleur au deuxième nœud florifère)</b>	<b>Zeitpunkt des Blühbeginns (erste Blüte am zweiten blütrragenden Knoten)</b>	<b>Época de comienzo de la floración (primera flor en el segundo nudo floral)</b>		
<b>QN</b>	early	précoce	früh	temprana	Carré doux extra hâtif, Cupido, Fehér, Flaviano, Lito, Trophy	3
	medium	moyenne	mittel	media	Lamuyo, Latino	5
	late	tardive	spät	tardía	Daniel, Piquant d'Algérie, Zingaro	7
<b>47. VS</b>	<b>Time of maturity</b>	<b>Époque de maturité</b>	<b>Zeitpunkt der Reife</b>	<b>Época de madurez</b>		
(+)						
<b>QN</b>	very early	très précoce	sehr früh	muy temprana	Koral, Macska sarga, Madison	1
	early	précoce	früh	temprana	Fehér, Lady Bell, Topgirl	3
	medium	moyenne	mittel	media	Lamuyo, Latino, Sonar	5
	late	tardive	spät	tardía	Daniel, Doux d'Espagne	7
	very late	très tardive	sehr spät	muy tardía	Cancun, California wonder	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>48.</b>	<b>Resistance to Tobamovirus</b>	<b>Résistance au tobamovirus</b>	<b>Resistenz gegen Tobamovirus</b>	<b>Resistencia al tobamovirus</b>		
(+)						
<b>48.1</b>	<b>Pathotype 0 (Tobacco Mozaic Virus (0))</b>	<b>Pathotype 0 (virus de la mosaïque du tabac (0))</b>	<b>Pathotyp 0 (Tabakmosaikvirus (0))</b>	<b>Patotipo 0 (Virus del mosaico del tabaco (0))</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Doux italien, Piperade	1
	present	présente	vorhanden	presente	Lamuyo, Sonar, Yolo Wonder	9
<b>48.2</b>	<b>Pathotype 1-2 (Tomato Mozaic Virus (1-2))</b>	<b>Pathotype 1-2 (virus de la mosaïque de la tomate (1-2))</b>	<b>Pathotyp 1-2 (Tomatomosaikvirus (1-2))</b>	<b>Patotipo 1-2 (Virus del mosaico del tomate (1-2))</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Piperade, Yolo Wonder	1
	present	présente	vorhanden	presente	Delgado, Festos, Novi, Orion	9
<b>48.3</b>	<b>Pathotype 1-2-3 (Pepper Mild Mottle Virus (1-2-3))</b>	<b>Pathotype 1-2-3 (virus de la marbrure nervaire du piment (1-2-3))</b>	<b>Pathotyp 1-2-3 (Pepper Mild Mottle Virus (1-2-3))</b>	<b>Patotipo 1-2-3 (Virus del moteado suave del pimiento (1-2-3))</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Piperade, Yolo Wonder	1
	present	présente	vorhanden	presente	Cuby, Tasty	9
<b>49.</b>	<b>Resistance to Potato Virus Y (PVY)</b>	<b>Résistance au virus Y de la pomme de terre (PVY)</b>	<b>Resistenz gegen Kartoffel-Y-Virus (PVY)</b>	<b>Resistencia al virus Y de la papa (PVY)</b>		
(+)						
