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COMMITTEE FOR TRADE, INDUSTRY AND ENTERPRISE DEVELOPMENT

Working Party on Agricultural Quality Standards

<u>Specialized Section on Standardization of</u> <u>Fresh Fruit and Vegetables</u> Fiftieth session, 10-14 May 2004, Geneva

Item 9 of the Provisional Agenda

EXPLANATORY TEXT FOR TOMATOES

Note by the secretariat : At the last session the secretariat had proposed to consider if OECD brochures could be adopted as official interpretations of UNECE Standards. As an experiment the text of the OECD brochure for tomatoes is transmitted to the Specialized Section for information and discussion. No decision is expected at this session.

COMPARATIVE SUMMARY TABLE OF REQUIREMENTS LAID DOWN BY THE STANDARD

DEOLUDEMENTS	CLASSES			
REQUIREMENTS	"Extra"	I	II	
Market value	Superior quality	Good quality	Marketable quality	
I. Definition of Produce	all varieties (cultivars) of Lycopersicum esculentum Mill.			
Commercial types	roundribbedoblong or elongated"cherry" tomatoes (in	ncluding "cocktail" toma	toes)	
II. Minimum Requirements	- intact - sound - clean - practically free of any - fresh in appearance - practically free from: • pests • damage caused by p - free of: • abnormal external n • any foreign smell an - the condition must be • to withstand transpo • to arrive in satisfact stalks in the case of trus - fresh - healthy - clean - free from all leaves - free from any visible f	noisture ad/or taste such as to enable them: ort and handling, and tory condition at the plac	e of destination	

DEOLUDEMENTO	CLASSES			
REQUIREMENTS	"Extra"	I	II	
Market value	Superior quality	Good quality	Marketable quality	
III. Quality Requirements				
- Appearance	characteristic of the variety	characteristic of the variety	in keeping with minimum requirements	
- Shape	characteristic of the variety	slight defect allowed	defects allowed	
- Development	characteristic of the variety	slight defect allowed	defects allowed	
- Colouring	very slight superficial defect allowed	slight defect allowed	defects allowed	
- Flesh	firm	reasonably firm	reasonably firm, but slightly less firm than in Class I	
- Greenbacks	not allowed	not allowed if visible	allowed	
- Skin	very slight superficial defects allowed	slight defects allowed	defects allowed	
- Bruises	not allowed	very slight allowed	allowed provided the fru is not seriously affected	
- Healed cracks	not allowed	not allowed	limit allowed: 3 cm in length, for round, ribbed or oblong_tomato.	

DEOLUDEMENTS	CLASSES			
REQUIREMENTS	"Extra"	I	II Marketable quality	
Market Value	Superior quality	Good quality		
III. Quality requirements (cont'd)				
"Ribbed" tomatoes only				
- Healed cracks	not allowed	limit allowed: 1 cm in length		
- Protuberances	not allowed	non-excessive protuberances allowed	more pronounced protuberances allowed than under Class I, but without being misshapen	
- Umbilicus	not allowed	allowed if small but no suberization	allowed	
- Suberization of stigma	not allowed	limit allowed: 1 cm ²	limit allowed: 2 cm ²	
- Fine elongated blossom scar (like a seam)	not allowed	limit allowed: 2/3 of the greatest diameter of the fruit	allowed	

DEOLUDEMENTS	CLASSES				
REQUIREMENTS	"Extra"	I	II		
Market Value	Superior quality	Good quality	Marketable quality		
IV. Sizing (not applicable to "cherry" tomatoes)					
- Minimum size					
• round and ribbed	d 35 mm				
• oblong	30 mm				
- Sizing scale (not applicable to trusses of tomatoes)	compulsory	compulsory			
V. Tolerances (by number or weight)					
- Quality	5 %	10 %	10 %		
- ,		5 % fruit detached from the stalk in the case of trusses of tomatoes	10 % fruit detached from the stalk in the case of trusses of tomatoes		
- Size	10 %	10 %	10 %		
	Minimum under the scope - 33 mm for round and rib - 28 mm for oblong tomate	bed tomatoes	I		

