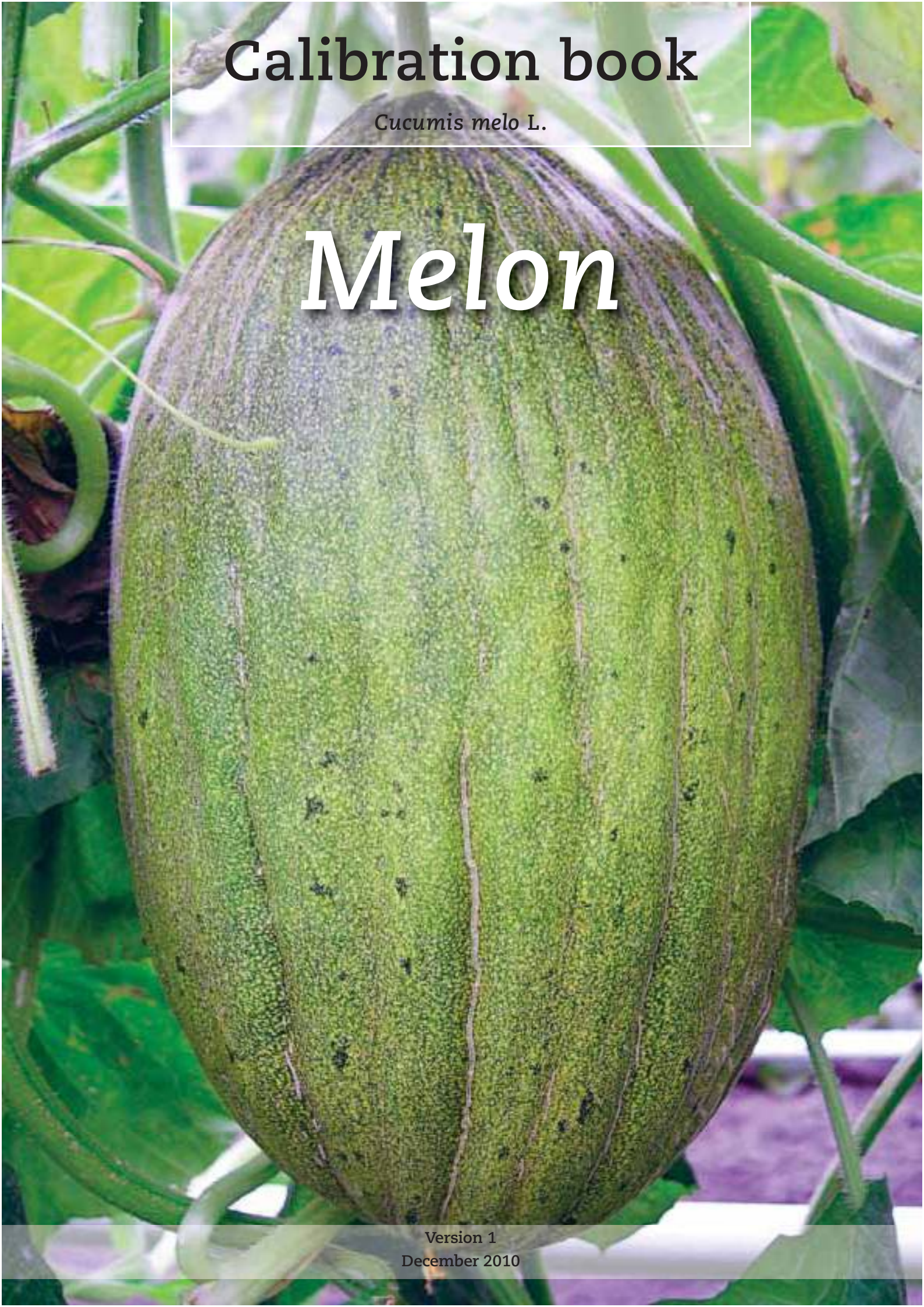
Calibration book

Cucumis melo L.

Melon



Version 1
December 2010

Naktuinbouw calibration book

Cucumis melo L.

melon

Version 1

Introduction

In front of you, you find the calibration book for melon. This book may be used as guidance for the completion of application forms, the describing of varieties or the understanding of variety descriptions. This book can not replace the skill needed to make a variety description, but may serve as support.

Sources used
The basis for this book is the CPVO protocol CPVO-TP/104/2 which in turn is based on UPOV Guideline TG/104/5. Please also use these sources for reference when using this calibration book.
The application of this calibration book is based on the general UPOV principles on the definitions and use of characteristics of variety descriptions (UPOV TG/1/3)

Application methodology
The UPOV system is based on the expression of characteristics that are related to the expression values of example varieties. In the calibration book you find two types of characteristics; visually assessed characteristics and measured characteristics.
The value of the visually assessed characteristics can be compared with the visual value of the expression of example varieties. In the calibration book you may find drawings or pictures to assist in the decision on the applicable expression.
For measured characteristics this is more complicated as in many cases the value of the measurements is depending on the (climatical) conditions of the trials. The use of example varieties in these cases is indispensable. The same applies for those visually assessed characteristics that are prone to influence by climate (e.g. anthocyanin coloration). In this calibration book these example varieties are only included for the characteristics that appear in the Technical Questionnaire. Others are not included as many prefer their own set of example varieties, but may be found in the relevant CPVO protocol.

Website
The CPVO and UPOV documents mentioned above can be found on the Naktuinbouw website (*http://www.naktuinbouw.nl/onderwerp/kalibratieboeken*). On this website you can also find announcements of possible modifications of the published calibration books.

Helpdesk
For possible remarks, suggestions and questions on the calibration books and the website, you may contact Naktuinbouw at our email address: kalibratieboek@naktuinbouw.nl

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1 Seedling: length of hypocotyl

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Just before the development of the first true leaf.

Method of observation: Visual assessment by a single observation of a group of plants. Use example varieties to judge the length of hypocotyl.

Notes and states of expression
1: very short
2: very short to short
3: short
4: short to medium
5: medium
6: medium to long
7: long
8: long to very long
9: very long

2 Seedling: size of cotyledon

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Just before the development of the first true leaf.

Method of observation: Visual assessment by a single observation of a group of plants or parts of plants. Use example varieties to judge the length of hypocotyl.

Notes and states of expression:
1: very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large

3 Seedling: intensity of green colour of cotyledon

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Just before the development of the first true leaf.

Method of observation: Visual assessment. Calibrate with example varieties in the same trial.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to light
7: light
8: light to very light
9: very light

4 Leaf blade: size

Grouping characteristic: no.

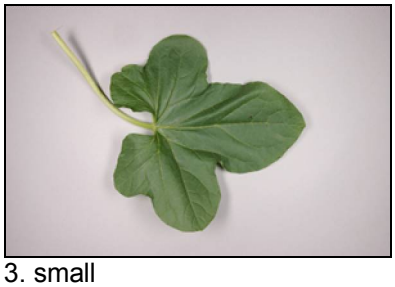
Type of characteristic: QN – Quantitative characteristic.

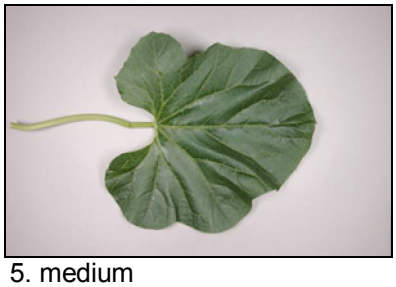
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

Method of observation: Visual assessment. Beware that the observation should be made before the development of tendrils. Excessive growth of tendrils can make observation more difficult. The observation can be also made on the harvested leaves, flattened down. Make sure not to cause infection of Botrytis by avoiding damage to the plant stem when harvesting the leaves. Determine the size of leaf blade using the example varieties.

Notes and states of expression:
1: very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large


3. small


5. medium


7. large

5 Leaf blade: intensity of green colour

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

Method of observation: Visual assessment. **Attention**: Older leaves are darker green (does not apply to all varieties)! Use example varieties to calibrate the intensity of green colour.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to dark
7: dark
8: dark to very dark
9: very dark

This image serves only to illustrate the variation present in the crop and should not be used as an absolute reference.

6 Leaf blade: development of lobes

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

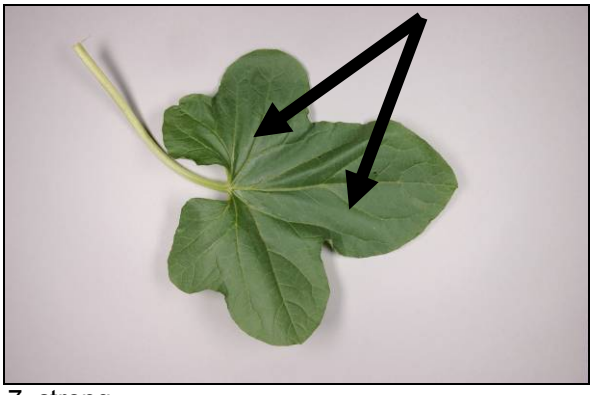
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

Method of observation: Visual assessment. Development of the lobes concerns the depth of lobes. The observation can be also made on the harvested leaves, flattened down. Make sure not to cause infection of Botrytis by avoiding damage to the plant stem when harvesting the leaves. Use example varieties to calibrate the development of lobes.

Notes and states of expression:
1: very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to light
7: strong
8: strong to very strong
9: very strong

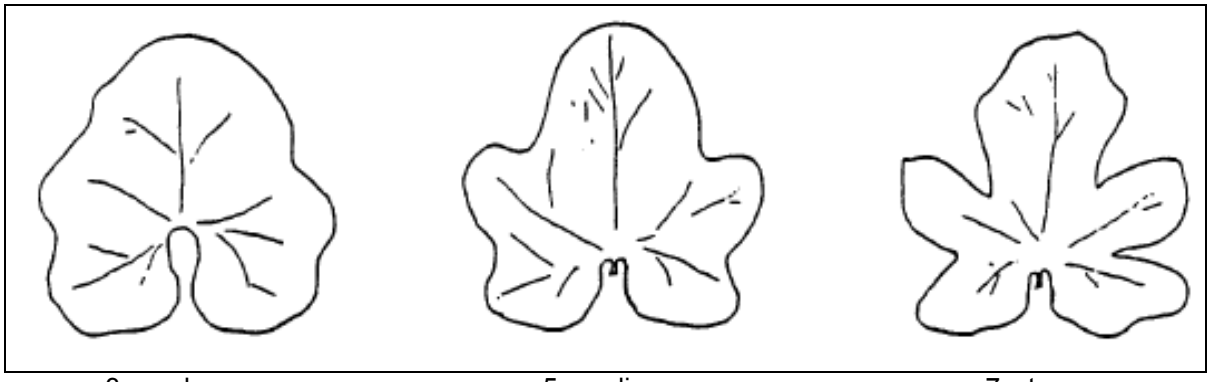

3. weak


7. strong

These images serve only to illustrate the variation present in the crop and should not be used as an absolute reference.

6 Leaf blade: development of lobes

CPVO explanation:



3: weak 5: medium 7: strong

7 Leaf blade: length of terminal lobe

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

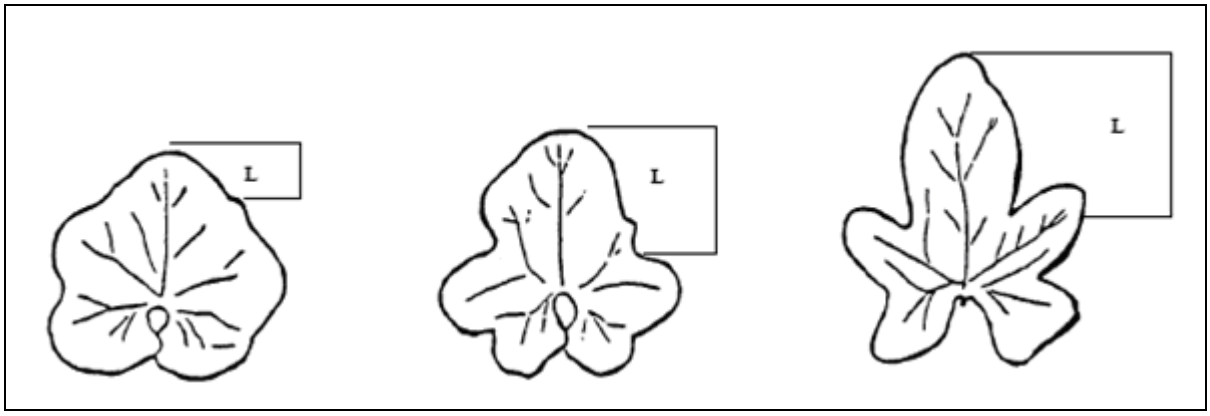
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

Method of observation: Visual assessment. The observation can be also made on the harvested leaves, flattened down. Make sure not to cause infection of Botrytis by avoiding damage to the plant stem when harvesting the leaves. Determine the length of terminal lob in relation to the length of the leaf blade. Use example varieties to calibrate the development of lobes.

