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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

WATERMELON

(*Citrullus lanatus* (Thunb.) Matsum. et Nakai))*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

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

Alternative Names:*

Latin	*English*	*French*	*German*	*Spanish*
Citrullus lanatus (Thunb.) Matsum. et Nakai)	Watermelon	Pastèque	Wassermelone	Sandía

ASSOCIATED DOCUMENTS

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

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Citrullus lanatus* (Thunb.) Matsm. et Nakai.

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:

1,200 seeds.

2.4 The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. [In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.]

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

3. Method of Examination

3.1 Duration of Tests

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

3.2 Testing Place

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

3.3 Conditions for Conducting the Examination

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

3.3.1 Type of observation – visual or measurement

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

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants]

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 35plants in the open and 20 plants in the green house, which should be divided between two or more replicates. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations should be made on 20 plants or parts taken from each of 20 plants.

3.6 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

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

4.1.3 Clear Differences

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

4.2 Uniformity

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

4.2.2 [The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction.]

4.2.3 [For the assessment of uniformity, a population standard of 1 % and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 35 plants in the open or 20 plants in the greenhouse, 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.

[4.3.3] [The stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.]

4.4 Record

4.4.1 The variety description should state whether the records have been taken in the glasshouse or in the open.

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

5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

(a) Ploidy (characteristic 1)
(b) Fruit: weight (characteristic 28)
(c) Fruit: shape of longitudinal section (characteristic 29)
(d) Fruit: ground color of skin (characteristic 30)
(e) Fruit: stripes (characteristic 40)
(f) Fruit: width of stripes (caracteristic 42)
(g) Fruit: main color of flesh (characteristic 46)
(h) Seed: ground color of testa (characteristic 51)

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

(*) Asterisked characteristic – see Section 6.1.2

(QL) Qualitative characteristic – see Section 6.3
(QN) Quantitative characteristic – see Section 6.3
(PQ) Pseudo-qualitative characteristic – see Section 6.3

(a) – (c) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1.

(+) See Explanations on the Table of Characteristics in Chapter 8, Section 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
1.		**Ploidy**					
(*)		diploid				Sugar Baby, Yamato 3	2
		triploid				Kimiwa Red Seedless, Kôyô Seedless, Pepsin	3
		tetraploid (??)				4 x Fumin, Tetra Elena	4
2.		**Seedling: shape of cotyledon (at time of the appearance of the first leaf)**					
(+)		narrow elliptic				Kahô, ,Topgun	1
		elliptic				Crimson Sweet, Farao, Napsugár, Sweet Favorite, Yamato 3,	2
		broad elliptic				Kanro, Oasis, Rubin, Scarlet Trio	3
3.		**Seedling: size of cotyledon**					
		small				Crimson Glory, Kanro, Rapido, Rocio	3
		medium				Granit, Crisby, Panni Sugar Suika, Yamato 3,	5
		large				Candida, Farao, Kurobe, Royal Flash	7
4.	***Delete***	**Seedling: intensity of green color of cotyledon**					
		light				A graine rouge à confire à chaire verte, Shin Kurobe 7	3
		medium				Yamato 3	5
		dark				Kahô	7

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5, (*)		**Seedling: spots on cotyledon (at the time of the appearance of the first leaf)**					
		absent				Yamato 3	1
		present				Okan	9
6.	***Delete (Present all 180 tested variety)***	**Seedling: depression of nerves of cotyledon**					
		absent				A graine rouge à confire à chair verte	1
		present				Black Seeded Chilean	9
7.	***Delete***	**Seedling: length of hypocotyl**					
	Polish opinion to keep it	short				A graine rouge à confire à chair rouge, Mirage	3
		medium				Jubilée	5
		long				Candida	7
8.	***Delete***	**Plant: growth habit**					
		bush				Tsurunashi Asahi	1
		runner				Yamato 3	2
9.		**Plant: length of main stem *(at time of thefirst female flowers appiers)***					
		short *(bush)*				Fumin, Tsurunashi Asahi	3
		medium				Crimstar. Pannonia, Yamato 3,	5
		long				Charleston Gray, Crimson Sweet, Kanro	7

