

**INFORMAL DOCUMENT NO. 7 (ENGLISH)**

8 June 2007

**ECONOMIC COMMISSION FOR EUROPE**

COMMITTEE ON TRADE

Working Party on Agricultural Quality Standards

Specialized Section on Standardization of Dry and Dried Produce

Fifty-fourth session

Geneva, 25-29 June 2007

Item 13 of the provisional agenda

**FUTURE WORK**

**PROPOSAL OF THE DELEGATION OF MEXICO FOR A STANDARD FOR WHOLE  
DRIED CHILLI PEPPERS**

Note by the secretariat

This document contains a proposal by the Delegation of Mexico to start work on a new Standard for Whole dried chilli peppers.

**NOTE TO THE SECRETARIAT:**

The importance of peppers in Mexico is evident for its ample distribution as well as for its great consumption in the country. This produce is grown commercially from the level of the sea in the tropical regions of the coast, to the 2500 meters of altitude in the cool regions of the centre of the country. It is also of a wide environmental range that allows its production all year round, permitting the satisfaction of the demand of the product in the main cities.

Mexico is one of the main centres of origin and dispersion of the gender *Capsicum*, and it is the origin of the species *annuum* that has generated a great diversity of chilli peppers whose form, size, colour and flavour are varied and so they are used in many different ways, either as a main ingredient, as a colouring or as a spice (Pozo, O. 1981). Whole dehydrated or “dry” peppers used for human consumption, are not exempted to the great variation in type and shape, making necessary their description and classification.

The present proposal is based on the Mexican Quality Standard developed by the Technical Committee of Standardization of Agricultural and Cattle related Products depending of the Ministry of Agriculture: **NMX-FF-107/1-SCFI-2006 Food products– Whole dry chilli peppers (ancho, de árbol, guajillo, mulato, pasilla y puya ) – Part 1 - Specifications and test methods.**

**UNECE STANDARD DDP- xx**  
concerning the marketing and commercial quality control of

**WHOLE DRIED CHILLI PEPPERS**  
(ancho, de árbol, guajillo, mulato, pasilla and puya)

**I. DEFINITION OF PRODUCE**

This Standard applies to whole dried chilli peppers of varieties (cultivars) grown from *Capsicum annuum* L., (Commercial types: ancho, de árbol, guajillo, mulato, pasilla and puya) intended for direct consumption or for food when they are intended to be mixed with other products for direct consumption without further processing. This Standard does not apply to whole dry chilli peppers which are processed by salting, sugaring, flavouring, or roasting or for industrial processing.<sup>1</sup>

Ancho chilli.- The fruits have a conical shape, with sizes that vary in longitude and width. The base of the insertion of the peduncle can be flat or with indented shoulders; the body is generally flattened; the apex is pointed or round, and presents from two to four loculus. Its production as dry pepper is achieved, mostly, by artificially dehydrating the fruits, although an important part of this type of chillies is commercialized fresh.

De arbol chilli.- These are small fruits, with a uniform intense or dark red coloration, with no discoloration, cylindrical, with a shape prominently long and pointed, characterized by their high pungency.

Guajillo chilli.- Also known as mirasol. Generally, it is long, with a sharp end; its body is cylindrical, smooth and with slight undulations. It has two to three loculus; its position is hanging, even when there are some variants with erected fruits. This type of chilli is moderately pungent and its commercial production is in its majority dried in the plant in a natural way.

Mulato chilli.- With a shape similar to the ancho chilli, it has the same variation in the growth habit and shape of the fruit, but generally less pungent. The basic difference with ancho chilli is the colour, which is dark brown when ripe and blackish brown once it is dehydrated.

Pasilla chilli.- It is a fruit with a long undulated body that ends in a flat or pointed apex; it presents from two to three loculus. Its production is mainly destined for dehydrating with a small amount consumed fresh.

Puya chilli.- Elongated fruit, medium size, smaller than mirasol chillies and bigger than de arbol chillies, with a uniform intense red or dark red colour, with no discoloration. Its production is dehydrated mainly in a natural way in the plant before use in salsas. After the de arbol chilli, it is considered highly pungent.