<b>49.1</b>	<b>Pathotype 0</b>	<b>Pathotype 0</b>	<b>Pathotyp 0</b>	<b>Patotipo 0</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Yolo Wonder	1
	present	présente	vorhanden	presente	Yolo Y	9
<b>49.2</b>	<b>Pathotype 1</b>	<b>Pathotype 1</b>	<b>Pathotyp 1</b>	<b>Patotipo 1</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Yolo Wonder, Yolo Y	1
	present	présente	vorhanden	presente	Florida VR2	9
<b>49.3</b>	<b>Pathotype 1-2</b>	<b>Pathotype 1-2</b>	<b>Pathotyp 1-2</b>	<b>Patotipo 1-2</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Florida VR2, Yolo Wonder, Yolo Y	1
	present	présente	vorhanden	presente	Serrano Criollo de Morenos	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>50.</b>	<b>Resistance to</b>	<b>Résistance à</b>	<b>Resistenz gegen</b>	<b>Resistencia al</b>		
(+)	<i>Phytophthora capsici</i>	<i>Phytophthora capsici</i>	<i>Phytophthora capsici</i>	<i>Phytophthora capsici</i>		
<b>QL</b>	absent	absente	fehlend	ausente	Yolo Wonder	1
	present	présente	vorhanden	presente	Chistera, Favolor, Phyo 636, Solario	9
<b>51.</b>	<b>Resistance to</b>	<b>Résistance au virus</b>	<b>Resistenz gegen</b>	<b>Resistencia al virus</b>		
(+)	<b>Cucumber Mozaic Virus (CMV)</b>	<b>de la mosaïque du concombre (CMV)</b>	<b>Gurkenmosaikvirus (CMV)</b>	<b>del mosaico del pepino (CMV)</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Yolo Wonder	1
	present	présente	vorhanden	presente	Alby, Favolor	9
<b>52.</b>	<b>Resistance to</b>	<b>Résistance au</b>	<b>Resistenz gegen</b>	<b>Resistencia al</b>		
(+)	<b>Tomato Spotted Wilt Virus (TSWV)</b>	<b>Tomato Spotted Wilt Virus (TSWV)</b>	<b>Tomato Spotted Wilt Virus (TSWV)</b>	<b>Tomato Spotted Wilt Virus (TSWV)</b>		
<b>QL</b>	absent	absente	fehlend	ausente	Yolo Wonder	1
	present	présente	vorhanden	presente	Galileo, Jackal, Jackpot	9
<b>53.</b>	<b>Resistance to</b>	<b>Résistance au</b>	<b>Resistenz gegen</b>	<b>Resistencia al</b>		
(+)	<i>Xanthomonas vesicatoria</i>	<i>Xanthomonas vesicatoria</i>	<i>Xanthomonas vesicatoria</i>	<i>Xanthomonas vesicatoria</i>		
<b>QL</b>	absent	absente	fehlend	ausente	Fehérözön, Yolo Wonder	1
	present	présente	vorhanden	presente	Aladin, Camelot, ECR-20R, Kaldóm, Kalorez, Lancelot, Pasa	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) Characteristics which should be examined before maturity, i.e. before the first color change
- (b) Characteristics which should be examined at maturity, i.e. after the time of the first color change

