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**Economic Commission for Europe**

Committee on Trade

**Working Party on Agricultural Quality Standards****Specialized Section on Standardization  
of Fresh Fruit and Vegetables****Fifty-eighth session**

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Item 5 of the provisional agenda

**Review of the texts of the standards  
aligned with the 2009 Standard Layout****UNECE Standard FFV-24 concerning the  
marketing and commercial quality control  
of cultivated mushrooms****Submitted by the secretariat****I. Definition of produce**

This standard applies to the carpophores (fruiting bodies) of strains grown from the genus *Agaricus* (syn. *Psalliota*)<sup>1</sup> to be supplied fresh to the consumer, mushrooms for industrial processing being excluded.

Mushrooms are classified into the following commercial types, whereas these first of all are classified into two groups:

1. Uncut mushrooms, which have the lower part of the stalk uncut.
2. Cut mushrooms, which have the lower part of the stalk cut.

In both groups, a distinction is made between the stages of development:

1. Closed mushrooms, i.e. mushrooms with the cap completely closed.

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<sup>1</sup> However, for mixed packages as defined by Chapter V, A. Uniformity, the cultivated mushrooms of other species must meet the minimum requirements.

2. Veiled mushrooms, i.e. mushrooms whose cap is connected to the stalk by the veil.
3. Open mushrooms, i.e. mushrooms with an open cap (open cap or flat; a slight downturn of the edges of the cap is required).
4. Flat mushrooms, i.e. mushrooms that are fully open (but the edges of the cap are neither too cupped nor inverted.).

Mushrooms are further classified into two colour groups:

1. "White"
2. "Brown" or "chestnut".

## **II. Provisions concerning quality**

The purpose of the standard is to define the quality requirements for mushrooms 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 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 mushrooms must be:

- intact; in case of cut mushrooms the cut must be clean
- sound; produce affected by rotting, severe browning in the stalk or deterioration such as to make it unfit for consumption is excluded
- clean, practically free of any visible foreign matter, other than casing material
- fresh in appearance, account should be taken of the typical gill colour of the strain and/or commercial type
- practically free from pests
- practically free from damage caused by pests
- free of abnormal external moisture
- free of any foreign smell and/or taste.

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

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

## **B. Classification**

The mushrooms are classified in three classes, as defined below:

### **(i) "Extra" Class**

Mushrooms in this class must be of superior quality. In shape, appearance, development and colouring they must be characteristic of the commercial type. They must be well formed.

They 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.

The mushrooms must be practically free of casing material; uncut mushrooms may also have traces of casing material on the foot.

In case of cut mushrooms, the cut must be approximately perpendicular to the longitudinal axis.

### **(ii) Class I**

Mushrooms in this class must be of good quality. In shape, appearance, development and colouring they must be characteristic of the 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
- slight superficial bruising
- slight traces of casing material; uncut mushrooms may also have some casing material on the foot.

In case of cut mushrooms, the cut must be approximately perpendicular to the longitudinal axis.

### **(iii) Class II**

This class includes mushrooms that do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above.

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

- defects in shape
- defects in colouring
- slight bruising
- slight damage to the stalk
- slight internal moisture of the stalk
- discoloured feathering
- hollow stalks

- traces of casing material; uncut mushrooms may also have some casing material on the foot.

### III. Provisions concerning sizing

Size is determined by the maximum diameter of the cap and the length of the stalk, according to the following specifications. The length of the stalk is measured from:

- the gills under the cap for open and flat mushrooms
- the veil for closed and veiled mushrooms.

The minimum size shall be:

- 15 mm for closed cap, veiled and open mushrooms
- 20 mm for flat mushrooms.

To ensure uniformity in size in “Extra” Class, the range in size between produce in the same package shall not exceed:

Closed, veiled and open mushrooms			
Diameter of cap		Maximum length of stalk	
Size	Size limits	Cut mushrooms	Uncut mushrooms
Small	15 – 45 mm	)	
Medium	30 – 65 mm	) ½ of cap diameter	2/3 of cap diameter
Large	50 mm and over	)	

  

Flat mushrooms			
Diameter of cap		Maximum length of stalk	
Size	Size limits	Cut mushrooms	Uncut mushrooms
Small	20 – 55 mm	)	
		) ½ of cap diameter	2/3 of cap diameter
Large	50 mm and over	)	

Mushrooms of Classes I and II must meet the specified size ranges if the terms "small", "medium" or "large" are indicated.

### 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 mushrooms 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 mushrooms 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 mushrooms 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. Special tolerances where the stage of development is indicated

	Closed mushrooms	Veiled mushrooms	Open mushrooms
"Extra" Class	5%, by number or weight, of veiled mushrooms are allowed	5%, by number or weight, of open mushrooms are allowed	5%, by number or weight, of flat mushrooms are allowed
Class I	10%, by number or weight, of veiled mushrooms are allowed	10%, by number or weight, of open mushrooms are allowed	10%, by number or weight, of flat mushrooms are allowed
Class II	25%, by number or weight, of veiled or open mushrooms are allowed	25%, by number or weight, of open mushrooms are allowed	25%, by number or weight, of flat mushrooms are allowed

## C. Size tolerances

For all classes (if sized): a total tolerance of 10 per cent, by number or weight, of mushrooms not satisfying the requirements as regards sizing is allowed.

## V. Provisions concerning presentation

### A. Uniformity

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

However, a mixture of mushrooms of distinctly different colours and/or species other than *Agaricus* may be packed together in a sales unit<sup>2</sup> [with a maximum net weight of 1kg], provided they are uniform in quality and, for each colour and/or species concerned, in origin.

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

## **B. Packaging**

The mushrooms 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 on the produce shall be such that, when removed, they neither leave visible traces of glue nor lead to skin defects.

Packages must be free of all foreign matter including excessive casing material.

## **VI. Provisions concerning marking**

Each package<sup>3</sup> 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<sup>4</sup>.

### **B. Nature of produce**

- If the contents are not visible from the outside:
  - Cultivated mushrooms
  - "Cut" or "uncut"
  - Colour if not "white"

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<sup>2</sup> The sales unit should be designed to be purchased in its entirety.

<sup>3</sup> According to the Geneva Protocol, footnote 2, "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".

<sup>4</sup> 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.

- Stage of development (optional)
- “Mixture of mushrooms”, or equivalent denomination, in the case of sales units containing a mixture of distinctly different colours and/or species other than *Agaricus*. If the produce is not visible from the outside, the colours or species must be indicated.

### **C. Origin of produce**

- Country of origin and, optionally, district where grown, or national, regional or local place name.
- In the case of sales units containing a mixture of distinctly different colours and/or species, other than *Agaricus*, of mushrooms of different origins, the indication of each country of origin shall appear next to the name of the colour and/or species concerned.

### **D. Commercial specifications**

- Class
- Sized (if sized) expressed as minimum and maximum cap diameters or by the term "small", "medium" or "large"
- Net weight.

### **E. Official control mark (optional)**

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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).

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