

# CODEX ALIMENTARIUS COMMISSION



Food and Agriculture  
Organization of  
the United Nations

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World Health  
Organization

Agenda Item 12(c)

CX/LAC 12/18/15  
November 2012

## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### FAO/WHO COORDINATING COMMITTEE FOR LATIN AMERICA AND THE CARIBBEAN

18<sup>th</sup> Session

San José, Costa Rica, 19-23 November 2012

#### PROJECT DOCUMENT

### PROPOSAL FOR NEW WORK ON A CODEX REGIONAL STANDARD FOR YACON (*Smallanthus sonchifolius* [Poeppig & Endlicher] H. Robinson)

*Presented by Argentina*

#### 1. The purposes and scope of the standard

This document advocates the development of a standard for the tuberous roots (as reserves or for storage) of the yacon plant (*Smallanthus sonchifolius* [Poeppig & Endlicher] H. Robinson) of the Asteraceae (Compositae) family, which are supplied fresh to consumers after appropriate preparation.

The standard has the objective of assessing the characteristics of yacon roots to be consumed fresh in the countries of the region.

#### 2. Its relevance and timeliness

In view of the ongoing increase in the production of and trade in yacon in the region, standards need to be established to regulate identity and quality in all their aspects, i.e. the nutritional value, safety, health and hygiene of this tuber crop, and constitute an agreed frame of reference for a regional consensus among the main countries producing and trading it. Moreover, the development of a Codex standard for yacon will help to protect consumer health and promote fair trade practices in line with current international agreements.

Yacon is a plant domesticated in the Andes and it is thought that it spread northwards and southwards from the humid mountains of Peru and Bolivia along the moist Andean slopes and dry inter-Andean valleys and the Peruvian coast. There are plant-like drawings from the Nazca culture (500–1200 A.D.), which are found on textiles and ceramics and are thought to be yacon.

Yacon has been cultivated since pre-Inca times in many scattered places throughout the Andes, from Ecuador to northwestern Argentina (Salta and Jujuy Provinces). Until recently, it was mainly grown for household consumption and only seldom for the market. In the past 30 years, yacon cultivation has spread to other continents: thus, it was introduced into New Zealand in 1982, and from there to Japan in 1985. It is currently grown in Brazil, Korea, the Czech Republic, Russia, Taiwan and some places in the United States.

In New Zealand, Japan, Korea and Brazil, yacon has already appeared on supermarket shelves as an innovative dietary food. Its presence has also been reported in the Czech Republic, and for some years in the United Kingdom, with positive results in terms of marketing.

So far as the countries of the region are concerned, the crop is grown and used in Argentina, with a production area corresponding mainly to the temperate valleys of Salta and Jujuy Provinces and the extreme south of the Humahuaca Ravine, inasmuch as a major agroindustry has developed in Chorrillos-Barcena in the south of the ravine, based on the rehabilitation and optimization of this plant.

It is therefore felt that yacon has a promising future in regional and international trade.

It is a high-yield crop (producing an average of 30 tonnes per hectare), and its cultivation has developed from a marginal activity into an excellent income-generating alternative for farmers, especially family farmers, which in turn fosters development of the household economies of producers in the Andean and adjacent regions.

Yacon can be consumed fresh, in juices, extracts or capsules, and in cooked dishes. The properties of yacon make it a perfect food for diabetics and people on diets.

It is constituted for the most part of water and carbohydrates. The body cannot absorb the sugars it contains, which are called inulin and oligofructose, and are very low in calories, which means that it can contribute to a healthy diet in line with the World Health Organization's Recommendations regarding Nutrition, Physical Activity and Health, with a view to reducing the incidence of non-communicable diseases.