8.2 *Explanations for individual characteristics*

Ad. 3: Plant: length of stem

The length of the stem is measured from the cotyledons to the first flower branch.

Ad. 4: Plant: shortened internode (in upper part)

Ad. 5: Varieties with shortened internodes only: Plant: number of internodes between the first flower and shortened internodes

The tests should be done on plants which have not been pruned. The shoot system of pepper consists of main stems, which are branched off from the main axis and side shoots. Two growth types of the main stems can be distinguished:

Growth type A: the main stems grow indeterminately; one or two flowers develop per node and shortened internodes never develop.

Growth type B: after the first branching of the main axis, shorter internodes appear and the growth of the main stem ends in a bunch of flowers (it appears as if there are more than two flowers per node).

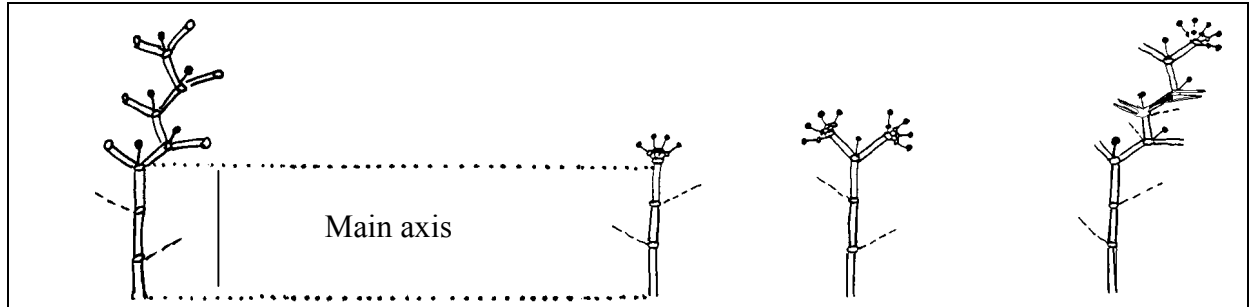
Side shoots develop from the nodes on the main axis and on the main stems.



Growth type A

Growth type B

Char. 4: Plant: shortened internodes (in upper part)	
absent	present



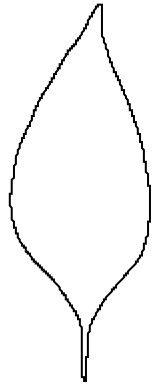
Char. 5: <u>Varieties with shortened internodes only</u> : Plant: number of internodes between the first flower and shortened internodes	none (1)	one to three (2)	more than three (3)
--	-------------	---------------------	------------------------

- flower
- node
- || main stem
- | side shoots

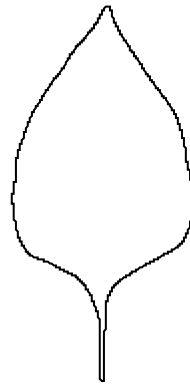
Ad. 10: Plant: height

To be observed after a fruit set on several nodes. Poor fruit set may influence the vigor and thus the height of the plant.

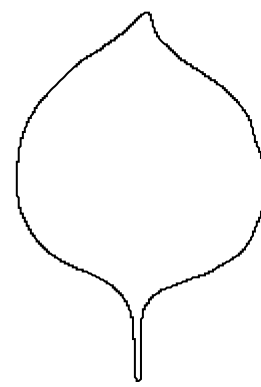
Ad. 14: Leaf: shape



1  
lanceolate



2  
ovate



3  
broad elliptic

Ad. 17: Leaf: profile in cross section



1  
strongly concave



2  
moderately concave



3  
flat

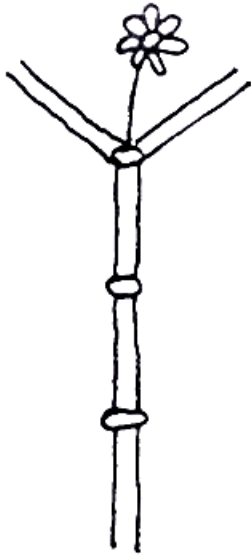


4  
moderately convex

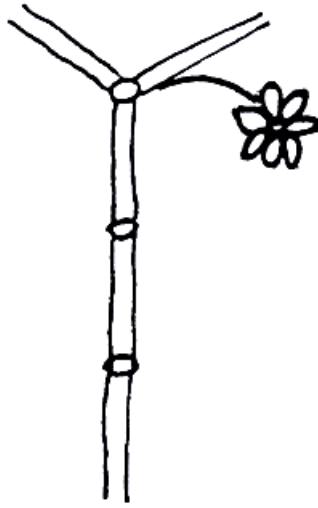


5  
strongly convex

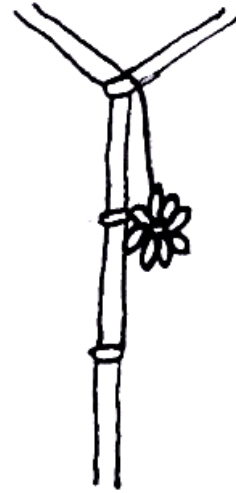
Ad. 19: Peduncle: attitude



1  
erect



2  
semi-drooping

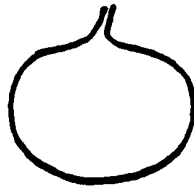


3  
drooping

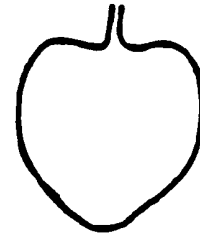
Ad. 28: Fruit: shape in longitudinal section