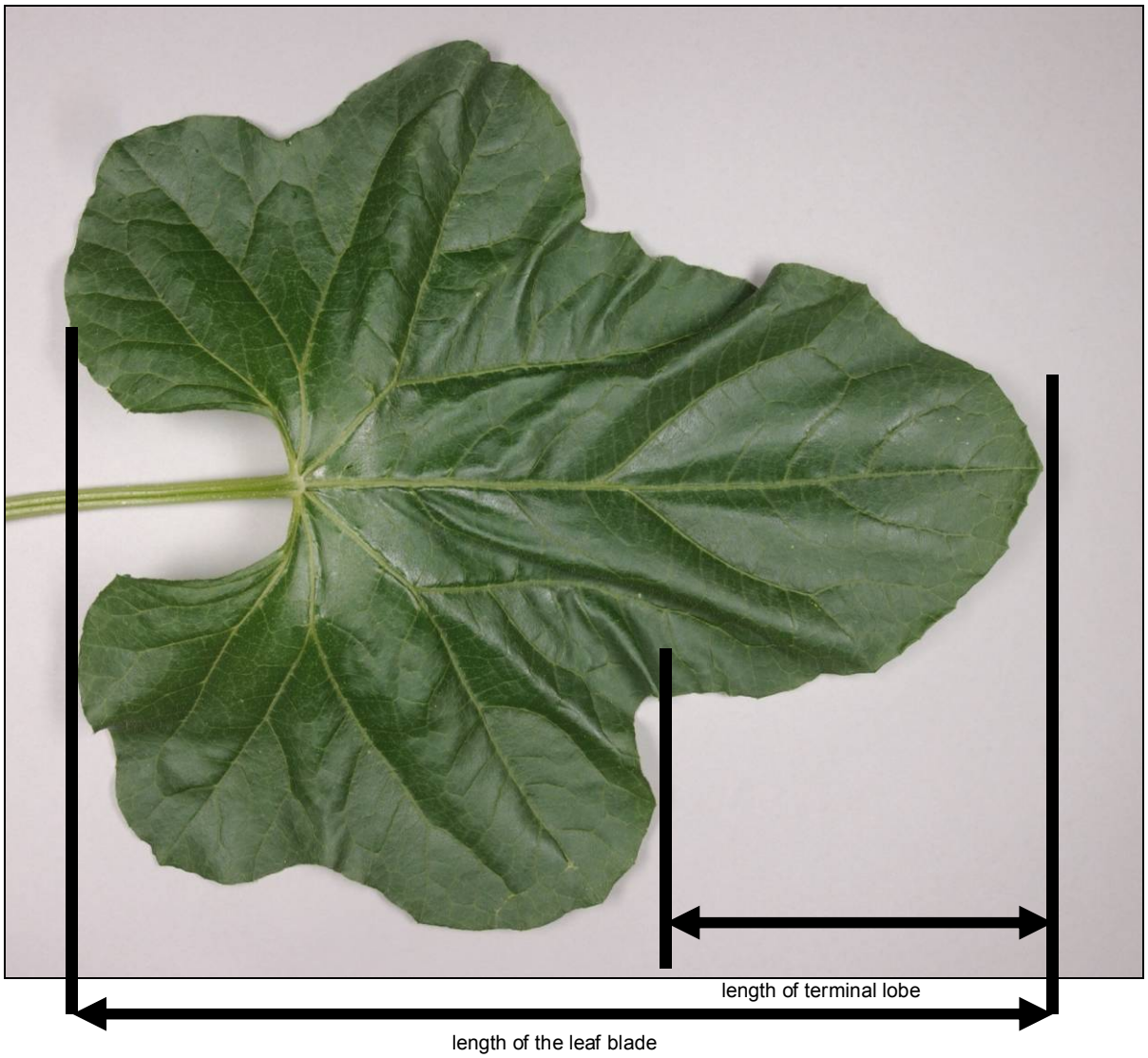
Notes and states of expression:
1: very short
2: very short to short
3: short
4: short to medium
5: medium
6: medium to long
7: long
8: long to very long
9: very long

CPVO explanation:



3: short 5: medium 7: long

7 Leaf blade: length of terminal lobe



8 Leaf blade: dentation of margin

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

Method of observation: Visual assessment. The observation can be also made on the harvested leaves, flattened down. Make sure not to cause infection of Botrytis by avoiding damage to the plant stem when harvesting the leaves. Use example varieties to calibrate the dentation of margin.

Notes and states of expression:
1: very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to light
7: strong
8: strong to very strong
9: very strong

8 Leaf blade: dentation of margin

1: very weak

3: weak

5: medium

9 Leaf blade: blistering

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

Method of observation: Visual assessment by a single observation of a group of plants or parts of plants. The observation can be also made on the harvested leaves, flattened down. Make sure not to cause infection of Botrytis by avoiding damage to the plant stem when harvesting the leaves. Use example varieties to calibrate the blistering.

Notes and states of expression:
1: very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to light
7: strong
8: strong to very strong
9: very strong

9 Leaf blade: blistering

1: very weak

4: weak to medium

6: medium to strong

These images serve only to illustrate the variation present in the crop and should not be used as an absolute reference.

10 Petiole: attitude

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

Method of observation: Visual assessment using example varieties to calibrate the attitude of the petiole.

Notes and states of expression:
1: erect
2: erect to semi-erect
3: semi-erect
4: semi-erect to horizontal
5: horizontal

11 Petiole: length

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

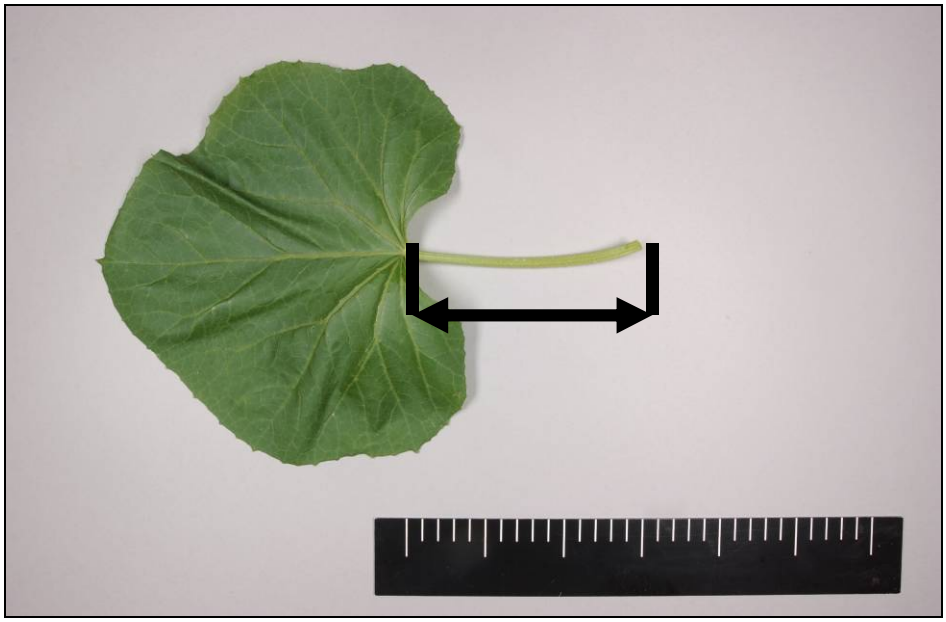
Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the leaf blade should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

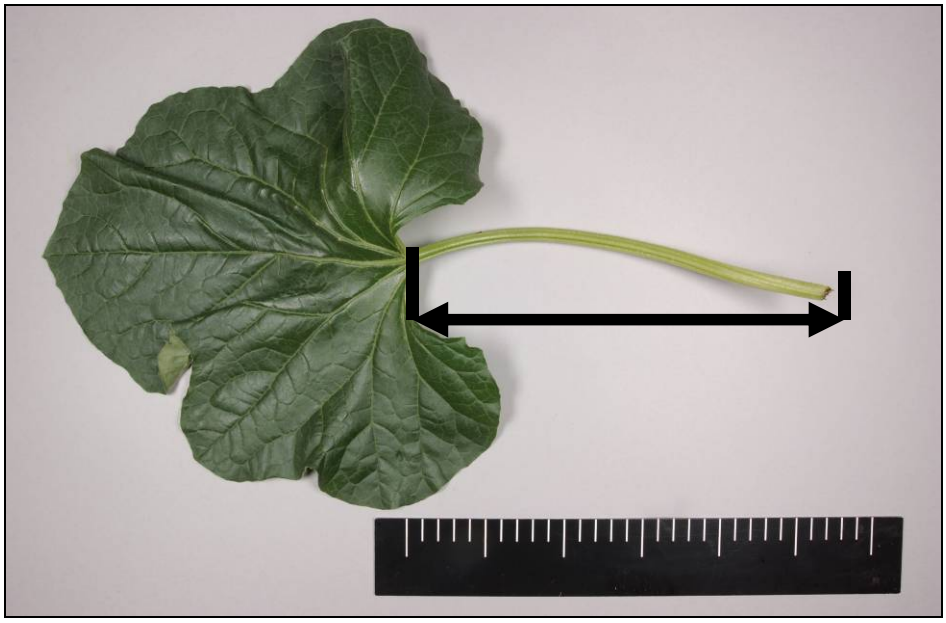
Method of observation: Beware that the observation should be made before the development of tendrils. Excessive growth of tendrils can make observation more difficult. The observation can be also made on the harvested leaves. To avoid infection of Botrytis do not damage the plant stem when harvesting the leaves. Determine the length of petiole using example varieties.

Notes and states of expression:
1: very short
2: very short to short
3: short
4: short to medium
5: medium
6: medium to long
7: long
8: long to very long
9: very long

11 Petiole: length



3: short



5: medium

These images serve only to illustrate the variation present in the crop and should not be used as an absolute reference.

12 Inflorescence: sex expression (at full flowering)

Grouping characteristic: yes.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: When all plants of one sample/plot produce female/hermaphrodite flowers.

Method of observation: Visual assessment. Female and hermaphrodite flowers occur on the side shoots thus do not make observations on the flowers on the main stem (this is very rare). **Attention:** sometimes the climatic conditions can influence the monoecious varieties causing andromonoecious flowering. In such cases make the observation once again a little bit later. The other way around does not happen. Monoecious means male and female flowers on one plant, andromonoecious means male and hermaphrodite flowers on one plant.

Notes, states of expression and example varieties:

1: monoecious	Alpha, Categoria
2: andromonoecious	Piel de Sapo

Male flower: only anthers

Female flower: only pistil

Hermaphrodite flower: both anthers and pistil in one flower

13 Young fruit: hue of green colour of skin

Grouping characteristic: no.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: whitish green
2: yellowish green
3: green
4: greyish green


2: yellowish green


3: green


4: greyish green

CPVO explanation:

The basic colour of the young fruit is green. There are two true hue levels, “yellowish” and “green” depending on the proportion between red and blue components in the colour. Als there are two other hue levels “greyish” (rather a low saturation of the green colour) and “whitish” (resulting from a very light intensity of the green colour).

14 Young fruit: intensity of green colour of skin

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

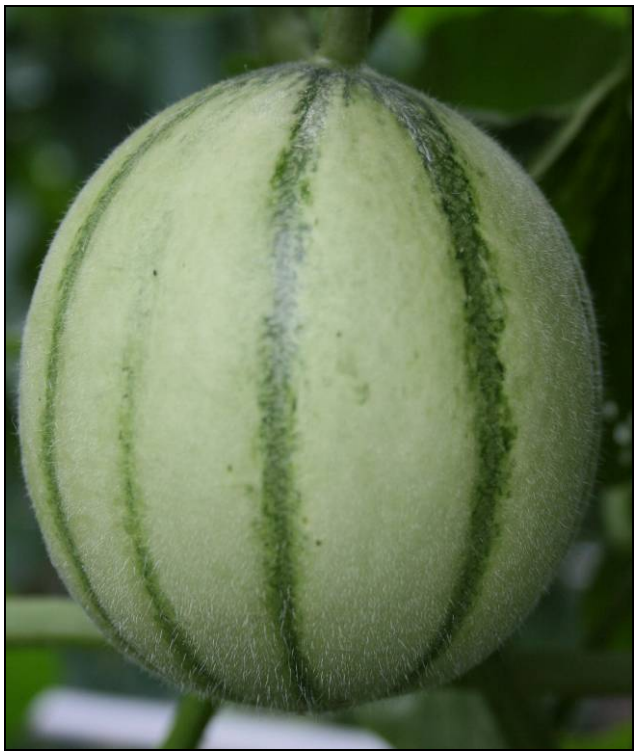
Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to light
7: light
8: light to very light
9: very light

14 Young fruit: intensity of green colour of skin

1: very light (Stargate)



3: light

5: medium

7: dark

15 Young fruit: density of dots

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment by a single observation of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent or very sparse
2: very sparse to sparse
3: sparse
4: sparse to medium
5: medium
6: medium to dense
7: dense
8: dense to very dense
9: very dense


1. absent of very sparse


5. medium


7. dense

16 Young fruit: size of dots

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment by a single observation of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large

17 Young fruit: contrast of dot colour/ground colour

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment by a single observation of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to light
7: strong
8: strong to very strong
9: very strong


5: medium (Arava)


7: strong

18 Young fruit: conspicuousness of groove colouring

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment by a single observation of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent of very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to light
7: strong
8: strong to very strong
9: very strong

19 Young fruit: intensity of groove colouring

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment by a single observation of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to light
7: light
8: light to very light
9: very light

20 Young fruit: length of peduncle

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment and measurement of number of peduncles of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very short
2: very short to short
3: short
4: short to medium
5: medium
6: medium to long
7: long
8: long to very long
9: very long

21 Young fruit: thickness of peduncle 1 cm from fruit

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment and measurement of number of peduncles of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very thin
2: very thin to thin
3: thin
4: thin to medium
5: medium
6: medium to thick
7: thick
8: thick to very thick
9 very thick

22 Young fruit: extension of darker area around peduncle

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: All observations on the young fruit should be made on unripe fruits, before the colour change. For most varieties this means when the fruit is half the final size. **Attention:** this observation has to be done in time before ripening of fruits!

