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REPORT OF THE FIFTY-FIFTH SESSION

Addendum 3

Note by the secretariat

This document contains the revised UN/ECE recommendation for Walnut Kernels (DF-02) which was adopted at the fifty-fifth session of the Working Party for an extended one year trial period.

**UNECE RECOMMENDATION DF-02**  
concerning the marketing and commercial  
quality control of

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

**I. DEFINITION OF PRODUCE**

This standard applies to walnut kernels from varieties (cultivars) grown from *Juglans regia L.*, intended to be supplied either directly to the consumer or to the food industry.

**II. PROVISIONS CONCERNING QUALITY**

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

**A. Minimum requirements<sup>1</sup>**

- (i) In all classes, subject to the special provisions for each class and the tolerances allowed, walnut kernels must be:
- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
  - firm;
  - sufficiently developed; shrivelled kernels are to be excluded;
  - clean, practically free from any visible foreign matter and from shell;
  - free from insects or mites whatever their stage of development;
  - free from visible damage by insects, mites or other parasites;
  - free of any rancidity or oily appearance;
  - free from mould;
  - free of abnormal external moisture;
  - free of foreign smell and/or taste.

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

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

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<sup>1</sup>The definitions of defects are listed in Annex II to this document.

- (ii) Moisture content

The walnut kernels shall have a moisture content of not greater than 5 per cent.<sup>2</sup>

**B. Classification**

Walnut kernels are classified in the three classes as defined below according to their quality and colour.<sup>3</sup>

- (i) **"Extra" Class**<sup>4</sup>

Walnut kernels in this class must be of superior quality, uniformly light-coloured with practically no dark straw and/or lemon-yellow colour and with no dark brown.

They must be characteristic of the variety and/or commercial type. 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.

[Scuffing on less than 5% of the skin is not considered as a defect.]

- (ii) **Class I**<sup>4</sup>

Walnut kernels in this class must be of good quality, of a colour not darker than light brown and/or lemon-yellow.

They must be characteristic of the variety and/or commercial type. 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.

[Scuffing on less than one-fifth of the skin is not considered as a defect.]

- (iii) **Class II**<sup>4</sup>

This class includes kernels which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified above. Walnut kernels in this class must be of a colour not darker than dark brown. Darker kernels may be marketed in this class, provided the colour is indicated on the package. Defects may be allowed, provided that the walnut kernels retain their essential characteristics as regards general appearance, quality, keeping quality and presentation.

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<sup>2</sup>The moisture content is determined by the method given in Annex II to this document.

<sup>3</sup>The classification criteria are specified in the Annex relating to the colour, shape and size of kernels.

<sup>4</sup>The kernels may be designated by a commercial name, provided that the class is also expressed in the marking.

This class also includes mixtures of kernels of different colours and designated in the marking by the words 'mixed colours'.

[Scuffing on less than one-third of the skin is not considered as a defect.]

### III. PROVISIONS CONCERNING SIZING (STYLES)

Walnut kernels are classified by style as follows:

- (i) halves: kernels separated into two more or less equal and intact parts;
- (ii) quarters: kernels separated lengthways into four more or less equal pieces;
- (iii) large pieces: portions smaller than a "chipped kernel"<sup>5</sup> but larger than a "broken piece";
- (iv) broken pieces: portions of kernels which can pass through a 8mm sizing screen but not through a 3mm sizing screen;
- (v) large pieces and halves: a mixture of kernels corresponding to the styles large pieces (iii) and halves (i) and of which the proportion of halves may be specified in the marking.

The different styles are represented in the Annex relating to colour, shape and size.

In addition to the designation of the style in the marking, an indication of the number of pieces per kg may be given optionally.

### IV. PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality, colour and type shall be allowed in each package for produce not satisfying the requirements of the class indicated.

#### A. Quality and colour tolerances

Defects allowed <sup>a</sup>	Tolerances allowed (per cent by weight of kernels)		
	Extra	Class I	Class II
(1) Kernels not satisfying the minimum requirements such as:	4	6	8
- Rotten kernels	0.5	1 <sup>b c</sup>	2 <sup>b c</sup>
- Mouldy kernels	0.5	1 <sup>b c</sup>	2 <sup>b c</sup>
- Shell fragments or foreign matter <sup>d</sup>	0.1	0.1	0.1
(2) Kernels darker in colour,	8	9	10

<sup>5</sup>A "chipped kernel" means a portion representing at least three-quarters of a "half".

