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ENLARGED EDITORIAL COMMITTEE

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DUS EXAMINATION OF SEED-PROPAGATED VARIETIES OF PAPAYA

*Document prepared by the Office of the Union
(containing proposal prepared by an expert from Mexico)*

1. The purpose of this document is to consider a proposal by the Leading Expert for the Test Guidelines for Papaya, Mr. Alejandro Barrientos-Priego (Mexico), for the DUS examination of seed-propagated varieties of Papaya, with a view to revising the Test Guidelines for Papaya to include seed-propagated varieties.

2. The following abbreviations are used in this document:

CAJ: Administrative and Legal Committee
TC: Technical Committee
TC-EDC: Enlarged Editorial Committee
TWA: Technical Working Party for Agricultural Crops
TWC: Technical Working Party on Automation and Computer Programs
TWF: Technical Working Party for Fruit Crops
TWO: Technical Working Party for Ornamental Plants and Forest Trees
TWV: Technical Working Party for Vegetables
TWPs: Technical Working Parties

3. The structure of the document is as follows:

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CONSIDERATION OF THE TEST GUIDELINES FOR PAPAYA BY THE TECHNICAL COMMITTEE IN 2010

4. At its forty-sixth session held in Geneva from March 22 to 24, 2010, the TC considered document TG/PAPAYA(proj.6), which covers all varieties of *Carica papaya* L. of the family *Caricaceae*.

5. The TC agreed to amend Chapter 1 to read “These Test Guidelines apply to vegetatively propagated varieties of *Carica papaya* L.” and to make the necessary amendments in Chapters 2, 3, 4 and TQ 4. To invite the TC to consider how to address seed-propagated varieties. As explained in paragraph 1, the TC also agreed that the TWPs should be invited to consider how to address the DUS examination of seed-propagated varieties of Papaya on the basis of a document to be prepared by the Leading Expert, Mr. Alejandro Barrientos-Priego (Mexico), and the Office of the Union with a view to revising the Test Guidelines for Papaya to include seed-propagated varieties at the earliest opportunity. It also agreed that the Administrative and Legal Committee (CAJ) should be invited to consider that matter.

BACKGROUND INFORMATION

Situation in other Test Guidelines

6. In their consideration of seed-propagated varieties of papaya, the TWPs were invited to reflect on situations in other Test Guidelines where observations for characteristics are only made on certain plants within a variety. The following examples were provided:

Annex I: Test Guidelines for Hemp (document TG/CAN_SAT(proj.3))

Annex II: Test Guidelines for Carrot (document TG/49/8)

7. At the suggestion of the Technical Working Party for Agricultural Crops (TWA) and the Technical Working Party for Vegetables (TWV), the following examples have also been included in this document:

Annex III: Test Guidelines for Spinach (document TG/55/7)

Annex IV: Test Guidelines for Asparagus (document TG/130/4)

Explanation of seed-propagated varieties of Papaya

8. The Leading Expert for the Test Guidelines for Papaya, Mr. Alejandro Barrientos-Priego (Mexico) provided the following explanation concerning seed-propagated varieties of Papaya:

9. The proposal in document TG/PAPAYA(proj.6) was that, for seed-propagated varieties, the description of the variety would be based only on hermaphrodite plants, although protection would be granted for the variety as a whole.

10. In general, there are three sex types in papaya seedlings: male, female and hermaphrodite. Those types cannot be distinguished at the seedling and vegetative stages of growth. In papaya, a selection of the appropriate sex type of the progeny is made for commercial planting because, in general, hermaphrodite plants are grown for fruit, due to their better size and elongated shape. In addition, the use of hermaphrodite plants is essential for seed production.

11. Papaya is grown in many countries as an annual crop because of papaya ringspot virus (PRSV), which is not transmitted by seed.

12. The sex homologues are designated as:

M	male
MH	hermaphrodite
m	female

13. All combinations of dominant alleles, such as MM, MHMH and MHM, are lethal to the zygote. This makes all males and hermaphrodites into enforced sex heterozygotes. Twenty-five percent of the seeds in their fruits are non-viable.

14. The genotypes for sex are:

Mm	male
MHm	hermaphrodite
mm	female

Recently, other lethal genes have been detected and the plants are only hermaphrodite.