Method of observation: Visual assessment by a single observation of green, unripe fruits. It is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible. It is also important to use only well developed, no misshaped fruits without any netting. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent of very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large


1: afwezig of zeer klein


5: medium

23 Fruit: change of skin colour from young fruit to maturity

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: When young fruit change the colour. It is quite difficult to choose the right moment to observe this characteristic. Following changes in fruit appearance can help to choose the right moment and applies to many types of melon:

- an abscission layer between the fruit and peduncle (see picture by characteristic 39) become visible
- the area around abscission layer becomes yellow
- the pistil scare changes the colour (only some melon types)

Method of observation: Visual assessment by a single observation of young fruits at the moment of changing the colour from unripe to ripe.

Notes and states of expression:
1: early in fruit development
2: late in fruit development
3: very late in fruit development or no change

23 Fruit: change of skin colour from young fruit to maturity

CPVO explanation:

Melon fruit may have up to three different skin colours in the course of its development. The speed of evolution of the colour depends on the variety, but within a variety different speeds can also be observed. Please note that in cases where the colour change is closely linked to maturity, the observation should be clear: either on the colour change related to maturity (characteristic 23) or within mature fruits from mature to over mature (characteristic 52). The changing of fruit skin colour can be described by using the following characteristics:

1. Stage 1: colour of the young fruit (green colour)
2. Change from Stage 1 to Stage 2 (Characteristics 23)
3. Stage 2: colour at maturity
4. Change from Stage 2 to Stage 3 (Characteristic 52)
5. Stage 3: colour at over maturity

Some examples are given in the following table:

Variety	Stage 1: colour of the young fruit	Change from Stage 1 to Stage 2 (Ch. 23)	Stage 2: colour at maturity (Ch. 29)	Change from Stage 2 to Stage 3 (Ch. 52)	Stage 3: colour at over maturity
Galia	green	late	yellow	absent	yellow
Amarillo Oro	green	late	yellow	absent	yellow
Doral	green	late	yellow	absent	yellow
Charentais	green	early	grey	fast	yellow
Alpha	green	early	grey	medium	yellow
Clipper	green	early	grey	absent	grey
Vendome	green	early	grey	medium	yellow
Corin	green	early	grey	fast	yellow
Nembo	green	early	grey	fast	yellow
Albino	green	late	white	absent	white
Honey Dew	green	late	white	absent	white
Dulcinea	green	late	white	medium	yellow
Marina	green	no-change	green	fast	yellow
Futuro	green	no change	green	medium	yellow
Goloso	green	no change	green	slow	yellow
Piel de Sapo	green	no change	green	absent	green

24 Fruit: length

Grouping characteristic: yes.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes, states of expression and example varieties:

1: very short	Doublon, Golden Crispy
2: very short to short	
3: short	Topper, Védrantais
4: short to medium	
5: medium	Marina, Spanglia
6: medium to long	
7: long	Categoria, Toledo
8: long to very long	
9: very long	Katsura Giant, Valdivia

25 Fruit: diameter

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very narrow
2: very narrow to narrow
3: narrow
4: narrow to medium
5: medium
6: medium to broad
7: broad
8: broad to very broad
9: very broad

25 Fruit: ratio length/diameter

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large

27 Fruit: position of maximum diameter

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

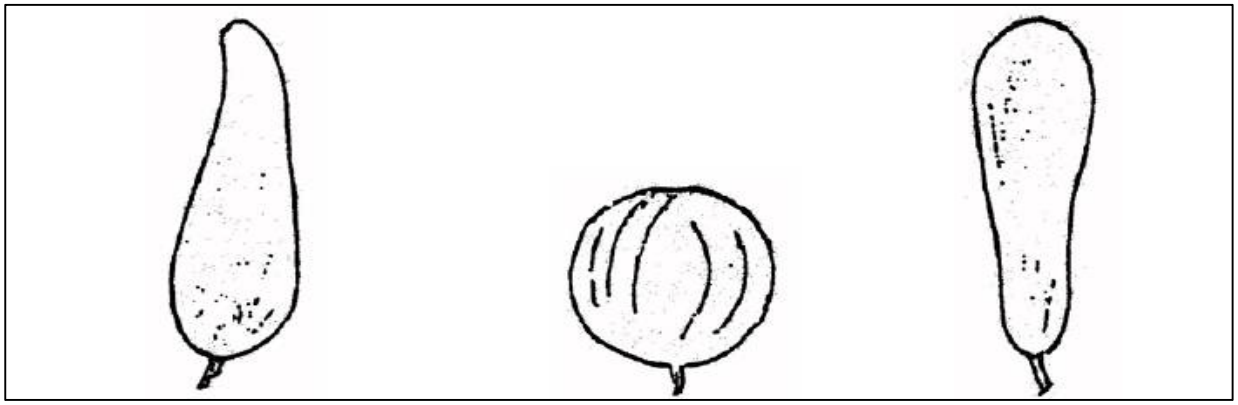
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

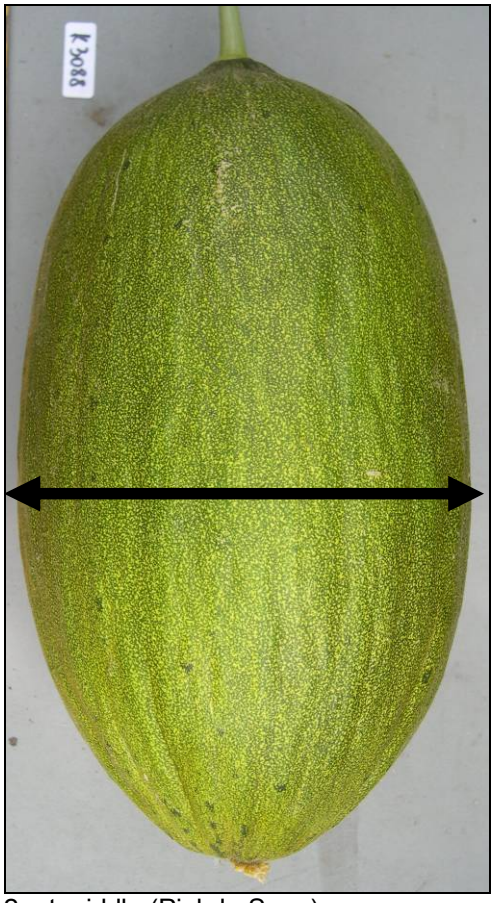
Notes and state of expression:
1: toward stem end
2: at middle
3: toward blossom end

CPVO explanation:

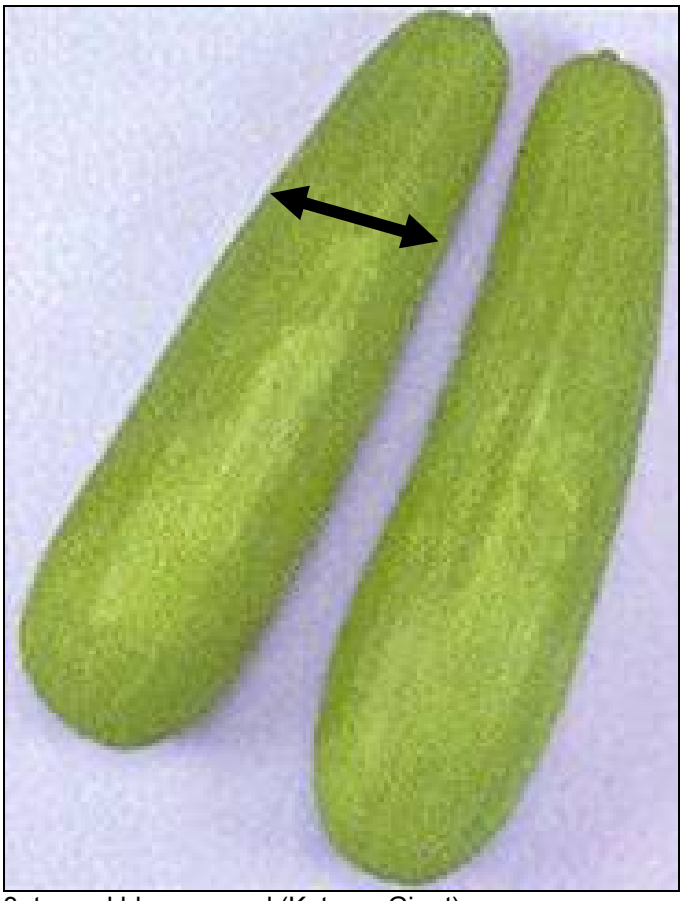


1: toward stem end 2 : at middle 3:toward blossom end

27 Fruit: position of maximum diameter



2: at middle (Piel de Sapo)



3: toward blossom end (Katsura Giant)

28 Fruit: shape in longitudinal section

Grouping characteristic: yes.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

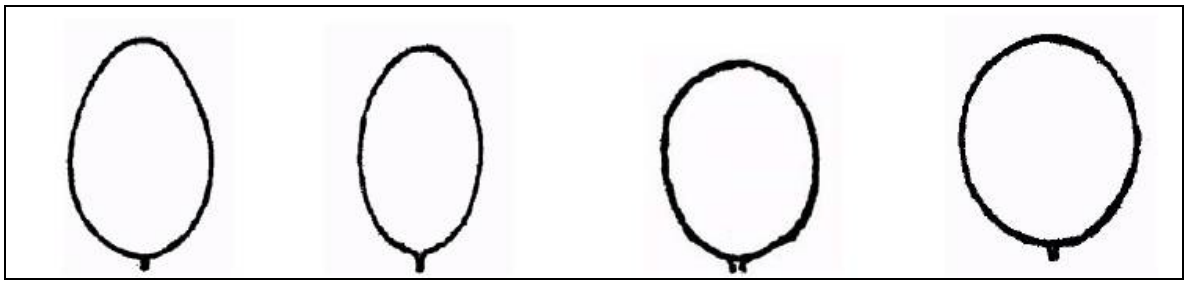
Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. See explanation. Use some example varieties as a help to determine these characteristics.

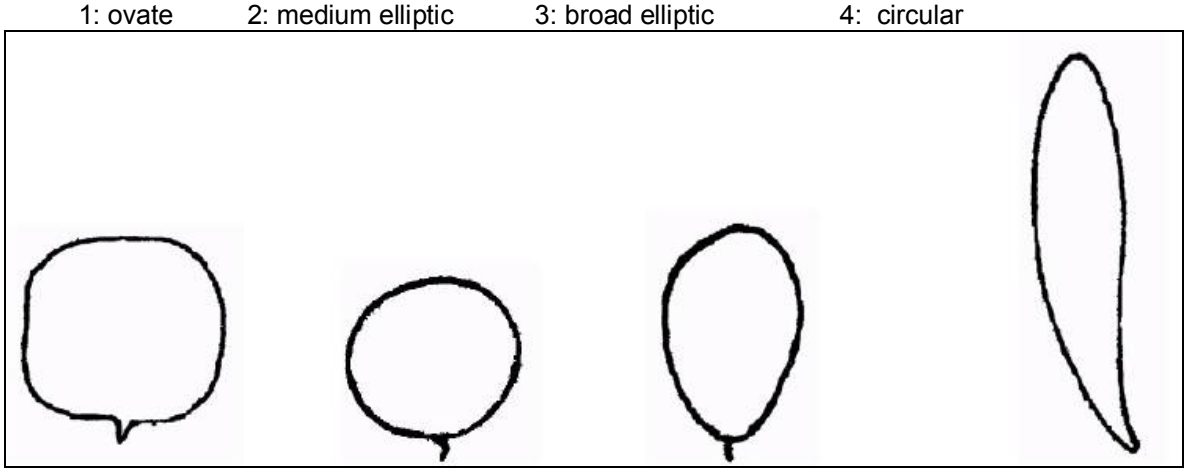
Notes, state of expression and example varieties:

1: ovate	De Cavaillon, Piolin
2: medium elliptic	Piel de Sapo
3: broad elliptic	Corin, Sardo
4: circular	Alpha, Galia
5: quadrangular	Zatta
6: oblate	Jivaro, Noir de Carmes
7: obovate	Cganchi
8: elongated	Alficoz, Banana

CPVO explanation:



1: ovate 2: medium elliptic 3: broad elliptic 4: circular



5: quadrangular 6: oblate 7: obovate 8: elongate

29 Fruit: ground colour of skin

Grouping characteristic: yes.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes, state of expression and example varieties:

1: white	Albino, Honey Dew
2: yellow	Amarillo-Canario, Edén, Galia, Passport, Solarking
3: green	Gohyang, Piel de Sapo
4: grey	Geaprince, Geamar, Romeo, Sirio, Supporter, Védrantais

29 Fruit: ground colour of skin

1: white

2: yellow

3: green

4: grey

30 Fruit: intensity of ground colour of skin

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to light
7: light
8: light to very light
9: very light

31 Fruit: hue of ground colour of skin

Grouping characteristic: no.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent of very weak
2: whitish
3: yellowish
4: orange
5: ochre
6: greenish
7: greyish

31 Fruit: hue of ground colour of skin

CPVO explanation:

All the Galia type should be considered as yellow colour. Hues ochre, orange, pure yellow or greenish can be considered in the group, but in a separate characteristic (31). All the Charentais type should be considered as grey. Greenish, whitish, or yellowish hues (characteristic 31) can be used for distinctness, but are not recommended for grouping. Ochre is pale brownish yellow.