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10.		**Plant: hermaphrodite flowers**					
		absent				Crisby,Sugar Baby, Yamato 3	1
		present				Kanro	9
11.		**Plant: number of nodes *(at time of the first female flowers appiers)***					
		low				Sugar Baby, Yamato 3	3
		medium				Kahô, Panonia	5
		high				Charleston Gray, Daisen	7
12.		**Leaf blade: length*(3.. leaves)***					
	(a)	short				Kanro 3	3
		medium				Sugar Baby, Yamato	5
		long				A graine rouge à confire à chair verte, Sweet Siberian	7.
13. (*)		**Leaf blade: width *(3.. leaf)***					
	(a)	narrow				Ogon, Striped Blue Limber	3
		medium				Candida, Sugar Baby, Yamato 3	5
		broad				Fabiola, Sanpaku	7
14.		**Leaf blade: ratio length/width**					
	(a)	small				Kanro	3
		medium				Sugar Baby, Yamato 3	5
		large				Kurobe	7

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15.		**Leaf blade: color**					
	(a)	yellow green				Baby Fun, Okan	1
		green				Yamato 3	2
		grey green				Candida, Sugar Baby	3
16.	***Delete***	**Leaf blade: intensity of color**					
	(a)	light					3
		medium				Yamato 3	5
		dark				Kurobe	7
17. ***(after 5.)*** **(*)**		**Leaf: degree of lobing (1st leaf)**					
	(a)	weak					
		medium					
		strong					
18.		**Leaf blade: depth of incisions of margin of 3rd leaf**					
(+)	**(a)**	shallow				Daisen	3
							5
		deep				Fumin	7
19.	***Delete***	**Leaf blade: blistering**					
	(a)	weak				Tabata	3
		medium				Yamato 3	5
		strong				Klondike Striped II	7

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
20.	***Delete***	**Leaf blade: undulation of margin**					
	(a)	weak				Fabiola, Rocio	3
		medium				Rodeo, Sugar Baby	5
		stong				Family Fun	7
21. (*)		**Leaf blade: mottling**					
	(a)	absent				Sugar Baby, Yamato 3	1
		present				Okan, Taiyô	9
22.		**Petiole: length (3rd leaf)**					
		short				Sugar Baby, Yamato 3	3
		medium				Kahô, Pannonia	5
		long				Charleston Gray, Kurobe	7
23.	***Delete***	**Flower: size of petal of female flower(third to seventh flower)**					
		small				Daisen	3
		medium				Yamato 3	5
		large				Kanro	7
24.	***French opinion to delete***	**Flower: shape of apex of petal of the 1st female flower**					
		acute				Yamato 3	3
		rounded				Kahô	5
		obtuse				Ogon	7

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
25.	***Delete***	**Flower: anther dehiscence at low temperature**					
		weak				Tabata	3
		medium				Yamato 3	5
		strong				Crimson Sweet	7
26.	***Delete***	**Ovary: size**					
	(French opinion to keep it)	small				Kahô	3
		medium				Fumin	5
		large				Ogon	7
27.	***Delete***	**Ovary: pubescence**					
	(French opinion to keep it)	weak					3
		medium				Pannonia, Yamato 3	5
		strong				Kahô	7
28. (*)		**Fruit: weight (1st mature fruit)**					
	(b)	very low				Colocynthis	1
		very low to low				??	2
		low				Beni-kodama	3
		low to medium				Otome	4
		medium				Asahi Yamato, Sugar Baby	5
		medium to high				Fumin	6
		high				Yamato Cream 1	7
		high to very high				Crimson Sweet	8
		very high				Kurobe	9

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
29. (*)		**Fruit: shape of longitudinal section**					
(+)	**(b)**	round				Kanro, Sugar Baby	1
		lengthened round				Granit, Pannonia	2
		broad elliptic				Fumin, Gray Belle Yellow Baby, Zorba	3
		elliptic				Congo, Kurobe, Picnic	4
		cylindric				Charleston Gray,	5
30. (*)		**Fruit: ground color of skin**					
(+)	**(b)**	white				Arizona, Klondike Striped II	1
		yellow				Okan, Taiyô	2
		green				Fabiola, Sugar Baby, Sugar Belle	3
31. (*)		**Fruit: intensity of green and yellow color of skin**					
(+)	**(b)**	very light				Fumin	1
		very light to light				Crimson Sweet	2
		light				Estella Rocha, Sweet Favorite, Yamato 3	3
		light to medium					4
		medium				Asahi Yamato, Lucky Sweet, Rodeo	5
		medium to dark				Sweet Marvel	6
		dark				Benimusume, Resistant	7
		dark to very dark				Sugar Baby	8
		very dark				Rocio, Tabor 5	9