15. The Technical Working Party for Fruit Crops, at its thirty-sixth session, held in Kôfu, Japan, from September 5 to 9, 2005, considered document TG/PAPAYA(proj.1) and agreed the use of only hermaphrodite plants. Therefore, it is proposed that the matter be considered in particular, in relation to this specific case.

PROPOSAL BY THE LEADING EXPERT FOR THE DUS EXAMINATION OF SEED-PROPAGATED VARIETIES OF PAPAYA

16. On the basis that the male, hermaphrodite and female plants cannot be distinguished at the vegetative stage, the Leading Expert for the Test Guidelines for Papaya, Mr. Barrientos-Priego (Mexico) proposed that the vegetative characteristics could be recorded on all those types of plants. However, on the basis that the expression of inflorescence and fruit characteristics differs greatly between female and hermaphrodite plants, it is proposed that the observations for inflorescence and fruit characteristics be made only on hermaphrodite plants.

COMMENTS OF THE TECHNICAL WORKING PARTIES IN 2010

Technical Working Party for Agricultural Crops

17. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/25 (see document TWA/39/27 "Report", paragraphs 79 to 81).

18. The TWA agreed with the approach proposed by the Leading Expert for the Test Guidelines for Papaya, as set out in document TWA/39/25, paragraph 11 (paragraph 16 of this document). In that regard, it agreed that, in Chapter 3.4, it would be important to specify the number of plants that would need to be sown in order to achieve 25 hermaphrodite plants. It

also agreed that it might be appropriate to consider the addition of a characteristic for the proportion of male plants, female plants and hermaphrodite plants in the variety, if that characteristic would fulfill the requirements for a characteristic set out in the General Introduction.

19. In order to assist other experts in their consideration of the proposal, the TWA agreed that it would be useful to provide information on the method of propagation of varieties of papaya. It was also agreed that reference might be made to the Test Guidelines for Spinach (document TG/55/7) in an additional annex to the document, with particular regard to the following characteristics:

Proportion of monoecious plants (characteristic 12)

Proportion of female plants (characteristic 13)

Proportion of male plants (characteristic 14)

Technical Working Party for Vegetables

20. The Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, considered document TWV/44/25 (see document TWV/44/34 “Report”, paragraphs 88 to 90).

21. The TWV noted that the situation in Carrot (Annex II to this document) was not quite the same as that with Papaya, because the characteristic “Plants: proportion of male sterile plants” was examined in a special test and all other characteristics were examined on all plants of the variety. However, it agreed that the situation for Asparagus and Spinach was similar to that for Papaya. In that regard, it noted that all the plants of those varieties were observed and a description was made to cover all plants. The TWV agreed that the approach proposed for Papaya by the Leading Expert, as set out in document TWV/44/25, paragraph 11 (paragraph 16 of this document), might be interesting for crops such as Asparagus and Spinach. The TWV noted that a similar situation existed in varieties of *Matthiola incana*, where there were single- and double-flowered plants within a variety.

22. An expert from the International Seed Federation (ISF) requested clarification on what was protected if only certain plants of a variety were described and wondered whether the female plants in such a seed-propagated Papaya variety could be vegetatively propagated and protected as a new variety. In that regard, it was noted that such a vegetatively propagated variety could probably be considered as a new variety (e.g. on the basis of a characteristic for the proportion of male plants, female plants and hermaphrodite plants in the variety), irrespective of whether all the plants in the seed-propagated variety were described, or only the hermaphrodite plants. The TWV also noted that the vegetative characteristics could be recorded on all plants and it was only the inflorescence and fruit characteristics that were proposed to be observed only on hermaphrodite plants.

Technical Working Party for Ornamental Plants and Forest Trees

23. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010, agreed with the approach proposed by the Leading Expert for the Test Guidelines for Papaya, as set out in document TWO/43/27, paragraph 11 (paragraph 16 of this document). It noted that there would be no obstacle to develop additional characteristics for male plants, for example, if that would be useful (see document TWO/43/29 Rev. “Report”, paragraph 88).