The colours given below indicate the ground colour of skin of the variety in question.

		Hue of ground colour (characteristic 31)	
Example variety	Ground colour (characteristic 29)	State	Note
Amarillo-Canario	yellow	absent or very weak	1
Albino	white	absent or very weak	1
Piel de Sapo	green	absent or very weak	1
Sirio	grey	absent or very weak	1
Romeo	grey	whitish	2
Geaprince	grey	yellowish	3
Supporter	grey	yellowish	3
Edén	yellow	orange	4
Passport	yellow	ocre	5
Geamar	grey	greenish	6
Honey Dew	white	greenish	6
Solarking	yellow	greenish	6
Gohyang	green	greyish	7

32 Fruit: density of dots

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

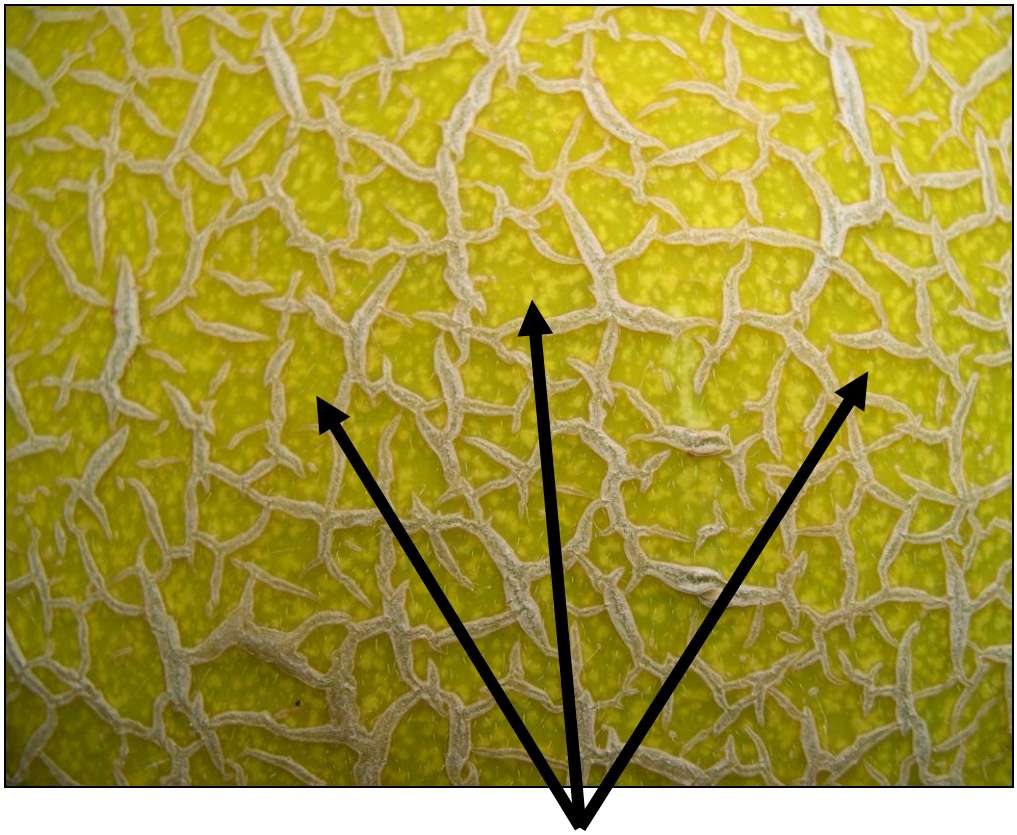
Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent or very sparse
2: very sparse to sparse
3: sparse
4: sparse to medium
5: medium
6: medium to dense
7: dense
8: dense to very dense
9: very dense

32 Fruit: density of dots

dots absent



dots present

33 Fruit: size of dots

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large

34 Fruit: colour of dots

Grouping characteristic: no.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: white
2: yellow
3: green


2: yellow


3: green

35 Fruit: intensity colour of dots

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to dark
7: dark
8: dark to very dark
9: very dark

36 Fruit: density of patches

Grouping characteristic: yes.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

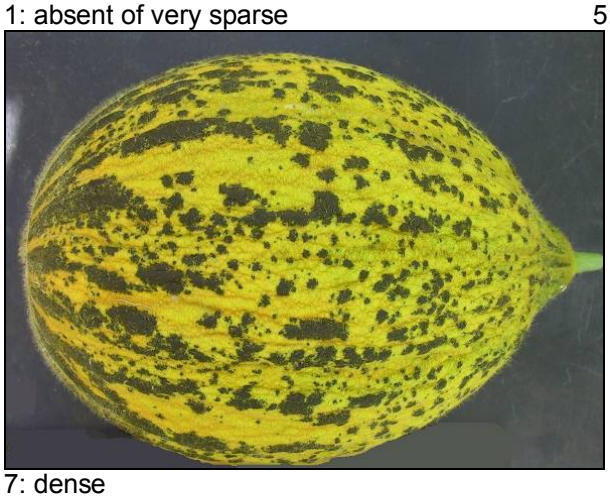
Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes, states of expression and example varieties:

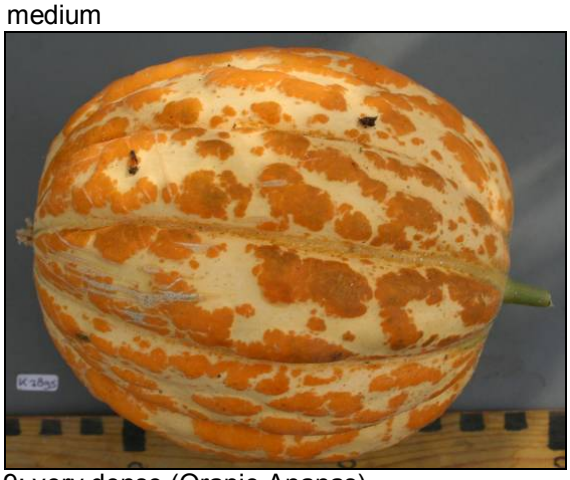
1: absent or very sparse	Rochet
2: very sparse to sparse	
3: sparse	
4: sparse to medium	
5: medium	Braco
6: medium to dense	
7: dense	Piel de Sapo
8: dense to very dense	
9: very dense	Oranje Ananas

1: absent of very sparse

5: medium



7: dense



9: very dense (Oranje Ananas)

37 Fruit: size of patches

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

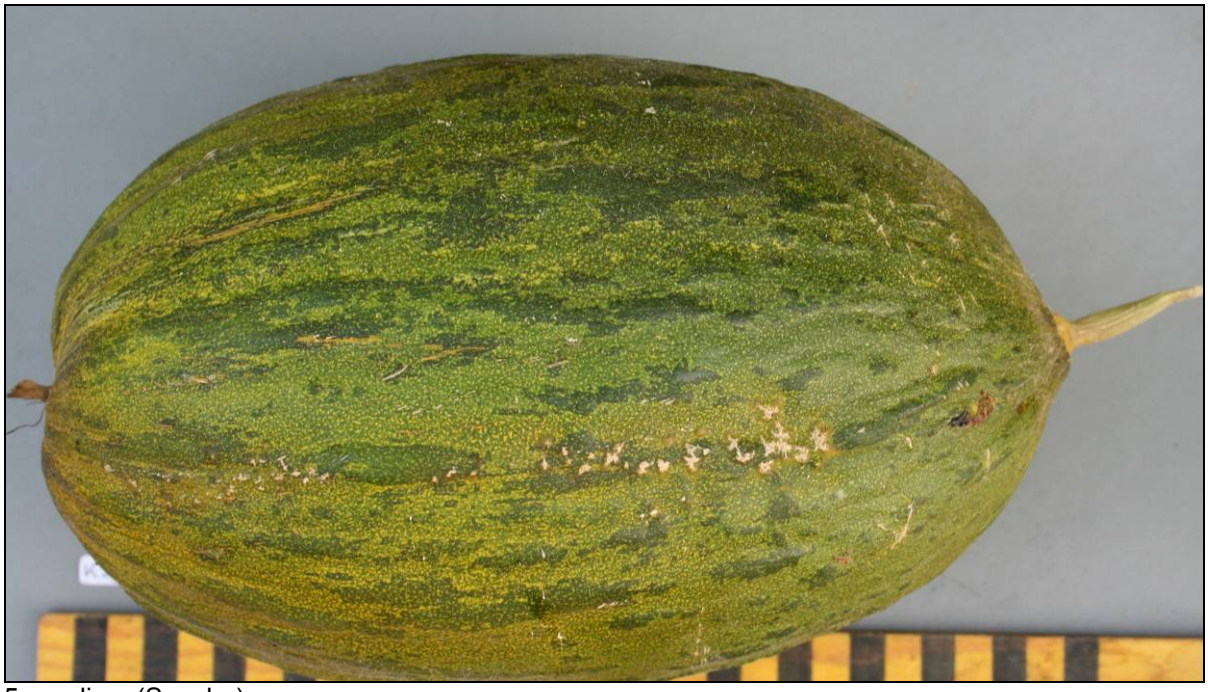
Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large

37 Fruit: size of patches

3: small



5: medium (Sancho)

38 Fruit: warts

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent
9: present

1: absent (Piel de Sapo)

warts

9: present (Zatta)

39 Fruit: strength of attachment of peduncle at maturity

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: When the fruit changes colour and becomes ripe. It is quite difficult to choose the right moment to observe this characteristic. Following changes in fruit appearance can help to choose the right moment to assess this characteristic:

- an abscission layer between the fruit and peduncle (see picture) become visible (applies for many types)
- the area around abscission layer becomes yellow
- the pistil scare change the colour (only some melon types)
- the leaf closest to the fruit turns yellow and becomes old.

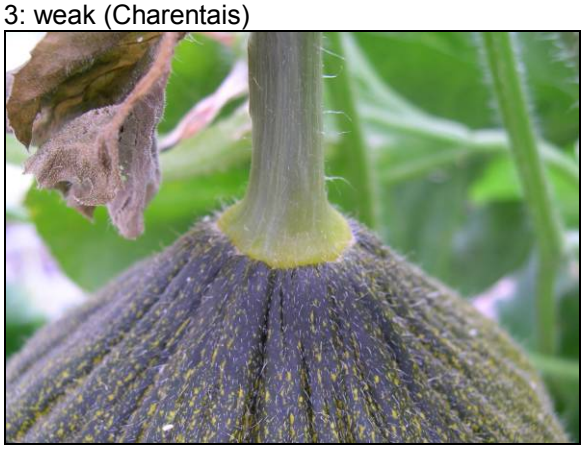
Method of observation: Visual assessment by a single observation of fruits at the moment of reaching the ripeness.

Notes and states of expression:
1: very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to light
7: strong
8: strong to very strong
9: very strong

39 Fruit: strength of attachment of peduncle at maturity

3: weak (Charentais)

3: weak (Galia)



7: strong (Piel de Sapo)

40 Fruit: shape of base

Grouping characteristic: no.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

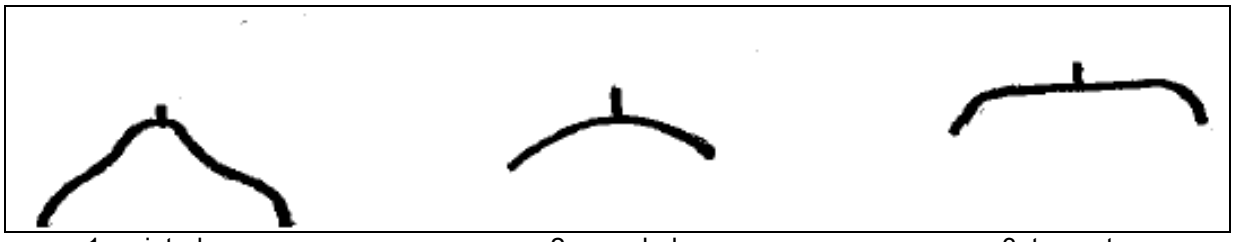
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use some example varieties as a help to determine these characteristics.