### **3. The main aspects to be covered**

The standard will cover aspects connected with identity, quality in all its aspects (i.e. nutritional value, safety, health and hygiene), size and labelling, with a view to supplying a product with acceptable characteristics and protecting consumer health. To this end, the standard will focus on:

- establishing minimum requirements for the tubers, including parameters for quality categories and other conditions;
- defining categories to classify yacon tubers according to their characteristics;
- establishing quality tolerances;
- establishing provisions that must be taken into account with regard to standardization of the packaged product and the containers used;
- establishing provisions concerning the labelling and tagging of the product in line with the General Standard for the Labelling of Prepackaged Foods;
- establishing provisions on contaminants, which will refer to the General Standard for Contaminants and Toxins in Foods;
- establishing hygiene provisions, which will refer to the Recommended International Code of Practice–General Principles of Food Hygiene.

### **4. An assessment against the *Criteria for the establishment of work priorities***

#### **General criterion**

Protection of the consumer in terms of health and the prevention of fraudulent practices. The quality of the product must meet the consumer's needs and the minimum requirements regarding food safety. Development of the standard for yacon should be of benefit to developing countries in the Andean region in particular, inasmuch as they are the main producers, exporters and consumers.

#### **Criteria applicable to commodities**

##### *a) Volume of production and consumption in individual countries and pattern of trade between countries*

The precise production and consumption volumes in the individual countries are not known, although it is assumed that estimates of these points will be incorporated as the project progresses.

It is known that in Argentina yacon is grown at altitudes of between 1 000 and 2 500 metres in the northwest of the country, with a production area corresponding to the temperate valleys of Salta and Jujuy Provinces and the extreme south of the Humahuaca Ravine, inasmuch as a major agroindustry has developed in Chorillos-Barcena in the south of the ravine, based on the rehabilitation and optimization of the plant.

It is a more important crop in Bolivia than Argentina, but there is also a lack of information on the areas under cultivation and the volumes produced.

It is widespread in Peru, adapting easily to coastal environments, but also to inter-Andean valleys and high-altitude forest up to 3 200 metres above sea-level. The zones with the greatest tradition of its cultivation are found in the north (Cajamarca, Amazonas, Piura and Ancash) and also in the south (Cuzco, Apurimac, Ayacucho and Puno). The area under cultivation for commercial purposes was estimated at 600 hectares in 2002.

In recent years, its cultivation has developed from a marginal activity into an excellent income-generating alternative for farmers. Its presence in large quantities on Peru's domestic market is a result of various factors, including the spread of information on the nutritional benefits of the dietetic sugars present in considerable quantities in this tuber, and also the perception that it is a useful food for diabetics. It is therefore anticipated that in the years ahead, the industry will absorb more of the fresh tubers in order to produce honey, syrup, flakes, flour etc., and more leaves to produce infusions. This non-traditional use of yacon has considerably increased its importance as a commercial crop.

A work published in 2007 indicated that there were almost 250 hectares under yacon in Peru.

##### *b) Diversification of national legislations and apparent resultant or potential impediments to international trade*

No regional impediments are currently known, given the small volume of trade in this tuber. However, this work would provide specific recognized standards with a view to boosting international trade in a typical South American product.

The interest of entrepreneurs and countries as expressed during various seminars and other events, and the greater knowledge of this food, its pleasant, sweet taste and its nutritional and health benefits, all indicate that its consumption and trade are bound to increase.

Moreover, importing countries require application of good practices with regard to all plant products supplied to them from third countries.

Given that no international standard exists for yacon and no work in this regard is being undertaken by other organizations, it is considered necessary and timely that a Codex standard be established in order to combine the criteria into a single internationally acceptable regional standard.

In this way, possible impediments to trade will be reduced and a full juridical framework will be provided, stipulating the minimum acceptable standards for yacon at the regional and international levels.

*c) International or regional market potential*

An increase in trade on international markets has been observed over recent years. Peru in particular has considerably developed the production and processing of yacon-based products, as can be seen from the tables and diagrams below.