Technical Working Party for Fruit Crops

24. The TWF considered document TWF/41/27, as presented by Mr. Alejandro Barrientos-Priego (Mexico). The TWF agreed with the approach proposed by the Leading Expert for the Test Guidelines for Papaya, as set out in document TWF/41/27, paragraph 11 (paragraph 16 of this document) and also agreed with the TWA that, in Chapter 3.4, it would be important to specify the number of plants that would need to be sown in order to achieve 25 hermaphrodite plants. It also agreed with the TWA that it might be appropriate to consider the addition of a characteristic for the proportion of male plants, female plants and hermaphrodite plants in the variety, if that characteristic would fulfill the requirements for a characteristic set out in the General Introduction.. It also noted that there would be no obstacle to develop additional characteristics for male plants and female plants if that would be useful (see document TWF/41/30 Rev. "Report", paragraphs 60 and 61).

PROPOSAL AND COMMENTS BY THE LEADING EXPERT FOR THE DUS EXAMINATION OF SEED-PROPAGATED VARIETIES OF PAPAYA

25. On the basis that the male, hermaphrodite and female plants cannot be distinguished at the vegetative stage, the Leading Expert for the Test Guidelines for Papaya, Mr. Barrientos-Priego (Mexico), proposed that the vegetative characteristics could be recorded on all those types of plants. However, on the basis that the expression of inflorescence and fruit characteristics differs greatly between female and hermaphrodite plants, it was proposed that the observations for inflorescence and fruit characteristics be made only on hermaphrodite plants.

26. At the meeting of the Enlarged Editorial Committee (TC-EDC), held in Geneva on January 6, 2011, Mr. Barrientos-Priego reported that, with regard to the suggestion of the TWA, it was not intended to add a characteristic for the proportion of male plants, female plants and hermaphrodite plants.

CONSIDERATION BY THE TECHNICAL COMMITTEE IN 2011

27. The TC, at its forty-seventh session, held in Geneva from April 4 to 6, 2011, considered document TC/47/15 "DUS Examination of seed-propagated varieties of Papaya" and agreed that a proposed revision of the Test Guidelines should be considered by the TWF at its forty-second session to be held in Hiroshima, Japan, from November 14 to 18, 2011 (see document TC/47/26 "Report on the Conclusions").

CONSIDERATION BY THE ADMINISTRATIVE AND LEGAL COMMITTEE IN 2011

28. The Administrative and Legal Committee (CAJ), at its sixty-second session, held in Geneva on October 18 and 19, 2010, noted that the TC, at its forty-sixth session, held in Geneva from March 22 to 24, 2010, had agreed that the Test Guidelines for Papaya should be adopted on the basis that they would apply to vegetatively propagated varieties. The CAJ noted that the TC had agreed that the TWPs should be invited to consider how to address the DUS examination of seed-propagated varieties of Papaya on the basis of a document to be prepared by the Leading Expert, Mr. Alejandro Barrientos-Priego (Mexico), and the Office of the Union with a view to revising the Test Guidelines for Papaya to include seed-propagated varieties at the earliest opportunity. The CAJ also noted that the TC had further agreed that the CAJ should be invited to consider that matter (see document TC/46/15 "Report on the Conclusions", paragraph 99). The CAJ agreed to consider that matter at its sixty-fourth session to be held in Geneva in October 2011 (see document CAJ/62/8 "Report on the Conclusions", paragraph 25).

29. The Administrative and Legal Committee (CAJ) at its sixty-fourth session held in Geneva on October 17, 2011 noted the conclusion of the Technical Committee (TC) concerning the DUS examination of seed-propagated varieties of Papaya, at its forty-seventh session, held in Geneva from April 4 to 6, 2011, as set out in paragraph 30 of document CAJ/64/10. The CAJ agreed that the matter should be considered further by the CAJ at its sixty-fifth session, on the basis of the conclusions of the TC at its forty-eighth session, in March 2012.

CONSIDERATION BY THE TECHNICAL WORKING PARTY FOR FRUIT CROPS

30. At the forty-second session held in Hiroshima, Japan, from November 14 to 18, 2011 the TWF discussed document TG/264/2(proj.1) for Papaya and agreed that the draft Test Guidelines should be sent to the TC for adoption at its forty-eighth session, to be held in Geneva from March 26 to 28, 2012, on the basis of document TG/264/2(proj.1) and comments of the TWF.

