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COMMITTEE FOR TRADE, INDUSTRY AND
ENTERPRISE DEVELOPMENT

Working Party on Standardization of
Perishable Produce and Quality Development

Specialized Section on Co-ordination of
Standardization of Fresh Fruit and Vegetables
(Forty-sixth session, 23 - 26 May 2000, Geneva)

REPORT OF THE FORTY-SIXTH SESSION

Addendum 4

Note by the secretariat

This document contains the UN/ECE Recommendations for Cultivated Mushrooms (Agaricus) (FFV-24) as revised by the Specialized Section. Additions are underlined and are ~~crossed out~~. The Specialized Section recommends to the Working Party to adopt this text as a revised UN/ECE standard.

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FFV-24: Cultivated Mushrooms

UN/ECE STANDARD FFV-24
concerning the marketing and commercial
quality control of

CULTIVATED MUSHROOMS (Agaricus)
moving in international trade between and to
UN/ECE member countries

I. DEFINITION OF PRODUCE

This standard applies to the carpophores (fruiting bodies) of strains ~~varieties (cultivars)~~ grown from the genus *Agaricus* (syn. *Psalliota*)¹ to be supplied fresh to the consumer, mushrooms for 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. The cut must be clean and approximately perpendicular to the longitudinal axis.

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“.

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of mushrooms at the export control stage,

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

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; cut mushrooms complying with the definition are regarded as intact
- 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 foreign substances other than casing material and free of visible traces of chemicals~~
- free of abnormal external moisture ~~and properly dried if washed~~
- 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 ~~variety and/or~~ 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

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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.

~~— The amount of casing material, whether adhering or not, may not exceed *:~~

~~— 3 per cent for uncut mushrooms~~

~~— 0.5 per cent for cut mushrooms.~~

~~footnote: — * All percentages of casing materials are the ratios between the weight of dried adhering casing material and that of the mushrooms themselves.~~

(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 blemishes provided they are not progressive
- slight superficial bruising
- slight traces of casing material; uncut mushrooms may also have some casing material on the foot.

~~— The amount of casing material, whether adhering or not, may not exceed *:~~

~~— 6 per cent for uncut mushrooms~~

~~— 1 per cent for cut mushrooms.~~

~~footnote: — * All percentages of casing materials are the ratios between the weight of dried adhering casing material and that of the mushrooms themselves.~~

(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 blemishes
- slight bruising
- hollow stalks
- traces of casing material; uncut mushrooms may also have some casing material on the foot.

~~The amount of casing material, whether adhering or not, may not exceed *:~~

- ~~— 8 per cent for uncut mushrooms~~
- ~~— 1 per cent for cut mushrooms.~~

~~footnote: * All percentages of casing materials are the ratios between the weight of dried adhering casing material and that of the mushrooms themselves.~~

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.

~~Uncut mushrooms with stalks longer than two thirds of their caps must be included in Class II.~~

~~1. Closed mushrooms~~

| Size | Diameter of cap | Maximum length of stalk for cut mushrooms |
|------------------|----------------------------|--|
| Small | 15-35 mm | 20 mm |

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| | | |
|---------------|-----------------------|--------------|
| Medium | 30–55 mm | 25 mm |
| Large | 45 mm and over | 30 mm |

2. Open mushrooms

| Size | Diameter of cap | Maximum length of stalk for cut mushrooms |
|---------------|------------------------|--|
| | Size limits | |
| Small | 20–35 mm | 20 mm |
| Medium | 30–65 mm | 25 mm |
| Large | 60 mm and over | 30 mm |

Sizing is compulsory for:

- (i) ~~cut and uncut mushrooms in the "Extra" Class~~
- (ii) ~~uncut mushrooms in Class I~~
- (iii) ~~uncut mushrooms in Class I presented in packages weighing 1 kg or less~~
- (iv) ~~cut and uncut mushrooms in Class II presented in packages weighing 1 kg or less.~~