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
32.	**Delete**	**Fruit: length of peduncle**					
	(b)	short				Sweet Heart, Tabata	3
		medium				Mirage, Panonia Yamato 3	5
		long				Black Seeded Chilean, Kanro, Miyako 3	7
33. (*)		**Fruit: size of insertion of peduncle**					
(+)	**(b)**	small				Charleston Gray, Sugar Bush	3
		medium				Fumin, Picnic	5
		large				Dixie Queen, Kanro	7
34. (*)		**Fruit: shape of basal part**					
(+)	**(b)**	flat				A graine rouge à confire à chair verte, Miyako 3	1
		flat to rounded					2
		rounded				Sugar Baby, Yamato 3	3
		rounded to conical					4
		conical				Mikasa, Yellow Baby	5
35.		**Fruit: depression of base**					
	(b)	shallow				Kahô, Yellow Baby	3
		medium				Triple Sweet, Yamato 3	5
		deep				A graine rouge à confire à chair verte, Kanro	7

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
36. (*)		**Fruit: shape of apical part**					
(+)	**(b)**	flat				Cream Sinka, Kanro	1
		flat to rounded					2
		rounded				Glory, Sugar Baby, Toro, Yamato 3	3
		rounded to conical					4
		conical				Kahô	5
37.		**Fruit: depression at apex**					
	(b)	shallow				Burpee Hybrid, Kahô	3
		medium				Asahi Miyako, Fumin	5
		profound					7
38.		**Fruit: size of pistil scar**					
	(b)	small				Charleston Gray, Daisen	3
		medium				Yamato 3	5
		large				Kanro	7
39. (*)		**Fruit: grooves (Testing method visual or touching)**					
	(b)	absent				Sugar Baby, Yamato	1
		at basal half					2
		at apical half					3
		on whole fruit				Kurobe, Tabata	4
40. (*)		**Fruit: stripes**					
(+)	**(b)**	absent				Asahi Yamato, Marsowski, Sugar Baby	1
		present				Kanro, Yellow Baby	9

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
41. (*)		**Fruit: intensity of green color of stripes**					
(+)	**(b)**	very light					1
		light					3
		medium				Kurobe	5
		dark				Crimson Sweet, Miyako 3	7
		very dark				Tabata	9
42. (*)		**Fruit: width of stripes**					
	(b)	very narrow					1
		narrow				Festival Queen, Yamato Cream 2	3
		medium				Miyako 3, Oasis	5
		broad				Crimson Sweet, Kurobe, Sweet Heart	7
		very broad				Rodeo	9
43.		**Fruit: marbling**					
	(b)	absent				Sun Torna	1
		present				Daisen	9
44.	**Delete** **Polish opinion to keep it**	**Fruit: intensity of marbling**					
	(b)	very weak					1
		weak				Fumin	3
		medium				Tabata	5
		strong				Kurobe	7
		very strong				Daisen	9

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
45. (*)		**Fruit: thickness of outer layer of pericarp**					
(+)	**(b)**	thin				A graine rouge à confire à chair verte, Beni-kodama, Kahô	3
		medium				Panonia, Sugar Baby, Sugar Belle, Yamato 3	5
		thick				Charleston Gray, Chrimson Sweet, Kurobe, Triple Sweet	7
46. (*)		**Fruit: main color of flesh**					
	(b)	white				Yamato Cream 3	1
		yellow				Yamato Cream 1, Napsugár	2
		orange				Kahô	3
		pink				Bingo	4
		red				Asahi Yamato, Sugar Baby	5
		purple				Crimson Sweet	6
47.		**Fruit: intensity of (yellow, orange, red)main color of flesh**					
	(b)	light					3
		medium					5
		dark					7
48.		**Fruit: firmness of flesh (Testing method and timing??)**					
	(b)	soft				Yamato Cream 2	3
		medium				Miyako 3	5
		firm				Fumin	7

