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Working Party on Standardization of
Perishable Produce and Quality Development

Specialized Section on Standardization of
Dry and Dried Produce (Fruit)

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Item 3 (b) of the provisional agenda

CONSIDERATION OF UN/ECE RECOMMENDATIONS

HAZELNUT KERNELS

Note by the secretariat

The trial period for the UN/ECE recommendation for Hazelnut Kernels ends in November 2000. According to the working procedures the Specialized Section is invited to review the recommendation with the goal of removing reservations. The Specialized Section will then propose to the Working Party to adopt the recommendation as a UN/ECE standard or propose to extend the trial period. The text of the recommendation is reproduced in this document.

UN/ECE RECOMMENDATION DF-04
concerning the marketing and commercial
quality control of

HAZELNUT KERNELS
moving in international trade between and to
UN/ECE member countries

I. DEFINITION OF PRODUCE

This standard applies to whole hazelnut kernels from varieties grown from *Corylus avellana L.* and *Corylus maxima Mill.* and their hybrids from which the protective ligneous epicarp has been removed.

II. PROVISIONS CONCERNING QUALITY

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

A. Minimum requirements

(i) In all classes subject to the special provisions for each class and the tolerances allowed, the hazelnut kernels must be:

- intact; the absence of part of the tegument or a scratch less than 3 mm in diameter and 1.5 mm in depth shall not be regarded as a defect.
- dry, free from abnormal external moisture
- clean, and in particular, free from visible foreign matter
- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- sufficiently developed, shrunken and shrivelled kernels are to be excluded
- free of any rancidity
- free of blemishes rendering them unfit for consumption¹
- free from living insects or mites whatever their stage of development
- free from visible damage by insects, mites or other parasites
- free from mould
- free of foreign smell and/or taste.

The condition of the hazelnut kernels must be such as to enable them:

- to withstand transport and handling; and

¹ *This requirement does not apply to internal or external blemishes consisting of an alteration of the odour or taste of the hazelnuts, always provided that the hazelnuts remain fit for consumption.*

- to arrive in satisfactory condition at the place of destination.

(ii) Moisture content

The hazelnut kernels shall have a moisture content of not greater than 6 per cent.²

B. Classification

Hazelnut kernels are classified in the three classes defined below:

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

The Hazelnut Kernels in this class must be of superior quality. They must be characteristic of the variety and/or commercial type³.

They must be practically free from defects with the exception of very slight superficial defects provided that these do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package.

(ii) ***Class I***

Hazelnut kernels in this class must be of good quality. They must be characteristic of the variety and/or commercial type³.

They may have slight defects of form and colour, provided that these do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package.

(iii) ***Class II***

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

Defects may be allowed provided that the Hazelnut Kernels retain their essential characteristics as regards general appearance, the quality, keeping quality and presentation.

² *The moisture content is determined by one of the methods given in Annex I of this document (Reference to the compendium of standards).*

³ *Commercial Type: Means that the hazelnuts in each container are of the similar general type and appearance or belong to a mix of varieties officially defined by the producing country.*

III. PROVISIONS CONCERNING SIZING

Sizing is determined by the maximum diameter of the equatorial section by means of round-holed screens. It is expressed either by an interval defined by a maximum size and a minimum size, by a reference to a minimum size followed by the word "and above" or by a reference to a maximum size followed by the word "and less".

Sizing or screening is compulsory for Extra class and Class I but optional for Class II.

The minimum size is 9 mm for Hazelnut Kernels in Extra Class and Class I, with the exception of hazelnuts of the piccolo type or hazelnuts having a similar designation for which a diameter of from 6 mm to 9 mm is allowed.

Hazelnut Kernels are either sized or screened.

(i) Sized hazelnuts

For sized hazelnuts, the difference in diameter between the minimum and maximum size must not exceed 2 mm. All sizes are allowed, subject to observance of the minimum size fixed above for Extra Class and Class I.

(ii) Screened hazelnuts

Screened hazelnuts means hazelnuts whose maximum diameter is over or under a stated figure, subject to observance of the minimum size fixed above for Extra Class and Class I. For produce presented to the final consumer under the specification screened, the size "and less" is not allowed.