31. The revisions to the Test Guidelines for Papaya (document TG/264/1), agreed by the TWF at the forty-second session, are as follows.

1 “Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Carica papaya* L. ~~of the family~~
~~*Caricaceae*.~~

“2. Material Required

[...]

“2.2 The material is to be supplied in the form of ~~hermaphrodite seeds or~~ plants.

“2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

~~6 hermaphrodite~~ 200 seeds in the case of seed-propagated varieties,
or 5 plants in the case of vegetatively propagated varieties.

~~In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.~~

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

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

3. Method of Examination

[...]

3.1.2 The growing cycle is considered to be the durations of a single growing season, beginning with vegetative growth, followed by flowering and fruit harvest. the period

ranging from the beginning of active vegetative growth or flowering, continuing through active vegetative growth or flowering and fruit development and concluding with the harvesting of fruit

[...]

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expressions of the relevant characteristics of the variety and the conduct of the examination. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing cycles.

[...]

“3.4 Test Design

“3.4.1 Each test should be designed to result in a total of at least ~~25 hermaphrodite~~ 20 plants in the case of seed-propagated plants or, in the case of vegetatively propagated varieties, in a total of at least ~~6 hermaphrodite~~ 5 plants or plant parts.

“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 ~~25 hermaphrodite~~ 20 plants parts in the case of seed-propagated varieties or, in the case of vegetatively propagated varieties, on ~~6 hermaphrodite~~ 5 plants or plant parts.

4. Assessment of Distinctness, Uniformity and Stability

“4.1 Distinctness

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purpose of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants in the case of seed-propagated plants and 5 plants or parts taken from each of 5 plants in the case of vegetatively propagated plants, in both types of propagation disregarding any off-type plants.

4.1.5 Method of Observation

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

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

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

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

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

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

“Visual” observation (V) is an observation made on the basis of the

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

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

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

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

"4.2 Uniformity

"4.2.2 For the assessment of uniformity for seed-propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 25 hermaphrodite 20 plants, one off-type is allowed. Vegetatively propagated varieties: for the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of 95% should be applied. In the case of a sample size of 5 plants, no off-type is allowed.

4.2.3 Seed-propagated varieties: the assessment of uniformity for seed-propagated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.4 Hybrid varieties: 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.

[...]

6.2 States of Expression and Corresponding Notes

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

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

State	Note
small	3
medium	5
large	7

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

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

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

Extract from

TEST GUIDELINES FOR PAPAYA (DOCUMENT TG/264/2 (PROJ.2))

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11. VG	<u>Leaf blade: presence of flag leaflet</u>					
(*)						
QL	(b) absent				Cera, Maradol, Sunrise	1
	present				Callina	9
12. VG/	<u>Time of flowering</u>					
(*)	MG					
QN	early				Arum, Carisya, Sinta	3
	medium				Callina, Sunrise	5
	late				Cavite Special, Wulung	7
16. VG	<u>Inflorescence: number of flowers</u>					
(*)						
QN	(c) few				Ishigaki Sango	3
	medium				Sunrise	5
	many				Tainung N° 1	7
17. VG/	<u>Proportion of male plants</u>					
(+)						
QN	absent or very low					1
	low					3
	medium					5
	high					7
	very high					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18.	VG/					
	MG					
(+)	<u>Proportion of hermaphrodite plants</u>					
QN	absent or very low					1
	low					3
	medium					5
	high					7
	very high					9
19.	VG/					
	MG					
(+)	<u>Proportion of female plants</u>					
QN	absent or very low					1
	low					3
	medium					5
	high					7
	very high					9
20.	VG/					
	MS					
	<u>Inflorescence: length of main axis</u>					
QN	(c) short				Ishigaki Sango, Sunrise	3
	medium					5
	long				Tainung N° 1	7
21.	VG					
	<u>Inflorescence: anthocyanin coloration of axis</u>					
QN	(c) absent or weak				Ishigaki Sango, Sunrise, Tainung N° 1	1
	medium					2
	strong					3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22	VG/ MS	Flower: length of corolla				
(+)						
QN	(d)	short				3
		medium			Sunrise,	5
		long			Tainung N° 1	7
23	VG	Flower: color of corolla				
(+)						
PQ	(d)	white				1
		cream			Sunrise, Tainung N 1	2
		yellow				3
		green				4
		purple				5
33.	VG	<u>Fruit: surface</u>				
QN		smooth			Callina, Paris	1
		medium			Carisya	2
		rough			Sukma	3
41.	VG	<u>Fruit shape of central cavity</u>				
(*)						
(+)						
PQ	(f)	circular				1
		angular			Tainung N 1	2
		star-shaped			Du Roi Solo, Ishigaki Sango, Sunrise	3
		<u>stellate</u>			<u>BT-2</u>	<u>4</u>
		irregular			Simangko	5

