

# codex alimentarius commission



FOOD AND AGRICULTURE  
ORGANIZATION  
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Agenda Item 9(c)

CX/LAC 08/16/13  
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## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

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

#### 16<sup>th</sup> Session

Acapulco, Mexico, 10-14 November 2008

### PROPOSAL FOR THE DEVELOPMENT OF A REGIONAL STANDARD FOR QUINOA

#### BACKGROUND

1. The 15<sup>th</sup> Session of CCLAC (November 2006) considered a request from the Delegation of Bolivia to develop a standard for quinoa. The Delegation informed the Committee that this product has a growing international market and was an important commodity for market access in the Andean region. The Committee supported work on standardization of “quinoa”. To this purpose, it agreed to set up an electronic Working Group led by Bolivia with the assistance of Cuba, Ecuador, Mexico and Peru to study available Codex documentation with a view to determining the appropriateness to develop a Standard for this product for consideration by the next session of the Committee.<sup>1</sup>
2. The project document containing the justification for the development of a regional standard for quinoa and other relevant information related to this commodity is attached to this document. The Committee is invited to consider the opportunity to develop a regional standard for such a product.

<sup>1</sup> ALINORM 07/30/36, para 132.

**PROJECT DOCUMENT FOR A  
CODEX REGIONAL STANDARD FOR QUINOA  
(*Chenopodium quinoa*, Willd.)**

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

To have a Codex standard that sets out requirements for “grain quinoa” to provide consumers with a wholesome and quality product.

The standard applies to varieties, cultivars and ecotypes of quinoa produced ecologically (biologically or organically) or conventionally, whose grains are destined for human consumption.

**2. Relevance and timeliness**

Quinoa (*Chenopodium quinoa*, Willd.) is a grain that has been cultivated in the Andean region for 5 000 years and was a food staple of the ancient civilizations of that region. It offers great potential for improving the living conditions of the rural population of the Andes and the modern world. It is one of few crops that can adapt to climate and soil conditions under which other crops cannot grow. It can be cultivated up to 4 000 metres above sea level (m.a.s.l.).

It is a product that is not only valued for consumption by Andean populations but that also has a growing international market. Data from Bolivia’s INFOQUINUA show the following export trend in recent years:

COUNTRY	2003		2004		2005		2006	
	VOLUME (Kg)	VALUE (\$US)	VOLUME (Kg)	VALUE (\$US)	VOLUME (Kg)	VALUE (\$US)	VOLUME (Kg)	VALUE (\$US)
France	764730	974628.4	949045	1218934.95	1230681	1653477.65	1688232	2219216.78
United States	1011156.25	1034470.03	930902.21	976012.08	1456090.92	1572473.87	2004218.61	2226771.05
Netherlands	595810	682832.76	921119	1031078.65	1123685.08	1278844.53	1434450	1606250
Germany	187000	183890	289500	318965	255181	301801.28	674390	867130.16
Israel	39000	41900	106000	119995	133600	155171.39	215400	227320
Belgium	20000	19850	40000	38800	140000	137250	100000	107750
Japan	42000	44447	238155.54	325350.89	83160	97721.05	101014.17	114196.47
United Kingdom	9100	9100	30573.8	33549.43	63396	76390.33	118978	150555.4
Canada	49343.65	42283.2	31008.2	28627.88	46901.4	55042.54	87640	109386.68
Brazil	0	0	900	901.5	38232	50397	67575.12	49198.4
Ecuador	0	0	0	0	44000	33880	0	0
Chile	8174	6015	20603.23	19492.54	31579.44	27889.91	49209.6	57460
Denmark	0	0	10000	13815	20000	25009	20000	20818
Ireland	0	0	0	0	20000	22535	0	0
Argentina	36278	6732.04	53458	15913.48	40596.26	19667.94	0	0
Malaysia	8000	8160	3000	3060	16500	16830	24500	28380
Italy	1300	1560	10000	10250	13500	14200	10000	11275.99
New Zealand	0	0	8000	8640	5710	9831	17248	18020
Colombia	12000	10790	14400	13101	7006.64	6569.2	27517.36	35817.01
Spain	7791.5	9435.87	43820	34644.23	0	0	47058	7135.24
<b>TOTAL</b>	<b>2791683.4</b>	<b>3076094.3</b>	<b>3700484.98</b>	<b>4211131.63</b>	<b>4769819.74</b>	<b>5554981.69</b>	<b>6707430.86</b>	<b>7877499.18</b>

### **Nutritional importance**

The nutritional importance of quinoa is noteworthy. Compared to traditional cereals, it contains twice the level of high-quality proteins, given that it possesses the eight essential aminoacids required for human development, especially children and women of reproductive age.

Quinoa also has an exceptional balance of proteins, fat, oil and starch. It has a high protein content as the embryo constitutes a large portion of the seed. Average protein content in the grain is 16%, but can rise to 23%, more than double any other cereal. In addition, the proteins contained are close to the percentage advocated by FAO for human nutrition. Quinoa proteins have a high level of aminoacids, lysine, methionine and cystine. The grain contains between 58 and 68% starch and 5% sugars, which in turn contain about 20% amylase and form gelatins between 55 and 65°C. The fat content is between 4 and 9%, half of which contains linoleic acid, essential for the human diet. It contains a high level of calcium and phosphorus. From the food and nutrition point of view, the grain is therefore a natural and economical source of plant protein.

### **Production areas**

Bolivia is the major producer of quinoa, accounting for 46% of global production, followed by Peru with 42%, and the remaining 12% corresponding to localized highland production in other Latin American countries.

