



International Cookbook
for Quinoa:
Tradition and innovation



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Quinoa

a future sown
thousands of years ago

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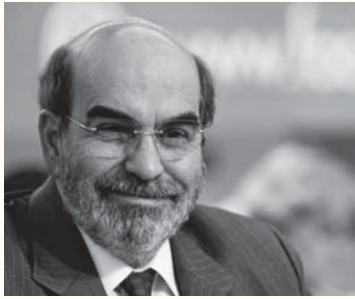
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To the personnel of FAO worldwide who supported the different stages of this publication.

To the Spanish Agency for International Development Cooperation (AECID) for supporting the production and printing of this cookbook.



FAO's mission is to achieve food security for all and to ensure that all persons have regular access to high-quality food that will enable them to lead active, healthy lives.

There are 842 million people in the world who are suffering from hunger. It is difficult to imagine such a number: one in every eight persons. Such a figure is beyond the understanding of most people, yet that is the number of men, women and children in the world who are faced with hunger every day.

We cannot just sit back and accept this as yet another statistic.

Instead, we must rise against this reality, join forces and fight.

This cookbook does not therefore celebrate a food; it recruits a new ally in the fight against hunger: quinoa.

As we see it, there can be no sustainable development in the world when millions of people suffer from hunger.

Thus, the United Nations General Assembly declared the year 2013 as the "International Year of Quinoa", at the initiative of the Bolivian Government, in recognition of ancestral practices of living in harmony with nature and preserving quinoa in its natural state as a food for present and future generations.

This book retrieves traditional recipes from all parts of the world. They are easy to prepare, inexpensive, healthy and nutritious. They highlight quinoa as a food crop that possesses essential amino acids, trace elements and vitamins for life.

Quinoa also has an extraordinary capacity of adaption to different agroecological environments. Depending on the variety or ecotype, it can be grown in relatively humid areas, in highlands and lowlands, and can withstand both very high and very low temperatures.

Faced with the challenge of raising the production of quality food in a context of climate change, quinoa emerges as an option for those countries that are affected by food insecurity.

That is why FAO has published this cookbook as part of the International Year of Quinoa, with the support of Chefs Against Hunger.

Quinoa's richness resides not only in the grains of its coloured panicles. Its value also lies in the accumulated know-how of the Andean people, which has served to preserve its many varieties, to improve its yield and to develop a gastronomy centred on quinoa.

That is the true wealth we stand to gain from "a future sown thousands of years ago".

José Graziano da Silva
Director-General of FAO





As an essential feature of Andean culture and way of life, the indigenous populations cultivated, improved and preserved - using traditional practices and in harmony with nature - a grain of high nutritional value known in the Aymara language as Jiwara, Jupha or, today, as quinoa.

For centuries quinoa was found on the table of the most humble households. I remember, for example, that when I was a boy there was always quinoa in my home. Until recently it was in fact a food of the native

Andeans, of those who could only feed themselves with what they grew with their own hands. I was particularly fond of a dish called phisara, which converted quinoa into soft fluffy cotton, sometimes seasoned with salt, cheese or sugar.

This golden grain, as it is now called, saved the lives of our grandparents, our fathers and mothers, preventing them from dying of hunger in times of drought.

I myself am an example of how quinoa can overcome poverty and make us strong.

From the quinoa that I was given as a child I found energy and health, despite the hardships.

Capitalism trades on the hunger of the people. Many foods are unaffordable for most people. The transnational corporations convert food into commodities that are quoted on the stock exchange. They create eating habits and products that earn them profits without paying attention to quality or to people's health. To make matters worse, many of these companies even control the provision of seeds and thereby assault the cultural heritage of local populations and of humanity.

Quinoa is an alternative for food security and food sovereignty because it is easy to grow, it adapts well to arid soils and because it requires little water and is resistant to pests and drought.

I can therefore well understand why the United Nations General Assembly declared 2013 as the International Year of Quinoa. We must conserve this golden grain, given to us by our indigenous populations, as an emblematic food for fighting hunger in the world. This cookbook presented today illustrates the infinity of possibilities that are offered by quinoa to satisfy the most demanding of tastes.