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
49.		**Fruit: number of seeds**					
	(b)	absent or very small				Tanenashi Kôyô	1
		small				Kahô	3
		medium				Miyako 3	5
		large				Yamato 3	7
		very large				Fumin	9
50. (*)		**Seed: size (Dry seed)**					
	(c)	very small				Urimi	1
		small				Panonia, Tabata	3
		medium				Sugar Baby	5
		large				Charleston Gray, Kurobe	7
		very large				Malali	9
51. (*)		**Seed: ground color of testa (Dry seed)**					
	(c)	white				Sanpaku	1
		cream				Kurobe	2
		green				Green Citron	3
		red				Red Citron	4
		red brown				Kahô	5
		brown				Otome, Sugar Baby	6
		black				Yamato Cream	7
52.		**Seed: secondary color of testa (Dry seed)**					
	(c)	absent				Kahô	1
		present				Charleston Gray	9

		English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
53.		**Seed: type of distribution of secondary color of testa**					
	(c)	in dots only				Charleston Gray, Excel	1
		in patches only				Kurobe, Rattle Snake	2
		in dots and in patches				Yamato 3	3
54.	**(Delete) Polish opinion to keep it**	**Seed: area of secondary color in relation to that of ground color**					
	(c)	small				Early Star	3
		medium				Grimson Sweet	5
		large				Resistant	7
55.		**Seed: patches <u>at hilum</u>**					
	(c)	absent				Daisen, Kahô	1
		present				Kurobe, Rattle Snake, Yamato 3	9
56.	**Delete**	**Seed: patches <u>at margin</u>**					
	(c)	absent				Sweet Siberian	1
		present				Kurobe, Malali, Rattle Snake	9
57. (*)		**Time of female flowering (50% of plants with at least one female flower)**					
		early					3
		medium				Sugar Baby, Yamato 3	5
		late				Kurobe	7

	English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
58.	**Time of maturity (50% of plants with at least one ripe fruit) (Days from flowering or sowing???)**					
	early				Kahô, Sugar Baby	3
	medium				Pannonia, Yamato 3	5
	late				Charleston Gray, Fumin, Kurobe	7
(+)	**Resistance to Fusarium *oxysporum f.sp. niveum* (E.F. Smith) Snyder et Hansen**					
59.1	**Race 0**					
	absent				Kahô	1
	present				Calhoun Gray, Charleston Gray	9
59.2	**Race 1**					
	absent				Kahô	1
	present				Calhoun Gray	9
59.3	**Race 2**					
	absent				Kahô	1
	present				P.I.-296341-FR	9

	English	Français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
(+)	**Resistance to *Colletotrichum lagenarium (passerini)* Ellis et Halsted**					
60.1	**Race 1**					**1**
	absent				Kahô	9
	present				Charleston Gray, Congo	
60.2	**Race 2**					
	absent				Kahô	1
	present				African citron W-695	9
60.3	**Race 3**					
	absent				Kahô	1
	present				Charleston Gray, Congo	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:

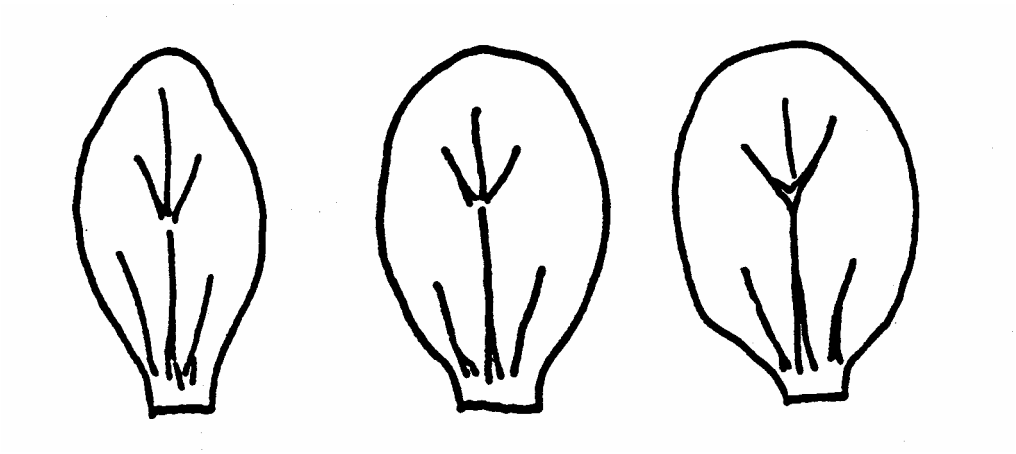
(a) Leaf blade: All observations on the leaf blade should be recorded on fully developed leaves

(b) Fruit: Unless otherwise indicated, all observations on the fruit should be made on first well developed, mature fruits.