**Peru: evolution in yacon exports**

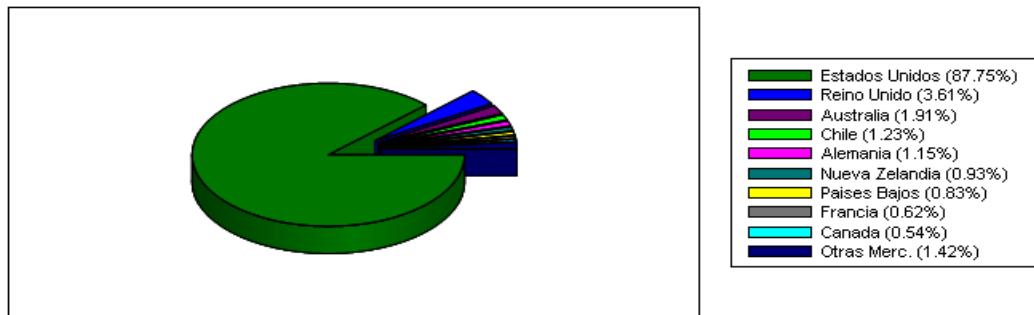
Year	FOB value US\$	Gross volume kg	Average unit value US\$/kg	Percentage variation FOB value	Percentage variation gross volume kg
2001	20 386.10	3 771.87	5.40		
2002	151 918.30	19 764.96	7.69	645.21	424.01
2003	33 525.37	2 847.62	11.77	-77.93	-85.59
2004	99 656.01	11 936.79	8.35	197.26	319.18
2005	81 113.77	7 266.08	11.16	-18.61	-39.13
2006	160 411.05	19 341.11	8.29	97.76	166.18
2007	196 749.45	18 384.90	10.70	22.65	-4.94
2008	331 367.64	30 557.06	10.84	68.42	66.21
2009	351 089.22	25 094.08	13.99	5.95	-17.88
2010	628 572.52	40 810.52	15.40	79.03	62.63
2011	1 094 835.56	59 985.55	18.25	74.18	46.99
2012	827 713.93	44 217.23	18.72	-24.40	-26.29
	<b>3 977 347.92</b>	<b>283 977.77</b>	<b>14.01</b>		

\*Note: June 2012. The information shown is a rough preliminary version produced in June, but subject to updating.

Source: SUNAT.

Developed by PROMPERU.

### Peru: exports of yacon to its main markets in 2011

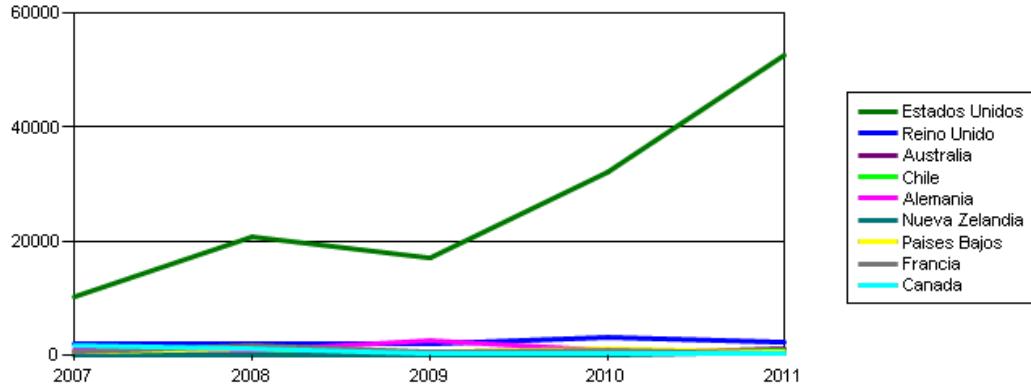


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United States (87.75%)  
United Kingdom (3.61%)  
Australia (1.91%)  
Chile (1.23%)  
Germany (1.15%)  
New Zealand (0.93%)  
Netherlands (0.83%)  
France (0.62%)  
Canada (0.54%)  
Other markets (1.42%)

Source: SUNAT  
Developed by PROMPERU

### Peru: evolution in yacon exports to its main markets 2007–2011



\* Sólo se consideran las presentaciones que hayan registrado exportaciones en el 2011

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United States  
United Kingdom  
Australia  
Chile  
Germany  
New Zealand  
Netherlands  
France  
Canada

\*Only reports that recorded exports in 2011 are considered.

