



Food and Agriculture
Organization of
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World Health
Organization

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CRITICAL REVIEW FOR THE ELABORATION OF CODEX STANDARDS AND RELATED TEXTS

PROPOSALS FOR THE ELABORATION OF NEW STANDARDS AND RELATED TEXTS

BACKGROUND

1. This document includes late proposals for new work.
2. The Executive Committee is invited to make recommendation to the Commission as to whether or not to undertake new work in the light of the *Strategic Plan 2014-2019* and the *Criteria for the Establishment of Work Priorities and for the Establishment of Subsidiary Bodies*.

CONCLUSION AND RECOMMENDATIONS

3. The project document submitted by Bolivia generally complies with the requirements described in the Procedural Manual and the *Criteria for the Establishment of Work Priorities and for the Establishment of Subsidiary Bodies*. The proposed new work falls within the TORs of the Committee on Cereals, Pulses and Legumes (CCCPL), which is adjourned sine die.
4. **CCEXEC is invited to recommend that** CAC38 approves the new work proposal and reactivates the Committee on Cereals, Pulses and Legumes (CCCPL) to work by correspondence to develop a worldwide Standard for Quinoa.
5. It is understood that CCCPL will limit its work on this standard and it will be adjourned sine die when this work is completed.

PROJECT DOCUMENT:
CODEX STANDARD FOR QUINOA

Prepared by Bolivia

BACKGROUND

The National Codex Committee of Bolivia, thanks the Codex Alimentarius Commission, its Executive Committee and the Codex Committee on Cereals, Pulses and Legumes for their interest, and is pleased to submit the following document proposing the development of a draft Codex standard for quinoa grain (*Chenopodium quinoa* Willd).

Quinoa (*Ch. quinoa* Willd), known as “the golden grain”, is a traditional crop which has been grown by indigenous peoples for thousands of years in the extensive Andean altiplano, including large areas of Bolivian territory. Quinoa is produced at an altitude of between 2 500 and 4 000 m above sea level, on arid and semiarid land. It is highly resistant to harsh climatic and atmospheric conditions, tolerating temperatures of -4 to -8 °C during the flowering period and -10 °C while the grains are in the milk stage. For these reasons, quinoa is well adapted to conditions in the Andean altiplano, where it has been cultivated by indigenous peoples for centuries as a staple food crop.

According to the Food and Agriculture Organization of the United Nations (FAO) and the Latin American Integration Association (ALADI), world trade in quinoa rose by approximately 135 million dollars in 2012. Trade in this product is at present highly concentrated, in terms of both origin and destination. 82.4 percent of world exports are from ALADI members, in particular from three Andean countries: Bolivia, Ecuador and Peru. The other significant exporters are the United States (9.8 percent) and the European Union (7.5 percent), although in these two cases a large proportion of the sales are re-exports.

Quinoa production, trade and consumption have expanded significantly over recent years. This has been reflected in sustained growth of the area under cultivation, production, and export volumes and values to a number of markets, in particular to high-income countries such as the United States of America, Canada, France and Germany.

At the same time, in some traditional producer and consumer countries, such as Bolivia, Peru and Ecuador, and to a lesser extent Chile, Argentina and Colombia, there has been a renewed interest in quinoa and quinoa derivatives.

This renewed interest results stems from a number of factors, ranging from a reassessment of the ethical and cultural value of a crop which is ancestral in this area of the world, to considerations of nutritional value, as quinoa has been identified a product that can meet growing consumer demand for healthy foods.

The growing demand for quinoa and agro-industrial quinoa derivatives in high-income countries is linked to a more general trend in consumption patterns. There is an increased demand for foods which have a high nutritional value, are known to be safe and healthy, and have certain special features, for example, as organic products or as representative of a valued cultural tradition.

1. PURPOSE AND SCOPE OF THE STANDARD

The purpose of the proposed standard is to establish the requirements to be met by processed (treated) quinoa grain, intended for trade.