¡Kausachum quinua!
¡Jallalla quinua!
¡Viva la quinua!

Evo Morales Ayma

President of the Plurinational State of Bolivia

FAO Special Ambassador for the International Year of Quinoa





*“In this cold land, I sow quinoa of a hundred colours,
of a hundred types, of mighty seed. Those hundred
colours are also my soul, my unmissable eyes”*

José María Arguedas

Through this book, our chefs, gastronomic ambassadors of the Andean diet and in particular of quinoa, join forces with sister countries, under the auspices of FAO, to provide millions of homes with a collection of top nutritional value recipes that add enjoyment and taste to the fight against hunger and malnutrition.

The International Year of Quinoa gives us the opportunity to reassess the work of Andean women and the farming families of our Andes, their know-how and agricultural tradition that have been passed down from generation to generation. Today, those traditions merge with the determination to fight hunger with the help of a food recognized by the United Nations as one of the foods of the future.

Declaring 2013 as the International Year of Quinoa allows us to reappraise quinoa as a product with an ancient tradition, originating in the Lake Titicaca basin which conserves the greatest biological diversity, domesticated by the Andean people for five thousand years, and makes this golden grain universally available as a contribution to world food security.

As FAO Special Ambassador for the International Year of Quinoa, I wish to thank all those individuals and institutions that have contributed to this meeting of the past and the future, of knowledge and colours. Each and every one brings us closer to that promise of a world without hunger and in which well-being is a reality.

Nadine Heredia Alarcón

First Lady of Peru

FAO Special Ambassador for the International Year of Quinoa 2013





Chefs Against Hunger

We all have something to contribute to the fight against hunger. From our respective areas of professional expertise and knowledge, each one of us can offer our time and creativity so that hunger is finally consigned to history.

Chefs Against Hunger is a campaign of the Hunger-Free Latin America and the Caribbean Initiative and FAO set up in 2008 with the participation of renowned international chefs, cooks and food critics, who are committed to improving the nutritional status of the region, with a particular focus on its most vulnerable inhabitants. They are professionals who seek to promote the foods of the region and to encourage their consumption through recipes that are delicious, healthy, nutritious, relatively inexpensive and simple to prepare.

The campaign has amongst its principal achievements the publication of five cookbooks. Three of these focused on typical Latin American foods, namely potato, legumes and maize, while the fourth centred on Chilean sea foods. This fifth cookbook for quinoa, produced in partnership with the Technical Secretariat of the International Year of Quinoa, represents a leap onto the global stage for this commitment of gourmet professionals against hunger.

The Hunger-Free Latin America and the Caribbean Initiative, which spawned Chefs Against Hunger, is a commitment of the countries of Latin America and the Caribbean to eradicate hunger by the year 2025. This regional endeavour involves not only governments, but also parliaments, international and regional organizations, universities, civil organizations, the private sector and society as a whole.

FAO's support to Chefs Against Hunger and to the Hunger-Free Latin America and the Caribbean Initiative has from the outset benefited from the collaboration of the Spanish Agency for International Development Cooperation (AECID).

Further information is available at: <http://www.rlc.fao.org/en/proyecto/iniciativa/chefs>





Introduction

Quinoa, the so-called golden grain, was safeguarded for thousands of years by the inhabitants of the Andean regions of Latin America and has only recently been discovered by the world. In its honour, the United Nations declared 2013 as the International Year of Quinoa.

In doing so, the UN paid tribute to the Andean indigenous peoples who have maintained, controlled, protected and preserved quinoa as a food for present and future generations thanks to their knowledge and traditional way of life in harmony with nature.

But not only this; the United Nations General Assembly also noted the nutritional characteristics of quinoa and its adaptability to different agroecological conditions, properties that, coupled with its low cost of production, make it a strong partner in the fight against hunger and food insecurity

The origin of this cookbook stems from that recognition by the United Nations.

Its purpose is to serve as a means of publicizing quinoa and its benefits beyond its area of origin, to promote its production and consumption throughout the world and thus to reach those countries that suffer most from food insecurity.