Source: SUNAT.  
Developed by PROMPERU

**Peru: evolution in yacon exports to its main markets 2007–2012**

	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>United States</b>	10 163.16	20 872.04	16 957.37	32 034.27	52 635.36	40 641.71
<b>United Kingdom</b>	2 027.83	2 087.87	1 983.22	3 163.65	2 164.48	914.71
<b>Australia</b>	634.20	444.00	251.91	262.69	1 147.78	426.04
<b>Chile</b>	212.00	318.00	346.42	334.73	738.13	399.58
<b>Germany</b>	809.68	802.24	2 616.52	972.63	691.51	178.04
<b>New Zealand</b>	8.58	0.86	0.00	0.00	556.00	0.00
<b>Netherlands</b>	629.45	1 094.25	696.78	1 231.13	500.77	35.13
<b>France</b>	584.83	1 702.31	720.85	783.53	371.08	11.74
<b>Canada</b>	1 757.75	1 185.66	166.87	315.34	326.34	116.88
<b>Czech Republic</b>	29.81	238.24	44.73	292.93	185.84	457.15
<b>Sweden</b>	0.00	0.00	78.29	119.01	166.27	0.00
<b>Norway</b>	0.00	0.00	46.78	374.19	106.52	243.00
<b>Argentina</b>	0.00	26.09	0.00	25.50	99.57	152.67
<b>Spain</b>	31.30	0.00	205.38	54.37	71.42	0.00
<b>South Africa</b>	0.00	20.00	0.00	109.25	54.19	0.00
<b>Mexico</b>	0.00	0.00	65.00	60.82	53.52	0.00
<b>Switzerland</b>	151.00	0.01	32.70	9.57	49.16	11.46
<b>Japan</b>	1 187.08	1 003.03	760.06	212.36	45.84	177.00
<b>Italy</b>	78.98	62.85	0.00	0.00	21.70	0.00
<b>Slovenia</b>	0.00	0.00	0.00	0.00	0.07	276.90
<b>Costa Rica</b>	0.00	0.00	0.00	143.67	0.00	3.65
<b>South Korea</b>	0.00	6.10	25.60	0.00	0.00	0.00
<b>Belgium</b>	21.25	0.00	0.00	0.00	0.00	0.00
<b>Aruba</b>	0.00	0.00	0.00	10.50	0.00	0.00
<b>Austria</b>	50.00	0.00	0.00	0.00	0.00	0.00
<b>Poland</b>	0.00	0.00	0.00	103.39	0.00	0.00
<b>Portugal</b>	0.00	0.00	26.90	0.00	0.00	0.00
<b>El Salvador</b>	0.00	6.97	5.16	0.00	0.00	0.00

	2007	2008	2009	2010	2011	2012
Taiwan	0.00	0.15	0.00	0.00	0.00	0.00
Netherlands Antilles	0.00	0.00	7.42	0.00	0.00	11.65
Venezuela	0.00	0.00	0.00	13.64	0.00	0.00
British Virgin Islands	7.00	0.00	0.00	0.00	0.00	0.00
Israel	0.00	0.00	0.00	0.00	0.00	0.33
Ireland	0.26	0.00	0.00	0.00	0.00	159.60
Hong Kong	0.00	0.00	1.25	0.00	0.00	0.00
Guatemala	0.00	684.24	52.84	0.00	0.00	0.00
Ghana	0.00	1.31	0.00	0.00	0.00	0.00

● ○ 5 years Every year

#### d) Amenability of the commodity to standardization

The characteristics of yacon from sowing through to harvesting, the characteristics of the tuber, varieties of cultivar, composition, quality and packaging would support the establishment of appropriate parameters with a view to standardizing the product. Some characteristics are summarized below, such as the botanical definition and the environmental conditions for yacon production.