- a *The definitions of defects are listed in Annex II to this document.*  
 b *Reservation of Poland in favour of a tolerance not exceeding 0.5 per cent.*  
 c *Reservation of Romania in favour of a tolerance of 0.5% for Class I and 1% for Class II.*  
 d *Reservation from India in favour of a tolerance of 0.25% for all classes.*

**B. Mineral impurities**

Not greater than 1g/kg acid insoluble ash.

**C. Size tolerances (styles)**

For all styles, a minimum percentage of kernels corresponding to the style indicated in the marking is required and a maximum percentage by weight of kernels different from the style indicated is tolerated:

Style	Minimum percentage and tolerances allowed (per cent by weight of kernels)					
	Halves	Chipped kernels	Quarters	Large pieces	Broken pieces	Fragments
Halves	85 <sup>a</sup>	15 <sup>b</sup>	5 <sup>c</sup>		1 <sup>c</sup>	1 <sup>c</sup>
Quarters			85 <sup>a</sup>	15 <sup>b</sup>	5 <sup>c</sup>	1 <sup>c</sup>
Large pieces				85 <sup>a</sup>	15 <sup>b</sup>	1 <sup>c</sup>
Broken pieces				10 <sup>b</sup>	90 <sup>a</sup>	1 <sup>d</sup>
Large pieces and halves	0.33333			65 <sup>a</sup>	15 <sup>b</sup>	1 <sup>c</sup>

- a *Minimum percentage*  
 b *Tolerances allowed*  
 c *Included in 15% tolerance*  
 d *Included in 10% tolerance*

**V. PROVISIONS CONCERNING PRESENTATION**

**A. Uniformity**

The contents of each package may be uniform and contain only kernels of the same origin, crop year, quality, style and when applicable of the same variety and commercial style.

Uniformity of colour is compulsory for Extra Class and Class I.

However, with regard to shape, "halves" which pass through a 15 mm mesh and "chipped kernels" may be included without limitation in consignments of "large pieces".

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

**B. Packaging**

Walnut kernels must be packed in such a way as to protect the produce properly.

If wooden packaging is used, the produce must be separated from the bottom, sides and lid by paper or suitable protective material.

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 and particularly of paper or stamps bearing trade specifications is allowed provided that the printing or labelling has been done with non-toxic ink or glue.

Kernels may be packed in air-tight sealed containers, in a vacuum or in an inert gas.

**C. Presentation**

Kernels must be presented:

In small unit packages of uniform weight intended for sale directly to the consumer.<sup>6</sup>

Packaged in bulk.

**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 <sup>7</sup>

**B. Nature of produce**

- "Walnut kernels" if the contents are not visible from the outside.
- Name of the variety or commercial type for "Extra" class and class I where applicable (optional for class II).

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<sup>6</sup>The regulations of certain importing countries require compliance with a specific range of net weights for closed packages.

<sup>7</sup>The national legislation of a number of European countries requires the explicit declaration of the name and address.

**C. Origin of produce**

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

**D. Commercial specifications**

- Class and optionally a commercial name; the words “mixed colours” in class II where applicable;
- Style (“halves”, “quarters”, “large pieces”, “broken pieces” or “large pieces and halves”) and optionally the number of pieces per kg;
- Crop year (mandatory for “Extra” class and class I, optional for class II);
- Net weight;
- Best before followed by the date (optional).

**E. Official control mark (optional)**

This standard was first published in 1983  
Revised and adopted as a UN/ECE Recommendation on Walnut Kernels for a two year trial period 1996  
Trial Period extended for one year 1998  
Trial Period extended for one year 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.



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 WALNUT KERNELS

Any defect adversely affecting the appearance or edibility of the kernel including:

- staining or discolouration: abnormal colouration which covers more than one eighth of the surface of the kernel and which is of a colour in pronounced contrast with the colour of the rest of the kernel (dark blemishes or areas of discolouration);
- [torn skin: absence of skin from more than 5% of the surface of the kernel;]
- embedded dirt: kernels or portions of kernels with dirt or other foreign material embedded into the flesh of the kernel.
- crushing of more than 5% of the volume of the kernel;
- drying defect: the kernel is moist, soft or leathery.

Fragments: Kernel and skin fragments which can pass through a sizing screen of 3 mm diameter.

Shell: Outer shell and/or woody partition from between the halves of the kernel (internal central partition), and any fragments of either.

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

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 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.

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

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