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Working Party on Agricultural Quality Standards

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

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Item 5(b) of the provisional Agenda

**DRAFT UNECE STANDARD FOR MACADAMIA KERNELS**

Transmitted by the United States

**Note by the secretariat:** This text is a revised proposal for a new UNECE Standard for Macadamia Kernels reproduced as received by the United States.

**UNECE STANDARD**  
concerning the marketing and commercial quality control of

**MACADAMIA KERNELS**  
Moving in international trade between and to UNECE member countries

**I. DEFINITION OF PRODUCE**

This standard applies to macadamia kernels of varieties (cultivars) grown from *Macadamia ternifolia* intended for direct consumption. This standard does not apply to macadamia kernels for industrial processing or for food use except when they are intended to be mixed with other products for direct consumption without further processing.

Macadamia Kernels may be presented in:

- a) whole
- b) mixture of whole and pieces
- c) pieces

**II. ROVISIONS CONCERNING QUALITY**

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

**A. Minimum requirements**

**(i) General provisions**

Subject to the special provisions for each class and the tolerances allowed<sup>1</sup> the macadamia kernel must display the following characteristics:

- sufficiently dry to ensure keeping quality,
- intact; slight superficial damage is not considered as a defect,
- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- sufficiently developed, and free from hollow centre
- clean, practically free of any visible foreign matter;
- free from insects or mites whatever their stage of development;
- free of damage caused by pests;
- free from mould,
- free from rancidity,
- free of abnormal external moisture,
- free of foreign smell and/or taste.

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<sup>1</sup> {This section will specify which of the minimum requirements are not subject to tolerances.}

The condition of the macadamia kernel must be such as to enable them:

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

(ii) **Moisture content**

The macadamia kernels shall have a moisture content not exceeding 1.5 per cent.<sup>2</sup>

(iii) **Preservatives**

Preservatives may be used in accordance with the legislation of the importing country.

**B. Classification**

Macadamia kernels are classified in two class defined below:

(i) ***Class I***

Macadamia kernels in this class must be of good quality. They must be characteristic of the variety and/or commercial type and well developed. They may be presented in whole, whole and pieces or pieces

The following slight defects may be allowed provided they do not affect the general appearance of the produce, the quality, keeping quality and presentation in the package:

- slight defects in shape or development
- slight defects in colour
- superficial or light scratches

(ii) ***Class II***

This class includes macadamia kernels which do not qualify for inclusion in the higher class, but satisfy the minimum requirements specified above.

The following slight defects may be allowed provided they do not affect the general appearance of the produce, the quality, keeping quality and presentation in the package:

- defects in shape or development
- defects in colour
- scratches not materially detracting the produce appearance.

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<sup>2</sup> {The method to be used should be one of the methods tested collaboratively and shown to give satisfactory results in inter-laboratory trials and which are given in Annexes I and II for dried and dry fruit. The laboratory reference method shall be used in cases of dispute.}

### III. PROVISIONS CONCERNING SIZING

Size is determined by the following commercial style classifications:

1. STYLE I - (WHOLES) shall consist of not less than 90 percent whole kernels with the remaining units of such size that not more than 1 percent will pass through  $\frac{1}{4}$  inch square opening.
2. STYLE II- (WHOLES AND HALVES) shall consist of at least 50 percent whole kernels with the remaining units of such size that not more than 2 percent will pass through  $\frac{5}{16}$  inch square opening.
3. STYLE III STYLE III- (COCKTAIL) shall consist of at least 90 percent half or larger kernels, included therein at least 25 percent whole kernels with the remaining units of such size that not more than 2 percent will pass through  $\frac{1}{4}$  inch opening.
4. STYLE IV- (HALVES AND PIECES) ) shall consist of at least 50 percent half kernels with the remaining units of such size that not more than 5 percent are larger than half kernels.
5. STYLE V- (LARGE DICED) shall consists of units which are smaller than half kernels but of such size that not more than 5 percent will pass through a  $\frac{5}{16}$  inch by 1 inch opening, included therein not more than 2 percent that will pass through a  $\frac{3}{32}$  inch square opening.
6. STYLE VI- (CHIPS) shall consists of units of such size that are at least 95 percent will pass through a  $\frac{5}{16}$  inch by 1 inch opening but not more than 2 percent will pass through a  $\frac{3}{32}$  inch square opening
7. STYLE VII- (BITS AND DICED) shall consists of units which are smaller than half kernels and of such size that at least 95 percent will pass through a  $\frac{5}{16}$  inch square opening
8. STYLE VIII- (FINES) shall consists of broken, chipped, or chopped kernels of such size that all units will pass through a  $\frac{1}{4}$  inch square opening and most will also pass through a  $\frac{3}{32}$  inch square opening.