Yacon (*Smallanthus sonchifolius* [Poeppig & Endlicher] H. Robinson), syn. *Polymnia sonchifolia* Poeppig & Endlicher, tribe Millieriae, subfamily Asteroideae, family Asteraceae (Compositae) is a perennial plant, growing to a height of 1.5 to 3 metres, with a root system composed of 4 to 20 fleshy tuberous storage roots that are generally fusiform and can reach a length of 25 centimetres and a diameter of 10 centimetres, and also an extensive system of thin fibrous roots.

There are various forms of tuber, for example white, orange and purple, with a wide variation within each of these.

Yacon is an erect, herbaceous plant that can reach heights of between 0.7 and 2.0 metres, with a few or many branches. It has two types of root, the main ones being tuberous, swollen, fusiform or ovate, which store sugars in the form of fructooligosaccharides. These are the parts of the plant of economic interest and they have a cream-coloured, whitish or purple exterior. The colour of the pulp depends on the cultivar and can be white, orange, cream or purplish. The number of roots per plant ranges from 3 to 35, with an average of 12. The plant also produces some thin, fibrous, unswollen roots that have a fixation and absorption function.

As harvest-time approaches, the plant forms an irregular mass of parenchymatous storage tissue between the stems and the roots, with numerous buds that give rise to sprouts known as "stock". This organ provides the "seed" or traditional propagation material in the form of portions of the stock that are propagules for planting; in other words, propagation of yacon is mainly vegetative.

The stems are cylindrical, somewhat hollow like canes, hairy, and green or stained with purple. Depending on the cultivar, there are between 4 and 12 stems. The plant may have branches from the base of the stem or only in the upper part. The leaves are simple and petiolate with a generally serrate edge. The blade is triangular, with a hastate, truncate or cordate base, and has hairs on its surface. Each stem produces 13 to 16 pairs of leaves before flowering, and as the plant reaches harvest-time, the leaves become smaller and fewer. The flowers are arranged in capitula, in which the female flowers are ligulate and are positioned on the edges; there are 12 to 16 of these and they are bright yellow or pale orange in colour. The male flowers are tubular and are found in the centre of the capitulum. Each male flower is made up of a bundle of stamens. They produce seeds in small quantities and with a low germinative power (15 to 20 percent). The fruit is an achene.

Fresh yacon roots contain 29 to 83 percent water, 0.4 to 2 percent proteins and 20 percent sugars, especially inulin (fructose polymer).

The dry roots contain 4 to 7 percent ash, 6 to 7 percent proteins and 65 percent sugars and potassium.

The dry leaves contain chlorogenic acid, tryptophan and various phenols derived from caffeic acid.

Yacon roots have traditionally been used to quench thirst. There are reports that *chasquis* (Inca-era messengers) would carry the root in their knapsacks to meet their needs for water and certain electrolytes, and this makes sense, considering that the root contains a high percentage of water, sugars and vitamin K.

The leaves have hypoglycaemic properties (helping to lower glucose levels in the blood) and also lipolytic properties (helping to lower cholesterol levels in the blood). They also have a moderate hypotensive effect, so that they are often used as a supplement in treating patients with type II diabetes and/or dyslipidemia and hypertension.

*e) Coverage of the main consumer protection and trade issues by existing or proposed general standards*

There is no general product standard regarding yacon. The new work will boost consumer protection and facilitate trade in yacon by establishing an internationally recognized regional quality standard.

*f) Number of commodities that would need separate standards, indicating whether raw, semi-processed or processed*

A single standard for yacon will cover all the varieties marketed in the world.

*g) Work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies)*

No national standards have been drawn up for yacon.