In relation to the effects of this standard, whenever dry chilli peppers are mentioned, it will be understood to be the fruit of the cultivated plant *Capsicum annuum* that belongs to the Solanaceae family that has undergone a dehydration process. That fruit presents shapes, sizes,

---

<sup>1</sup> For the correct application of this standard , see other definitions contained in Annex I.

colours, tastes and pungency characteristics according to the types described in this standard.

Although internationally there are not limits established for the capsaicinoids content (pungency or hotness) it is admitted that there are variations in its content between the different types of peppers.

## **II. PROVISIONS CONCERNING QUALITY**

The purpose of the Standard is to define the quality requirements of whole dried chilli peppers grown from *Capsicum annuum* L., of the commercial types: guajillo, ancho, mulato, de árbol, puya and pasilla, at the export control stage, after preparation and packaging.

### **A. Minimum requirements**

In all classes subject to the special provisions for each class and the tolerances allowed, the whole dried pepper must display the following characteristics:

Whole dried chillies must:

- Present characteristic shape and colour.
- Present taste (pungency or hotness) characteristic according to the type. (Corresponding Scoville Units).
- Present the characteristic strong smell.
- Dried in accordance with section “B. Moisture content”;
- Intact; however, 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;
- Clean, practically free of any visible foreign matter;
- Sufficiently developed;
- Come from harvested fruits at the optimum ripe state and with peduncle.
- Free from mechanical injuries;
- Free from entomological, microbiological, meteorological and genetic-physiological defects;
- Free from live insects or mites whatever their stage of development;
- Free of abnormal external moisture;
- Free of foreign smell and/or taste; Free from any toasted or burnt taste.

The condition of the whole dried chilli must be such as to enable them:

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

Sensorial specifications for each type of whole dried peppers are detailed in Table 1: Quality specifications for Whole Dried Peppers.

## **B. Moisture content**

The Whole Dried Chillies shall have moisture content depending on the type:

- Ancho chilli shall have moisture content not exceeding 12.5 per cent.
- De Arbol chilli shall have moisture content not exceeding 9 per cent.
- Guajillo chilli shall have moisture content not exceeding 13.5 per cent.
- Mulato chilli shall have moisture content not exceeding 12.5 per cent.
- Pasilla chilli shall have moisture content not exceeding 13.5 per cent.
- Puya chilli shall have moisture content not exceeding 10 per cent.

## **C. Classification**

In accordance with the defects allowed in section “IV. Provisions concerning tolerances”, whole dried chilli peppers of varieties (cultivars) grown from *Capsicum annuum* L., (guajillo, ancho, mulato, de árbol, puya and pasilla) are classified into the following classes:

Extra Class, Class I and Class II.

The classified product is designed by name, type, size and quality, being the size a commercial differentiation parameter.

Non-classified produce is designated as out of classification and mainly is used to elaborate sub products.

### **Colour**

Colour specifications by type of whole dried chillies object of this standard are detailed in Table 1.

### **Weight of the flesh**

Specifications regarding the weight of the flesh for whole dried chillies are detailed in Table 1. Its estimation is made considering that this parameter, in relation to the total weight of the fruit of each chilli, is one of the most important variables to evaluate yield.