### 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**

Defects allowed	Tolerances allowed (per cent or weight of defective kernels)	
	CLASS I	Class II
a) Total tolerance for Macadamia kernels not satisfying the minimum requirements: of which no more than:	5	7
- Dirt and particles of dust	1	2
- Mould, decay, rancid, rotten	1	1
- Loose extraneous material	1	2
- Insect infestation (not live)	1	2
- Off odour or Off flavour by any cause	1	2
- Loose foreign material including Particles of shell	1	2
- Live insects	0.0	0.0

**B. Size tolerances**

Macadamia kernels are sized by screening and are specified in accordance with the Style Classifications based on weight. For macadamia kernels presented in pieces there is a 7 % tolerance for pieces belonging to the adjacent styles.

**V. PROVISIONS CONCERNING PRESENTATION**

**A. Uniformity**

The contents of each package must be uniform and contain only macadamia kernels of the same origin, quality and size.

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

**B. Packaging**

Macadamia 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 that the printing or labelling has been done with non-toxic ink or glue.

Packages must be free of all foreign matter.

**C. Presentation**

## 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

- Name of the produce;
- Name of the variety and/or commercial type {according to the nature of the produce}
- Type or style {according to the definitions of the standard}

### C. Origin of produce

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

### D. Commercial specifications

- Class;
- Style Classification
- Crop year {optional } mandatory according to legislation of importing country.
- Net weight, or the number of pre-packages, followed by the net unit weight in the case of packages containing such units (optional) r at the request of the importing country).
- "Best before" followed by the date (optional) mandatory according to legislation of importing country.

### E. Official control mark (optional)

## ANNEX

DEFINITION OF TERMS AND DEFECTS FOR  
MACADAMIA KERNELS

<i>Well Developed:</i>	Kernel is plump and not shrivelled or excessively soft
<i>Clean:</i>	Kernel is practically free from dirt or other foreign material, or the general appearance of the lot is not more than appreciably affected by dirt or other foreign or extraneous substance.
<i>Dry:</i>	Kernel is free from surface moisture
<i>Loose Extraneous Material:</i>	Any loose substance which will pass through a 3/32 inch square opening in Styles I, II, III and IV
<i>Off-odour or Off-flavour:</i>	The macadamia kernel possesses an odour or flavour which is not characteristic of the product, and which appreciably affects the eating quality of the kernel.
<i>Insect Infestation:</i>	The presence of insect fragment, web, or frass in the product.
<i>Loose foreign material:</i>	Any loose substance other than macadamia kernels which will not pass through an 1/16 inch square opening.
<i>Damage:</i>	Any specific defect listed or an objectionable variation of any defects or any other defect which materially detracts from the appearance or the edible or shipping quality of the macadamia kernels. <sup>3</sup>
<i>Serious Damage:</i>	Any specific defect listed or an objectionable variation of any defects or any other defect which seriously detracts from the appearance or the edible or shipping quality of the macadamia kernels. <sup>4</sup>
<i>Whole kernel:</i>	<ul style="list-style-type: none"> <li>- A kernel that is not split or separated into halves</li> <li>- The kernel contour is not more than materially affected by a missing portion or portions.</li> <li>- Not more than ¼ of the kernel is chipped –off or missing</li> </ul>
<i>Half kernel:</i>	Approximate half of a whole kernel with not more than 1/8 of its mass chipped-off or missing.

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<sup>3</sup> See table on Classification of defects

<sup>4</sup> See table on Classification of defects

**CLASSIFICATION OF DEFECTS**

<b>Factor</b>	<b>Damage</b>	<b>Serious Damage</b>
Adhering shell	Shell specks affect appearance or eating quality more than slightly; or any shell piece present exceeds 1/32 in both in length and width.	Shell specks seriously affect appearance or eating quality; or any shell piece present exceeds an area 1/16 inch in diameter
Insect scar	Any feeding scar present exceeds an area 3/32 inch in diameter; or 2 or more feeding scars present within 1/2 inch area.	Any feeding scar on an aggregate of such scars within 1/2 inch in area exceeds an area 1/8 inch in diameter.
Discoloured area	When any markedly discoloured spot is present; any more than slightly discoloured spot exceeds an area 3/32 inch in diameter; any more than slightly discoloured spot exceeds an area 1/8 inch in length or width; a markedly discoloured ring is present; or speckles affecting appearance more than slightly are present.	When any dark brown or black spot, or an aggregate of such spots within a 1/2 inch area, exceeds an area 1/16 inch diameter; any markedly discoloured or prominent spot(abnormalities such as an area encircled by a reddish brown line), or an aggregate of such spots within a 1/2 inch area, exceeds an area 3/16 in diameter; or speckles seriously affecting appearance are present.
Shrivelling		When excessive.
Dark Centre	Naturally exposed kernel centre is appreciably dark or discoloured	Naturally exposed kernel centre is markedly dark or discoloured

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