The scope of the proposed standard would include quinoa varieties, cultivars and ecotypes, the grain of which is destined for human consumption, and trade in this grain. It would not include grain for sowing or for other purposes.

2. RELEVANCE AND TIMELINESS

Several Codex members have concerns about health and fair trade practices affecting the international trade in perishable and non-perishable goods. This can result in restrictions or prohibitions, especially when a product is not the subject of an internationally respected standard.

For this reason, Bolivia proposes the development of a quinoa grain Codex standard, to reflect the growing international trade in this product. This standard will certainly be of interest to producer countries such as Peru, Ecuador, Colombia, Mexico, Argentina and Chile, and to importing countries such as the United States of America, Canada, France, the Netherlands, Germany, Brazil, Denmark, Malaysia, Italy, Japan, Spain, Israel, Singapore and Switzerland, among others.

Quinoa is highly regarded on various markets for its high nutritional value, and is in increasing demand in the international food trade.

3. MAIN ASPECTS TO BE COVERED

The main objective of the development of the standard is to:

- Establish the minimum requirements for the safety and quality of quinoa grain, which must be fulfilled regardless of the quality of the product.
- Define the categories in which the quinoa can be classified according to its size and colour.
- Include the requirements for homogeneity in package and packing methods to be considered.
- Define the information that must appear when marking and labelling the package, according to the guidelines established by the Codex Alimentarius Commission.
- Refer to the Codex provisions on food safety and hygiene applicable to the handling of food products.

4. ASSESSMENT AGAINST THE CRITERIA FOR THE *ESTABLISHMENT OF WORK PRIORITIES*

a. Volume of production in various countries and trade between countries

Figure one, below, sets out the growth in production, which reached 61 182 tonnes in the crop year 2012/13, a volume directly linked to the area given over to production of 131 192 ha. There has been a significant expansion in Bolivia over the last 30 years.

FIGURE 1. Area under quinoa cultivation, production and yield in Bolivia.

Crop year	Area (ha)	Production (tonnes)	Yield (kg/ha)
1983/84	32 609	16 204	497
1984/85	35 284	16 245	460
1985/86	35 804	17 100	478
1986/87	36 928	17 362	470
1987/88	39 322	17 221	438
1988/89	34 187	14 686	430
1989/90	37 147	16 928	456
1990/91	39 898	23 245	583
1991/92	38 681	16 904	437
1992/93	38 386	20 097	524
1993/94	38 196	19 465	510
1994/95	35 396	18 371	519
1995/96	37 463	23 498	627
1996/97	38 648	26 390	683
1997/98	37 920	19 047	502
1998/99	35 291	22 538	639
1999/00	35 844	23 157	646
2000/01	35 690	22 589	633
2001/02	37 262	23 786	638
2002/03	38 878	24 595	633
2003/04	40 487	24 721	611
2004/05	43 553	26 785	615
2005/06	46 316	27 739	599
2006/07	48 897	28 231	577
2007/08	50 356	28 809	572
2008/09	52 411	29 873	570
2009/10	63 010	36 106	573
2010/11	64 789	38 291	591
2011/12	96 544	50 566	524
2012/13	131 192	61 182	466

Source: Ministry of Rural Development and Land, compiled by: Unit for Production Analysis

For Peru, the following figures have been reported for the area under cultivation in recent years.

FIGURE 2. Area under quinoa cultivation in Peru

Year	Area under cultivation
2012	40 042 ha
2013	50 000 ha

Quinoa is also known to be produced in various countries around the world including:

- Colombia: Crops are grown in communities in the departments of Cundinamarca, Boyacá, Cauca and Nariño.
- Chile: There are crops in the Colchane commune of the Chilean altiplano, and in the dry coastal areas of Region VI O'Higgins and Region VII Maule.
- Argentina: There are crops in the northwest of the country, extending from La Quiaca in Jujuy to the Salar de Antofalla in Catamarca.
- Elsewhere in South America, trials are being run in Brazil, Uruguay, Paraguay and Venezuela.
- United States of America: Quinoa is produced in the states of Colorado and Nevada.
- Canada: Quinoa is produced on the Ontario Prairies.

