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**Economic Commission for Europe**

Steering Committee on Trade Capacity and Standards

**Working Party on Agricultural Quality Standards**

**Specialized Section on Standardization**

**of Fresh Fruit and Vegetables**

**Sixty-fifth session**

Geneva, 2-5 May 2017

Item 3 of the provisional agenda

**Revision of UNECE Standards**

POST SESSION DOCUMENT

Revision of UNECE Standards – Citrus Fruit

All agreed changes are highlighted.

Open for consultations until the end of June 2017

UNECE Standard FFV-14 concerning the marketing and commercial quality control of Citrus Fruit

I. Definition of produce[[1]](#footnote-2)

This standard applies to citrus fruit of varieties (cultivars) grown from the following species to be supplied fresh to the consumer, citrus fruit for industrial processing being excluded:

* lemons grown from the species *Citrus limon* (L.) Burm. f. and hybrids thereof
* Persian limes grown from the species *Citrus latifolia* (Yu. Tanaka) Tanaka, a largefruited acid lime known also as Bearss or Tahiti and hybrids thereof
* Mexican limes grown from the species *Citrus aurantiifolia (*Christm.*)* Swingle, also known as sour limes and key limes and hybrids thereof
* Indian sweet limes, Palestine sweet limes grown from the species *Citrus limettioides* Tanaka and hybrids thereof
* mandarins grown from the species (*Citrus reticulata* Blanco), including satsumas *(Citrus unshiu* Marcow.), clementines (*Citrus clementina* hort. ex Tanaka), and common mandarins (*Citrus deliciosa* Ten.) and tangerines (*Citrus tangerina* Tanaka), grown from these species and hybrids thereof
* oranges grown from the species *Citrus sinensis* (L.) Osbeck and hybrids thereof
* grapefruit grown from the species *Citrus paradisi* Macfad. and hybrids thereof
* pummelos or Shaddock grown from the species *Citrus maxima* (Burm.) Merr. and hybrids thereof.

II. Provisions concerning quality

The purpose of the standard is to define the quality requirements for citrus fruit at the export‑control stage after preparation and packaging.

However, if applied at stages following export, products may show in relation to the requirements of the standard:

* a slight lack of freshness and turgidity
* for products graded in classes other than the “Extra” Class, a slight deterioration due to their development and their tendency to perish.

The holder/seller of products may not display such products or offer them for sale, or deliver or market them in any manner other than in conformity with this standard. The holder/seller shall be responsible for observing such conformity.

A. Minimum requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the citrus fruit must be:

* intact
* free of bruising and/or extensive healed overcuts
* sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
* clean, practically free of any visible foreign matter
* practically free from pests
* free from damage caused by pests affecting the flesh
* free of signs of shrivelling and dehydration
* free of damage caused by low temperature or frost
* free of abnormal external moisture
* free of any foreign smell and/or taste.

The development and condition of the citrus fruit must be such as to enable it:

* to withstand transportation and handling
* to arrive in satisfactory condition at the place of destination.

B. Maturity requirements

The citrus fruit must have reached an appropriate degree of development and ripeness, account being taken of criteria proper to the variety, the time of picking and the growing area.

Maturity of citrus fruit is defined by the following parameters specified for each species below:

* minimum juice content
* minimum total soluble solids content, i.e. minimum sugar content
* minimum sugar/acid ratio[[2]](#footnote-3)
* colouring.

The degree of colouring shall be such that following normal development the citrus fruit reach the colour typical of the variety at their destination point.