DEOLUDEMENTS	CLASSES			
REQUIREMENTS	"Extra"	I	II	
Market Value	Superior quality	Good quality	Marketable quality	
VI. Packaging and Presentation				
- Uniformity		- origin - variety or commercial type - quality - size - ripeness - colouring natoes must be sufficiently unckage must be representat		
- Packaging	 protects produce properly materials used inside the package new and clean and of a quality to avoid causing external or internal damage non toxic ink or glue on printing or labelling free of all foreign matter 			
- Presentation	trusses of tomatoes, tomatoes:3 (2 if prepack	s, with or without calyx and should comprise at least th caged) or russes of "cherry" tomatoe	e following number of	

REQUIREMENTS	CLASSES			
	"Extra"	I	II	
Market Value	Superior quality	Good quality	Marketable quality	
VII. Marking	Superior quality Good quality Marketal - identification of packer and/or dispatcher - "tomatoes" or "trusses of tomatoes" and the commercial type, if are not visible from outside. These details must always be provide "cherry" (or "cocktail") tomatoes whether in trusses or not. - variety (optional) - country of origin (region optional) - quality class - size expressed as minimum and maximum diameters (if sized), or "unsized" where appropriate - official control mark (optional)		always be provided for russes or not.	

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In the following pages, the official text of the standard is in normal text; the interpretation of the standard is in italics.

I. DEFINITION OF PRODUCE

This standard applies to tomatoes of varieties (cultivars) grown from *Lycopersicum esculentum Mill*. to be supplied fresh to the consumer, tomatoes for industrial processing being excluded.

Tomatoes may be classified into four commercial types:

- "round" **ê** photo 1
- "ribbed"

Ribbed tomatoes have well differentiated ribs around the stalk end. The shape of the tomato will depend on variety. \hat{e} photo 2

- "oblong" or "elongated"

Oblong (or elongated) tomatoes of ovoid or ellipsoid shape are more or less elongated, showing a smooth surface or slight ribs. $\hat{\mathbf{e}}$ photo 3

- "cherry" tomatoes (including "cocktail" tomatoes)

"Cherry" tomatoes or "cocktail" tomatoes are of a definite smaller size than the minimum size laid down in Chapter III. PROVISIONS CONCERNING SIZING and cover types of different shape e.g. round, plumshaped, pear-shaped. \hat{e} photo 1

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of tomatoes at the export control stage, after preparation and packaging.

A. Minimum requirements

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

intact

Tomatoes must not have any mutilation or injury spoiling the integrity of the produce. êphoto 4

sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded

Tomatoes must be free from disease or serious deterioration, which appreciably affects their appearance, edibility, or market value. In particular, this excludes tomatoes affected by rotting, even if the signs are very slight but liable to make them unfit for consumption upon arrival at their destination.

Tomatoes showing the following defects are therefore excluded:

- a) Marked bruises (soft patches) damaging the flesh occur due to rough handling and/or too tight packaging. ê photo 5
- b) Fresh cracks due to rough handling. ê photo 6
- c) Unhealed cracks (concentric or radial) caused by growth phenomena. **ê** photo 7
- d) Unhealed damage caused by hail, showing deep pitting or corky roughness. êphoto 8
- e) Damage caused by diseases. **ê** photos 9 to 15
- f) Damage caused by low temperatures. **ê** photo 16
- clean, practically free of any visible foreign matter

Tomatoes must be practically free of visible soil, dust, chemical residue or other visible foreign matter. \hat{e} photos 17, 18

- fresh in appearance

Tomatoes must not show any sign of withering or loss of firmness. **ê** photo 19

- practically free from pests

Tomatoes must be practically free of insects or other pests. The presence of pests can detract from the commercial presentation and acceptance of the tomatoes. \hat{e} photo 20

- practically free from damage caused by pests

Pest damage can detract from the general appearance, keeping quality and edibility of the tomatoes. $\hat{\mathbf{e}}$ photos 21 to 23

- free of abnormal external moisture

This provision applies to excessive moisture, for example, free water lying inside the package but does not include condensation on produce following release from cool storage or refrigerated vehicle.