Quinoa is cultivated from southern Colombia to northern Argentina, throughout the Andean region, with “valley” quinoa (2 000 to 2 800 m.a.s.l.) and “highland” quinoa (2 800 to 4 000 m.a.s.l.) those most valued because of their larger size than those grown at lower altitudes.

In Bolivia, sweet quinoa is found in communities of the northern altiplano (department of La Paz) and the central altiplano (departments of La Paz and Oruro) with a cultivated area of about 15 000 hectares. Royal quinoa is grown in the southern altiplano of the country (low average temperatures of 10°C and annual rainfall of 400 mm), particularly in the area around the saltflats of Coypasa and Uyuni, in the departments of Oruro and Potosi, with a cropped area of about 40 000 hectares. There are estimated to be about 70 000 quinoa producers in Bolivia.

### **3. Main aspects to be covered**

- Definitions
- Classification by grain size and quality grade
- Designation of grain by class and grade
- Organoleptic requisites
- Bromatological requisites
- Microbiological requisites
- Contaminant content
- Conditions of hygiene
- Packaging
- Labelling

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

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

Reports of Bolivia’s Ministry of Rural Development and Environment for the 2007-2008 cropping season estimate that some 50 000 hectares were cultivated nationally. The largest proportion of quinoa production (60%) is currently in the southern altiplano (near the saltflats of Coipasa and Uyuni) in the departments of Oruro and Potosi.

The quinoa cropped area for 2001 was 33 928 hectares throughout the Bolivian altiplano, with a production of 21 739 metric tonnes and an average yield of 641 kg/ha (SINSAAT-2003). The latest statistics for quinoa indicate that a total of 39 500 ha were sown in 2005/2006, producing an annual output of 26 900 tonnes and an average yield of 681 kg/ha. (INE, 2007).

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

Bolivia is an important world producer and exporter of quinoa, which is traded by producer organizations and private companies.

There does not appear to be any specific legislation on the international trade of quinoa.

c) International or regional market potential

France, USA and Netherlands are currently the main purchasers of quinoa, although other markets are opening up in Asia and other European and Latin American countries.

Aggregate exports from producer countries (Bolivia, Peru and Ecuador in order of importance and presence on the international market) are estimated at 12 000 metric tonnes, for a value upwards of 15 million US dollars.

According to information from the National Institute of Statistics of Bolivia, the country's exports in 2006 were valued at 9 million US dollars.

It is important to note that 20% of those exports are sourced from ecological production.

d) Amenability of the commodity to standardization

It is important to work on the standard for quinoa grain, as a main product and as an ingredient for various derived products currently marketed, including quinoa flour, flakes and others.

Quinoa grain is also used as a raw material for the production of energy bars, mixed-cereal foods and other derived products.

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

The main issue in food safety and consumer protection is determining maximum limits for saponin, a contaminant specific to quinoa.

With regard to trade, there are classifications for grain size and quality (grade).

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

In 2007, the Andean Community of Nations, made up of Bolivia, Colombia, Ecuador and Peru, approved the first voluntary Andean standards on quinoa and derived products as follows:

NB/NA 0032:2007	Andean grains – Pseudocereals – Grain quinoa – Definitions
NB/NA 0038:2007	Andean grains – Pseudocereals – Grain quinoa – Classification and requisites
NB/NA 0039:2007	Andean grains – Pseudocereals – Quinoa flakes – Requisites

The above standards determine quality and safety requisites for the marketing of these products within the Andean Community of Nations.

## 5. Relevance to the Codex strategic objectives

- Develop a sound regulatory framework establishing essential characteristics and requirements of safety and quality to safeguard consumer health and nutrition. It also sets guidelines for the international trade of quinoa.
- Contribute to the sustainable use of resources and their enhanced use.
- Develop mechanisms that help reduce rural poverty and improve the food security of producers and consumers.

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

The proposed formulation of the standard links in with the following general standards:

CODEX STAN 1	General Standard for the Labelling of Prepackaged foods
CAC/RCP 1	Recommended International Code of Practice – General Principles of Food Hygiene
CAC/GL 32	Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods

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

Experts from the PROINPA Foundation, the institution responsible for the conservation of germplasm banks under Bolivia's National System of Genetic Resources for Food and Agriculture (SINARGEAA).

Through SINARGEAA, the PROINPA Foundation has been charged by the Bolivian State with overseeing the National Bank of High Andean Grain Germplasm, of which quinoa is one of the most important grains.

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

Determination of contaminant limits for the specific case of saponin in quinoa.

**9. Proposed time-line for completion of the new work**

CCLAC (2008)	CCLAC considers the proposal for the development of a regional standard for quinoa and recommends the Commission the approval of this proposal as new work for the Committee.
CCEXEC/CAC (2009)	CCEXEC recommends the Commission to approve the development of a regional standard for quinoa. The Commission endorses this recommendation.
CCLAC (2010)	CCLAC considers the proposed draft standard at Step 4 y recommends the Commission to adopt the document at Step 5*.
CCEXEC/CAC (2011)	CCEXEC considers the proposed draft and recommends the Commission to adopt the document at Step 5. The Commission endorses this recommendation.
CCLAC (2012)	CCLAC considers the draft standard at Step 7 and recommends the Commission to adopt the document Step 8.
CCEXEC/CAC (2013)	CCEXEC considers the draft standard and recommends the Commission to adopt the document at Step 8. The Commission endorses this recommendation: Adoption of the Codex Regional Standard for Quinoa.

\* The CCLAC may consider, depending on the degree of consensus, to recommend adoption of the proposed draft at Step 5/8, with omission of Steps 6/7, in order to finalize the work in 2011.