## **5. Relevance to the Codex strategic objectives**

Development of a Codex standard for yacon is in line with the strategic objective of promoting the widest application of Codex standards by countries in their national legislation, and also facilitating international trade. The present proposal is based on scientific considerations and will help in stipulating minimum quality requirements for yacon intended for human consumption with a view to protecting consumer health and ensuring fair practices in the food trade. The proposal corresponds to Activity 1.2 of the Strategic Plan 2008–2013 (Review and develop Codex standards and related texts for food quality).

## **6. Information on the relation between the proposal and other existing Codex documents**

The proposal refers to a new regional standard and has no relation to any other existing Codex text on this subject. However, the standard will refer to relevant related standards and texts drawn up by General Subject Committees. There is no comparable standard for yacon drawn up by any world body.

## **7. Identification of any requirement for and availability of expert scientific advice**

Information generated by the national research working group responsible for producing a detailed description of yacon was used as reference material in drawing up the present document. If any further information is needed while the standard is being defined, this group or other groups of experts can therefore be consulted.

## **8. Identification of any need for technical input to the standard from external bodies, so that this can be planned for**

No need for technical input on the subject from external bodies is anticipated.

## **9. The proposed time-line for completion of the new work, including the start date, the proposed date for adoption at Step 5, and the proposed date for adoption by the Commission**

DATE	PROGRESS AND STEPS
36 <sup>th</sup> CAC (July 2013)	The Commission approves development of a standard for yacon, as a new work.
19 <sup>th</sup> CCLAC (2014)	Work at Steps 3/4. An electronic working group open to the countries, working in 2 languages. Proposal for adoption at Step 5 or, if there is agreement on the contents, its accelerated treatment 5/8 would be recommended in the Commission in 2015.
20 <sup>th</sup> CCLAC (2016)	2 <sup>nd</sup> stage if necessary. Work at Steps 6/7. Electronic working group open to countries, working in 2 languages.
40 <sup>th</sup> CAC (2017)	Adoption at Step 8 by the 40 <sup>th</sup> CAC.

**SPANISH ONLY****ANNEX**

<b>This Annex is for information only and is not part of the Project Document</b>
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**ANTEPROYECTO DE NORMA REGIONAL DEL CODEX  
PARA LA RAÍZ TUBEROSA DE YACÓN  
[*Smallanthus sonchifolius* (Poepp. & Endl.) H. Robinson].**

**1. DEFINICIÓN DEL PRODUCTO**

Esta Norma se aplica a las variedades y/o tipos comerciales de raíces reservantes de yacón obtenidas de *Smallanthus sonchifolius* (Poepp. & Endl.) H. Robinson, de la familia Asteraceae, que habrán de suministrarse frescas al consumidor, después de su acondicionamiento y envasado. Se excluye el yacón destinado a la elaboración industrial.

**2. DISPOSICIONES RELATIVAS A LA CALIDAD****2.1 REQUISITOS MÍNIMOS**

En todas las categorías, a reserva de las disposiciones especiales para cada categoría y las tolerancias permitidas, el yacón deberá estar:

- entero;
- bien formado;
- sano, deberán excluirse los productos afectados por podredumbre, moho o deterioro que hagan que no sean aptos para el consumo;
- limpio, y prácticamente exento de cualquier materia extraña visible, excepto aquellas sustancias permitidas que prolonguen su vida útil;
- exento o prácticamente exento de plagas que afecten al aspecto general del producto;
- exento o prácticamente exento de daños causados por plagas;
- exento de humedad externa anormal, salvo la condensación consiguiente a su remoción de una cámara frigorífica;
- exento de cualquier olor y/o sabor extraños;
- exento o prácticamente exento de daños mecánicos y magulladuras;
- exento de pérdida de color en la pulpa.

Además, tener consistencia firme y no presentar daños por heladas o escaldaduras.

2.1.1 El yacón deberá haber alcanzado un grado apropiado de desarrollo fisiológico, teniendo en cuenta las características de la variedad y la zona en que se produce.