With this in mind, FAO resorted to tradition and innovation. Tradition takes the form of everyday recipes of peoples and communities living in the quinoa producing regions of Latin America. The dishes have varied origins, some going back many centuries, others only existing for a few generations.

As for innovation, FAO used the Chefs Against Hunger campaign to contact dozens of chefs around the world and to invite them to present recipes that were inexpensive, healthy, nutritious, and simple to prepare and whose preparation was based on ingredients from their local region. Not an easy challenge. The outcome was 37 recipes with ingredients from all over the world, exotic flavours and varied textures and aromas. Evidence of the versatility of this grain, which can adapt to all cuisines.

This publication combines both types of recipe, traditional and innovative, to offer more than 60 different dishes.

We hope that you will enjoy this cookbook, that you will venture into the wide selection of quinoa flavours and, if you are able, that you will share it with those who can most benefit from it, thereby helping to disseminate this future sown thousands of years ago.

Quinoa and its uses

Quinoa, whose scientific name is “*Chenopodium quinoa* Willd.” is a plant that has existed throughout the Andes for more than 7 000 years. It was an important food in the diet of pre-Columbian civilizations that were responsible for its breeding, conservation and distribution, and for its adaptation to different agroecological zones in the region. Because of its high nutritional value, indigenous peoples and researchers often refer to it as “the golden grain of the Andes”.

Many experts agree that quinoa originated in the area surrounding Lake Titicaca in Peru and Bolivia. Available historical evidence indicates that its domestication by the peoples of America could have occurred between the years 3 000 and 5 000 BC.

The word quinoa comes from the Quechua language and means “mother grain”. At the time of the Incas this grain was considered a sacred food and was used for medicinal purposes.

When the Spanish arrived, quinoa was well developed and widely distributed within and beyond the Inca territory. However, during the conquest quinoa was replaced by cereals, despite being a staple food for the local population at the time, a situation that has only begun to change in recent decades.

The plant and its cultivation

Depending on sowing density, the quinoa plant can grow up to 1 to 3 metres. The seeds can germinate very rapidly, in fact only a few hours after exposure to moisture. The roots can reach depths of up to 30 centimetres. They are pivotal (growing vertically downwards), robust, deep and fairly ramified and fibrous, which makes them resistant to drought and gives them good stability.

The stem is cylindrical, with a diameter of 3.5 centimetres at the plant collar. Its thickness varies between 1 and 8 centimetres. Some varieties have many branches while others have only one main stem.

The leaves have a shape resembling the webbed feet of geese and are varied in colour, from green to red, with different tonalities. They can measure as much

as 15 centimetres in length and 12 centimetres in width. The leaves are covered with crystals (of calcium oxalate) which enable them to capture night moisture, to control excessive transpiration and to avoid overheating from sunlight.

The flowers are very small, reaching a maximum size of 3 millimetres and with no petals. The fruits are round and slightly wider towards the centre.

One of the prominent features of quinoa is its versatility as a crop that can adapt to different climatic and geographical conditions. Depending on the variety or genotype, quinoa can be grown in relatively humid areas, in highlands and lowlands and can withstand very high and very low temperatures. It is also a crop that uses water efficiently and tolerates very low levels of soil moisture.

Quinoa generally needs between 160 and 180 days after sowing before it can be harvested.