Elsewhere in the world, quinoa production is being introduced in Denmark, France, Finland, Tanzania, Morocco, China, Mongolia, New Zealand, Kenya and the Himalayas.

b. Diversification of national legislations and apparent resultant or potential impediments to international trade

It is necessary to develop a quinoa standard, in order to have an international standard that can be used to prevent technical barriers to international trade, and as a means of protecting the consumer health and guaranteeing fair trade.

While there is no specific national legislation on quinoa, there have been reports that the general standards for cereals or other non-quinoa products have been applied to transactions involving quinoa, and it appears that in some countries quinoa is still not clearly identified because of the lack of any international standard.

c. International or regional market potential

Promotional campaigns in 2012 crop year, declared the "International Year of Quinoa", led to an increase in demand for the product, on the basis of its nutritional value.

c.1 Nutritional value

Quinoa's nutritional value is determined by its high protein content, which lies between 13.81 and 21.9 percent, depending on the variety. Quinoa is regarded as a food source from the plant kingdom that provides all essential amino acids.

In the following table, the nutritional value of quinoa is compared with that of meat, eggs, cheese and milk.

FIGURE 3: Comparison of the nutritional value of 100 g of quinoa

Components (%)	Quinoa	Meat	Eggs	Cow's Milk	Human Milk
Proteins	13	30	14	3.50	1.80
Fats	6.10	50	3.20	3.50	3.50
Carbohydrates	71				
Iron	5.20	2.20	3.20	2.50	
Calories	350	431	200	60	80

Source: Food industry report, 2009. Ministry of Rural Development and Land BOLIVIA.

Comparison of the profile of essential amino acids in quinoa and other selected crops, based on the FAO scoring pattern for children aged three to ten years (g/100 g proteins).

FIGURE 4. Comparison of the nutritional value of 100 g of quinoa

Amino acid	FAO (a)	Quinoa (b)	Maize (b)	Rice (b)	Wheat(b)
Isoleucine	3	4.9	4	4.1	4.2
Leucine	6.1	6.6	12.5	8.2	6.8
Lysine	4.8	6	2.9	3.8	2.6

			2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
			Official	Official	Official	Official	Official	Official	Official	Official	Official	Official	
CODE	NANDINA		Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	Weight [Tn.]	
TOTAL EXPORTS			4.871	7.750	10.585	10.429	14.522	15.558	20.366	26.201	35.063	29.785	
		MEXICO					0						
		NETHERLANDS	1.129	1.447	2.366	1.465	2.188	1.938	2.273	1.487	2.400	1.634	
		NEW ZEALAND	9	20	35	15	12						
		NICARAGUA								0,011			
		PARAGUAY									20		
		PERU		112	136	96	46	43		1		1	
		SINGAPORE					9	15				20	
		SOUTH AFRICA				16	12		10	8			
		SPAIN	7	31	13	5	10	30	33	102	419	619	
		SWAZILAND			2	6							
		SWEDEN			60	40	60	20	99	81	60	113	
		SWITZERLAND	15	51	77	46	109	93	52	31	32	55	
		THAILAND										12	22
		UCRAINA										19	
		UNITED KINGDOM	68	122	264	134	250	258	487	371	468	282	
UNITED STATES	1.465	2.024	2.657	4.151	6.517	7.720	10.655	16.516	21.481	17.938			
VENEZUELA										0	14		
1008509000 Total											35.063	29.785	
1008901100	QUINUA (CHENOPODIUM QUINOA) FOR PLANTING	BRAZIL						19					
		CHILE	0										
		UNITED STATES						20					
1008901100 Total			0					39					

Peruvian quinoa exports indicate the same trends and growth (figure 6):