**Table 1: Quality Specifications for Whole Dried Chili.**

COMMERCIAL TYPE	CLASS	SIZE		WEIGHT (g)	FLESH WEIGHT (g)	COLOUR (°Hue)	PUNGENCY (°Scoville units)	SENSORIAL SPECIFICATIONS
		LENGTH (cm.)	WIDTH (cm.)					
GUAJILLO OR MIRASOL	Extra	> 14	>3	>9	$= \frac{((0.7298)(\text{WEIGHT}) - 0.2372)}{(0.85)}$	47.33 -56.96	3,000 – 5,000	Whole, sound, big, with uniform colour: intense or dark red, no discoloration, smooth, stainless, free from burns, scrapes and deformations.
	Class I	10-14		5-9				Whole, sound, big and medium, with uniform colour: intense or dark red, no discoloration, smooth, stainless, free from burns, scrapes and deformations.
	Class II	<10	<3.5	<5				Whole or partially broken, sound, generally medium size, slightly discoloured, wrinkled. May present stains, burns, scrapes and/or deformations.
PUYA	Extra	8 - 12	> 1.5	> 3.5	$= \frac{((0.7906)(\text{WEIGHT}) - 0.5948)}{(0.85)}$	45.48 -46.51	5,000 – 30,000	Whole, sound, big, with uniform colour: intense or dark red, no discoloration, smooth, stainless, free from burns, scrapes and deformations.
	Class I	8-12		> 3.5				Whole, sound, big and medium, with no totally uniform colour: intense or dark red, no discoloration, smooth, stainless, free from burns, scrapes and deformations.
	Class II	<8	<1.5	<3.5				Whole or partially broken, very small or big in its type, wrinkled, slightly discoloured, may present stains, burns, scrapes and/or deformations.
ANCHO	Extra	>10	>6	>22.4	$= \frac{((0.7364)(\text{WEIGHT}) - 0.0898)}{(0.85)}$	54.07 - 59.21	1,000 - 1,500	Whole, sound, big, heart shaped or triangular, uniform coloured light red to dark red, free from discolouring, wrinkled, stainless, without burns, scrapes or deformations.
	Class I	<10	5-6	>22.4				Whole, sound, medium and big, uniform colour intense red to dark red. No discoloration, wrinkled, without stains, burns, scrapes or deformations.
	Class II	<10	< 5	<22.4				Whole or partially broken, sound, medium and small size, slightly discoloured, wrinkled. May present stains, burns, scrapes and/or deformations.
MULATO	Extra	>10	>7	>17	$= \frac{((0.7643)(\text{WEIGHT}) - 0.1653)}{(0.85)}$	70.54 – 71.27	1,000 - 1,500	Whole, sound, big, heart shaped or triangular, uniform intense black colour, wrinkled, free from discoloration, stains, burns, scrapes or deformations.
	Class I	7 -10	5-7	14 - 17				Whole, sound, medium and big, uniform intense black coloured, wrinkled. Free from discoloration, stains, burns, scrapes or deformations.
	Class II	<7	< 5	<14				Whole or partially broken, sound, small and medium sized, non uniform black colour, discoloured, wrinkled. May present stains, burns, scrapes and/or deformations.
PASILLA	Extra or Flower	>20		>7.5	$= \frac{((0.6889)(\text{WEIGHT}) + 0.1187)}{(0.85)}$	70.28 – 74.66	1,000 - 1,500	Whole, sound, big, uniform intense black, wrinkled, without discoloration, burns, scrapes or deformations.
	Class I	14-20	>3	>7.5				Whole, sound, big and medium. Black uniform colour, wrinkled. Without discoloration. Free from stains, burns, scrapes and deformations.
	Class II	<14	2.-3	<7.5				Whole or partially broken, sound, medium and small sized, non uniform black or greenish colour. Slightly discoloured, smooth. May present stains, burns, scrapes or deformations.
ARBOL	Extra	Does not apply	Do not apply	Does not apply	-----	46.74 - 57.23	5,000 - 30,000	Does not apply.
	Class I	9-11	> 1.0	1.0 – 1.5				Whole, sound, big in their type, intense red colour according to its type, without any discoloration. Free from stains, burns, scrapes and deformations.
	Class II	7 < 9	< 1.0	<1.0				Whole, sound, medium sized fruits in their type, intense red colour according to its type. May present discolouring, stains, burns, scrapes and/or deformations.

**Note to Table 1:** In all cases whole dried chilli shall be free of any toasted or burnt taste.

## Moisture

According to the variety, whole dried chillies shall present a maximum moisture content expressed in percentages.

Maximum moisture content in % (m/m)	
Ancho	12,5
De árbol	9,0
Guajillo	13,5
Mulato	12,5
Pasilla	13,5
Puya	10,0

## Pungency

Even though internationally the content levels for capsaicinoids (pungency or hotness) are not established, it is admitted that there are differences on its contents among the diverse types of chillies.

Pungency intensity			
Pungency	Intensity	Commercial Type	Scoville Units <sup>2</sup>
	Very hot	De árbol and puya	5000 to 30000
	Hot	Guajillo	3000 to 5000
	Mild hot	Ancho, mulato and pasilla	1000 to 1500
	Sweet	Does not apply for this standard	0-100

The defects allowed must not affect the general appearance of the produce as regards quality, keeping quality and presentation in the package.