|  | *Minimum juice content (per cent)* | *Minimum sugar content (*°*Brix)* | *Minimum sugar/acid ratio* | *Colouring* |
| --- | --- | --- | --- | --- |
| Lemons | 20 |  |  | Must be typical of the variety. Fruit with a green (but not dark green) colour is allowed, provided it satisfies the minimum requirements as to juice content |
| Limes | | | | |
| Persian lime | 42 |  |  | The fruit should be green but may show yellow patches up to 30% of its surface for Persian limes and up to 20% for Mexican and Indian limes |
| Mexican and Indian sweet limes | 40 |  |  |
| Satsumas, clementines, other mandarin varieties and their hybrids | | | | |
| Satsumas | 33 |  | 6.5:1 | Must be typical of the variety on at least one third of the surface of the fruit |
| Clementines | 40 |  | 7.0:1 |
| Other mandarin varieties and their hybrids | 33 |  | 7.5:1 |
| Oranges | | | | |
| Blood oranges | 30 |  | 6.5:1 | Must be typical of the variety. However, fruit with light green colour not exceeding one fifth of the total surface area of the fruit is allowed, provided it satisfies the minimum requirements as to juice content.  Oranges produced in areas with high temperatures and high relative humidity conditions during the developing period having a green colour exceeding one fifth of the surface area of the fruit are allowed, provided they satisfy the minimum requirements as to juice content. |
| Navels group | 33 |  | 6.5:1 |
| Other varieties | 35 |  | 6.5:1 |
| Mosambi, Sathgudi and Pacitan with more than one fifth green colour | 33 |  |  |
| Other varieties with more than one fifth green colour | 45 |  |  |
| Grapefruit and hybrids | | | | |
| All varieties and hybrids | 35 |  |  | Must be typical of the variety. Fruit with a greenish colour (green in Oroblanco) is allowed, provided it satisfies the minimum requirements as to juice content |
| Oroblanco | 35 | 9 |  |
| Pummelos (Shaddock) and hybrids |  | 8 |  | Must be typical of the variety on at least two thirds of the surface of the fruit |

Citrus fruit meeting these maturity requirements may be “degreened”. This treatment is only permitted if the other natural organoleptic characteristics are not modified.

C. Classification

Citrus fruit is classified in three classes, as defined below:

(i) "Extra" Class

Citrus fruit in this class must be of superior quality. It must be characteristic of the variety and/or commercial type.

It must be free from defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

(ii)Class I

Citrus fruit in this class must be of good quality. It must be characteristic of the variety and/or commercial type.

The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

* a slight defect in shape
* slight defects in colouring, including slight sunburn
* slight progressive skin defects, provided they do not affect the flesh
* slight skin defects occurring during the formation of the fruit, such as silver scurfs, russets or pest damage
* slight healed defects due to a mechanical cause such as hail damage, rubbing or damage from handling
* slight and partial detachment of the peel (or rind) for all fruit of the mandarin group.

(iii)Class II

This class includes citrus fruit that does not qualify for inclusion in the higher classes but satisfies the minimum requirements specified above.

The following defects may be allowed, provided the citrus fruit retains its essential characteristics as regards the quality, the keeping quality and presentation:

* defects in shape
* defects in colouring, including sunburn
* progressive skin defects, provided they do not affect the flesh
* skin defects occurring during the formation of the fruit, such as silver scurfs, russets or pest damage
* healed defects due to a mechanical cause such as hail damage, rubbing or damage from handling
* superficial healed skin alterations
* rough skin
* a slight and partial detachment of the peel (or rind) for oranges and a partial detachment of the peel (or rind) for fruit of the mandarin group.

III. Provisions concerning sizing

Size is determined by the maximum diameter of the equatorial section of the fruit or by count.

A. Minimum size

The following minimum sizes apply:

|  |  |
| --- | --- |
| *Fruit* | *Diameter (mm)* |
| Lemons | 45 |
| Persian limes | 42 |
| Mexican and Indian sweet limes | 25 |
| Satsumas, other mandarin varieties and hybrids | 45 |
| Clementines | 35 |
| Oranges | 53 |
| Grapefruit and hybrids | 70 |
| Pummelos and hybrids | 100 |

B. Uniformity

Citrus fruit may be sized by one of the following options:

(a) To ensure uniformity in size, the range in size between produce in the same package shall not exceed:

* 10 mm, if the diameter of the smallest fruit (as indicated on the package) is < 60 mm
* 15 mm, if the diameter of the smallest fruit (as indicated on the package) is ≥ 60 mm but < 80 mm
* 20 mm, if the diameter of the smallest fruit (as indicated on the package) is ≥ 80 mm but < 110 mm
* there is no limitation of difference in diameter for fruit ≥ 110 mm.

(b) When size codes are applied, the codes and ranges in the following tables must be respected:

|  | *Size code* | *Diameter (mm)* |
| --- | --- | --- |
| Lemons | | |
|  | 0 | 79 - 90 |
|  | 1 | 72 - 83 |
|  | 2 | 68 - 78 |
|  | 3 | 63 - 72 |
|  | 4 | 58 - 67 |
|  | 5 | 53 - 62 |
|  | 6 | 48 - 57 |
|  | 7 | 45 - 52 |
| Limes |  |  |
| Persian limes | 1 | 58 – 67 |
|  | 2 | 53 – 62 |
|  | 3 | 48 – 57 |
|  | 4 | 45 – 52 |
|  | 5 | 42 – 49 |
| Mexican and Indian sweet limes | 1 | > 45 |
|  | 2 | 40.1 - 45 |
|  | 3 | 35.1 - 40 |
|  | 4 | 30.1 - 35 |
|  | 5 | 25 - 30 |
| Satsumas, clementines, and other mandarin varieties and hybrids | | |
|  | 1 - XXX | 78 and above |
|  | 1 - XX | 67 - 78 |
|  | 1 or 1 - X | 63 - 74 |
|  | 2 | 58 - 69 |
|  | 3 | 54 - 64 |
|  | 4 | 50 - 60 |
|  | 5 | 46 - 56 |
|  | 6[[3]](#footnote-4) | 43 - 52 |
|  | 7 | 41 - 48 |
|  | 8 | 39 - 46 |
|  | 9 | 37 - 44 |
|  | 10 | 35 - 42 |
| Oranges | | |
|  | 0 | 92 – 110 |
|  | 1 | 87 – 100 |
|  | 2 | 84 – 96 |
|  | 3 | 81 – 92 |
|  | 4 | 77 – 88 |
|  | 5 | 73 – 84 |
|  | 6 | 70 – 80 |
|  | 7 | 67 – 76 |
|  | 8 | 64 – 73 |
|  | 9 | 62 – 70 |
|  | 10 | 60 – 68 |
|  | 11 | 58 – 66 |
|  | 12 | 56 – 63 |
|  | 13 | 53 – 60 |
| Grapefruit and hybrids | | |
|  | 0 | >139 |
|  | 1 | 109 – 139 |
|  | 2 | 100 – 119 |
|  | 3 | 93 – 110 |
|  | 4 | 88 – 102 |
|  | 5 | 84 – 97 |
|  | 6 | 81 – 93 |
|  | 7 | 77 – 89 |
|  | 8 | 73 – 85 |
|  | 9 | 70 - 80 |
| Pummelos and hybrids | | |
|  | 0 | >170 |
|  | 1 | 156 – 170 |
|  | 2 | 148 – 162 |
|  | 3 | 140 – 154 |
|  | 4 | 132 – 146 |
|  | 5 | 123 – 138 |
|  | 6 | 116 – 129 |
|  | 7 | 100 – 118 |

Uniformity in size is achieved by the above-mentioned size scales, unless otherwise stated as follows:

For fruit in bulk bins and fruit in sales packages of a maximum net weight of 5 kg, the maximum difference must not exceed the range obtained by grouping three consecutive sizes in the size scale.

(c) For fruit sized by count, the difference in size should be consistent with (a).

IV. Provisions concerning tolerances

At all marketing stages, tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the requirements of the class indicated.

A. Quality tolerances

(i) "Extra" Class

A total tolerance of 5 per cent, by number or weight, of citrus fruit not satisfying the requirements of the class but meeting those of Class I is allowed. Within this tolerance not more than 0.5 per cent in total may consist of produce satisfying the requirements of Class II quality.

(ii)Class I

A total tolerance of 10 per cent, by number or weight, of citrus fruit not satisfying the requirements of the class but meeting those of Class II is allowed. Within this tolerance not more than 1 per cent in total may consist of produce satisfying neither the requirements of Class II quality nor the minimum requirements, or of produce affected by decay.

(iii)Class II

A total tolerance of 10 per cent, by number or weight, of citrus fruit satisfying neither the requirements of the class nor the minimum requirements is allowed. Within this tolerance not more than 2 per cent in total may consist of produce affected by decay.

B. Size tolerances

**For all classes: a total tolerance of 10 per cent, by number or weight, of citrus fruit not satisfying the requirements as regards sizing is allowed.**

**~~For all classes: a total tolerance of 10 per cent, by number or weight, of citrus fruit corresponding to the size immediately below and/or above that (or those, in the case of the combination of three sizes) mentioned on the package is allowed.~~**

In any case, the tolerance of 10 per cent applies only to fruit not smaller than the following minima:

|  |  |
| --- | --- |
| *Fruit* | *Diameter (mm)* |
| Lemons | 43 |
| Persian limes | 40 |
| Mexican and Indian sweet limes | Not applicable |
| Satsumas, other mandarin varieties and hybrids | 43 |
| Clementines | 34 |
| Oranges | 50 |
| Grapefruit and hybrids | 67 |
| Pummelos and hybrids | 98 |

V. Provisions concerning presentation

A. Uniformity

The contents of each package must be uniform and contain only citrus fruit of the same origin, variety or commercial type, quality and size, and appreciably of the same degree of ripeness and development.