El desarrollo y condición del yacón deberá ser tal que le permita:

- soportar el transporte y la manipulación; y
- llegar en estado satisfactorio al lugar de destino.

**2.2 CLASIFICACIÓN**

El yacón se clasifica en tres categorías, según se definen a continuación:

**2.2.1 Categoría “Extra”**

El yacón de esta categoría deberá ser de calidad superior y característico de la variedad y/o tipo comercial. No deberá tener defectos, salvo defectos superficiales muy leves siempre y cuando no afecten al aspecto general del producto, su calidad, estado de conservación y presentación en el envase.

**2.2.2 Categoría I**

El yacón de esta categoría deberá ser de buena calidad y característica de la variedad y/o tipo comercial. Podrán permitirse, sin embargo, los siguientes defectos leves, siempre y cuando no afecten al aspecto general del producto, su calidad, estado de conservación y presentación en el envase:

- Defectos leves de forma;
- Heridas o daños cicatrizados, siempre y cuando no superen el 5% de la superficie del producto;
- Raspaduras, siempre y cuando no superen el 10% de la superficie del producto.

En ningún caso los defectos deberán afectar a la pulpa del producto.

### 2.2.3 Categoría II

Esta categoría comprende el yacón que no puede clasificarse en las categorías superiores, pero satisface los requisitos mínimos especificados en la Sección 2.1. Podrán permitirse, sin embargo, los siguientes defectos, siempre y cuando el yacón conserve sus características esenciales en lo que respecta a su calidad, estado de conservación y presentación:

- Defectos de forma;
- Heridas o daños cicatrizados, siempre y cuando no superen el 10% de la superficie del producto;
- Raspaduras, siempre y cuando no superen el 20% de la superficie del producto.

En ningún caso los defectos deberán afectar a la pulpa del producto.

## 3. DISPOSICIONES RELATIVAS A LA CLASIFICACIÓN POR CALIBRES

El yacón, de acuerdo a sus características de peso y diámetro se puede clasificar en:

Clasificación	Diámetro mayor (cm.)	Peso (g)
Calibre 1	> 7	> 300
Calibre 2	≥ 5	≥ 120
Calibre 3	< 5	< 120

Todos los calibres pueden tener las formas siguientes: fusiforme, oval u aovada e irregular. Algunos cultivares de yacón tienen tendencia a formar un número mayor de raíces lisas y simétricas que otros.

## 4. DISPOSICIONES RELATIVAS A LAS TOLERANCIAS

En cada envase se permitirán tolerancias de calidad y calibre para los productos que no satisfagan los requisitos de la categoría indicada.

### 4.1 TOLERANCIAS DE CALIDAD

#### 4.1.1 Categoría "Extra"

El 5%, en número o en peso, de yacón que no satisfaga los requisitos de esta categoría pero satisfaga los de la Categoría I o, excepcionalmente, que no supere las tolerancias establecidas para esta última.

#### 4.1.2 Categoría I

El 10%, en número o en peso, de yacón que no satisfaga los requisitos de esta categoría pero satisfaga los de la Categoría II o, excepcionalmente, que no supere las tolerancias establecidas para esta última.

#### 4.1.3 Categoría II

El 10%, en número o en peso, de yacón que no satisfaga los requisitos de esta categoría ni los requisitos mínimos, con excepción de los productos afectados por podredumbre o cualquier otro tipo de deterioro que haga que no sean aptos para el consumo.

### 4.2 TOLERANCIAS DE CALIBRE

Para todas las categorías, el 5%, en número o en peso, de yacón que corresponda al calibre inmediatamente superior y/o inferior al indicado en el envase.

## 5. DISPOSICIONES RELATIVAS A LA PRESENTACIÓN

### 5.1 HOMOGENEIDAD

El contenido de cada envase deberá ser homogéneo y estar constituido únicamente por yacón del mismo origen, variedad y/o tipo comercial, calidad y calibre. La parte visible del contenido del envase deberá ser representativa de todo el contenido.