General remark: in the document TG/264/2(proj.2) the indications of method of observation for all of the characteristics were added and some examples varieties were added/changed

8. Explanations on the Table of characteristics8.1 *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) Plant and stem: Observations on the plant and stem should be made when the first ~~fruit has reached harvest maturity~~ inflorescence or single flower has appeared.
- (b) Leaf blade and petiole: Observations on the leaf blade and petiole should be made on mature leaves. Leaves should be taken from the middle third of the current season's growth when the ~~fruit has reached its full size~~. first inflorescence or single flower fruit has appeared.
- (c) Inflorescence: Observations on inflorescence should be taken after the fourth one has appeared, when it has reached its full length. Single flowers should be excluded from all observations. Observations must be made only on hermaphrodite or female plants, according to the type of variety that will be tested.
- (d) Flower: Observations on the flower should be made during the first flower opening, at the start of anther dehiscence in hermaphrodite ~~flowers-varieties,~~ and in the case of female varieties at midday.
- (e) Peduncle, fruit and seed: Observations on the peduncle, fruit and seed should be made on 5 typical fruits, taken from the middle part of the fruiting region at the time of harvest maturity. Seed characteristics should only be observed on fully-developed seeds. Observations must be made only on the type of variety that will be tested: hermaphrodite or female plants.
- (f) Ripe: Observations on the fruit should be made when the color change is complete.

8.2 *Explanations for individual characteristics*

Ad. 17: Proportion of male plants

Ad. 18: Proportion of hermaphrodite plants

Ad. 19: Proportion of female plants

The observations on proportion of male, hermaphrodite and female, must be observed when the plant is in full bloom, only in seed propagated varieties.

Male, hermaphrodite, female plants	Note	Approximate percentage
absent or very low	1	< 10%
	2	11 to 20%
low	3	21 to 30%
	4	31 to 40%
medium	5	41 to 50%
	6	51 to 60%
high	7	61 to 70%
	8	71 to 80%
very high	9	> 90%

[Annexes follow]

ANNEX I

Extract from

TEST GUIDELINES FOR HEMP (DOCUMENT TG/CAN_SAT(PROJ.3))

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12. 2101 Time of male						
(*) 2304 flowering						
(+) MG						
QN	very early				Finola	1
	early				Ruby	3
	medium				Tiborszálási	5
	late				Kompolti	7
	very late					9
13. 2102 Inflorescence:						
2304 anthocyanin						
VG coloration of male flowers						
QN	absent or very weak				Kompolti	1
	weak				Carmen	3
	medium				Lovrin 110	5
	strong					7
	very strong					9
14. 2202 Inflorescence: THC						
(*) 2203 content						
(+) 2302						
2305						
MG						
QN (b)	absent or very low				Santhica 23, Hlera, Glukhovskaya 33	1
	low to medium				Férimon, Carmen, Usó 31	2
	medium to very high				Krasnodarskaya, Medisins, Grace	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15.	2102 Plant: proportion of					
(*)	2202 monoecious plants					
(+)	2302					
	2304					
	VS					
QN	absent or very low					1
	low					3
	medium					5
	high					7
	very high					9
16.	2102 Plant: proportion of					
(*)	2202 female plants					
(+)	2302					
	2304					
	VS					
QN	absent or very low					1
	low					3
	medium					5
	high					7
	very high					9
17.	2102 Plant: proportion of					
(*)	2202 male plants					
(+)	2302					
	2304					
	VS					
QN	absent or very low					1
	low					3
	medium					5
	high					7
	very high					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18.	2202 Plant: natural height					
(*)	2302					
(+)	VG/ MG					
QN	(b) short				Carmen, Uso 31, Finola	3
	medium				Glukhovskaya 33	5
	long				Dneprovskaya 11	7
19.	2202 Main stem: color					
(*)	2302					
	VG					
PQ	(b) yellow				Chamaeleon, Glukhovskaya 10	1
	(c) medium green				Tiborszálási, Hlera	2
	dark green				Kompolti, Zolotonoshskaya 11	3
	purple				Fibranova	4
20.	2202 Main stem: length of					
	2302 internodes					
	MS					
QN	(b) short				Finola, Fasamo	3
	(c) medium				Ruby, Sinelnikovskaya 3	5
	long				Dneprovskaya 11	7
21.	2202 Main stem: thickness					
	2302					
	MS/ VG					
QN	(b) thin				Carmen	1
	(c) medium				Dneprovskaya 11	2
	thick				Carmagnola, Deni	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22.	2202 Main stem: number 2302 of grooves					
(+)	VG					
QN	(b) few (c)					1
	medium				Fedora 17, FibreGem	2
	many				Usó 31, Ruby	3
23.	2204 Main stem: pith in 2306 cross-section					
(+)	VG					
QN	(b) absent or very thin					1
	medium					2
	thick				Deni	3