IV. PROVISIONS CONCERNING TOLERANCES

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

A. Quality tolerances

Permitted defects	Tolerances allowed (per cent of defective fruit by weight)		
	EXTRA	Class I	Class II
Total tolerances ^a	5	12	16
Rancid, ^b rotten, mouldy, having a bad smell or taste, damaged by insects or attacked by rodents ^{c d}	1 ^e	1.5 ^{e f}	3 ^e
Not fully developed, including shrunken and shrivelled, stained and yellowish kernels	2	4	8
Mechanically damaged and pieces ^g	3	8	10
Twin hazelnuts (not included in the total tolerance)	2	5	8
Inshell hazelnuts, shell or tegument fragments, dust and foreign matter	0.25	0.25	0.25

^a Total tolerance for old crop shall be 6 per cent, 13 per cent and 18 per cent respectively in Extra Class, Class I and Class II provided that the marking indicates the crop year or the mention "Old Crop".

^b An oily appearance of the flesh does not necessarily indicate a rancid condition.

^c For hazelnuts of an old crop, these tolerances are increased to 1.5 per cent, 2.5 per cent and 4 per cent respectively in Extra Class, Class I and Class II, provided that the marking indicates the crop year or "old crop".

^d Living insects or animal pests are inadmissible in any class.

^e Reservation by Poland requesting 0.5% tolerance for mouldy. Any trace of damage by rodents is a disqualifying defect.

^f Reservation of Italy and Spain which requested a tolerance of 2 per cent for Class I.

^g The percentage of pieces may not exceed 0.5 per cent, 1 per cent and 2 per cent respectively in Extra Class, Class I and Class II.

For Extra Class and Class I, there may be a maximum of 10 percent of kernels belonging to different varieties, commercial types, or shapes, from the same local production area. These requirements are also applicable to Class II in case the variety or commercial types are indicated in the marking.

B. Mineral impurities

Ashes insoluble in acid must not exceed 1g/kg.

C. Size tolerances

For all classes, 5 per cent by weight for round nuts and 10 per cent for pointed and oblong nuts, by weight of hazelnuts not satisfying the size range indicated. (An exception exists for kernels sized with 1 mm intervals. Tolerances for these kernels are 10 per cent for round nuts and 15 per cent for pointed and oblong nuts.) The presence of hazelnuts 0.2 mm above or below the size laid down shall not be regarded as a defect.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only hazelnuts of the same origin, quality, commercial type or variety.

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

B. Packaging

Hazelnut Kernels 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 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.

Packages must be free of all foreign matter.

C. Presentation

Hazelnut Kernels must be presented in bags or solid containers. All packing in each lot must be of the same weight and contain Hazelnut Kernels of the same class, variety or commercial type.

VI. PROVISIONS CONCERNING MARKING

Each package 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 ⁴

Shipping mark (where applicable). The shipping mark must correspond with the shipping mark on the Bill of Lading.

B. Nature of produce

- "Hazelnut Kernels"
- Name of the variety or commercial type for classes "Extra" and I (optional for Class II)

C. Origin of produce

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

D. Commercial specifications

- class
- either by the minimum and maximum diameters, or by the minimum diameter followed by the words "and above", or the maximum diameter followed by the words "and less" (optional for Class II)
- weight (gross or net)⁵. If the gross weight is indicated, the tare must not exceed 2.5 per cent for sacks of 50 kg and above, and 3.0 per cent for sacks of lesser weight. If the nuts are presented in double sacks other than paper or polyethylene, the net weight must be indicated. Net weight, or number of pre-packages followed by net unit weight for packages containing pre-packages.
- Crop year according to the legislation of the importing country .⁶

⁴ *The national legislation of a number of European countries requires the explicit declaration of the name and address.*

⁵ *Net weight has to be indicated at the request of the importer or the importing country.*

⁶ *Reservation by Turkey requesting that the crop year be marked.*

E. Official control mark (optional)

This standard was first published as UN/ECE Standard for Decorticated Hazel Nuts in 1970
Partially Revised 1991 (Standard Layout)
Revised and adopted as UN/ECE Recommendation for Hazelnut Kernels for a two-year trial period 1998

ANNEX I

DETERMINATION OF THE MOISTURE CONTENT OF HAZELNUT KERNELS

METHOD I - LABORATORY REFERENCE METHOD

1. Principle

Determination of the moisture content of dried fruits by loss of mass after drying at a temperature of 103°C ($\pm 2^\circ\text{C}$) in a temperature-controlled oven at ambient pressure for 6 hours.