## 5.2 ENVASADO

El yacón deberá envasarse de tal manera que el producto quede debidamente protegido. Los materiales utilizados en el interior del envase deberán ser nuevos<sup>1</sup>, estar limpios y ser de calidad tal que evite cualquier daño externo o interno al producto. Se permite el uso de materiales, en particular papel o sellos, con indicaciones comerciales, siempre y cuando estén impresos o etiquetados con tinta o pegamento no tóxico.

El yacón deberá disponerse en envases que se ajusten al Código Internacional de Prácticas Recomendado para el Envasado y Transporte de Frutas y Hortalizas Frescas (CAC/RCP 44-1995).

### 5.2.1 Descripción de los Envases

Los envases deberán satisfacer las características de calidad, higiene, ventilación y resistencia necesarias para asegurar la manipulación, el transporte y la conservación apropiados de yacón. Los envases deberán estar exentos de cualquier materia y olor extraños.

## 6. MARCADO O ETIQUETADO

### 6.1 ENVASES DESTINADOS AL CONSUMIDOR

Además de los requisitos de la Norma General del Codex para el Etiquetado de Alimentos Preenvasados (CODEX STAN 1-1985), se aplicarán las siguientes disposiciones específicas:

#### 6.1.1 Naturaleza del Producto

Cada envase deberá etiquetarse con el nombre del producto, y podrá etiquetarse con el nombre de la variedad o cultivar.

### 6.2 ENVASES NO DESTINADOS A LA VENTA AL POR MENOR

Cada envase deberá llevar las siguientes indicaciones en letras agrupadas en el mismo lado, marcadas de forma legible e indeleble y que sean visibles desde el exterior, o bien en los documentos que acompañan el embarque.

#### 6.2.1 Identificación

Nombre y dirección del exportador, envasador y/o expedidor. Código de identificación (facultativo)<sup>2</sup>.

#### 6.2.2 Naturaleza del Producto

Nombre del producto si el contenido no es visible desde el exterior. Nombre de la variedad o cultivar (facultativo).

#### 6.2.3 Origen del Producto

País de origen y, facultativamente, distrito donde se produjo o nombre nacional, regional o local del lugar.

#### 6.2.4 Especificaciones Comerciales

- Categoría;
- Calibre;
- Peso neto.

#### 6.2.5 Marca de Inspección Oficial (facultativa)

## 7. CONTAMINANTES

7.1 El producto al que se aplica las disposiciones de la presente Norma deberán cumplir con los niveles máximos de la Norma General del Codex para los Contaminantes y las Toxinas presentes en los Alimentos y Piensos (CODEX STAN 193-1995).

7.2 El producto al que se aplica las disposiciones de la presente Norma deberán cumplir con los límites máximos de residuos de plaguicidas establecidos por la Comisión del Codex Alimentarius.

## 8. HIGIENE

8.1 Se recomienda que el producto regulado por las disposiciones de la presente Norma se prepare y manipule de conformidad con las secciones apropiadas del Código Internacional Recomendado de Prácticas - Principios Generales de Higiene de los Alimentos (CAC/RCP 1-1969), Código de Prácticas de Higiene para Frutas y Hortalizas Frescas (CAC/RCP 53-2003) y otros textos pertinentes del Codex, tales como códigos de prácticas y códigos de prácticas de higiene.

8.2 El producto deberá ajustarse a los criterios microbiológicos establecidos de conformidad con los Principios para el Establecimiento y la Aplicación de Criterios Microbiológicos a los Alimentos (CAC/GL 21-1997).

<sup>1</sup> Para los fines de esta Norma, esto incluye el material recuperado de calidad alimentaria.

<sup>2</sup> La legislación nacional de algunos países requiere una declaración expresa del nombre y la dirección. Sin embargo, en caso de que se utilice un código, habrá de indicarse la referencia "envasador y/o expedidor" (o a las siglas correspondientes) directamente relacionados con el código.