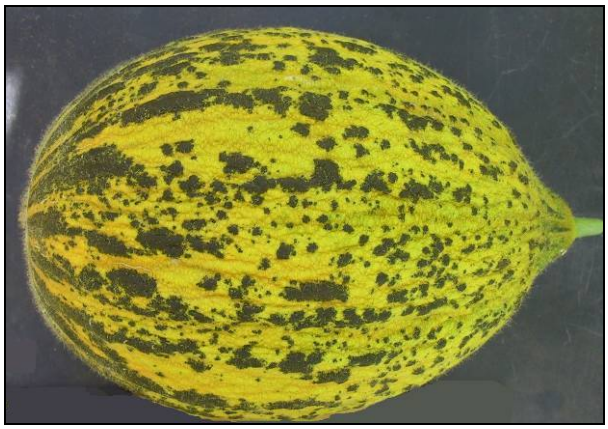
Notes and states of expression:
1: pointed
2: rounded
3: truncate

CPVO explanation:



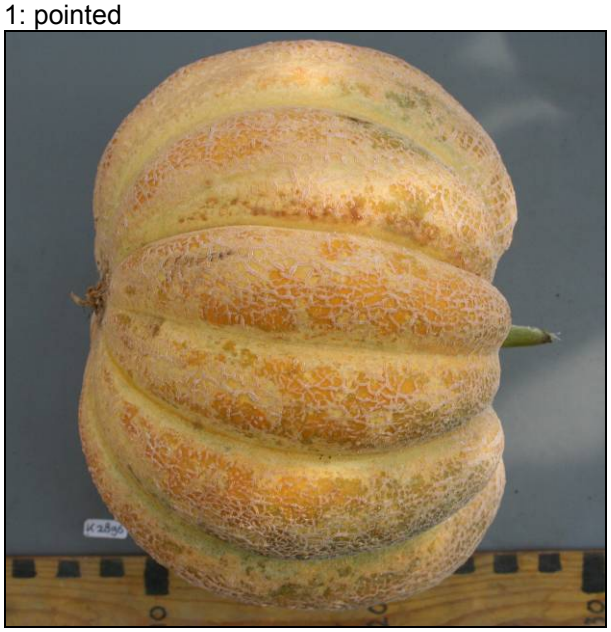
1: pointed 2: rounded 3: truncate

40 Fruit: shape of base



1: pointed

2: rounded



3: truncate

41 Fruit: shape of apex

Grouping characteristic: no.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. The apex is the side of the flower. Use some example varieties as a help to determine these characteristics.

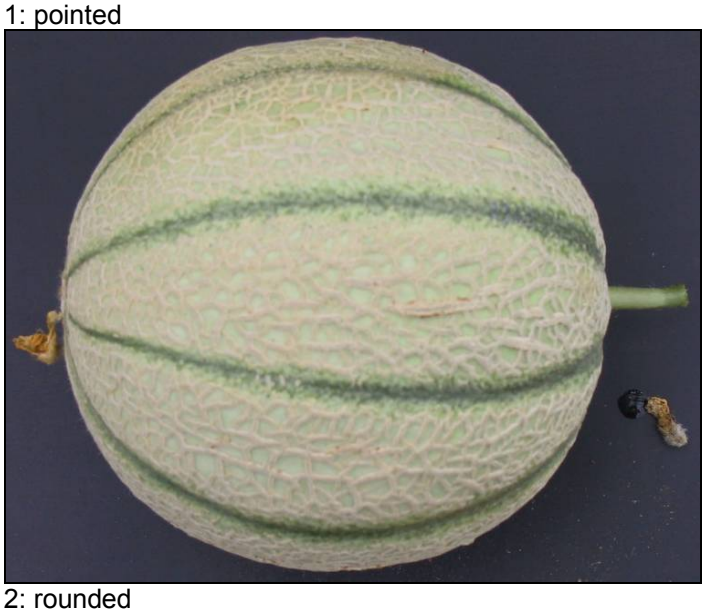
Notes and states of expression:
1: pointed
2: rounded
3: truncate

CPVO explanation:

1: pointed 2: rounded 3: truncate

41 Fruit: shape of apex

1: pointed



2: rounded

3: truncate

42 Fruit: size of pistil scar

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits.

Remarks: In general the monoecious melon has smaller pistil scare than andromonoecious. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very small
2: very small to small
3: small
4: small to medium
5: medium
6: medium to large
7: large
8: large to very large
9: very large

3:small 5: medium 7: large

43 Fruit: grooves

Grouping characteristic: yes.

Type of characteristic: QL – Qualitative characteristic.

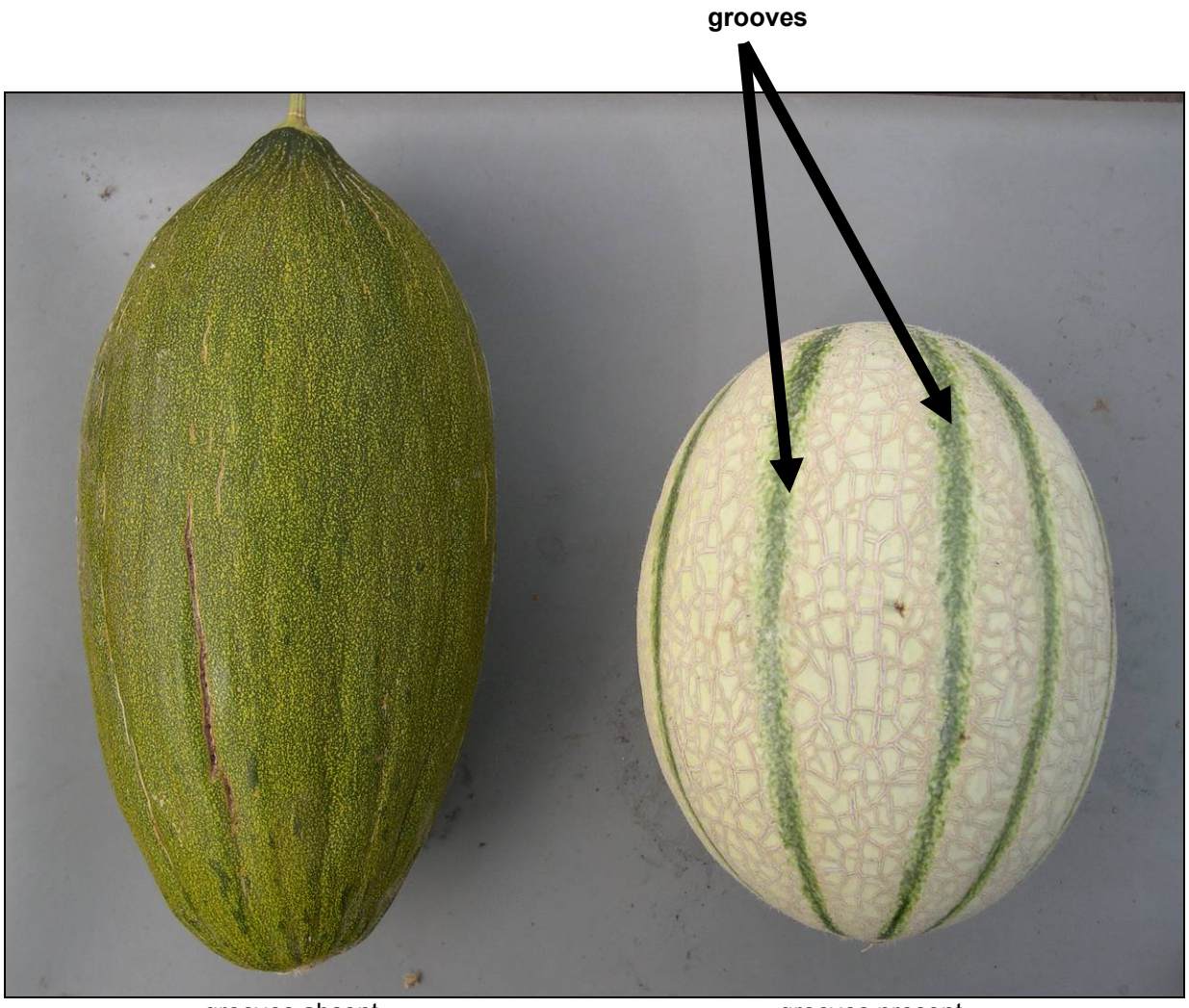
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

Notes, states of expression and example varieties:

1: absent of very weakly expressed	Piel de Sapo, Arava
2: weakly expressed	Total, Hobby
3: strongly expressed	Védrantais, Galia



grooves absent grooves present

43 Fruit: width of grooves

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very narrow
2: very narrow to narrow
3: narrow
4: narrow to medium
5: medium
6: medium to broad
7: broad
8: broad to very broad
9: very broad

44 Fruit: width of grooves

3:narrow

5: medium

7:broad

45 Fruit: depth of grooves

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

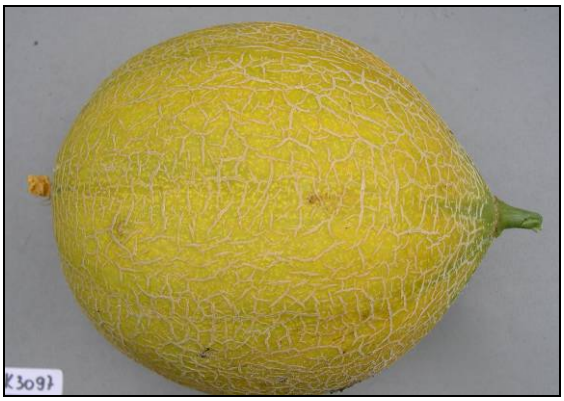
Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

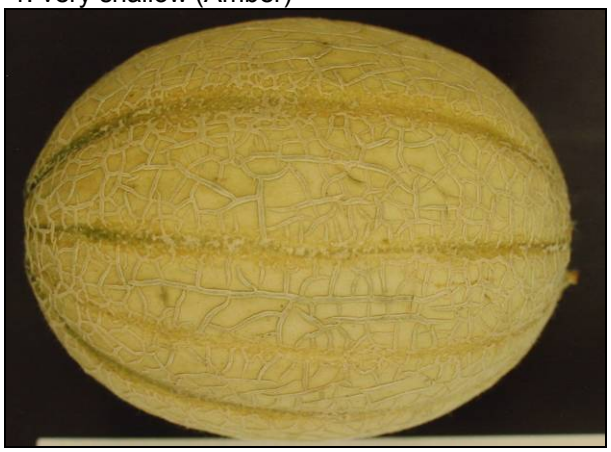
Notes and states of expression:
1:very shallow
2:very shallow to shallow
3:shallow
4:shallow to medium
5:medium
6:medium to deep
7:deep
8:deep to very deep
9: very deep

45 Fruit: depth of grooves

1: very shallow (Amber)

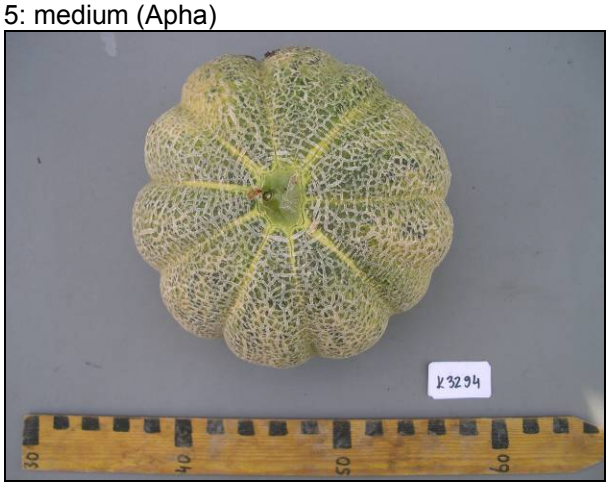


3: shallow (Galia)



5: medium (Apha)

7: deep (Noir des Carmes)



9: very deep (Westlandse Enkele Net)

46 Fruit: colour of grooves

Grouping characteristic: no.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

Notes and states of expression:
1: white
2: yellow
3: green


1: white (Geumassaraki)


2: yellow (Galia)


3: green (Charantais)

47 Fruit: creasing of surface

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

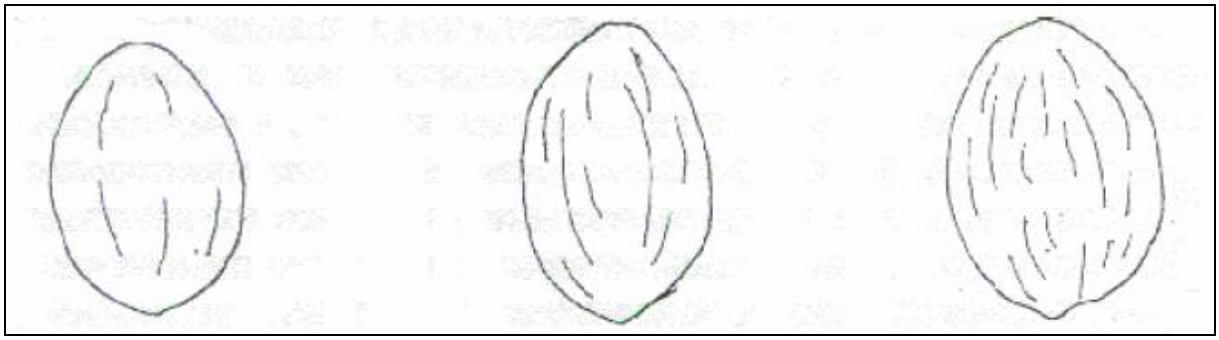
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent of very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to light
7: strong
8: strong to very strong
9: very strong

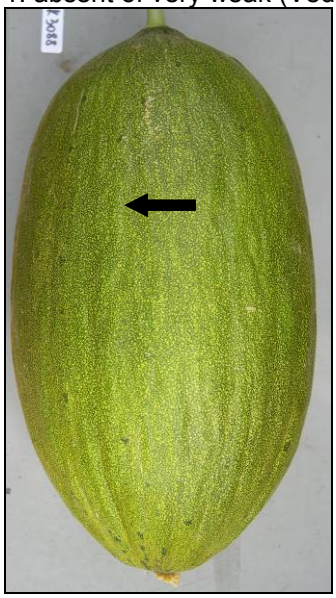
CPVO explanation:



3: weak 5: medium 7: strong

47 Fruit: creasing of surface

1: absent of very weak (Védrantais)



3: weak

5: medium

7: strong

48 Fruit: cork formation

Grouping characteristic: yes.