Main producers of quinoa

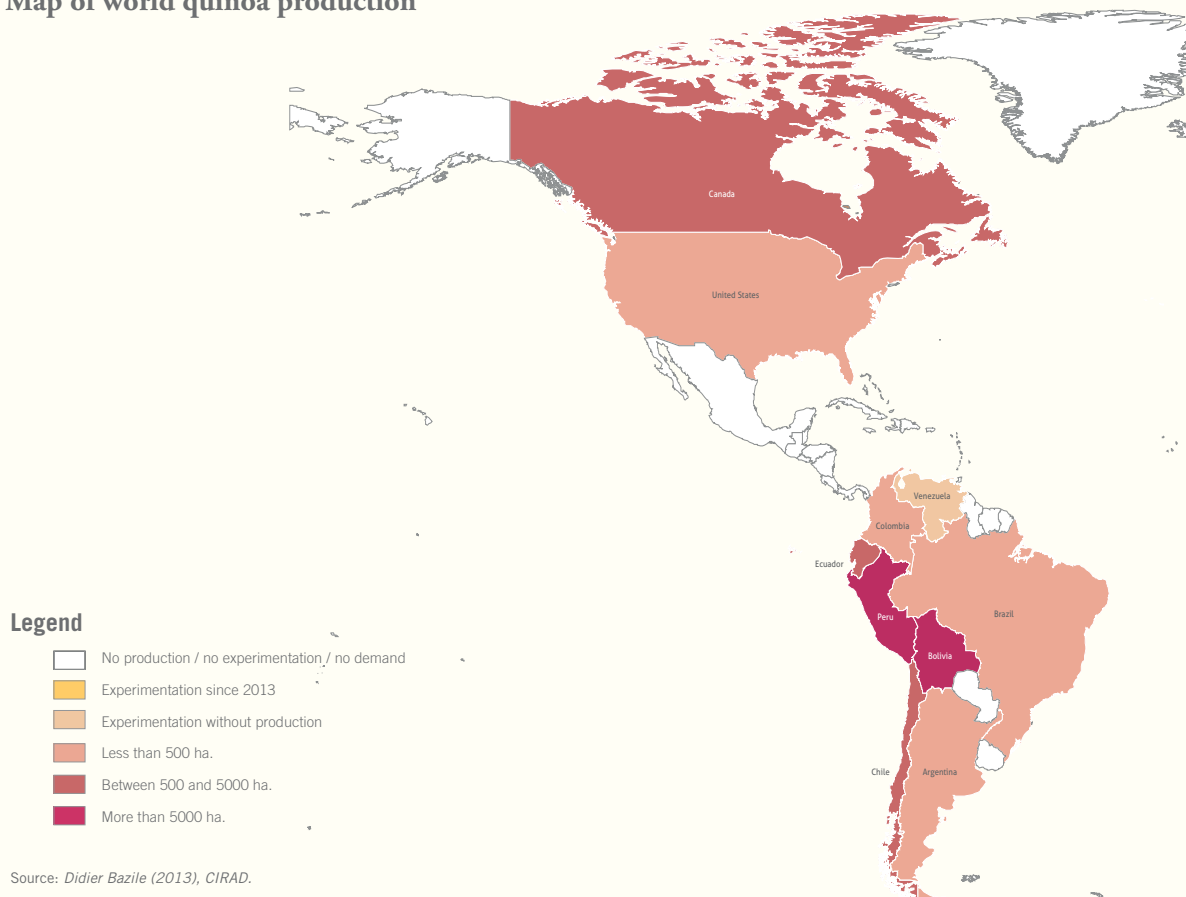
Quinoa is found in native form in all the Andean countries, existing from Colombia (Pasto) to southern Chile. This crop has been developed principally by small producers, generally under organic conditions which gives it special characteristics that are increasingly valued in international trade.

It is estimated that three countries account for more than 80% of global production: Bolivia, Peru and Ecuador. FAOSTAT reports that in 2011 Bolivia had 64 789 hectares sown with quinoa, equivalent to an output of 38 257 tonnes, while Peru had 35 461 hectares, which produced 41 168 tonnes. Ecuador had 1 277 sown hectares, producing 816 tonnes.

There has been a noticeable increase in quinoa production in recent years, especially in the countries that have traditionally been the main producers. According to FAOSTAT, output rose 60% in Bolivia during the period 2000 – 2011, 46% in Peru and 25% in Ecuador.

Quinoa cultivation has crossed continental boundaries. As the map of world quinoa production shows, there are countries outside the Andean region that are producing substantial quantities of quinoa. Moreover, there are data from countries in Asia, Africa and Europe that are working on an experimental basis with quinoa.