~~Sizing is optional for uncut mushrooms in Class I and for cut and uncut mushrooms in Class II presented in packages over 1 kg. All such mushrooms must, however, comply with the minimum size requirements specified above (15 mm for closed mushrooms and 20 mm for open 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.

| <u>Closed, veiled and open mushrooms</u> | | | |
|--|--------------------|--------------------------------|----------------------------|
| <u>Diameter of cap</u> | | <u>Maximum length of stalk</u> | |
| <u>Size</u> | <u>Size limits</u> | <u>Cut mushrooms</u> | <u>Uncut mushrooms</u> |
| <u>Small</u> | <u>15 – 45 mm</u> | <u>1/2 of cap diameter</u> | <u>2/3 of cap diameter</u> |
| <u>Medium</u> | <u>30 – 65 mm</u> | | |

| | | |
|--------------|-----------------------|--|
| <u>Large</u> | <u>50 mm and over</u> | |
|--------------|-----------------------|--|

| <u>Flat mushrooms</u> | | | |
|------------------------|-----------------------|--------------------------------|----------------------------|
| <u>Diameter of cap</u> | | <u>Maximum length of stalk</u> | |
| <u>Size</u> | <u>Size limits</u> | <u>Cut mushrooms</u> | <u>Uncut mushrooms</u> |
| <u>Small</u> | <u>20 – 55 mm</u> | <u>2/3 of cap diameter</u> | <u>2/3 of cap diameter</u> |
| | | | |
| <u>Large</u> | <u>50 mm and over</u> | | |

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.

(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 for closed mushrooms if the stage of development is indicated.

(i) ~~*"Extra" Class*~~

~~10 per cent by number or weight of slightly open mushrooms (broken veils) in each single package.~~

(ii) ~~*Classes I and II*~~

~~25 per cent by number or weight of slightly open mushrooms (broken veils) in each single package.~~

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| | <u>Closed mushrooms</u> | <u>Veiled mushrooms</u> | <u>Open mushrooms</u> |
|---|--|--|--|
| <u>Class Extra</u> | <u>5% by number or weight of veiled mushrooms are allowed</u> | <u>5% by number or weight of open mushrooms are allowed</u> | <u>5% by number or weight of flat mushrooms are allowed</u> |
| <u>Class I</u> | <u>10% by number or weight of veiled mushrooms are allowed</u> | <u>10% by number or weight of open mushrooms are allowed</u> | <u>10% by number or weight of flat mushrooms are allowed</u> |
| <u>Class II</u> | <u>25% by number or weight of veiled or open mushrooms are allowed</u> | <u>25% by number or weight of open mushrooms are allowed</u> | <u>25% by number or weight of flat mushrooms are allowed</u> |
| <u>Where the type of development is not indicated, „closed“, „veiled“ and „open“ mushrooms can be mixed in each single package.</u> | | | |

C. Size tolerances

For all classes: 10 per cent by number or weight of mushrooms not conforming to the sizes ~~identified~~ indicated.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only mushrooms of the same origin, ~~variety~~ commercial type, quality, ~~colour~~ and size (if sized) ~~and appreciably the same degree of ripeness, development (if indicated) and colour.~~

Mixtures of cut and uncut mushrooms in the same package are not allowed.

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. However the mushrooms of species not subject to the standard must meet the minimum requirements.

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.

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

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:

A. Identification

| | | |
|------------|---|----------------------------------|
| Packer |) | Name and address or |
| and/or |) | officially issued or |
| Dispatcher |) | accepted code mark. ³ |

B. Nature of produce

| | | |
|--|---|------------------|
| - Cultivated mushrooms |) | If the contents |
| - "Cut" or "uncut" |) | are not visible |
| - <u>Colour if not "white"</u> |) | from the outside |
| - <u>Type of colour ("white", "cream", "brown")</u> |) | |
| - <u>Stage of development (optional)</u> | | |
| - <u>Names of the different species (where appropriate).</u> | | |

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.

³ 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.

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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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