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) Observations should be done on the last opposite, fully expanded leaves
- (b) Male plants should be excluded from the observation
- (c) Observations should be done on the middle third part of the plant.

[Annex II follows]

ANNEX II

Extract from

TEST GUIDELINES FOR CARROT (DOCUMENT TG/49/8)

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

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
31. (* (+)	VS	Plants: proportion of male sterile plants	Plantes: proportion de plantes mâles stériles	Pflanzen: Anteil männlich steriler Pflanzen	Plantas: proporción de plantas androestériles		
QN	(c)	absent or very low	nulle ou très faible	fehlend oder sehr gering	ausente o muy baja	Nantaise améliorée 2, Touchon	1
		intermediate	intermédiaire	mittel	intermedio		2
		high	forte	hoch	alta	Nanco, Tino	3
32. (* (+)	VS	Plant: type of male sterility	Plante: type de stérilité mâle	Pflanze: Typ der männlichen Sterilität	Planta: tipo de androestérilidad		
QL	(c)	brown anther	anthères brunes	braune Antheren	antera marrón	Nanco	1
		petaloid anther	anthères pétaloïdes	petaloïde Antheren	antera petaloïde	Tino	2

[Annex III follows]

ANNEX III

Extracts from

TEST GUIDELINES FOR SPINACH (DOCUMENT TG/55/7)

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

	English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12. VS (*) (+)	Proportion of monoecious plants	Proportion de plantes monoïques	Anteil monözischer Pflanzen	Proporción de plantas monoicas		
QN	absent or very low	absente ou très faible	fehlend oder sehr gering	ausente o muy baja	Medania	1
	low	faible	gering	baja	Matador	3
	medium	moyenne	mittel	media	Figo	5
	high	grande	hoch	alta	Giraffe, Lazio	7
	very high	très grande	sehr hoch	muy alta	Monnopa	9
13. VS (*) (+)	Proportion of female plants	Proportion de plantes femelles	Anteil weiblicher Pflanzen	Proporción de plantas femeninas		
QN	absent or very low	absente ou très faible	fehlend oder sehr gering	ausente o muy baja	Monnopa	1
	low	faible	gering	baja	Giraffe	3
	medium	moyenne	mittel	media	Figo, Medania	5
	high	grande	hoch	alta	Parrot	7
	very high	très grande	sehr hoch	muy alta		9
14. VS (*) (+)	Proportion of male plants	Proportion de plantes mâles	Anteil männlicher Pflanzen	Proporción de plantas masculinas		
QN	absent or very low	absente ou très faible	fehlend oder sehr gering	ausente o muy baja	Monnopa, Parrot	1
	low	faible	gering	baja		3
	medium	moyenne	mittel	media	Medania	5
	high	grande	hoch	alta		7
	very high	très grande	sehr hoch	muy alta		9

8. Explanations on the Table of Characteristics

8.2 *Explanations for individual characteristics*

Ad. 12: Proportion of monoecious plants

Ad. 13: Proportion of female plants

Ad. 14: Proportion of male plants

Observations on the proportion of monoecious, female or male plants should be made at the beginning of seed setting. The three groups are defined as follows:

Monoecious plants: plants which have both male flowers and female flowers (seeds clearly visible);

Female plants: plants which have only female flowers (seeds clearly visible);

Male plants: plants which have only male flowers.