(c) Seed: Unless otherwise indicated, all observations on the fruit should be made on first well developed, mature fruits.

8.2 Explanations for individual characteristics

Ad. 2: Seedlings: shape of cotyledon



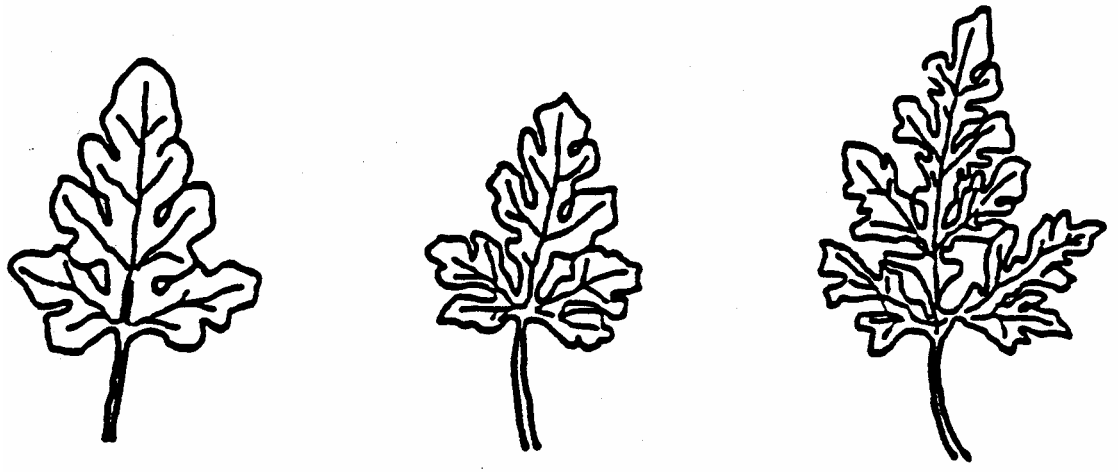
1	2	3
narrow elliptic	elliptic	broad elliptic

Ad/6??

First leaf degree of lobing

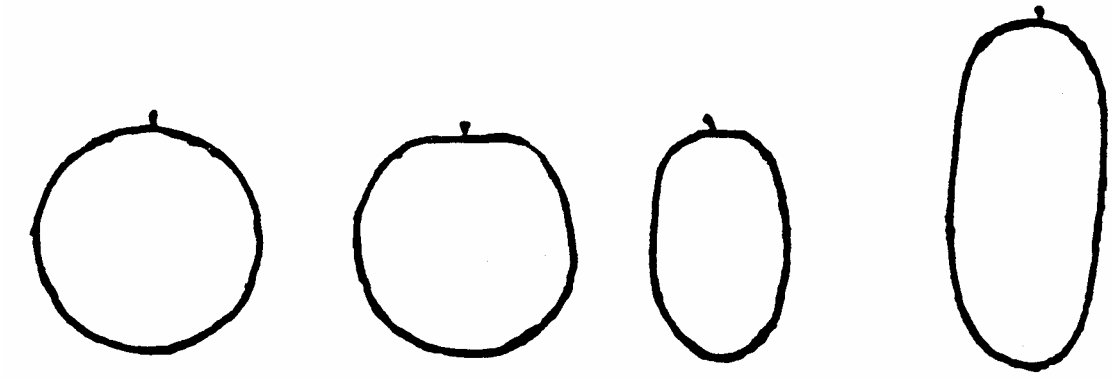
Ad.18: Leaf blade: depth of incisions of margin of leaf of central third of plant

The incisions should be observed at the largest leaf between the fifteenth and twentieth node of the main stem.