2. Apparatus

- 2.1 Ceramic mortar with appropriate pestle or food chopper.
- 2.2 Analytical balance assensitive to 1 mg.
- 2.3 Cylindrical, flat-bottomed glass or metal containers, 12cm in diameter and 5cm in depth, provided with well-fitting lids.
- 2.4 Electrically heated temperature-controlled oven with good natural ventilation, regulated so that the temperature is maintained at 103°C ($\pm 2^\circ\text{C}$).
- 2.5 Dessicator containing an effective dessicant (e.g. calcium chloride) and provided with a metal plate which allows the containers to cool rapidly.

3. Preparation of the sample

Shell the sample if required and crush the kernels in the mortar, or chop them finely, to obtain fragments of 2-4mm across.

4. Test portion and determination

- 4.1 Dry the containers and their lids in the oven for at least 2 hours and transfer to the dessicator. Allow the containers and lids to cool to room temperature.
- 4.2 Carry out the determination on 4 test portions of approximately 50g each.
- 4.3 Weigh the empty container and lid to the nearest 0.001g (M_0).
- 4.4 Weigh approximately 50g of the test material into the container to the nearest 0.001g. Spread the material all over the base of the container, seal the container quickly with the lid and weigh the whole (M_1). Perform these operations as quickly as possible.

- 4.5 Place the open containers, with their lids beside them, in the oven. Close the oven and allow to dry for 6 hours. Open the oven, quickly cover the containers with their individual lids, and place them in the dessicator to cool. After cooling to ambient temperature, weigh the covered dish to the nearest 0.01 g (M_2).
- 4.6 The moisture content of the sample, as percentage by mass is given by the expression:

$$\text{Moisture content} = \frac{M_1 - M_2}{M_1 - M_0} \times 100$$

- 4.7 Report the average value obtained from the four determinations.

METHOD II - RAPID METHOD

1. Principle

Determination of the moisture content using a measuring instrument based on the principle of electrical conductivity. The measuring instrument must be calibrated against the laboratory method.

2. Apparatus

- 2.1 Ceramic mortar with appropriate pestle or food chopper.
- 2.2 Measuring instrument based on the principle of electrical conductivity.

3. Determination

- 3.1 Fill the glass with the substance to be examined (previously ground in the mortar) and tighten the press until a constant pressure is obtained.
- 3.2 Read the values of the scale.
- 3.3 After each determination, clean the glass thoroughly with a spatula, stiff bristled brush paper napkin, or compressed air pump.

ANNEX II**DEFINITIONS OF TERMS AND DEFECTS FOR HAZELNUT KERNELS**

Clean:	Means practically free from plainly visible adhering dirt or other foreign material.
Foreign matter:	Means any substance other than the hazelnut kernel, or portions of kernels.
Insect damage:	Visible damage caused by insects or animal parasites, or the presence of dead insects or insect debris.
Mould:	Mould filaments visible to the naked eye either on the outside or on the inside of the kernels.
Pieces:	Kernels which more than one third of the fruit is missing and which do not pass through a 5 mm round meshed sieve.
Rancidity:	Oxidation of lipids producing a disagreeable flavour. An oily appearance of the flesh does not necessarily indicate a rancid condition.
Rotten:	Significant decomposition caused by the action of micro-organisms.
Shrivelled:	The wrinkling of more than 50 per cent of the fruit skin surface of the compact fruit, usually occurring in seasons where there are high crop yields, or where there is stress from drought or poor nutrition, or as an inherited trait.
Shrunken:	A condition yielding undeveloped firm fruit obtained after fertilization during rapid kernel growth in extremely high temperatures.
Stains or physiological alterations:	Alterations of colour and odour from excessive heat during drying, aging or storage in favourable conditions, etc. (the presence of hazelnut kernels with a brown or dark brown centre, normally accompanied by a small separation of the cotyledons, that does not affect taste or smell, is not considered as a defect).
Twins:	Hazelnuts of characteristic shape as a consequence of the development of two kernels in the same nut.
Yellowish:	Hazelnuts that have deep yellowish shade at the cut accompanied or not by softness of the hazelnut and/or slight symptoms of smell or taste alteration.