	<u>Note</u>	<u>Approximate percentage</u>
absent or very low	1	< 10%
	2	20%
low	3	30%
	4	40%
medium	5	50%
	6	60%
high	7	70%
	8	80%
very high	9	> 90%

[Annex IV follows]

ANNEX IV

Extracts from

TEST GUIDELINES FOR ASPARAGUS (DOCUMENT TG/130/4)

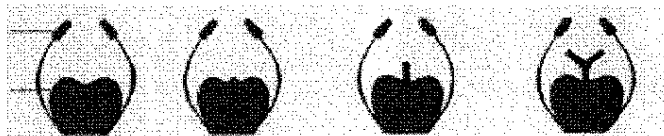
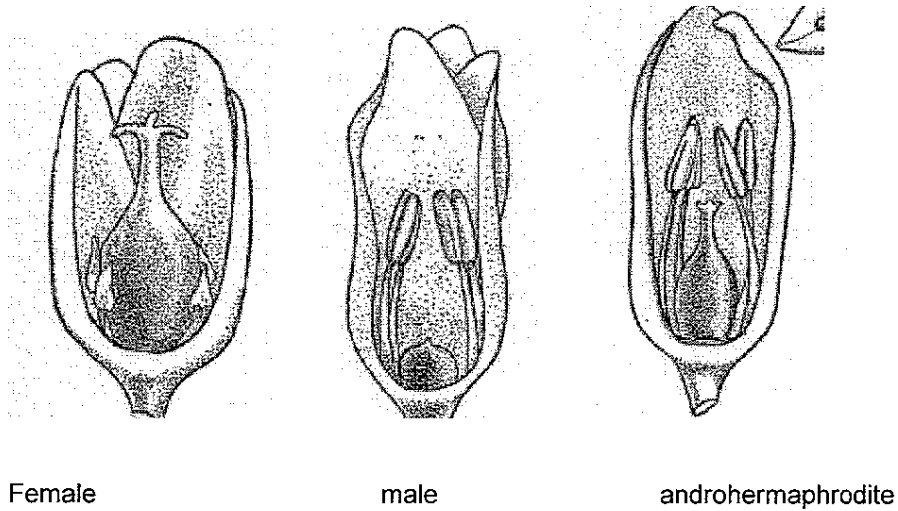
8. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

	English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. VG (+) (*)	Type of flowering	Type de floraison	Blühtyp	Tipo de floración		
QL	plants with male flowers and plants with female flowers	plantes avec des fleurs mâles et plantes avec des fleurs femelles	Pflanzen mit männlichen Blüten und Pflanzen mit weiblichen Blüten	plantas con flores masculinas y plantas con flores femeninas	Andreas	1
	plants with male and female flowers	plantes avec des fleurs mâles et des fleurs femelles	Pflanzen mit männlichen und weiblichen Blüten	plantas con flores masculinas y femeninas	Argenteuil, Desto	2
	plants with androhermaphrodite flowers and plants with male flowers with style rudiments	plantes avec des fleurs androhermaphrodites et plantes avec des fleurs mâles avec rudiments de style	Pflanzen mit männlich-zwittrigen Blüten und Pflanzen mit männlichen Blüten mit Griffelrudimenten	plantas con flores hermafroditas masculinas y plantas con flores masculinas con estilo	Backlim, Gijnlim	3

8. Explanations on the Table of Characteristics

Explanations for individual characteristics

Ad. 16: Type of flowering



Type of male flowers: the flowers always have fully developed anthers; the style can be from absent to fully developed, but the stigmas are always rudimentary or absent. Even when two of the three stigmas are present, the flower is considered to be male. The male flower will not produce seeds.

The androhermaphrodite flower has three stigmas and anthers which produce pollen. The flower has the possibility, when self-pollinated, to produce a berry with some seeds.

[End of annex IV and of document]