In addition, for "Extra" Class, uniformity in colouring is required.

However, a mixture of citrus fruit of distinctly different species may be packed together in a sales package, provided they are uniform in quality and, for each species concerned, in variety or commercial type and origin.

The visible part of the contents of the package must be representative of the entire contents.

B. Packaging

The citrus fruit must be packed in such a way as to protect the produce properly.

The materials used inside the package must be clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with non‑toxic ink or glue.

Stickers individually affixed to the produce shall be such that, when removed, they neither leave visible traces of glue, nor lead to skin defects.

If the fruit is wrapped, thin, dry, new and odourless[[4]](#footnote-5) paper must be used.

The use of any substance tending to modify the natural characteristics of the citrus fruit, especially in taste or smell4, is prohibited.

Packages must be free of all foreign matter. However, a presentation where a short (not wooden) twig with some green leaves adheres to the fruit is allowed.

VI. Provisions concerning marking

Each package[[5]](#footnote-6) must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside:

A. Identification

Packer and/or dispatcher/shipper:

Name and physical address (e.g. street/city/region/postal code and, if different from the country of origin, the country) or a code mark officially recognized by the national authority[[6]](#footnote-7).

B. Nature of produce[[7]](#footnote-8)

* “Lemons”, “Limes”, “Persian limes”, “Mexican limes”, “Indian sweet limes”/ “Palestine sweet limes”, “Mandarins”, “Oranges, “Grapefruit”, “Pummelos”/ Shaddock” if the produce is not visible from the outside
* “Mixture of citrus fruit” or equivalent denomination and common names of the different species, in case of a mixture of citrus fruit of distinctly different species
* for oranges: the name of the variety and/or the respective variety group in the case of “Navels” and “Valencias”
* for “Satsumas” and “Clementines”: the common name of the species is required and the name of the variety is optional;
* for other mandarins and ~~their~~ hybrids thereof: the name of the variety is required

For all other species: the name of the variety is optional.

The name of a variety can be replaced by a synonym. A trade name[[8]](#footnote-9) can only be given in addition to the variety or the synonym.

* flesh colour “white”, “pink” or “red” for grapefruit and pummelos where appropriate
* “seeded” in case of clementines with more than 10 seeds.
* “seedless”: (optional, seedless citrus fruit may occasionally contain seeds).

C. Origin of produce

* Country of origin[[9]](#footnote-10) and, optionally, district where grown, or national, regional or local place name
* In the case of a mixture of citrus fruit of distinctly different species of different origins, the indication of each country of origin shall appear next to the name of the species concerned.

D. Commercial specifications

* Class
* Size expressed as:
* Minimum and maximum size (in mm) or
* Size code(s) followed, optionally, by a minimum and maximum size or
* Count
* Post-harvest treatment (optional, based on the national legislation of the importing country).

E. Official control mark (optional)

Adopted 1963

Last revised 2016

The OECD Scheme for the Application of International Standards for Fruit and Vegetables has published an explanatory illustrated brochure on the application of this standard. The publication may be obtained from the OECD bookshop at: [www.oecdbookshop.org](http://www.oecdbookshop.org).

1. All information on botanical names is taken from the GRIN database. See https://npgsweb.ars-grin.gov [↑](#footnote-ref-2)
2. Calculated as described in the OECD guidance on objective tests, available at: [www.oecd.org/dataoecd/32/47/19515719.pdf](http://www.oecd.org/dataoecd/32/47/19515719.pdf) [↑](#footnote-ref-3)
3. Sizes below 45 mm refer to clementines only. [↑](#footnote-ref-4)
4. The use of preserving agents or any other chemical substance liable to leave a foreign smell on the skin of the fruit is permitted where it is compatible with the regulations of the importing country. [↑](#footnote-ref-5)
5. These marking provisions do not apply to sales packages presented in packages. [↑](#footnote-ref-6)
6. The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference “packer and/or dispatcher (or equivalent abbreviations)” has to be indicated in close connection with the code mark, and the code mark should be preceded by the ISO 3166 (alpha) country/area code of the recognizing country, if not the country of origin. [↑](#footnote-ref-7)
7. An informative, non-exhaustive list of varieties and their respective synonyms, trademarks and/or variety groups is available at [the](http://www.unece.org/xxxx) Specialized Section’s meeting website. [↑](#footnote-ref-8)
8. A trade name can be a trademark for which protection has been sought or obtained or any other commercial denomination. [↑](#footnote-ref-9)
9. The full or a commonly used name should be indicated. [↑](#footnote-ref-10)