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Working Party on Agricultural Quality Standards

Specialized Section on Standardization of  
Fresh Fruit and Vegetables  
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REPORT OF THE FIFTIETH SESSION

Addendum 2

**Revised UNECE Standard for Cultivated Mushroom**

**Note by the secretariat :** The Specialized Section on Standardization of Fresh Fruit and Vegetables proposes the following text to the Working Party for adoption as a revised UNECE Standard for Cultivated Mushrooms (*Agaricus*) (FFV-24).

The text is based on the standard in force (see [www.unece.org/trade/agr/standard](http://www.unece.org/trade/agr/standard)) and documents TRADE/WP.7/GE.1/2004/21 and 2004/25.

**UN/ECE STANDARD FFV-24**  
concerning the marketing and commercial  
quality control of  
**CULTIVATED MUSHROOMS (*Agaricus*)**

**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.
2. Veiled mushrooms, i.e. mushrooms the cap of which 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 which 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".

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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.

## II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of mushrooms 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 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 transport and handling, and
- to arrive in satisfactory condition at the place of destination.

### B. Classification

The mushrooms are classified in three classes 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.

In case of cut mushrooms, the cut must be approximately perpendicular to the longitudinal axis. The mushrooms must be practically free of casing material; uncut mushrooms may also have traces of casing material on the foot.

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(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:

- slight defect in shape
- slight defect 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 which 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:

- defect in shape
- defect 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.

#### **Minimum size**

The minimum cap diameter must be at least 15 mm for closed cap, veiled and open mushrooms and 20 mm for flat mushrooms.

Length of stalk

The length of the stalk is measured:

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

Sizing is compulsory for mushrooms in "Extra" Class according to following table:

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

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

**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.

**A. Quality tolerances**

(i) *"Extra" Class*

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

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(ii) **Class I**

10 per cent by number or weight of mushrooms not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

(iii) **Class II**

10 per cent by number or weight of mushrooms satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

**B. Special tolerances where the stage of development is indicated.**

	Closed mushrooms	Veiled mushrooms	Open mushrooms
Class Extra	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: 10 per cent by number or weight of mushrooms not conforming to the sizes indicated.

**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).

For package units of mushrooms prepacked with a maximum weight of 1kg, mixtures of different colour groups and different cultivated mushrooms of species other than *Agaricus* are allowed. Uniformity of origin is not required.

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 new, clean and of a quality such as to avoid causing any external or internal changes 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>2</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	)	Name and address or
and/or	)	officially issued or
Dispatcher	)	accepted code mark. <sup>3</sup>

### B. Nature of produce

- Cultivated mushrooms	)	If the contents
- "Cut" or "uncut"	)	are not visible
- Colour if not "white"	)	from the outside
- Stage of development (optional)		
- Names of the different species (where appropriate).		

### C. Origin of produce

- Country of origin (or countries, where appropriate) and, optionally, district where grown, or national, regional or local place name.

### 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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<sup>2</sup> 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>3</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.