- free of any foreign smell and/or taste

This refers particularly to tomatoes which have been stored on badly kept premises or have travelled in a badly maintained vehicle, especially tomatoes which have acquired a strong smell from other produce stored on the same premises or travelling in the same vehicle. Therefore, care should be taken to use only non-smelling materials as protection in packaging.

In the case of trusses of tomatoes, the stalks must be fresh, healthy, clean and free from all leaves and any visible foreign matter.

The development and condition of the tomatoes must be such as to enable them:

- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination.

Development: the tomatoes must be sufficiently developed according to varietal characteristics and growing conditions. Nevertheless they must have reached a normal stage of development which allows a satisfactory ripening process.

State of ripeness: at harvest the fruit must have reached a state of physiological ripeness allowing to continue the ripening process during transport and marketing and to reach the colour typical for the variety. The ripeness of tomatoes from red varieties is determined by colouring: the colour of these tomatoes must correspond to at least colouring No. 2 of the OECD colour gauge*. ê photo 24

B. Classification

Tomatoes are classified in three classes defined below:

i) "Extra" Class

Tomatoes in this class must be of superior quality. They must have firm flesh and must be characteristic of the variety as regards shape, appearance and development.

Tomatoes must be very carefully presented. **ê** photo 25

Whatever their state of ripeness, the flesh of the tomatoes must be firm, i.e. resistant to normal finger pressure, which means that overripe tomatoes are not allowed.

The tomatoes must be very well formed. Any deformation is excluded.

Their colouring, according to their state of ripeness, must be such as to satisfy the requirements set out in the last sub-paragraph of paragraph A above.

The tomatoes must have reached full physiological development, due account being taken of varietal characteristics and production conditions.

^{*} This colour gauge is available at the OECD Publications Service.

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The colour of the fruit, which is related to the state of ripeness, must be such that it will reach the normal colouring for the variety at the consumption stage, allowance being made for the length and type of transport.

They must be free from "greenbacks" and other 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.

Very slight superficial defects may appear during cultivation, harvest, storage, packaging or transport. $\hat{\mathbf{e}}$ photo 26

ii) Class I

Tomatoes in this class must be of good quality. They must be reasonably firm and characteristic of the variety.

Although the Class I quality requirements are less strict than for "Extra" Class, Class I tomatoes must, nevertheless, be carefully selected and presented.

Tomatoes should have reasonably firm flesh, i.e. a very slight mark may be visible on the fruit after normal finger pressure has been applied.

They must be free of cracks and visible "greenback". 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 and development **ê** photos 27 to 29

A slight hollowness due to insufficient pollination is allowed. \hat{e} photo 30

- a slight defect in colouring
- slight skin defects

Slight skin defects such as scorching due to sun or chemical treatment, hail damage or slight damage caused by pests or disease are allowed. $\hat{\mathbf{e}}$ photos 31, 32

very slight bruises

Very slight bruises caused by rough handling are allowed provided they cause no more than slight damage to the flesh and are unlikely to develop further.

Furthermore, "ribbed" tomatoes may show:

- healed cracks not more than 1 cm long | photo 33
- no excessive protuberances

Slight deformations are allowed.

- small umbilicus, but no suberization **ê** photo 34
- suberization of the stigma up to 1 cm² **ê** photo 35
- fine blossom scar in elongated form (like a seam), but not longer than two-thirds of the greatest diameter of the fruit *ê photo 36*

iii) Class II

This class includes tomatoes, which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified above.

Tomatoes in this class must be of marketable quality, suitably presented and suitable for human consumption.

They must be reasonably firm (but may be slightly less firm than in Class I) and must not show unhealed cracks

The flesh of the fruit must be reasonably firm, i.e. the fruit may be distinguishably marked after normal pressure by the fingers but is not actually damaged.