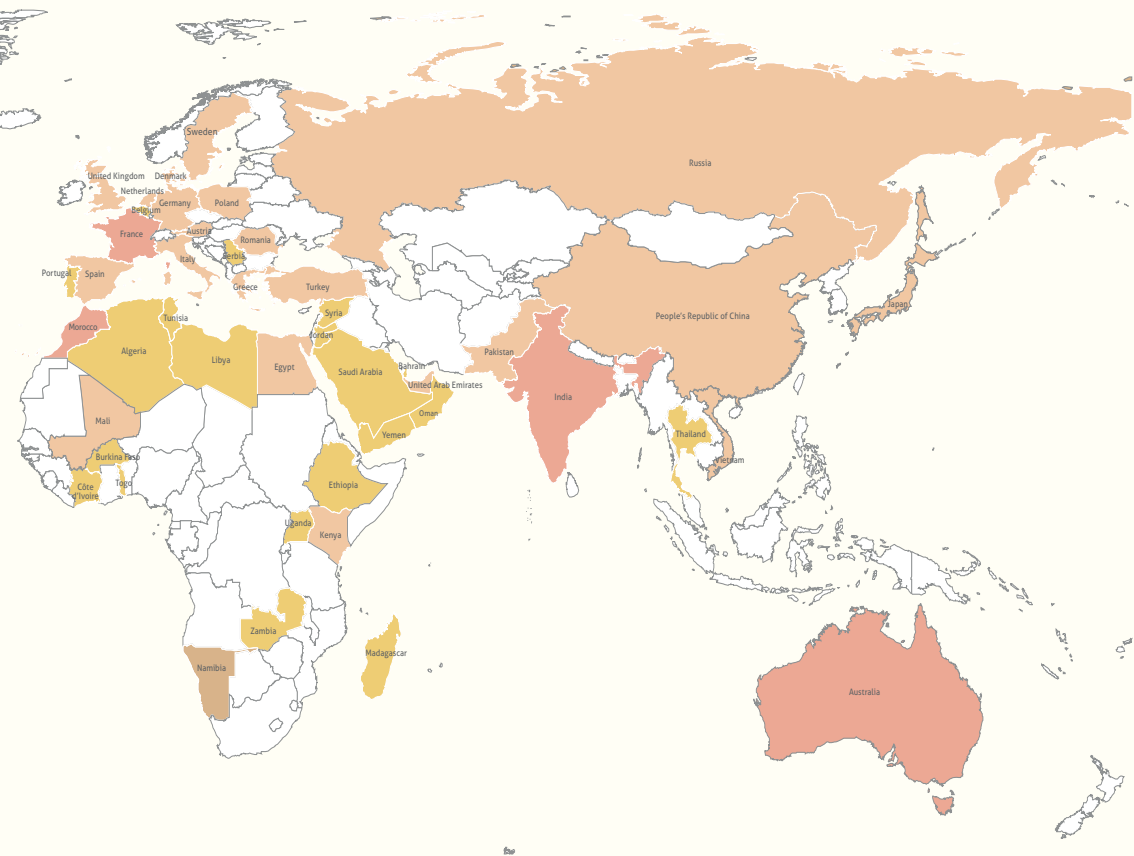
Map of world quinoa production



There are two reasons for the increase in quinoa consumption. On the one hand, rural-urban migration in the Andean countries has transferred to urban centres the habit of consuming quinoa, which is intrinsic to the identity of the rural populations of the production areas, who include quinoa in their diet as a historical legacy from their ancestors. On the other hand, the increase in quinoa consumption is the result of higher demand from the developed countries, such as the United States, Canada, Japan, France and Holland, where sections of the population seek healthy foods and have identified quinoa as being an excellent alternative, with its high quality standards and, especially, its organic production.

Other uses of quinoa

Apart from being a food, quinoa (stem, leaves and grain) has other uses. The whole plant can be used as green forage and the residues from harvesting can be used as animal feed.



The indigenous populations of the Andes have traditionally used quinoa leaves, stems and grains for medicinal purposes, attributing quinoa with properties related to healing wounds, reducing swelling, soothing pain from toothache and disinfecting the urinary tract. Quinoa has also been used for bone setting, in internal bleeding and as an insect repellent.

Research has also revealed a potential use of quinoa in the chemical, pharmaceutical and cosmetic industries. For example, quinoa starch has special potential for industrial use because of its small size in aerosol production, pulps, self-copy paper, dessert foods, excipients in the plastics industry, talcs and anti-offset powder. Also the saponins from the pericarp of bitter quinoa can be used as biopesticide, as has been successfully shown in Bolivia, and potentially in the preparation of detergents, toothpaste, shampoos and soaps.