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

Whole dried chilli in this class must be of superior quality. They must have the characteristics of the variety and/or commercial type.

They must be free of defects, with the exception of very slight and superficial defects, considering that they do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package, as it is established in Table 1.

### (ii) *Class I*

Whole dried chilli in this class must be of good quality. They must be characteristic of the variety and/or commercial type.

---

<sup>2</sup> Scoville Units Scale is a system to measure the pungency in chillies. Can also be used the high resolution chromatography of liquids to measure content of capsaicin in chillies.

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, as stated in Table 1.

(iii) **Class II**

This class includes whole dried chillies which do not qualify for inclusion in the higher classes but which satisfy the minimum quality requirements specified above.

Defects may be allowed according to the established in Table 1.

### III. PROVISIONS CONCERNING SIZING

Sizing is determined depending on the length (measure from the apex of the fruit without considering the peduncle), width (at the broader part of the fruit - shoulder) and weight (including the peduncle).

Sizing is designated according to Table 2: Size classification by type of whole dried chilli:

**Table 2. Size classification by type of whole dried chilli.**

Type	Class	Length (cm.)	Width (cm.)	Weight (g)
Guajillo	Extra	> 14	>3	>9
	Class I	10 - 14	2.5-3	5-9
	Class II	<10	<2.5	<5
Puya	Extra	>10	> 1.5	> 3.5
	Class I	8 - 10	1.0- 1.5	3.0- 3.5
	Class II	<8	<1.0	<3.0
Ancho	Extra	>10	>6	>22
	Class I	7- 10	5-6	20-22
	Class II	7 -10	< 5	<20
Mulato	Extra	>10	>7	>17
	Class I	7 -10	5-7	14 a 17
	Class II	< 7	< 5	<14
Pasilla	Extra or "Flower"	>20	>3	>7.5
	Class I	14 - 20	2.5-3	7.0 - 7-5
	Class II	<14	< 2.5	<7.0
De árbol	Extra	Does not apply	Does not apply	Does not apply
	Class I	9 - 11	> 1.0	1.0 – 1.5
	Class II	7 < 9	< 1.0	<1.0



#### 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

##### (c) *Table for dried produce*

For all the classes mentioned above, defects tolerances allowed are stated in table 3 and 4. The allowed percentage refers to the lot. The percentage that does not correspond to the designation declared will be evaluated by weight.

**Table 3. Slight and serious defects tolerances for whole dried chillies  
(Guajillo)**

Tolerances allowed	Extra	Class I	Class II
Serious Defect	0%	0%	40 %
Slight Defect	2%	10%	100%
Accumulative	2%	10%	100%

**Table 4. Slight and serious defects tolerances for whole dried chillies  
(ancho, mulato, de árbol, puya and pasilla)**

Tolerances allowed	Extra	Class I	Class II
Serious Defect	0%	0%	100%
Slight Defect	2%	10%	
Accumulative	2%	10%	

Defects allowed	Tolerances allowed per cent of defective produce by number or weight		
	Extra	Class I	Class II
<b>(a) Tolerances for produce not satisfying the minimum requirements of which no more than</b>			
- Not sufficiently developed (optional)	2	2	2
- Mouldy	0	0	0
- Fragmented or broken	5	5	5
- Damaged by pests	0	0	0
- Rotting	0.5	1	1.5
- Live insects (by number)	0	0	0
<b>(b) Tolerances for other defects</b>			
- Foreign matter, including loose capstems, rachis, pits, fragments of pits and dust (by weight)	1	1	1
- ... belonging to other varieties {or types} than that indicated on the package			
<b>(c) Size tolerances</b>			
- For produce not conforming to the size indicated, if sized	5	15	Does not apply

## V. PROVISIONS CONCERNING PRESENTATION

### A. Uniformity

The contents of each package must be uniform and contain only whole dried chillies of the same origin, quality, size and variety or commercial type (if indicated).

For “Extra” Class and Class I the produce must be of the same variety and/or commercial type.

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

### B. Packaging

Whole dried chilli 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 so 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 in accordance with the table of tolerances in section “IV. Provisions concerning tolerances”.

## **VI. PROVISIONS CONCERNING MARKING**

Each package<sup>3</sup> 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>4</sup>

### **B. Nature of produce**

- Name of the produce
- Name of the variety and commercial type.
- Type or style.