Type of characteristic: QL – Qualitative characteristic.

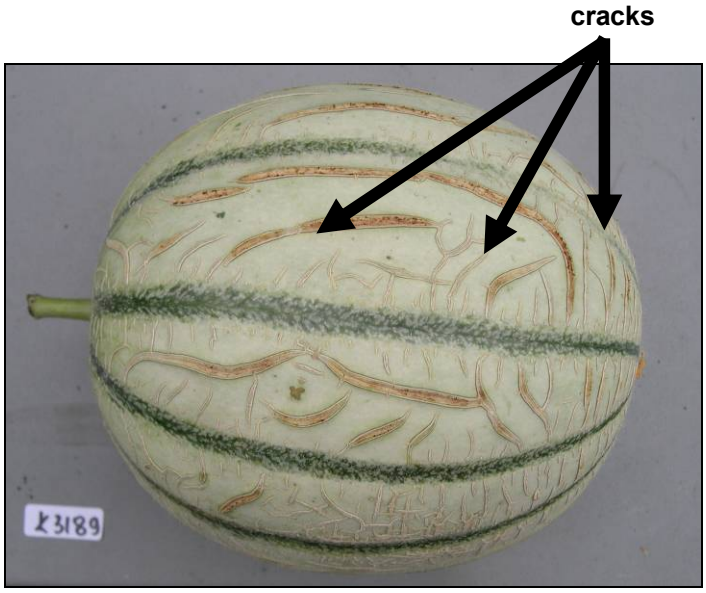
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine this characteristic. Due to the cracking of the surface, small cracks appear on the skin. On these cracks or along these cracks cork formation takes place. Do not confuse cork with cracks of the entire skin layer. The cracking of the entire skin layer is caused by a physiological disorder caused by to high intake of water.

Notes, states of expression and example varieties:

1: absent	Alpha
9: present	Dalton



1: absent

9: present

49 Fruit: thickness of cork layer

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very thin
2: very thin to thin
3: thin
4: thin to medium
5: medium
6: medium to thick
7: thick
8: thick to very thick
9 very thick

49 Fruit: thickness of cork layer

3: thin

5: medium

7: thick

9:very thick

50 Fruit: pattern of cork formation

Grouping characteristic: yes.

Type of characteristic: PQ – Pseudo-qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

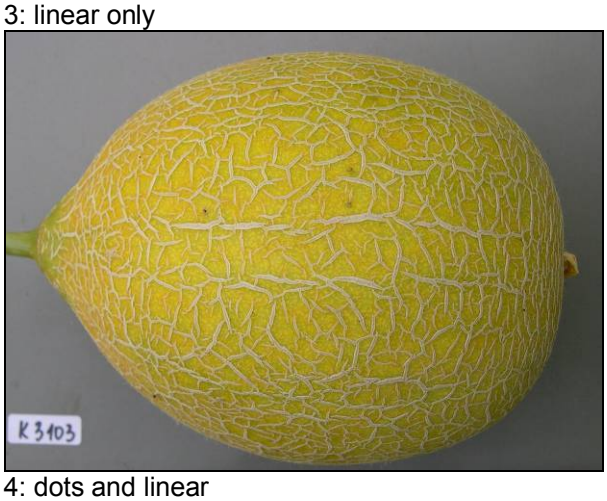
Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

Notes, states of expression and example varieties:

1: dots only	Hermes, Védrantais
2: dots and linear	Jivaro, Topper
3: linear only	Futuro, Riosol
4: linear and netted	Anatol, Chantal
5: netted only	Galia, Perlita

3: linear only



4: dots and linear

5: netted only

51 Fruit: density of pattern of cork formation

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

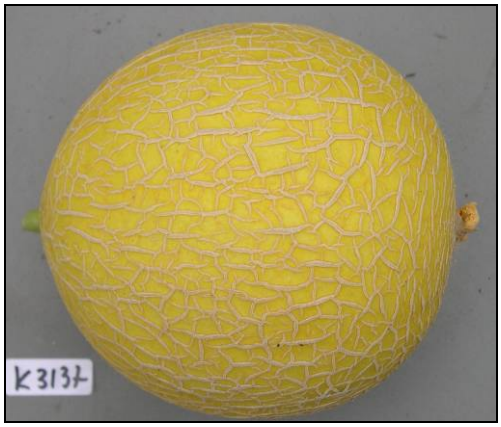
Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Use example varieties as a help to determine these characteristics.

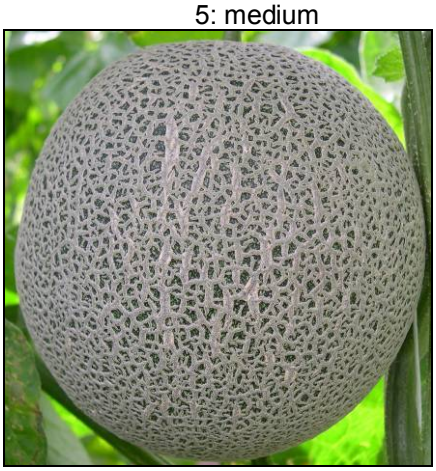
Notes and states of expression:
1: very sparse
2: very sparse to sparse
3: sparse
4: sparse to medium
5: medium
6: medium to dense
7: dense
8: dense to very dense
9: very dense

3: sparse



5: medium


7: dense


9: very dense

52 Fruit: rate of change of skin colour from maturity to over maturity

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of skin colour of fruits from the moment of changing the colour from mature to over mature. This mostly happens within one week. The speed of changing of the colour depends on the melon type and the shelf life.

Method of observation: Visual assessment. Use the fruits which hang on the plant until the moment they are over mature. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent of very slow
2: very slow to slow
3: slow
4: slow to medium
5: medium
6: medium to slow
7: fast
8: fast to very fast
9: very fast

52 Fruit: rate of change of skin colour from maturity to over maturity

CPVO explanation:

The melon fruit may have up to three different skin colours in the course of its development. The speed of evolution of the colour depends on the type of variety, but within a type different speeds can also be observed. Please note that in cases where the colour change is closely linked to maturity, the observation should be clear: either on the colour change related to maturity (characteristic 23) or within mature fruits from mature to over mature (characteristic 52). The changing of fruit skin colour can be described by using the following characteristics:

1. Stage 1: colour of the young fruit (green colour)
2. Change from Stage 1 to Stage 2 (Characteristics 23)
3. Stage 2: colour at maturity
4. Change from Stage 2 to Stage 3 (Characteristic 52)
5. Stage 3: colour at over maturity.

Variety	Stage 1: colour of the young fruit	Change from Stage 1 to Stage 2 (Ch. 23)	Stage 2: colour at maturity (Ch. 29)	Change from Stage 2 to Stage 3 (Ch. 52)	Stage 3: colour at over maturity
Galia	green	late	yellow	absent	yellow
Amarillo Oro	green	late	yellow	absent	yellow
Doral	green	late	yellow	absent	yellow
Charentais	green	early	grey	fast	yellow
Alpha	green	early	grey	medium	yellow
Clipper	green	early	grey	absent	grey
Vendome	green	early	grey	medium	yellow
Corin	green	early	grey	fast	yellow
Nembo	green	early	grey	fast	yellow
Albino	green	late	white	absent	white
Honey Dew	green	late	white	absent	white
Dulcinea	green	late	white	medium	yellow
Marina	green	no-change	green	fast	yellow
Futuro	green	no change	green	medium	yellow
Goloso	green	no change	green	slow	yellow
Piel de Sapo	green	no change	green	absent	green

53 Fruit: width of flesh in longitudinal section (at position of maximum fruit diameter)

Grouping characteristic: no.

Type of characteristic: **QN** – Quantitative characteristic.

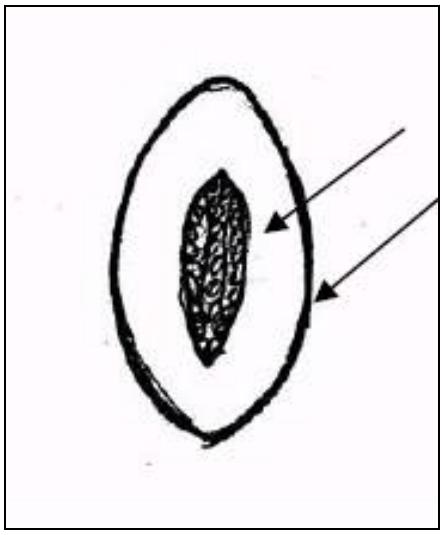
Type of observation: VG - Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. When appropriate, for the flesh characteristics it is recommended to wait at least one week after the harvest before opening the fruits (not obligatory). Observe this characteristic on fruits cut in longitudinal section. Use example varieties as a help to determine this characteristics.

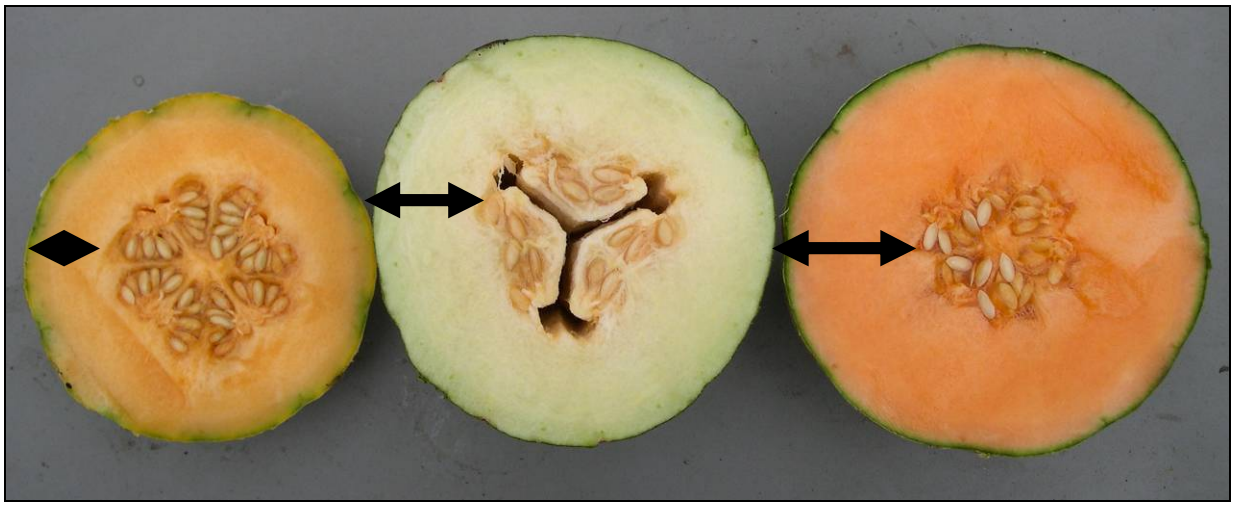
Notes and states of expression:
1: very thin
2: very thin to thin
3: thin
4: thin to medium
5: medium
6: medium to thick
7: thick
8: thick to very thick
9: very thick

CPVO explanation:

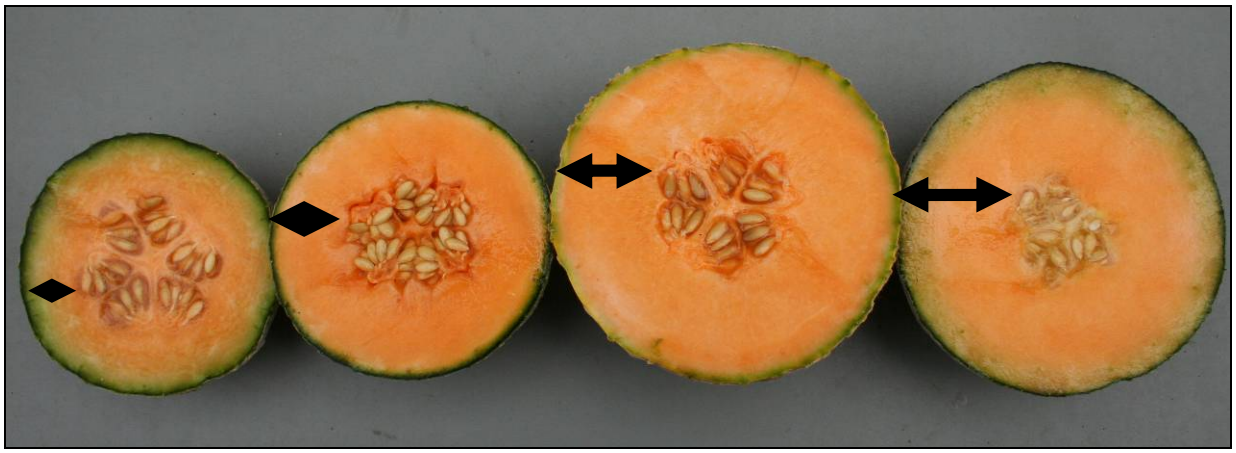


53 Fruit: width of flesh in longitudinal section (at position of maximum fruit diameter)

These pictures can be only used as example of variation in fruit width of flesh because fruits are cut transversally instead of longitudinally and must not be used to score this characteristic.



3: thin 5: medium 7: thick



3: thin 5:medium 6: medium to thick 9: very thick

54 Fruit: main colour of flesh

Grouping characteristic: yes.

Type of characteristic: **PQ** – Pseudo-qualitative characteristic.