The nutrition and culinary basics of quinoa

For some people, quinoa is a new and nutritious food recently available at their local supermarket or favourite restaurant as a substitute for many commonly eaten grains. While this may be true in many areas of the world, the native peoples of the Andes region of South America have been using quinoa for thousands of years as a part of their cuisine.

Before you discover the many traditional and gourmet recipes in this book, we would like to present some basic information on why quinoa is considered to have good nutrition, and tips for a few simple ways to prepare it at home.

Quinoa's nutrition profile

What makes quinoa nutritious is its high content of plant protein, fibre, unsaturated fats and minerals. It is also a good source of energy, providing about 222 calories per cup when cooked.

While quinoa is technically a seed, it is often called a pseudo cereal because it is eaten similarly to cereals such as maize, rice and wheat. In comparison with other

1 cup (185 g) of cooked quinoa

Energy	222 kcal
Protein	8.14 g
Total carbohydrates	39.40 g
Dietary fibre	5.2 g
Fat	3.55 g
Iron	2.76 mg
Magnesium	118 mg
Zinc	2.02 mg

Source: *USDA, 2005.*

plant foods, especially the major grains, quinoa stands out primarily because of its protein quality. It contains about eight grams of total protein per cup of cooked quinoa. To appreciate the relevance of this fact, we need to understand that proteins are made up of smaller compounds called amino acids. Eight are considered essential for both children and adults.

While most cereals and legumes are lacking in one or more of the essential amino acids to be considered a complete source of protein, quinoa contains an adequate balance of all eight.

In addition, quinoa is a good source of dietary fibre and polyunsaturated fats. One cup of cooked quinoa contains about five grams of dietary fibre and, when combined with vegetables in a meal, can achieve close to a third of the recommended daily intake of dietary fibre. Dietary fibre is the indigestible portion of plant foods and is important for good digestion and to prevent constipation.

Regarding the fats found in quinoa, over half are essential polyunsaturated fatty acids that maintain their high quality even after harvesting, because of quinoa's significant content of the antioxidant vitamin E.

Quinoa is also known as a good source of iron, magnesium and zinc among plant foods. Lack of iron is one of the most common nutritional deficiencies. Iron is important to good health because it helps to carry oxygen from the lungs to the rest of the body. One cup of cooked quinoa contains about 2.76 mg of iron.

In addition to its mineral content, quinoa is also a good source of B vitamins riboflavin and folic acid.

While quinoa is a good source of many nutrients, it should be consumed as part of a balanced diet to obtain good overall nutrition.

Tips for preparing and cooking quinoa

Quinoa is generally available in pre-packaged containers and in bulk bins in local markets and supermarkets. If buying quinoa from a bulk bin, make sure that the bins containing the quinoa are covered, and that the store has a good product turnover to ensure the quinoa is fresh. If you cannot find it in your local supermarket, look for it in natural food stores.

Store the quinoa grains in an airtight container so that it keeps for longer. Quinoa stored in the refrigerator will keep for three to six months.

When harvested, quinoa contains saponins on the outer layer of its seed. Quinoa saponins are not considered harmful, but they have a bitter taste. Most of the saponins are removed when quinoa is processed prior to being sold, but many people choose to rinse the seeds prior to cooking to remove any remaining bitterness from the saponins. One method is to place the seeds in a strainer and run cold water over the quinoa while gently rubbing the seeds with your hands.

To cook quinoa, add three parts of water for each part of quinoa to a saucepan. After the water begins to boil, reduce the heat to a simmer and cover. One cup of quinoa usually takes about 15 minutes to cook. When the cooking is complete, the quinoa grains turn translucent in colour. If you want the quinoa to have a nuttier flavour, you can try dry-toasting it in a pan over medium-low heat prior to cooking, stirring constantly for about five minutes.

Traditionally, quinoa is added to soups, or is ground into a flour to make beverages, porridge or bread. While it is possible to bake dough made of quinoa flour, this is usually combined with other flours to produce a lighter texture.