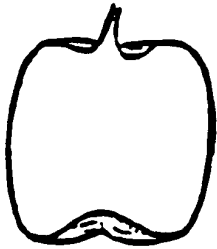
1  
oblate



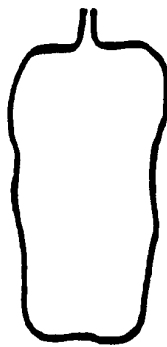
2  
round



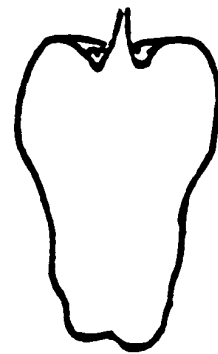
3  
cordate



4  
square



5  
rectangular



6  
trapezoid



7  
triangular



8  
narrow triangular



9  
hornshaped

Ad. 30: Fruit: sinuation of pericarp at basal part



1  
absent or very  
weak



3  
weak



5  
medium

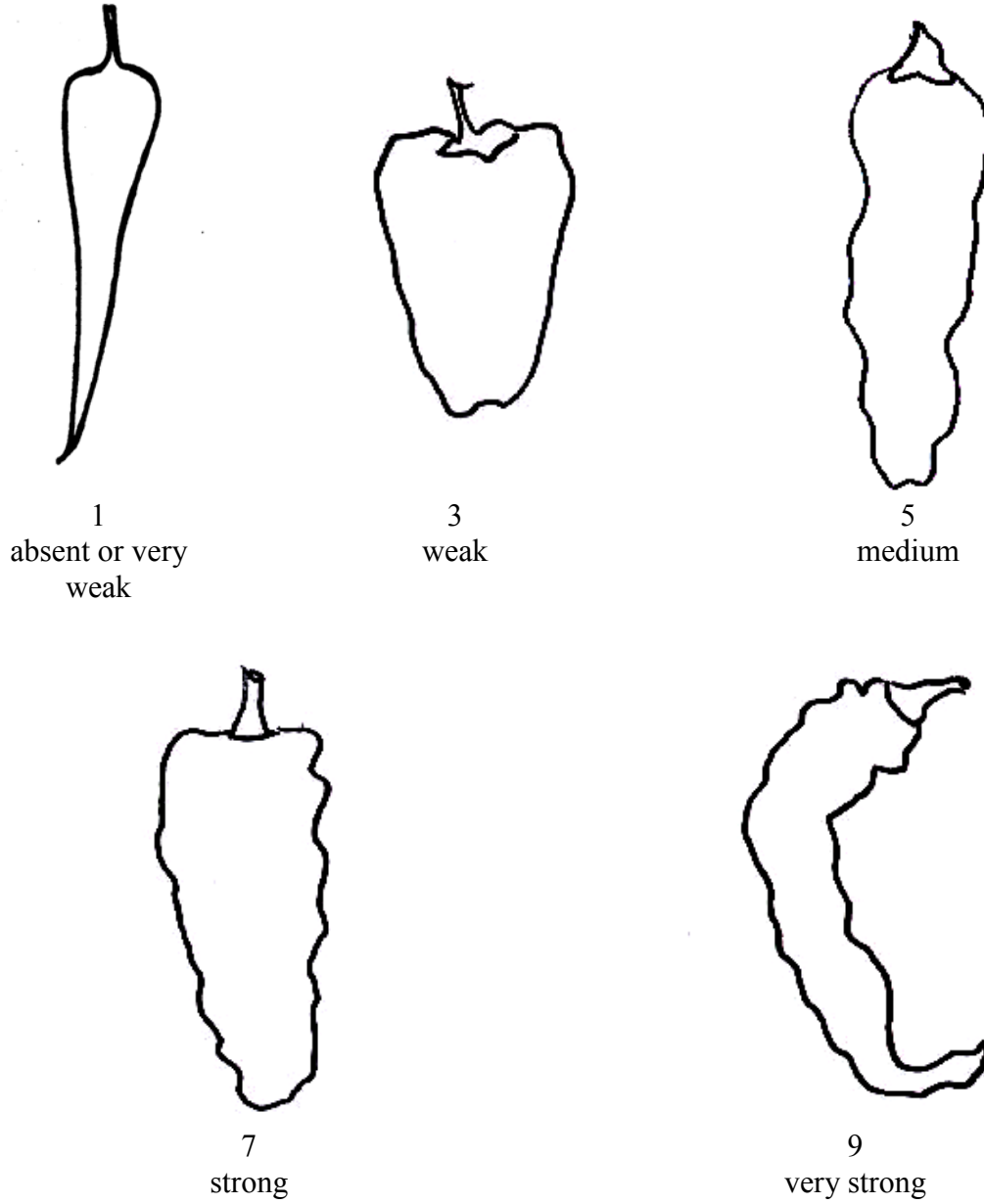


7  
strong



9  
very strong

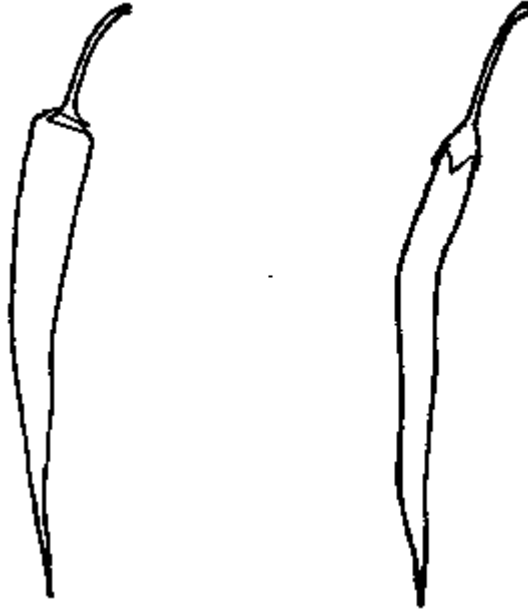
Ad. 31: Fruit: situation of pericarp



Ad. 39: Fruit: depth of interocular grooves

To be observed in the middle part of the fruit.

Ad. 44: Calyx: aspect



1  
non enveloping

2  
enveloping

Ad. 45: Fruit: capsaicin in placenta

The presence of capsaicin is observed by tasting the pepper flesh together with the locules, in the placenta area.

Ad. 47: Time of maturity

Maturity is reached at the first color change of the fruit.

Ad. 48: Resistance to Tobamovirus

Maintenance of pathotypes

Type of medium: On plants or dehydrated leaves (in deep-freezer or method BOS)  
 Special conditions: Regeneration of the virus on plant material before inoculum preparation

Execution of test

Growth stage of plants: When cotyledons are fully developed or at “first leaf” stage  
 Temperature: 20-25°C  
 Growing method: Sowing and raising of seedlings in boxes or soil blocks in glasshouse  
 Method of inoculation: Rubbing of cotyledons with a virus suspension

Duration of test

- Sowing to inoculation: 10 to 15 days  
 - Inoculation to reading: 10 days

Number of plants tested: 15 to 30 plants

Genetics of virus pathotypes and resistant genotypes:

The genetic resistance to Tobamoviruses is controlled by 5 alleles located on the same locus. The table below shows the relationship between virus pathotypes and resistance genotypes:

Pepper Genotype reactions to Tobamovirus Pathotypes

Virus:	Pepper Tobamovirus Pathotypes			
	TMV	TMV	ToMV	PMMV
Strain:	U1 Feldman	P8	P11 Obuda Pepper Mosaic Virus	P14 Samsun latens
Genotype / mark	P <sub>0</sub>	P <sub>1</sub>	P <sub>1-2</sub>	P <sub>1-2-3</sub>
L <sup>-</sup> L <sup>-</sup>	S	S	S	S
L <sup>1</sup> L <sup>1</sup>	R	S	S	S
L <sup>2</sup> L <sup>2</sup>	R	R	S	S
L <sup>3</sup> L <sup>3</sup>	R	R	R	S
L <sup>4</sup> L <sup>4</sup>	R	R	R	R

Shadowed cells are inserted here for information only, they should not be examined.

Legend:  
 S = not resistant  
 R = resistant  
 TMV = Tobacco Mosaic Virus  
 ToMV = Tomato Mosaic Virus  
 PMMV = Pepper Mild Mottle Virus



Ad. 49: Resistance to Potato Virus Y (PVY)

Maintenance of pathotypes

Type of medium: On susceptible plants

Special conditions: For the strain PVY(0): use the line TO72(A)  
 For the strain PVY(1): use the line Sicile 15  
 For the strain PVY(1-2): use the line SON41

Execution of test

Growth stage of plants: Young plants at the stage of developed cotyledons - first pointing leaf

Temperature: 18-25°C

Growing method: Raising of plants in glasshouse

Method of inoculation: Rubbing of cotyledons with a virus solution  
 Composition of the solution:  
inoculum: 4 ml extraction solution for 1 g infected leaves + 80 g activated carbon + 80 mg carborundum;  
extraction solution: buffer solution diluted 1/20 with 0.2% diethyl dithiocaremate of sodium (DIECA);  
buffer solution: (for 100 ml sterile water) 10.8 g  $NA_2HPO_4$  + 1.18 g  $K_2HPO_4$  at pH 7.1-7.2

Duration of test

Sowing to inoculation: 10 to 15 days

Inoculation to reading: 3 weeks (2 weeks minimum, 4 weeks maximum)

Number of plants tested: 60 plants

Remarks: The test should not be conducted at high temperatures.

Standard varieties:	Pathotype 0	Pathotype 1	Pathotype 1-2
Sensitive varieties:	Yolo Wonder	Yolo Wonder, Yolo Y	Florida VR2,* Yolo Wonder, Yolo Y
Resistant varieties:	Yolo Y	Florida VR2	Serrano Criollo de Morenos

\* Florida VR2 can exhibit diffused and very late symptoms.

Ad. 50: Resistance to *Phytophthora capsici*

Scoring must be carried out under conditions of controlled infection:

Maintenance of inoculum

Inoculum and type of medium: *Phytophthora capsici* strain 101, to be cultivated on V8 juice-agar (1%) in Petri's dishes.

Conduct of test

Growth stage of plants: around eight-week old plants, grown in greenhouse (stage: first flower bud)

Temperature: 22°C

Light: 12 hours/day

Method of inoculation: Plants are cut just below the point of first branching. A disc of mycelium of 4 mm-diameter should be used as inoculum. The disc is placed on the freshly cut stem. The top of the stem is wrapped with a piece of aluminium foil, to keep it wet. Infected plants are transferred to a growth chamber kept at 22°C.

Duration of test:

From sowing to inoculation: between 6 and 8 weeks

From inoculation to scoring: first scoring: 7 days  
second scoring: 14 days  
final scoring: 21 days

Number of plants tested: 20 plants

Scoring: The length of necrosis on the stem, induced by the fungus development, is recorded once a week during 3 weeks, on each plant. The aluminium foil on the top of the stem should be removed 7 days after the inoculation. The first reading should take place immediately after the removal of the aluminium foil. Subsequent scoring should be made on the 14<sup>th</sup> and 21<sup>st</sup> day counting from the day of inoculation. The distance (in mm) between the lowest point reached by the necrosis and the top of the stem should be recorded.