The following defects may be allowed provided the tomatoes retain their essential characteristics as regards the quality, the keeping quality and presentation:

- defects in shape, development and colouring
 - a) shape **ê** photos 37 to 39
 - b) development: hollowness due to insufficient pollination is allowed. $\hat{\mathbf{e}}$ photo 40
- skin defects or bruises, provided the fruit is not seriously affected

Skin defects such as scorching due to sun or chemical treatment, hail damage or slight damage caused by pests or disease are allowed, provided the fruit is not seriously affected. êphotos 41, 42

Bruises caused by rough handling are allowed provided they cause a not too serious damage to the flesh and are unlikely to develop further. $\hat{\mathbf{e}}$ photo 43

- healed cracks not more than 3 cm in length for round, ribbed or oblong tomatoes **ê** photos 44, 45

Some crops and varieties grown under special weather conditions may be particularly susceptible to the formation of "greenbacks". Lots, which are graded at an early stage of ripeness and suspected of containing a large number of fruits with "greenbacks" not yet visible should only be graded Class II.

"Greenbacks" and "yellowbacks" which should not extend over the shoulder of the fruit are allowed. The "greenback" consists of a greenish, the yellowback of a yellowish ring around the stalk cavity being the visible sign of a hard, inedible part of the flesh. $\hat{\mathbf{e}}$ photos 46 to 50

Furthermore, "ribbed" tomatoes may show:

- more pronounced protuberances than allowed under Class I, but without being misshapen **ê** photo 51
- an umbilicus **ê** photo 52
- suberization of the stigma up to 2 cm² **ê** photo 53
- fine blossom scar in elongated form (like a seam) **ê** photo 54

III. PROVISIONS CONCERNING SIZING

Size is determined by the maximum diameter of the equatorial section. The following provisions shall not apply to "cherry" tomatoes.

A. Minimum size

For tomatoes classified in the "Extra" Class and Classes I and II, the minimum size is set at:

- 35 mm for "round" and "ribbed" tomatoes
- 30 mm for "oblong" tomatoes

B. Sizing scale

The tomatoes are graded according to the following sizing scale:

```
35 mm <sup>1</sup>
30 mm and over but under
35 mm "
                          40 mm
40 mm "
                          47 mm
47 mm "
                          57 mm
57 mm "
                          67 mm
67 mm "
                          82 mm
                "
82 mm "
                         102 mm
102 mm
                         and over
```

Observance of the sizing scale is compulsory for "Extra" Class and Class I tomatoes.

Although sizing is optional in Class II, it is possible to use either the sizing scale indicated above or any other sizing in order to improve the uniformity in the package.

This sizing scale shall not apply to trusses of tomatoes.

¹ Only for "oblong" tomatoes.

IV. PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality and size shall be allowed in each package for produce not satisfying the requirements of the class indicated.

Tolerances are provided to allow for human error during the grading and packing process. During grading and sizing it is not permitted to deliberately include out of grade produce, i.e. to exploit the tolerances deliberately.

The tolerances are determined after examining each sample package and taking the average of all samples examined. The tolerances are stated in terms of percentage, by number or weight of produce in the total sample not conforming to the class or to the size indicated on the package.

A. Quality tolerances

i) "Extra" Class

5 per cent by number or weight of tomatoes not satisfying the requirements of the class but meeting those of Class I or, exceptionally, coming within the tolerances of that class.

ii) Class I

10 per cent by number or weight of tomatoes not satisfying the requirements of the class but meeting those of Class II or, exceptionally, coming within the tolerances of that class. In the case of trusses of tomatoes, 5% by number or weight of tomatoes detached from the stalk.

iii) Class II

10 per cent by number or weight of tomatoes satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting, marked bruising or any other deterioration rendering it unfit for consumption. In the case of trusses of tomatoes, 10% by number or weight of tomatoes detached from the stalk.

