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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(a) of the provisional agenda

CONSIDERATION OF UN/ECE RECOMMENDATIONS

INSHELL HAZELNUTS

Note by the secretariat

The trial period for the UN/ECE recommendation for Inshell Hazelnuts 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-03
concerning the marketing and commercial
quality control of

INSHELL HAZELNUTS
moving in international trade between and to
UN/ECE member countries

I. DEFINITION OF PRODUCE

This standard applies to inshell hazelnuts from varieties (cultivars) grown from *Corylus avellana L.* and *Corylus maxima Mill* and their hybrids without involucre or husk and which are intended for direct consumption.

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements for inshell hazelnuts 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 hazelnuts must be:
 - (a) Characteristics of the shell
 - well formed; shell is not noticeably misshapen
 - intact; slight cracks or superficial damage and slight splitting of the shell are not considered as a defect provided that the edible part of the fruit is protected
 - sound; free from defects likely to affect the natural keeping quality of the fruit and of any damage by insects or pests
 - clean; practically free from adhering dirt and any other visible foreign matter, practically free of adhering husk (not more than 5% of individual shell surface in aggregate, may have adhering husk)
 - dry; free from abnormal external moisture.
 - (b) Characteristics of the kernel
 - sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
 - clean; practically free from visible foreign matter
 - sufficiently developed; empty, shrunken or shrivelled fruit are to be excluded
 - free from mould
 - free from visible damage by insects or pests
 - free from living or dead insects or pests whatever their stage of development
 - free from rancidity

- free from foreign smell or taste
- free from blemishes (including alterations caused by the presence of black colour) or deterioration rendering them unfit for consumption.¹

Inshell hazelnuts must be harvested when fully ripe.

The condition of the hazelnuts must be such as to enable them

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

(ii) **Moisture Content**

Inshell hazelnuts shall have a moisture content of not greater than 12 per cent. The moisture content of the kernel alone must not be more than 7 per cent.²

B. Classification

Inshell hazelnuts are classified in the three classes defined below:

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

The inshell hazelnuts 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***

Inshell hazelnuts in this class must be of good quality. They must be characteristic of the variety and/or commercial type.³

Slight defects may be allowed provided that these do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package.

¹ *The presence of hazelnuts with a brown or dark brown core, normally accompanied by a slight separation of the cotyledons that does not entail an alteration of odour or taste of the kernels, is not considered a defect.*

² *The moisture content is determined by one of the methods given in annex I to this document.*

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) ***Class II***

This class comprises inshell hazelnuts of marketable quality which do not qualify in the higher classes, but satisfy the minimum requirements specified above.

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

III. PROVISIONS CONCERNING SIZING

Sizing or Screening is determined by the maximum diameter of the equatorial section. It is expressed either by an interval determined by a maximum size and a minimum size (sizing), or by mentioning the minimum size following by the words "and over", or the maximum size followed by the words "and less" (screening). Sizing is compulsory for produce in classes "Extra" and "I" but optional for produce in Class "II". The following classification is laid down:

Size ^a	Screening ^a
22 and above	22 mm and above (or and less)
20 to 22 mm	20 mm and above (or and less)
18 to 20 mm	18 mm and above (or and less)
16 to 18 mm	16 mm and above (or and less)
14 to 16 mm	14 mm and above (or and less)
12 to 14 mm	

^a *In addition to this size table, provided that the size or screen in millimetres is also expressed in the marking, any size including larger sizes may be used with option size names.*

Only inshell hazelnuts with a diameter equal to or above 16 mm may be included in the "Extra" class, and in Class "I" only those with a diameter equal to or above 14 mm. Smaller nuts shall be identified by a minimum and maximum diameter in 2 mm size increments. For produce presented to the final consumer under the classification 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 tolerance for defects of shell (calculated on a total inshell weight basis)	3 ^a	5	7
Total tolerances for defects of the kernel (calculated on the decorticated weight basis)	5 ^b	8 ^c	12 ^c
Mouldy, rotten, rancid ^d or damaged by insects ^e (calculated on the decorticated weight basis)	3 ^{b f}	5 ^f	6 ^f
Empty nuts (calculated by count)	4	6	8
Foreign matter (by weight)(calculated on a total inshell weight basis)	0.25	0.25	0.25

^a *Reservation by the US delegation requesting 4% for Extra Class.*

^b *Reservation by Romania requesting a 1% tolerance for mouldy in Extra Class. Romanian agrees with the 3% total tolerance in Extra Class for mouldy, rotten, rancid or damaged by insects or animal pests.*

^c *In calculating these percentages, a slight deformation of the kernel is not considered to be a defect.*

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

^e *Living insects or animals are inadmissible in any class whatsoever.*

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

For Extra Class and Class I, there may be a maximum of 12 per cent of hazelnuts 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 in the edible part of the hazelnut.

C. Size tolerances

For all classes, a total tolerance of 5 per cent for rounded nuts and 10 per cent for pointed and oblong nuts, by number of inshell hazelnuts not satisfying the size range indicated .

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

Hazelnuts 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

Inshell hazelnuts must be presented in bags and/or solid containers. All pre-packages within each lot must be of the same weight and contain inshell hazelnuts of the same class, variety or commercial type (if appropriate).

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

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

B. Nature of produce

- "Inshell Hazelnuts"
- 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 (optional)⁶.

E. Official control mark (optional)

This standard was first published in 1970 as UN/ECE Standard for Unshelled Hazel Nuts
Reprinted 1983

Partially Revised 1991 (Standard Layout)

Revised and adopted as UN/ECE Recommendation for Inshell Hazelnuts for a two-year trial period 1998

The UN/ECE Standard for Unshelled Hazel Nuts
has led to the development of an explanatory brochure published by the OECD Scheme

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

⁶ *Mandatory, at the request of the importing country.*

ANNEX I

DETERMINATION OF THE MOISTURE CONTENT OF INSHELL HAZELNUTS

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 0.01g (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 INSHELL HAZELNUTS

Cracks or splitting :	A shell having any crack which is open and conspicuous for a distance of more than one fourth the circumference of the shell, measured in the direction of the crack is considered a defect.
Defects of shell :	Any defect affecting the shell but not the kernel.
Dry :	Means that the shell is free from surface moisture, and that the shells and kernels combined do not contain more than 12 per cent moisture.
Empty :	Means a hazelnut containing no kernel.
Foreign matter :	Any matter not normally associated with the product.
Insect damage :	Visible damage caused by insects or animal parasites or the presence of dead insects or insect debris.
Intact :	Means that the shell is not broken, split or mechanically damaged; a slight crack is not considered as a defect provided the kernel is still protected.
Mould :	Mould filaments visible to the naked eye either on the outside or on the inside of the kernel.
Rancidity :	Oxidation of lipids or free fatty acids producing a disagreeable flavour. An oily appearance of the flesh does not necessarily indicate a rancid condition.
Rotten/Decay :	Significant decomposition caused by the action of micro-organisms.
Shrivelled :	The wrinkling of more than 50% of the skin surface of the compact fruit, usually occurring in seasons when there are high crop yields, or when 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.
Well formed :	Means that the shell is not noticeably misshapen and that its shape concords with the characteristic varietal or commercial type.