Standard varieties: Susceptible: Yolo Wonder  
Resistant: Chistera, Favolor, Solario, Phyto 636 (given in the order of their level of resistance)

Ad. 51: Resistance to Cucumber Mosaic Virus (CMV)

Maintenance of pathotypes

Strain: Fulton  
Type of medium: On susceptible plants: *Vinca rosea*  
Special conditions: -

Inoculum production: Crushing of 1g of fresh leaves of *Vinca rosea* in 4 ml of Phosphate buffer 0.03M pH 7 + DIECA (diethyl dithiocaremate de sodium) (1 for 1000) + 300 mg of activated carbon + 80 mg of carborundum

Execution of test:

Growth stage of plants: Young plants at the stage of developed cotyledons. First leaf non pointing  
Number of plants: 50 plants  
Growing conditions: 22°C, 12 hours of light  
Growing method: Raising of plants in climatized room  
Method of inoculation: Mechanical rubbing of cotyledons with a virus solution, the plants are kept in darkness for 48 hours

Duration of test:

From sowing to inoculation: 12 to 13 days  
From inoculation to reading: 3 readings at 10, 15 and 21 days after inoculation

Standard varieties:

Susceptible variety: Yolo Wonder  
Tolerant (T) or resistant (R) varieties: Milord (T)  
Vania (R)

Ad. 52: Resistance to Tomato Spotted Wilt Virus (TSWV)

Maintenance of pathotypes:

Type of medium: Pepper fruit in deep-freezer (-70 °C)  
Special condition: Regeneration of the virus on *Nicotiana rustica* or *Nicotiana benthamiana* plants before inoculation

Execution of test:

Growth stage of the plants: Two leaves expanded  
Temperature: 20 - 22 °C  
Light: Extra light in winter  
Growing method: Sowing in greenhouse  
Method of inoculation: Mechanical, rubbing on cotyledons, inoculum suspension 10 °C

Duration of test:

from sowing to inoculation: 20 days  
from inoculation to reading: 14 days

Number of tested plants: 20 plants

Standard varieties.

Susceptible: Lamuyo  
Resistant: Galileo, Jackal, Jackpot

Ad. 53: Resistance to *Xanthomonas vesicatoria*

Maintenance of pathotypes

Type of medium: PDA (Potato, Dextrose, Agar ) medium  
Special conditions: 48 hours *Xanthomonas vesicatoria* culture. Adjusting inoculum concentration of bacteria-cellular  $10^7$  .

Execution of test

Growth stage of plants: 6th to 8th true leaves  
Temperature: 24 °C night, 25°C day  
Relative humidity: 80%

Light: 30 000 lx, day length 16 hours

Growing method: Sowing in boxes in climate chamber or in glasshouse

Method of inoculation: Infiltration into abaxial surface of a leaf in 13-15 mm diameter spots

Duration of the test: 10-14 days

Number of plants tested: 15 to 30 plants

Remarks

Genetics of bacteria pathotypes and resistant genotypes:

Resistant varieties: Aladin, Camelot, ECR-20R, Kaldóm, Kalorez, Lancelot, Pasa

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10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Application date: (not to be filled in by the applicant)
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TECHNICAL QUESTIONNAIRE  
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1 Botanical name

1.2 Common Name

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

4.1 Breeding scheme

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) unknown cross

4.1.2 Mutation    
(please state parent variety)

4.1.3 Discovery and development    
(please state where and when discovered and  
how developed)

4.1.4 Other    
(please provide details)

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

- (a) Self-pollination
- (b) Cross-pollination
- (c) Hybrid
- (d) Other    
(please provide details)