To adjust the net weight indicated, individual fruit are allowed in pre-packages of trusses of tomatoes provided the tolerances specified above are met in the relevant lot.

B. Size tolerances

For all classes: 10 per cent by number or weight of tomatoes conforming to the size immediately above or below that specified, with a minimum of 33 mm for "round" and "ribbed" tomatoes, and 28 mm for "oblong" tomatoes.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only tomatoes of the same origin, variety or commercial type, quality and size (if sized).

A mixture of varietal types is excluded. In any case, uniformity in size is required for Classes Extra and I, for Class II only if sized. ê photos 55 to 57

The ripeness and colouring of tomatoes in "Extra" Class and Class I must be practically uniform. In addition, the length of "oblong" tomatoes must be sufficiently uniform. **ê** photo 58

With the object of maintaining uniform colouring in a given package in Classes "Extra" and I during marketing, all fruits should belong to three consecutive shades of colouring according to the OECD colour gauge. The tolerance for fruits different from the dominant colour, must not exceed 5 per cent in "Extra" Class and 10 per cent in Class I, provided they belong to the neighbouring colour group(s). Otherwise the lot should be downgraded. Trusses of tomatoes are not excluded from this requirement for uniform colouring.

In Class II mixing fruit of different colouring (and ripeness) is allowed. **ê** photo 24

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

A special effort should be made to suppress camouflage, i.e. concealing in the lower layers of the package produce inferior in quality and size to that displayed and marked.

Similarly prohibited is any packaging method or practice intended to give a deceptively superior appearance to the top layer of the consignment.

B. Packaging

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

Packages must be of a quality, strength and characteristics to protect the produce during transport and handling.

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

This provision is designed to ensure suitable protection of the produce by means of materials, which are new and clean and also to prevent foreign bodies such as leaves, sand or soil from spoiling its good presentation.

Packages must be free of all foreign matter.

A visible lack of cleanliness in several packages could result in the goods being rejected.

C. Presentation

The tomatoes may be presented as follows:

(i) As individual tomatoes, with or without calyx and short stalk;

- (ii) As trusses of tomatoes, in other words, in entire inflorescences or parts of inflorescences, where each inflorescence or part of each inflorescence should comprise at least the following number of tomatoes:
 - 3 (2 if prepackaged) or
 - in the case of trusses of "cherry" tomatoes, 6 (4 if prepackaged).

The various types of tomatoes, including "cherry" tomatoes, can be marketed as trusses of tomatoes, which are tomatoes attached to the stalk. $\hat{\mathbf{e}}$ photo 59

VI. PROVISIONS CONCERNING MARKING

Each package ² must bear the following particulars in letters grouped on the same side, legibly and indelibly marked and visible from the outside:

In the case of packed produce, all particulars must be grouped on the same side of the package, either on a label attached to or printed on the package with water-insoluble ink. $\hat{\mathbf{e}}$ photo 60

In the case of reused packages, all previous labels must be carefully removed and previous indications deleted.

A. Identification

Packer } Name and address or and/or } officially issued or Dispatcher } accepted code mark.³

For inspection purposes, the packer is the person or firm responsible for the packaging of the produce (this does not mean the staff who actually carry out the work, who are responsible only to their employer). The code mark is not a trademark, but an official control system enabling the person or firm responsible for packaging to be readily identified. The shipper may, however, voluntarily or compulsorily, assume sole responsibility for inspection purposes, in which case identification of the "packer" as defined above is no longer necessary.

To prevent confusion in the case where a code mark is used, the reference "packer", "dispatcher" and/or "exporter" (or equivalent abbreviations, i. e. "pack.", "exp.") has to be indicated in close connection with the code mark.

Package units of produce prepacked for direct sale to the consumer shall not be subject to these marking provisions but shall conform to the national requirements. However, the markings referred to shall in any event be shown on the transport packaging containing such package units.

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.