Type of observation: VG - Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

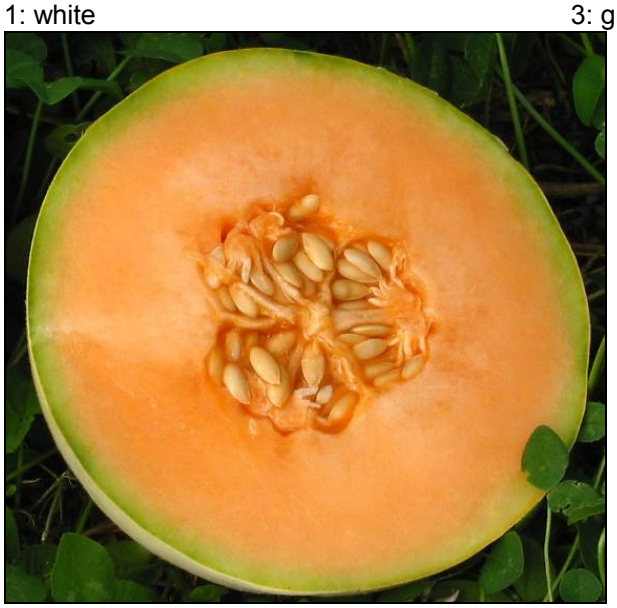
Method of observation: Assessment of ripe, representative fruits. When appropriate, for the flesh characteristics it is recommended to wait at least one week after the harvest before opening the fruits (not obligatory). Observe this characteristic on fruits cut in transverse section. Use example varieties as a help to determine this characteristics.

Notes and states of expression:
1: white
2: greenish white
3: green
4: yellowish white
5: orange
6: reddish orange

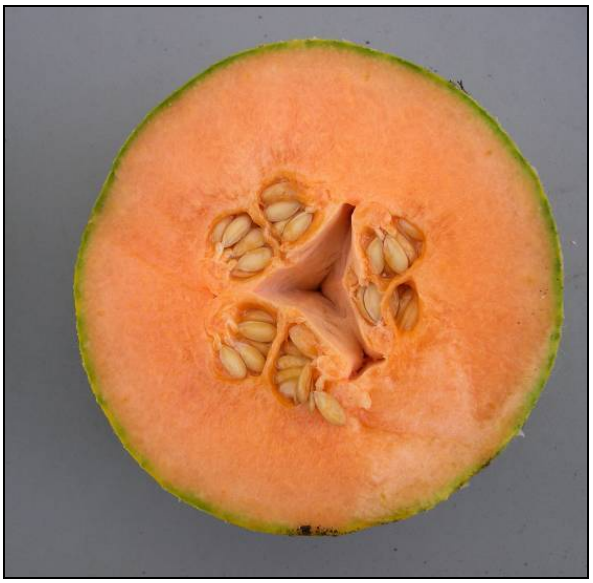
54 Fruit: main colour of flesh

1: white

3: green



5: orange



6: reddish orange Magenta

55 Only varieties with main colour of flesh: orange: Fruit: intensity of orange colour of flesh

Grouping characteristic: no.

Type of characteristic: **QN** – Quantitative characteristic.

Type of observation: VG - Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. When appropriate, for the flesh characteristics it is recommended to wait at least one week after the harvest before opening the fruits (not obligatory). Observe this characteristic on fruits cut in longitudinal section. Use example varieties as a help to determine this characteristics.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to dark
7: dark
8: dark to very dark
9: very dark

56 Only varieties with main colour of flesh: white; greenish white; green; yellowish white: Fruit: secondary salmon colouring of flesh

Grouping characteristic: no.

Type of characteristic: **QN** – Quantitative characteristic.

Type of observation: VG - Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: Observation of ripe fruits before change of skin from maturity to over maturity.

Method of observation: Assessment of ripe, representative fruits. Wait at least one week after the harvest before opening the fruits. Observe these characteristic on fruits cut in longitudinal section. The colour of the flesh turns salmon mainly around the seed cavity. Use example varieties as a help to determine these characteristics.

Notes and states of expression:
1: absent of very weak
2: very weak to weak
3: weak
4: weak to medium
5: medium
6: medium to strong
7: strong
8: strong to very strong
9: very strong

The green colour of the flesh turns salmon mainly around the seed cavity.

57 Only varieties with change of skin colour from maturity to over maturity: Fruit at over maturity: hue of colour of skin

Grouping characteristic: no.

Type of characteristic: **PQ** – Pseudo-qualitative characteristic.

Type of observation: VG - Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: When the skin colour of harvested fruits changes from maturity to over maturity. It happens mostly within one week and depends on the type of the melon and its shelf life.

Method of observation: Assessment of ripe, representative fruits. Store some marked fruits e.g. in the greenhouse. Observe these characteristics at the moment when the fruits change their skin colour form mature to over mature. To make sure not to miss this moment, survey the harvested fruits every 2-3 days. Use example varieties as a help to determine these characteristics.

Notes and states of expression:
1: yellow
2: orangish yellow
3: creamish

58 Only varieties with change of skin colour from maturity to over maturity and with yellow or orangish yellow colour of skin: Fruit at over maturity: intensity of yellow colour of skin

Grouping characteristic: no.

Type of characteristic: **QN** – Quantitative characteristic.

Type of observation: VG - Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Stage of observation: When the skin colour of harvested fruits changes from maturity to over maturity. It happens mostly within one week and depends on the type of the melon and its shelf life.

Method of observation: Assessment of ripe, representative fruits. Store some marked fruits e.g. ion the greenhouse. Observe these characteristics at the moment when fruits change their skin colour from mature to over mature. To make sure not to miss this moment, survey the harvested fruits every 2-3 days. Use example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to dark
7: dark
8: dark to very dark
9: very dark

59 Seed: length

Grouping characteristic: yes.

Type of characteristic: QN – Quantitative characteristic.

Stage of observation: After harvesting. Only ripe and well developed fruits.

Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Cut the fruit and harvest fully developed seeds from the central part of the fruit. Make observation on the washed and dried seeds. **Advice:** Harvest seeds of example varieties, wash and dry them. Glue them on a cardboard card. Use in this way prepared seed cards to determine seeds characteristics.

Notes, states of expression and example varieties:

1: very short	Geumssaraki, Golden Crispi
2: very short to short	
3: short	Elario, Katsura Giant
4: short to medium	
5: medium	Arava, Sancho
6: medium to long	
7: long	Amarillo Oro, Toledo
8: long to very long	
9: very long	Albino

60 Seed: width

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Stage of observation: After harvesting. Only ripe and well developed fruits.

Type of observation: MS/VG – Choice between
- Calculated average of the measurement of 20 plants or parts of plants and
- Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Cut the fruit and harvest fully developed seeds from the central part of the fruit. Make observation on the washed and dried seeds. **Advice:** Harvest seeds of example varieties, wash and dry them. Glue them on a cardboard card. Use in this way prepared seed cards to determine seeds characteristics.

Notes and states of expression:
1: very narrow
2: very narrow to narrow
3: narrow
4: narrow to medium
5: medium
6: medium to broad
7: broad
8: broad to very broad
9: very broad

61 Seed: shape

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Stage of observation: After harvesting. Only ripe and well developed fruits.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Cut the fruit and harvest fully developed seeds from the central part of the fruit. Make observation on the washed and dried seeds. **Advice:** Harvest seeds of example varieties, wash and dry them. Glue them on a cardboard card. Use in this way prepared seed cards to determine seeds characteristics.

Notes and states of expression:
1: not pine-nut shape
2: pine-nut shape

CPVO explanation:

(b) (a) 	general shape	(b) (a) 
	(a) transverse section	
	(b) longitudinal section	
1: not pine-nut shape		2: pine-nut shape

Pine-nut shape seed (Piñonet) is controlled by a recessive characteristic with simple genetic regulation. Seed with pine-nut shape resembles the shape of a pine nut and has the following features:
- the hilum end is slightly more pointed, with very small wings;
- the apical end has a tendency to be more rounded;
- in transverse section the seed has a tendency to be more symmetrically elliptical;
- the surface is not covered with arista.

62 Seed: colour

Grouping characteristic: yes.

Type of characteristic: QL – Qualitative characteristic.

Stage of observation: After harvesting. Only ripe and well developed fruits.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Cut the fruit and harvest fully developed seeds from the central part of the fruit. Make observation on the washed and dried seeds. **Advice:** Harvest seeds of example varieties, wash and dry them. Glue them on a cardboard card. Use in this way prepared seed cards to determine seeds characteristics.

Notes, states of expression and example varieties:

1: whitish	Amarillo Oro s.b.
2: cream yellow	Galia, Piel de Sapo

1: whitish 2: cream yellow

63 Only varieties with cream yellow seed colour: Seed: intensity of colour

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Stage of observation: After harvesting. Only ripe and well developed fruits.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Cut the fruit and harvest fully developed seeds from the central part of the fruit. Make observation on the washed and dried seeds. **Advice:** Harvest seeds of example varieties, wash and dry them. Glue them on a cardboard card. Use in this way prepared seed cards to determine seeds characteristics.

Notes and states of expression:
1: very light
2: very light to light
3: light
4: light to medium
5: medium
6: medium to dark
7: dark
8: dark to very dark
9: very dark

64 Time of male flowering

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MG – Single measurement of a group of plants or parts of plants; in practice a single measurement of an average single plant or part of plant.

Stage of observation: When 50% of plants has at least one male flower. Score this characteristic before scoring characteristic 12 (sex expression).

Method of observation: Single measurement of a group of plants. For each observation: count the amount of plants with at least one male flower 3 times per week and make notices in the trial book. Make observations as long as 50% of plants have 1 male flower. The date when 50% of plants have at least one male flower is the time of male flowering. Male flowers occur even on the main stem and are earlier than female flowers.

Notes and states of expression:
1: very early
2: very early to early
3: early
4: early to medium
5: medium
6: medium to late
7: late
8: late to very late
9: very late


Male flowers

65 Time of female flowering

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MG – Single measurement of a group of plants or parts of plants; in practice a single measurement of an average single plant or part of plant.

Stage of observation: When 50% of plants has at least one female flower. Score this characteristic before scoring characteristic 12 (sex expression).

Method of observation: Single measurement of a group of plants. Each observation: count the amount of plants with at least one female flower 3 times per week and make notices in the trial book. Make observations as long as 50% of plants have 1 female flower. The date when 50% of plants have at least one female flower is the time of female flowering. Female flowers occur on the side shoots thus do not count female flowers on the main stem; this happened very seldom. Use some example varieties as a help to determine these characteristics.

Notes and states of expression:
1: very early
2: very early to early
3: early
4: early to medium
5: medium
6: medium to late
7: late
8: late to very late
9: very late

Female flowers

66 Time of ripening

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MG – Single measurement of a group of plants or parts of plants; in practice a single measurement of an average single plant or part of plant.

Stage of observation: When 50% of plants has one fully developed, ripe fruit. A fruit can be considered as ripe if:

- becomes to smell lovely
- the abscission layer between fruit and fruit peduncle is visible
- the area around abscission layer becomes yellow
- the pistil scare change the colour (only some melon types)
- the leaf closest to the fruit turns yellow and becomes old.

Method of observation: Count the amount of fruits after every harvest (preferably 3 times a week) until the moment you have 5 fruits per plot. Make a note in the trial book at the moment you have 5 fruits. Put the results of the whole trial (all plots/samples) in one table. Compare with the time of ripening of early, medium and late example varieties.

Notes and states of expression:
1: very early
2: very early to early
3: early
4: early to medium
5: medium
6: medium to late
7: late
8: late to very late
9: very late

67 Shelf life of fruit

Grouping characteristic: no.

Type of characteristic: QN – Quantitative characteristic.

Type of observation: MG – Single measurement of a group of plants or parts of plants; in practice a single measurement of an average single plant or part of plant.

Method of observation: Store some harvested and marked fruits. Make a notice when they were harvested and when they become to look less fresh, when they change the colour and become soft. Compare with some example varieties to determinate the shelf life.

Notes and states of expression:
1: very short
2: very short to short
3: short
4: short to medium
5: medium
6: medium to long
7: long
8: long to very long
9: very long

68 Resistance to *Fusarium oxysporum* f.sp*. melonis*

Grouping characteristic: yes.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

68.1 Resistance to *Fusarium oxysporum* f.sp*. melonis* Race 0

Notes, states of expression and example varieties:
1: absent Jaune Canari 2
9: present Jador, Joker, Védrantais

68.2 Resistance to *Fusarium oxysporum* f.sp*. melonis* Race 1

Notes, states of expression and example varieties:
1: absent Jaune Canari 2, Védrantais
9: present Jador, Joker

68.3 Resistance to *Fusarium oxysporum* f.sp*. melonis* Race 2

Notes, states of expression and example varieties:
1: absent Jaune Canari 2, Joker
9: present Jador, Védrantais

68.4 Resistance to *Fusarium oxysporum* f.sp*. melonis* Race 1-2

Notes, states of expression and example varieties:
1: absent Jaune Canari 2, Joker, Védrantais
9: present Jador, Joker, Védrantais

68 Resistance to *Fusarium oxysporum* f.sp*. melonis*

CPVO explanation:

Resistance to *Fusarium oxysporum* f. sp. *melonis*, races 0, 1 and 2

Maintenance of races

Type of medium:	on agar medium at 22 to 25°C
Special conditions:	transplantation of races each month

Execution of test

Growth stage of plants:	cotyledons expanded
Temperature:	24°C during day, 18°C during night
Light:	10-12 hours per day
Growing method:	Petri dishes in climatic chambers
Method of inoculation:	soaking of the root system in a suspension of liquid medium of fungus
Duration of test	
- from sowing to inoculation:	10-15 days
- from inoculation to reading:	20 days, death of susceptible plants
Number of plants tested:	20 plants
Remarks:	plants raised and transplanted in sterilized sand, irrigation with nutrient solution

Resistance to *Fusarium oxysporum* f. sp. *melonis*, race 1-2

Maintenance of races

Type of medium:	on agar medium at 22 to 25°C
Special conditions:	transplantation of races each month

Execution of test

Growth stage of plants:	cotyledons expanded
Temperature:	24°C during day, 18°C during night
Light:	12 hours per day
Growing method:	dishes in climatic chambers
Method of inoculation:	absorption of 700 ml of a very diluted (30 to 50 times) fungus culture
Duration of test	
- from sowing to inoculation:	10 to 15 days
- from inoculation to reading:	3 weeks, until the death of the susceptible control
Number of plants tested:	20 plants
Remarks:	a moderately aggressive type of race 1-2 should be used as this is likely to show the difference between the presence and absence of resistance most clearly.