4.2.2 Other    
(please provide details)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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>5.1 Seedling: anthocyanin coloration of hypocotyl (1)</b>		
absent	Albaregia, Albena	1[ ]
present	Lamuyo	9[ ]
<b>5.2 Plant: shortened internode (in upper part) (4)</b>		
absent	California wonder, De Cayenne	1[ ]
present	Fehér, Kalocsai 601, Kalocsai 702	9[ ]
<b>5.3 Peduncle: attitude (19)</b>		
erect	Fehér, Red Chili	1[ ]
semi-drooping	Blondy	2[ ]
drooping	Heldor, Lamuyo	3[ ]
<b>5.4 Fruit: color (<u>before</u> maturity) (21)</b>		
greenish white	Blanc d'Espagne, Twiggy	1[ ]
yellow	Fehér, Sweet banana	2[ ]
green	California wonder, Lamuyo	3[ ]
purple	Nigra, Violetta	4[ ]
<b>5.5 Fruit: intensity of color (<u>before</u> maturity) (22)</b>		
very light		1[ ]
light		3[ ]
medium		5[ ]
dark		7[ ]
very dark		9[ ]

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
Characteristics	Example Varieties	Note	
<b>5.6 Fruit: shape in longitudinal section (28)</b>			
oblate	Liebesapfel, PAZ szentesi, Topepo rosso	1[ ]	
round	Cherry Sweet	2[ ]	
cordate	Daniel	3[ ]	
square	Delphin, Yolo Wonder	4[ ]	
rectangular	Clovis, Nocera rosso	5[ ]	
trapezoid	Delta, Piperade	6[ ]	
triangular	Fehér, Marconi	7[ ]	
narrow triangular	De Cayenne, Demon	8[ ]	
horn-shaped	Tauro	9[ ]	
<b>5.7 Fruit: color (at maturity) (33)</b>			
yellow	Golden calwonder, Heldor	1[ ]	
orange	Ariane	2[ ]	
red	Fehér, Lamuyo	3[ ]	
brown	Brupa, Negral	4[ ]	
green	Green6203	5[ ]	
<b>5.8 Fruit: number of locules (40)</b>			
predominantly two	De Cayenne	1[ ]	
equally two and three	Fehér	2[ ]	
predominantly three	Century	3[ ]	
equally three and four	Lamuyo, Sonar	4[ ]	
predominantly four and more	Palio, PAZ szentesi	5[ ]	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
<b>5.9 Fruit: capsaicin in placenta (45)</b>		
absent	Sonar	1[ ]
present	De Cayenne	9[ ]
<b>5.10(i) Resistance to Tobamovirus - (48.1) Pathotype 0 (Tobacco Mozaic Virus (0))</b>		
absent	Doux italien, Piperade	1[ ]
present	Lamuyo, Sonar, Yolo Wonder	9[ ]
<b>5.10(ii) Resistance to Tobamovirus - (48.2) Pathotype 1-2 (Tomato Mozaic Virus (1-2))</b>		
absent	Piperade, Yolo Wonder	1[ ]
present	Delgado, Festos, Novi, Orion	9[ ]
<b>5.10(iii) Resistance to Tobamovirus - (48.3) Pathotype 1-2-3 (Pepper Mild Mottle Virus (1-2-3))</b>		
absent	Piperade, Yolo Wonder	1[ ]
present	Cuby, Tasty	9[ ]
<b>5.11 Resistance to Potato Virus Y (PVY) - (49.1) Pathotype 0</b>		
absent	Yolo Wonder	1[ ]
present	Yolo Y	9[ ]

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

<i>Example</i>	<i>Fruit: color after first color change</i>	<i>yellow</i>	<i>red</i>
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Comments:

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

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.

---

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

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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 of where you have indicated "yes".

.....

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes [ ]

(please provide details as specified by the Authority)

No [ ]

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]