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REPORT OF THE FIFTY-FIFTH SESSION

Addendum 4

Note by the secretariat

This document contains the revised UN/ECE recommendation for Inshell Walnuts (DF-01) which was adopted at the fifty-fifth session of the Working Party as a UN/ECE Standard.

UN/ECE STANDARD DF-01
concerning the marketing and commercial
quality control of

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

I. DEFINITION OF PRODUCE

This standard applies to inshell walnuts free from outer husks, from varieties (cultivars) grown from *Juglans regia L.*, to be supplied to the consumer, walnuts for making oil or to be cracked for extraction of the kernels being excluded.

The expression 'fresh walnuts' or 'early walnuts' means walnuts which have been marketed soon after harvesting and cannot be preserved for a long time, from which the husk has been removed and which have not been treated in any way that tends to change their natural moisture content.

The expression 'dry walnuts' means walnuts which can be preserved for a long time under normal conditions of storage.¹

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of inshell walnuts at the export control stage, after preparation and packaging.

A. Minimum requirements²

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

(a) Characteristics of the shell

- intact:
 - slight superficial damage is not considered as a defect;
 - partially open walnuts are considered to be intact provided that the kernel is physically protected;

¹ *In the case of transport by closed container, special attention should be paid to air circulation in the container and to the moisture content of the produce.*

² *The definition of defects is given in Annex II to this document.*

- sound;
- free from defects likely to affect the natural keeping quality of the fruits;
- free from attack by pests;
- clean; practically free of any visible foreign matter;
- dry; free from abnormal external moisture;
- free from husks.

The shells of dry walnuts must show no trace of hulling.

(b) Characteristics of the kernels

- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
- firm;
- clean, practically free from any visible foreign matter;
- free from living insects or mites whatever their stage of development;
- free from visible damage by insects, mites or other parasites;
- free from rancidity and/or oily appearance;
- free from mould;
- free of abnormal external moisture;
- free of foreign smell and/or taste;
- normally developed, shrivelled kernels are to be excluded.

(c) The inshell walnuts must be gathered when sufficiently mature.

Walnuts must not be empty.

In the case of “fresh walnuts”, it must be possible to peel off the skin of the kernel easily and the internal central partition must show signs of turning brown.

In the case of “dry walnuts”, the internal central partition must be dry .

The shells may be washed and bleached provided that the treatment applied does not affect the quality of the kernels and is permitted by the regulations of the importing country.

The condition of the inshell walnuts should 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

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Dry walnuts shall have a moisture content not greater than 12% for the whole nut and 8% for the kernel.^{3 4}

The natural moisture content of whole fresh walnuts shall be equal to or greater than 20%.

B. Classification

Inshell walnuts are classified in three classes defined below:

(i) “Extra” class

Inshell walnuts in this class must be superior quality. They must have the characteristics of the variety or of the mixture of certain varieties officially defined by the producing country and specified in the marking.

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.

This class may not include inshell walnuts whose variety cannot be guaranteed, nor a mixture which is not defined.

Furthermore, only walnuts of the most recent harvest can be included in this class.

(ii) Class I

Inshell walnuts in this class must be of good quality. They must embody the characteristics of the variety, of a commercial type or of a mixture of certain varieties officially defined by the producing country and specified in the marking.

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.

This class may not include inshell walnuts whose variety cannot be guaranteed, nor a mixture which is not defined.

(iii) Class II

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

³ *The moisture content is determined by the method given in Annex II to this document.*

⁴ *Reservation from Spain and Romania, requesting 10% and 6% respectively.*

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

III. PROVISIONS CONCERNING SIZING

Size is defined either by an interval determined by the minimum diameter and the maximum diameter (sizing) or by an indication of the minimum diameter followed by “and above” or “and +” (screening).

Class	Sizing ^a	Screening ^a
Extra and I	32 to 34 mm	34 mm and above
	30 to 32 mm	32 mm and above
	28 to 30 mm	30 mm and above
	27 to 30 mm for oblong varieties ^c	28 mm and above ^b
II	24 to 28 mm	27 mm and above for oblong varieties ^{b,c}
	24 to 27 mm for oblong varieties ^c	24 mm and above

^a *In addition to this sizing and screening table, provided that the size is also expressed in the marking, any size name may be used optionally.*

^b *Products classified in Class I may exceptionally be marketed with a screening of 26mm and above.*

^c *The varieties of oblong walnuts have a shell whose height is at least 1.25 times the maximum diameter of the equatorial section.*

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.

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A. Quality tolerances

In the calculation of tolerances, whatever the class, two half-empty walnuts or four quarter-empty walnuts are counted as one empty walnut.