### **C. Origin of produce**

- Country of origin and, optionally, district where grown or national, regional or local place name, corresponding to the place of growth, harvest or recollection, not to the one of packaging.

### **D. Commercial specifications**

- Class;
- Size (if sized; expressed in accordance with section III);
- Variety and/or commercial type

---

<sup>3</sup> Package units of produce prepacked for direct sale to the consumer shall not be subject to these marking provisions, but shall conform to national requirements. However, the markings referred to shall in any event be shown on the transport packaging containing such package units.

<sup>4</sup> The national legislation of a number of countries requires the explicit declaration of the name and address. In cases where a code mark is used, the reference “packer and/or dispatcher” (or equivalent abbreviations) must be indicated in close connection with the code mark.

- Code or lot number
- Crop year and month;
- Packing date.

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

## **ANNEX I. COMMONLY USED TERMINOLOGY FOR WHOLE DEHYDRATED CHILLIES**

**Dried chilli (Dehydrated).**- Fruit that has undergone a process of water loss by natural or artificial means.

**Essential oils and/or volatile.** These are chemical components that give the fruits their characteristic smell and taste. The main components are the capsaicinoids and the oleoresins.

**Fruit contaminated by animals.** The fruit that contains proof that it has been chewed or bit by rodents, birds or other animals; as well as presents or contains particles of birds' feathers or animal hair.

**Fruit contaminated by micro-organisms.** Fruit in which signals of mould, mycelium and/or bacteria are found.

**Fruit in physiological ripe or in season.**- This is the fruit that has completed its development and has experienced the level of ripeness characteristic of the type of chilli that makes it suitable for the dehydrating process. In the fruits of guajillo, ancho, puya and de arbol chillies, this state is associated with an intense red colour, while in the mulato and pasilla chillies is dark red.

**Fruit infested by insects.**- This is the fruit that contains insects, live or dead, or insect debris, or that it is perceived evidently that it has served as food to some insect.

**Capsaicinoids.**- Compounds responsible for the pungent or hot flavour in the chillies. The main and more pungent of all capsaicinoids is the Capsaicin, which is found in the seeds and placenta of the peppers.

**Package.**- Material that envelops, contains and protects the products for their transportation or storage.

**Pack.**- Any container or wrapping in which the product is hold for its sell to the consumer.

**Faeces or excrement.**- Bodily waste of any species that is considered a contaminant.

**Moisture.**- It refers to the percentage of humidity present in chillies, once they have been dehydrated and are about to be commercialized.

**Insects.**- Small animal of the class Insecta in adult, nymph, larva or pupa state.

**Loculus.**- Small chamber or cavity of the fruit that is formed by the arranging of the walls of the ovary; it is observed by doing a transversal cut.

**Foreign matter.**- All material or substance different to the one that constitutes the fruit and the peduncle, that includes: stalks, dirt, sand, stones, waste, wires, cords, foreign seeds, dust and leaves, as well as insect debris.

Oleoresins.- Name given to the liquid extract of chilli in form of intense red oil with the typical smell of the chilli that contains all the extracted pigments and capsaicinoids.

Pungency.- Sharp or intense sensation caused by the effect of the Capsaicins after the ingestion of chilli or its sub products.

## REFERENCES

- ISO 972: 1997 Chillies and capsicums, whole or ground (powdered) - Specifications.
- ISO 930: 1997 Spices and condiments - Determination of acid-insoluble ash
- ISO 3513 Chillies - Determination of Scoville index.
- ISO 7543-1 Chillies and chilli oleoresins -- Determination of total capsaicinoid content - Part 1: Spectrometric method
- ISO 7543-2 Chillies and chilli oleoresins - Determination of total capsaicinoid content -- Part 2: Method using high-performance liquid chromatography
- Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias. Centro de Investigación Regional del Noreste. Campo Experimental Palma de la Cruz. Nuevas Variedades del Chile Mirasol para el Centro Norte de México. Folleto Técnico No. 21. Marzo 2001.
- Pozo Campodónico, Octavio. Descripción de Tipos y Cultivares de Chile (*Capsicum* spp.) en México. SARH/INIA. Folleto Técnico Número 77. Octubre 1981.