3	5	7
shallow	Delete medium	deep

Ad.29: Fruit: shape of longitudinal section

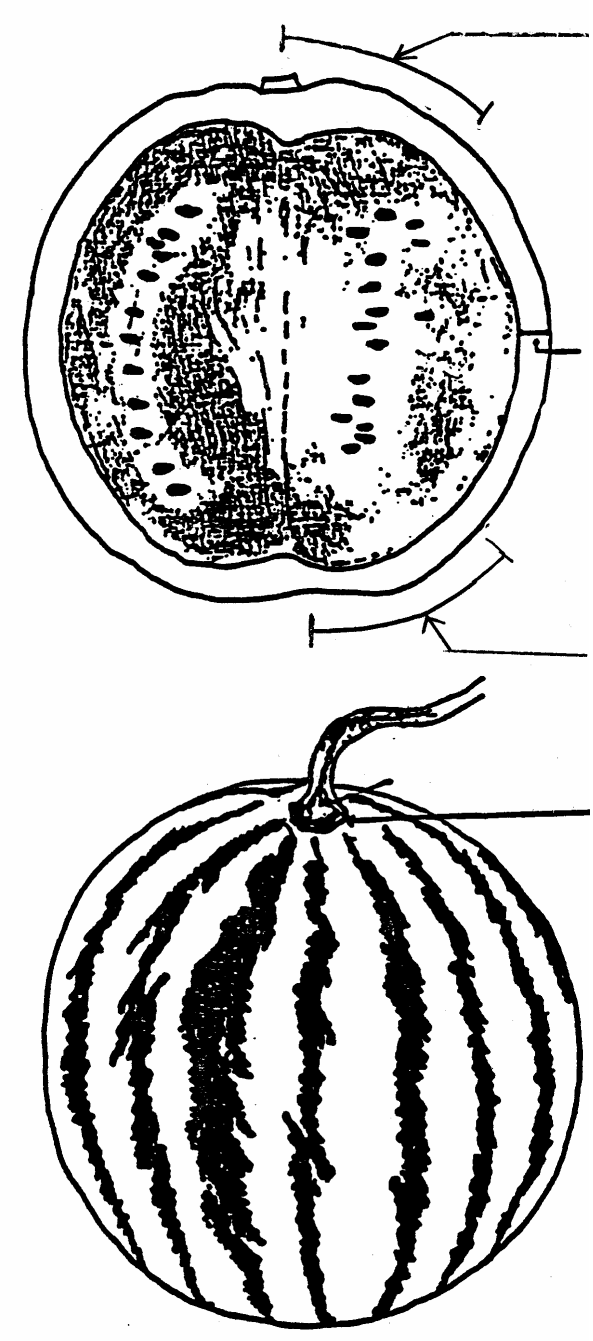


1	2	3	4
round	broad elliptic	elliptic	cylindric

Ad. 30 + 40 +41: Fruit: ground color of skin and color of stripes

The ground color is defined as the lighter color and the color of the stripes as the darker color.

Ad: 33 + 34 + 36+ 45: Fruit



Ad. 59: Resistance to *Fusarium oxysporum* f.sp. *niveum* (E.F. Smith) Snyder et Hansen

Maintenance of races

Type of medium:	P.S.A. (Potato, Sugar and Agar) medium
Special conditions:	Stored below 5°C
Preparation of inoculum:	Shaking culture in P.S. (Potato and Sugar) liquid medium for 7 to 10 days at 28°C. Filtration by using double gauzes. Adjusting concentration of spore to 1.3×10^7/ml with sterlized water.water.

Execution of test

Sowing the seeds:	In sterilized soil
Growth stage of plants:	Expanding of first true leaf
Method of inoculation:	Soaking of roots and of hypocotyl axis for one minute inoculum solution. After inoculation, transplantation of plantlets in sterilised (by steam) soil or ;perlite.
Number of plants tested:	10 to 20 plants

Environmental condition after inoculation

Temperature:	Day: 25°C; night: 16°C
Light:	Natural (longer than 12 hours)
Growing method:	In the glasshouse or climatic room. Application of liquid fertilizer every week.

Duration of test

Inoculation to last observation:	20 days. Disease symptoms appear from 5 to 10 days after inoculation. Observation should be made on several occasions

Remarks

Keeping of pathogenecity:	Renewal of medium at least once a year

Standard varieties

	Race 0	Race 1	Race 2
Black Diamond, Kahô	S	S	S
Charleston Gray	R	S	S
Calhoun Gray	R	R	S
P.I. 296341-FR	R	R	R

S: susceptible R: resistant

Ad. 60: Resistance to *Colleto trichum lagenarium (passerini)* Ellis et Halsted

Maintenance of races

Type of medium:	P.S.A. (Potato, Sugar and Agar) medium
Special conditions:	Stored below 5°C
Preparation of inoculum:	Shaking culture in P.D. (Potato and Dextrose) liquid medium for 7 to 10 days at 28°C. Filtration by using double gauzes. Adjusting concentration of spore to 1.5 x 104/ml with sterilized water.