B. Nature of produce

- "Tomatoes" or "trusses of tomatoes" and the commercial type if the contents are not visible from the outside. These details must always be provided for "cherry" (or "cocktail") tomatoes whether in trusses or not.
- Name of the variety (optional).

C. Origin of produce

Country of origin and, optionally, district where grown, or national, regional or local place name.

Marking must include the country of origin, i.e. the country in which the tomatoes were grown (e.g. Spain). Optionally, district of origin in national, regional or local terms may also be shown (e.g. Canary Islands, Marmande tomatoes).

Stating the origin is particularly important so as to avoid:

- a) the erroneous attribution to a produce of special intrinsic qualities due to a combination of soil, climatic and growing conditions associated with the notion of a trade name.
- b) the deliberate and improper use of this name.

D. Commercial specifications

- Class

Stating the class is compulsory.

- Size expressed as minimum and maximum diameters (if sized), or the word "unsized" where appropriate. **ê** photo 60

E. Official control mark (optional)

Photo 1 Round and cherry tomatoes	Photo 11 Signs of rotting Not allowed	Photo 21 Damage by insects External appearance Not allowed	Photo 31 Slight superficial blemishes Limit allowed	Photo 41 Superficial blemishes Limit allowed	Photo 51 Pronounced protuberances Limit allowed
Photo 2 Ribbed tomatoes	Photo 12 Blossom-end rot Not allowed	Photo 22 Damage by insects Internal appearance Not allowed		Photo 42 Botrytis ghost spots Limit allowed	Photo 52 Umbilicus Limit allowed
Photo 3 Oblong tomatoes	Photo 13 Internal browning External appearance Not allowed	Photo 23 Damage by snails Not allowed	Photo 33 Healed cracks for ribbed tomatoes Limit allowed	Photo 43 Bruises Limit allowed	Photo 53 Suberization of the stigma Limit allowed
Photo 4 Damaged tomato	Photo 14 Internal appearance	Photo 24 OECD colour gauge	Photo 34 Small umbilicus Limit allowed	Photo 44 Radial cracks Limit allowed	Photo 54 Fine blossom scar Limit allowed
Not allowed Photo 5 Marked bruising Not allowed	Photo 15 Watercore Not allowed	Photo 25 Perfect produce	Photo 35 Suberization of the stigma Limit allowed	Photo 45 Concentric cracks Limit allowed	Photo 55 Very careful presentation "Extra" Class
Photo 6 Fresh cracks Not allowed	Photo 16 Chilling injury Not allowed	Photo 26 Very slight superficial defect Limit allowed	Photo 36 Fine blossom scar Limit allowed	Photo 46 Green colouring Typical of the variety	Photo 56 Careful presentation Class I
Photo 7 Unhealed cracks Not allowed	Photo 17 Treatment residues Not allowed	Photo 27 Slight defect in shape for round tomato Limit allowed	Photo 37 Defect in shape for round tomatoes Limit allowed	Photo 47 Greenback External appearance Limit allowed	Photo 57 Suitable presentation Class II
Photo 8 Unhealed damage caused by hail. Not allowed	Photo 18 Soiled tomato l Not allowed	Photo 28 Slight defect in shape for ribbed tomato Limit allowed	Photo 38 Defect in shape for ribbed tomatoes Limit allowed	Photo 48 Greenback Internal appearance Limit allowed	Photo 58 Uniformity in length for oblong tomatoes of Class II Limit allowed
Photo 9 Pseudomonas Not allowed	Photo 19 Not fresh in appearance Not allowed	Photo 29 Slight defect in shape for oblong tomato Limit allowed	Photo 39 Defect in shape for oblong tomatoes Limit allowed	Photo 49 Yellowback External appearance Limit allowed	Photo 59 Truss of round tomatoes
Photo 10 Alternaria Not allowed	Photo 20 Caterpillar Not allowed	Photo 30 Slight hollowness Limit allowed	Photo 40 Hollowness Limit allowed	Photo 50 Yellowback Internal appearance Limit allowed	Photo 60 Example of marking on a label