Figure 6. Trends in Peruvian quinoa exports

Importers	2012	2013
	Quantity exported in tonnes	Quantity exported in tonnes
Total exports	10 548	18 593
United States of America	6 943	9 972
Canada	592	1 621
Australia	447	1 311
United Kingdom	202	1 083
France	93	652
Netherlands (Holland)	210	650
Germany	443	605
Israel	380	553
Brazil	229	477
Italy	251	403
New Zealand	130	275
Japan	101	156
Russian Federation	22	137
Switzerland	72	96
Mexico	24	85
South Africa	40	74
India	1	56
Uruguay	25	50
Ecuador	82	49
Thailand	0	48
Poland	0	40

Importers	2012	2013
	Quantity exported in tonnes	Quantity exported in tonnes
Spain	30	33
Chile	85	32
China, Hong Kong SAR	1	27
Venezuela (Bolivarian Republic of)	0	22
Turkey	33	20
Lebanon	21	19
Costa Rica	1	8
Singapore	0	6
United Arab Emirates	1	4
China	0	2
Denmark	0	2
Panama	18	1
Argentina	20	0
Belgium	42	0
Colombia	0	0
Malta	8	0
Switzerland	2	0

Ecuador reports the following figures:

Figure 7. Trends in Ecuadorian quinoa exports

Importers	2013
	Quantity exported in tonnes
Total exports	110
United States of America	107
Czech Republic	2
France	1

d. Amenability of commodity to standardization

The characteristics that determine the commercial quality of quinoa, for example, the definition of the quinoa grain, classification by grain size or quality etc. are all amenable to standardization. These criteria have already been harmonized at a regional level (for example, in the Andean Community), and to some extent at an international level (for example, by ISO), as well as in some countries that import and export quinoa. These standards could be used as a basis to develop a global harmonized standard, reflecting the needs of other countries/regions where necessary (see also point 6).

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

There is no product standard that could serve as a reference for trade quality requirements among the standards developed by the Codex Alimentarius, nor among those being developed (see also point 6).

f. Number of commodities which would need separate standards including whether raw, semi-processed or processed

The proposal is to develop one (1) standard, specifically for QUINOA GRAIN.

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

- The Andean Community of Nations (CAN) has adopted the following technical standards as regards quinoa:
 - NA 0032 Andean grain – quinoa grain - definitions
 - NA 0038 Andean grain – quinoa grain – classification and requirements
- The International Organization for Standardization (ISO) has a general standard for grain, which includes a definition of quinoa:
- ISO 5526:2013 Cereals, pulses and other food grains – Nomenclature

Similarly, a number of countries are known to have begun to develop standards for this product at a national level.

5. RELEVANCE TO THE CODEX STRATEGIC OBJECTIVES

The proposal for the elaboration of a standard for quinoa is in line with the following strategic objectives of the Codex Strategic Plan 2014-2019:

- **1.2 Proactively identify emerging issues and Member needs and, where appropriate, develop relevant food standards.** Achieved by the identification of new products which are internationally traded and need to be standardized in order to guarantee food safety and fair trade in quinoa.
- **3.1 Increase the effective participation of developing countries in Codex.** Through a new proposal from a developing country.

6. INFORMATION ON THE RELATION BETWEEN THE PROPOSED AND OTHER EXISTING CODEX DOCUMENTS

There is no Codex product standard for quinoa. The horizontal rules on food safety drafted by the Codex general subject committees relevant to foods and/or cereals, will usually apply.

7. IDENTIFICATION OF ANY REQUIREMENT FOR AND AVAILABILITY OF EXPERT SCIENTIFIC ADVICE

Experts on quinoa will take part via national delegations or observer organizations in Codex.

8. IDENTIFICATION OF ANY NEED FOR TECHNICAL INPUT FROM EXTERNAL BODIES

No need for technical input from external bodies has been identified. If necessary, the relevant organizations will be able to take part in the development of the standard through their status as Codex observers.

9. PROPOSED TIMELINE

It is suggested that the proposal for the Codex Committee on Cereals, Pulses and Legumes to take on this new project should be adopted at the 38th Session of the Codex Alimentarius Commission. Development of the standard would be expected to take four years or less, depending on the degree of consensus in discussion of the standard at an international level.