69 Resistance to *Sphaerotheca fuliginea (Podosphaera xanthii)* (Powdery mildew)

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

69.1 Resistance to *Sphaerotheca fuliginea (Podosphaera xanthii)* (Powdery mildew) Race 1

Notes and states of expression:
1: susceptible
2: intermediate resistant
3: highly resistant

69.2 Resistance to *Sphaerotheca fuliginea (Podosphaera xanthii)* (Powdery mildew) Race 2

Notes and states of expression:
1: susceptible
2: intermediate resistant
3: highly resistant

69.3 Resistance to *Sphaerotheca fuliginea (Podosphaera xanthii)* (Powdery mildew) Race 5

Notes and states of expression:
1: susceptible
2: intermediate resistant
3: highly resistant

70 Resistance to *Erysiphe cichoracearum (Golovinomyces cichoracearum)* Race 1 (Powdery mildew)

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

69 Resistance to *Sphaerotheca fuliginea (Podosphaera xanthii)* (Powdery mildew)
70 Resistance to *Erysiphe cichoracearum (Golovinomyces cichoracearum)* Race 1 (Powdery mildew)

CPVO explanation:

Resistance to *Sphaerotheca fuliginea (Podosphaera xanthii),* races 1, 2 and 5
Resistance to *Erysiphe cichoracearum (Golovinomyces cichoracearum),* race 1

1. Inoculum

Production of cotyledons

Cotyledons to be inoculated and tested: sow the seed in disinfected peat inside a closed mini glasshouse. When the cotyledons have expanded, remove them from the plant.

Desinfect the cotyledons by soaking them for 3 minutes in a mercuric chloride solution (0.05%). Rinse them twice with sterilized water. Dry the cotyledons with sterile paper towel, then place them in Petri dishes with the following medium:

sucrose 10 g
mannitol 20 g
agar 5 g
distilled water 1 liter

Propagation of the strains

Scatter conidia on the cotyledons and blow them. Incubate the inoculated cotyledons in Petri dishes at 23oC during 14 hours in the light and at 18oC during 10 hours in the dark.

9 to 11 days after the inoculation, the cotyledons will be covered with spores and can be used as an inoculum.

Maintenance of races

Type of medium: on inoculated cotyledons
Special conditions: 17oC, under very low light intensity. Maximum storage time is 1 to 1.5 months, after the inoculation.

2. Execution of Test

Inoculation on leaf disks (to be used as routine method)

Leaf disks, 2 cm in diameter, are taken from young plants and placed in polystyrene boxes (180 x 125 mm, 54 leaf disks per box) on a medium (mannitol 40g/l, benzamidazole 30 mg/l, agar 4 g/l). The leaf disks are inoculated by placing the boxes at the base of an inoculation tower (height: 1.00 m, diameter 0.25 m).

A cotyledon, already covered with inoculum, is placed on the top of the tower and blown with a Pasteur pipette to detach spores. Wait 1 to 2 minutes so that the conidia fall down through the tower onto the leaf discs. The leaf disks are kept for 24 hours in the dark by covering the boxes with a black polyethylene sheet. The boxes are then placed in a climatised chamber (20oC in the light for 14 hours; 24oC in the dark, for 10 hours per day).

Duration of test/Number of plants

- from inoculation to reading: 10 days
- number of plants tested: 5

Scoring

Highly resistant varieties (Note 3)
0 no development of the fungi
1 isolated colonies (less than 10% of the disk surface)
Intermediate resistant varieties (especially for *Erysiphe cichoracearum (Golovinomyces cichoracearum)) (Note 2)*
2 isolated colonies (more than 10 % of the disk surface)
3 all the disk surface is covered with weak sporulation
Susceptible varieties (Note 1)
4 sporulation on all the disk surface
5 intense sporulation

Inoculation on young plants (to be used as a complementary method to the disk method, if necessary)

Take spores from a cotyledon already covered with conidia and deposit them on a leaf taken from a young plant. You can also proceed by blowing the spores from a cotyledon by the method mentioned above.

Scoring

Highly resistant varieties (Note 3)
0 no development of the fungi
1 isolated colonies (less than 10% of the leaves)
Intermediate resistant varieties (especially for *Erysiphe cichoracearum (Golovinomyces cichoracearum)) (Note 2)*
3 isolated colonies (more than 10% of the leaves)
5 weak sporulation
Susceptible varieties (Note 1)
7 medium sporulation
9 intense sporulation

3. Host differentials

	***Sphaerotheca fuliginea* (*Podosphaera xanthii*)**					***Erysiphe cichoracearum* (*Golovinomyces cichoracearum*)**	
	race 0	**race 1**	**race 2**	**race 4**	**race 5**	**race 0**	**race 1**
Iran H	S	S	S	S	S	S	S
Védrantais	R	S	S	S	S	R	S
PMR 45	R	R	S	S	S	R	S
WMR 29	R	R	R	S	S	R	S
Edisto 47	R	R	R	R	S	R	R
MR-1, PI 124112	R	R	R	R	R	R	R
PMR 5							
Nantais Oblong	R	S	S	S	S	R	R

S: susceptible (high sporulation) R: resistant (low sporulation)

71 Resistance to colonization by *Aphis gossypii*

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

Notes and states of expression:
1: absent
9: present

71 Resistance to colonization by *Aphis gossypii*

CPVO explanation:

Resistance to colonization by *Aphis gossypii*

Maintenance of strain

Maintenance and multiplication:	on susceptible variety (Védrantais)
Special conditions:	low aphid density to avoid having too many winged types. "Synchronous"-type breeding in order to have only aphids of the same age and, therefore, at the same growing stage on a plant

Conduct of the test

Plant stage:	1st leaf measuring 2-3 cm
Temperature:	21°C
Light:	16 hours per day
Planting:	plants sown in sand, pricked out at cotyledon stage in compost-filled pots
Manner of inoculation:	deposit of ten adult wingless aphid per plant
Duration of test:	
- from sowing to inoculation:	15-18 days
- from inoculation to reading:	one day
Number of plants tested:	30
Recording:	- Resistance present = less than 7 adult aphids per plant; eggs rare. - Resistance absent = 9 or 10 adult aphids per plant; eggs frequent. - Record number of aphids per plant, 24 hours after inoculation.

72 Resistance to Zucchini Yellow Mosaic Virus (ZYMV) Race F

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

Notes and states of expression:
1: absent
9: present

72 Resistance to Zucchini Yellow Mosaic Virus (ZYMV) Race F

CPVO explanation:

Resistance to Zucchini Yellow Mosaic Virus (ZYMV), race F

A. INOCULUM

Maintenance of strain

Maintenance:	5°C and kept dry using anhydrous calcium chloride
Special conditions:	pre-multiplication of the virus on non-wilting variety (Védrantais) prior to testing

B. INOCULATION AND INCUBATION

Conduct of the test

Plant stage:	1st emergent leaf
Temperature:	25°C during day, 18°C during night
Light:	12 hours per day
Manner of inoculation:	mechanical inoculation by rubbing of cotyledons with inoculum
Duration of test:	
- from sowing to inoculation:	15 days
- from inoculation to reading:	15 days
Number of plants tested:	30

C. SYMPTOMS AND OBSERVATIONS

Reading difficulty:	- heterozygotes (Fn/Fn+) wither and die more slowly than homozygotes (Fn/Fn) - use the F pathotype of ZYMV
Example varieties:	
Védrantais (Fn+/Fn+):	mosaic (resistance present)
Cantor (Fn/Fn+):	slower necrosis with wilting (resistance absent)
Doublon (Fn/Fn):	necrosis with wilting (resistance absent)

73 Resistance to Papaya Ring Spot Virus (PRSV)

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

73.1. Resistance to Papaya Ring Spot Virus (PRSV) Race GVA

Notes and states of expression:
1: absent
9: present

73.2. Resistance to Papaya Ring Spot Virus (PRSV) Race E2

Notes and states of expression:
1: absent
9: present

73 Resistance to Papaya Ring Spot Virus (PRSV)

CPVO explanation:

Resistance to Papaya Ring Spot Virus (PRSV), race GVA and race E_2

A. INOCULUM

Maintenance of strain

Maintenance:	5°C and kept dry using anhydrous calcium chloride
Special conditions:	pre-multiplication of the virus on susceptible variety (Védrantais) prior to testing

B. INOCULATION AND INCUBATION

Conduct of the test

Plant stage:	1st emergent leaf
Temperature:	25°C during day, 18°C during night
Light:	12 hours per day
Manner of inoculation:	mechanical inoculation by rubbing cotyledons with inoculum
Duration of test:	
- from sowing to inoculation:	15 days
- from inoculation to reading:	15-20 days
Number of plants tested:	30

C. SYMPTOMS AND OBSERVATIONS

Identification of two strains of the PRSV virus and of the two alleles concerned:

Genotypes/Strains	GVA strain	E2 strain
Védrantais ($Prsv^+$)	Mosaic (vein-clearing) = resistance absent	Mosaic (vein-clearing) = resistance absent
72025 ($Prsv^2$)	- No systemic symptoms - Local necrotic lesions on cotyledons (irregular) = resistance present	- Apical necrosis = Necrosis of plant instead of local lesions: resistance absent
WMRV 29 ($Prsv^1$)	- No systemic symptoms - Occasional local necrotic lesions on cotyledons = resistance present	- No systemic symptoms - Occasional local necrotic lesions on cotyledons = resistance present

74 Resistance to Muskmelon Necrotic Spot Virus (MNSV)

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

Notes and states of expression:
1: absent
9: present

74 Resistance to Muskmelon Necrotic Spot Virus (MNSV)

CPVO explanation:

Resistance to Muskmelon Necrosis Spot Virus (MNSV), race E_8

A. INOCULUM

Maintenance of strain

Maintenance:	5°C and kept dry using anhydrous calcium chloride
Special conditions:	pre-multiplication on susceptible variety (Védrantais) prior to test

B. INOCULATION AND INCUBATION

Conduct of the test

Plant stage:	1st emergent leaf
Temperature:	25°C during day, 18°C during night
Light:	12 hours per day
Manner of inoculation:	mechanical inoculation by rubbing of cotyledons with inoculum
Duration of test:	
- from sowing to inoculation:	15 days
- from inoculation to reading:	8 days
Number of plants tested:	30

C. SYMPTOMS AND OBSERVATIONS

Susceptible plants:	necrotic lesions on the inoculated organs (cotyledons)
Resistant plants:	no lesions

75 Resistance to Cucumber Mosaic Virus (CMV)

Grouping characteristic: no.

Type of characteristic: QL – Qualitative characteristic.

Type of observation: VG – Single visual assessment of a group of plants or parts of plants; in practice a single assessment of an average single plant or part of plant.

Method of observation: Observe using explanation.

Notes and states of expression:
1: absent
9: present

75 Resistance to Cucumber Mosaic Virus (CMV)

CPVO explanation:

Resistance to Cucumber Mosaic Virus (CMV)

A. INOCULUM

1. Crushed solution

Phosphate disodic (Na_2HPO_4, 12 H_2O) (0,03M):	1,075 g
Diéthyldithiocarbamate of sodium (= DIECA):	0,2 g
Distilled water:	qsp 100 ml

The phosphate disodic solution can be stored in a refrigerator. Once the DIECA is added, the solution should be used within the next two hours.

2. Crushing the leaves

The source of the inoculum comes from crushing either the fresh leaves, or leaves desiccated in anhydrous calcium chloride (Ca $Cl_{2)}$, in a cold mortar.

Crush 1 gram of leaves with 4 ml of phosphate disodic solution at 5°C. Add active carbon (0,5 g) and carborendum (0,4 g) for each 1 gram of leaves. After crushing, put the mortar on a bed of ice.

Before using leaves dried with $CaCl_2$ to inoculate a plant test, do a multiplication of the inoculum on some 10 susceptible plants which would be used as inoculum.

3. Strains maintenance

CMV can be stored for several years by desiccation with anhydrous $CaCl_2$. Leaves showing mosaic symptoms should be chopped finely with a razor blade and placed in cups. Put a layer of anhydrous calcium chloride (0,5 cm) in a plastic box and cover it with filter paper. Place the cups on this layer. Close the box well with adhesive tape, and then place it in a tightly closed plastic bag. Store it in a refrigerator at 5°C.

Notes

Notes

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