Defects allowed ^a	Tolerances allowed (percentage by number of defective fruit)		
	Extra	Class I	Class II
(a) Total tolerances for defects of the shell	7	10	15
(b) Total tolerances for defects of the edible part ^b	8	10	15
of which rancid, rotten or damaged by insects ^c	3	6	8
of which mouldy walnuts ^d	3	4	6

^a *The definitions of defects are listed in Annex II to this document.*

^b *For fresh walnuts, the tolerances for defects of the kernel are as follows: "Extra" Class: 8%; Class I: 12%; Class II: 15%.*

^c *Living insects or animal pests are not permitted in any class.*

^d *Reservation of France requesting 2% for Extra Class, 3% for Class I and Class II.*

B. Mineral impurities

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

C. Size tolerances

For all classes, a maximum of 10% of inshell walnuts not conforming to the size indicated in the marking is tolerated within the limits such that:

- the nuts correspond to the sizes immediately below or above when the size is designated by an interval determined by the minimum diameter and the maximum diameter (sizing);
- the nuts correspond to the size immediately below when the size is designated by an indication of the minimum diameter followed by "and above" or "and +" (screening).

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only inshell walnuts of the same origin, crop year and quality. In a single package stated to contain a given variety, a defined mixture of varieties or commercial type, a maximum of 10% of inshell walnuts may belong to other varieties or commercial types.

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

B. Packaging

Inshell walnuts 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 and stamps bearing trade specifications, is allowed provided that the printing or labelling has been done with a non-toxic ink or glue.

Packages must be free of all foreign matter.

C. Presentation

The weight of the packages constituting a batch must be identical.⁵

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 mark⁶

B. Nature of produce

⁵ *The regulations of certain importing countries require compliance with a specific range of net weights for closed packages.*

⁶ *The national legislation of a number of European countries requires the explicit declaration of the name and address.*

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- “Fresh walnuts” or “Early walnuts” (in the case of fresh walnuts);
“Walnuts” or “Dry walnuts” (in the case of dry walnuts).
- Name or variety or of the mixture defined for the “Extra” class; name of the variety, defined mixture or commercial type for class I.

C. Origin of produce

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

D. Commercial specifications

- Class;
- Size, which may be given either:
 - by the minimum and maximum diameters, or
 - by the minimum diameter followed by the words “and above” or “and +”;
- Crop year (mandatory for “Extra” class and class I, optional for class II);
- Net weight;
- Date of packaging mandatory for fresh walnuts and optional for dry walnuts;
- Best before followed by the date (optional); for fresh walnuts the indication “To be consumed quickly, store preferably in a cool place”, or the indication “Preservation very limited, store preferably in a cool place.

E. Official control mark (optional)

This standard was first published as UN/ECE Standard for Unshelled Walnuts in 1970

Revised 1983

Partially Revised 1991 (Standard Layout)

Revised and adopted as UN/ECE Standard for Inshell Walnuts 1999

ANNEX I DETERMINATION OF THE MOISTURE CONTENT

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.

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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

DEFINITION OF DEFECTS FOR INSHELL WALNUTS

A. Defects of the shell:

Any defect affecting the appearance including:

- staining or discolouration: abnormal colour which covers 20% of the surface of the shell of an individual nut and which is of a brown, reddish brown, grey or other colour in pronounced contrast with the colour of the rest of the shell or the majority of shells in the lot;
- adhering dirt, when affecting more than 5 % of the shell surface;
- adhering husk, when affecting more than 10% of the shell surface;
- husking damages: pronounced marks on the shell caused by the operation of mechanically removing the husk.

B. Defects of the edible part (kernel):

Any defects affecting the appearance of the kernel, including blemishes or areas of discolouration: discolouration which affects more than one quarter of the kernel and which is in pronounced contrast with the colour of the rest of the kernel.

Shrivelled kernels: Kernel which is seriously shrunken, wrinkled and tough.

Ripening defects
for fresh nuts

Kernel which is not sufficiently firm, of which for fresh walnuts: the skin cannot easily be peeled off and/or of which the internal central partition does not show signs of turning brown.

Rancidity: Oxidation of lipids or free fatty acid production producing a disagreeable flavour.

Empty nuts: Condition of the walnut in which the kernel has not developed.

C. Defects of the shell and kernel

Mould: Mould filaments visible to the naked eye.

Decay: Significant decomposition caused by the action of micro-organisms.

Insect damage: Visible damage caused by insects or other animal parasites or the presence of dead insects or insect debris.

Foreign matter: Any matter or material not usually associated with the product.

Mineral impurities: Acid insoluble ash.

Foreign smell or taste: Any odour or flavour that is not characteristic of the product.