Execution of test

Sowing the seeds:	In sterilized soil
Growth stage of plants:	Expanding of 2nd to 3rd true leaf
Treatment after inoculation:	Inoculated plants should be placed in a dark and humid chamber at 25°C with 100% relative humidity for 48 hours before being moved to glasshouse.
Number of plants tested:	10 to 20 plants

Environmental condition after inoculation

Temperature:	Day: 25°C; night: 16°C
Light:	Natural (longer than 12 hours)
Growing method:	In the glasshouse

Duration of test

Inoculation to last observation:	25 days

Remarks

Race:	Three races are identified
Keeping of pathogenecity:	Renewal of medium at least once a year

Standard varieties

	Race 0	Race 1	Race 2
Kahô	S	S	S
Charleston Gray, Congo	R	S	R
African citron W-695	S	R	S

S: susceptible R: resistant

9. Literature

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9. Technical Questionnaire

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

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

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

ASW 13 [In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.]

1. Subject of the Technical Questionnaire

1.1 *Latin Name*	*Citrullus lanatus* (Thunb.) Matsum. et Nakai)
1.2 Common Name	Watermelon

2. Applicant

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

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

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

4.1 Breeding scheme **ASW 15**

[Variety resulting from:

4.1.1 Crossing

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

4.1.2 Mutation [ ]
(please state parent variety)

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

4.1.4 Other [ ]
(please provide details)]

4.2 Method of propagating the variety

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Ploidy**		
	diploid	Sugar Baby, Yamato 3	2[ ]
	triploid	Kimiwa Red Seedless, Kôyô Seedless, Pepsin	3[ ]
	tetraploid (??)	4 x Fumin, Tetra Elena	4[ ]

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

5.2 (28)	**Fruit: weight*(1 st mature fruit)***		
	very low	Colocynthis	1[ ]
	very low to low	??	2[ ]
	low	Beni-kodama	3[ ]
	low to medium	Otome	4[ ]
	medium	Asahi Yamato, Sugar Baby	5[ ]
	medium to high	Fumin	6[ ]
	high	Yamato Cream 1	7[ ]
	high to very high	Crimson Sweet	8[ ]
	very high	Kurobe	9[ ]
5.3 (29)	**Fruit: shape of longitudinal section**		
	round	Kanro, Sugar Baby	1[ ]
	lengthened round	Pannonia, Granit	2[ ]
	broad elliptic	Fumin, Gray Belle Yellow Baby, Zorba	3[ ]
	elliptic	Congo, Kurobe, Picnic	4[ ]
	cylindric	Charleston Gray,	5[ ]
5.4 (30)	**Fruit: ground color of skin**		
	white	Arizona, Klondike Striped II	1[ ]
	yellow	Okan, Taiyô	2[ ]
	green	Fabiola, Sugar Baby, Sugar Belle	3[ ]
5.5 (40)	**Fruit: stripes**		
	absent	Asahi Yamato, Marsowski, Sugar Baby	1[ ]
	present	Kanro, Yellow Baby	9[ ]

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

5.6 (42)	**Fruit: width of stripes**		
	very narrow		1[ ]
	narrow	Festival Queen, Yamato Cream 2	3[ ]
	medium	Miyako 3, Oasis	5[ ]
	broad	Crimson Sweet, Kurobe, Sweet Heart	7[ ]
	very broad	Rodeo	9[ ]
5.7 (46)	**Fruit: main color of flesh**		
	white	Yamato Cream 3	1[ ]
	yellow	Yamato Cream 1	2[ ]
	orange	Kahô	3[ ]
	red	Asahi Yamato, Sugar Baby	4[ ]
	purple	Crimson Sweet	5[ ]

6. Similar varieties and differences from these varieties

Please use the table, and space provided for comments, below to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

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

Comments:

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

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

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Special conditions for the examination of the variety

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

Yes [ ] No [ ]

7.2.2 If yes, please give details:

7.3 Other information

ASW 16 A representative color photograph of the variety should accompany the Technical Questionnaire.

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

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

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

9. Information on plant material to be examined.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant or pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details of where you have indicated “yes”.

……

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]