Quinoa: From Indigenous Crop to International Superfood

Matthew Turetsky

UN kicks off 'Year of Quinoa'

Quinoa had its big break in 2013, when the Food and Agriculture Organization of the United Nations (FAO) declared it the International Year of Quinoa, and a flurry of newspaper and scholarly articles talked about this new food. It seemed to appear out of nowhere, and it had wonderful nutritional properties—high protein, essential vitamins and minerals, gluten-free.[1] For its exceptional nutrition and exoticism, people began calling quinoa a "superfood," an idea whose roots date back to marketing campaigns for bananas in the early twentieth century. For several years prior to FAO's announcement, and especially following 2013, consumers in the Global North began adding it to salads for a protein boost, substituting it for rice to eliminate carbs, and experimenting with it in baked goods. And yet, these new consumers hardly knew where it came from, the farmers who cultivated it, what quinoa meant to the farmers before the quinoa boom, and the impact of the food trend on these communities.

A field of quinoa in the Andes

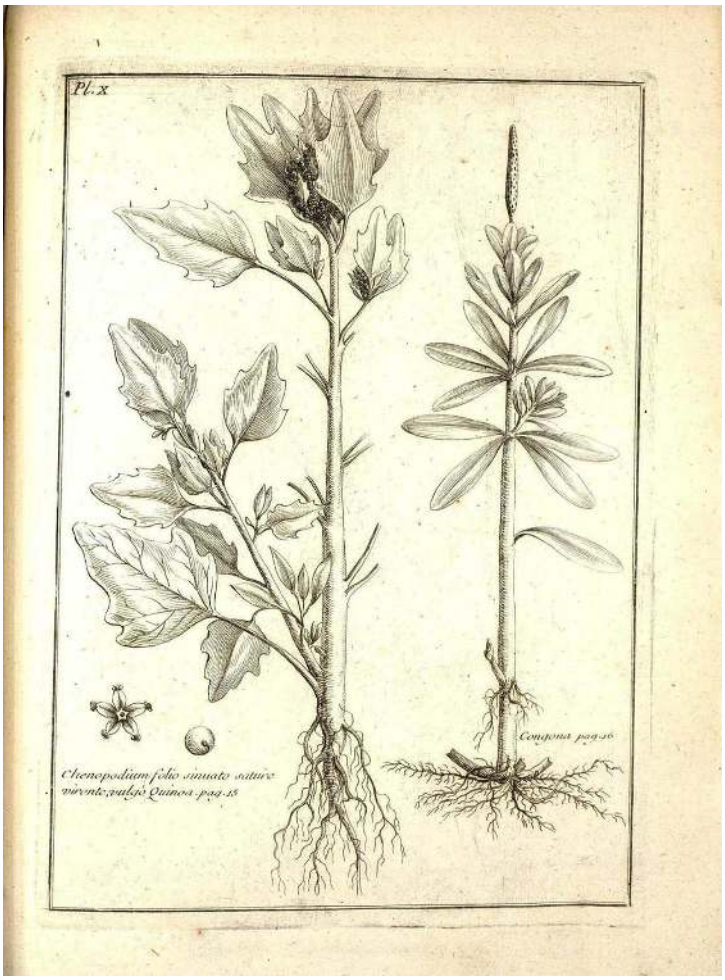
In fact, quinoa has a long history, dating back several thousand years to the Andean region of South America, where it was typically grown as a subsistence food by farmers in what is today Peru, Bolivia, Ecuador, Chile, and Argentina. The quinoa boom has brought new opportunities and challenges to the Andes, making the situation a complex interplay between local farmers, state policies, and international consumer preferences. The anthropologist Emma McDonnell argues that quinoa has become a “miracle crop,” a plant that various groups think can solve myriad problems, but the realities regarding quinoa have been much more tempered than the lofty aspirations of some promoters.[2] Plants are crucial to our diets, and yet we rarely think about how the nutritional interests of one country can impact the nutritional interests of another far away. Understanding how quinoa transformed from an isolated Andean subsistence crop to an international “superfood” is important when considering issues of food justice, sustainability, and the next food trend or diet fad that mythologizes a “forgotten” plant like quinoa.

The Ethnobotany of Quinoa

The word quinoa comes from Quechua, an Indigenous language family spoken in the Andes. Quinoa is in the genus *Chenopodium* or the goosefoot family, so-called because the leaves resemble the three-pointed feet of a goose. Of the nearly 250 species in the *Chenopodium* family, quinoa is the most well-known. Closely related species include lamb's quarters (*Chenopodium album*), a common species of the same genus found around the world and widely considered a weed, and amaranth and spinach, in the same wider family (*Amaranthaceae*).

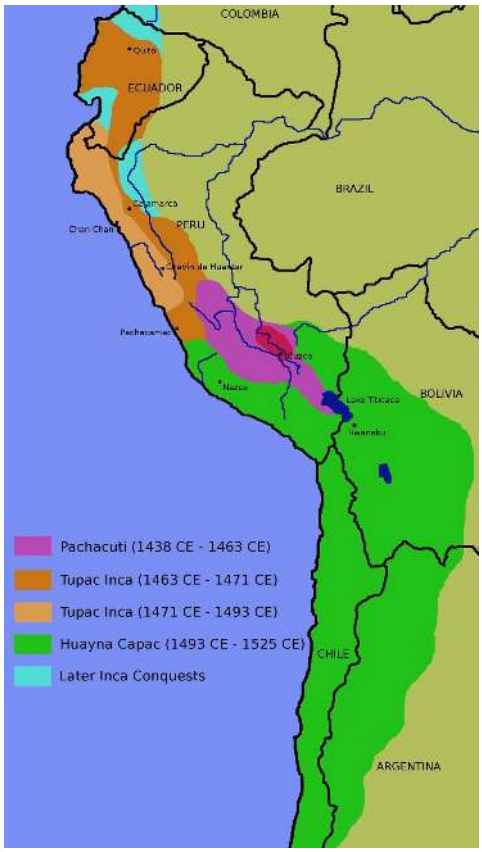
Chenopodium quinoa

In 1725, Louis Feuillée, French botanist, astronomer, and geographer authored the first scientific description of quinoa that included a botanical engraving.[3] Compared with popular images of quinoa today, which highlight large, colorful sprouting quinoa, the engraving makes clear the leaf and root structures; the panicle atop the plant , where the edible seeds grow, is hidden behind the leaves. The late eighteenth century German botanist Carl Ludwig Willdenow, who was likely the first to cultivate quinoa successfully in European gardens, assigned it its binomial taxonomic name *Chenopodium quinoa* in 1798.[4]



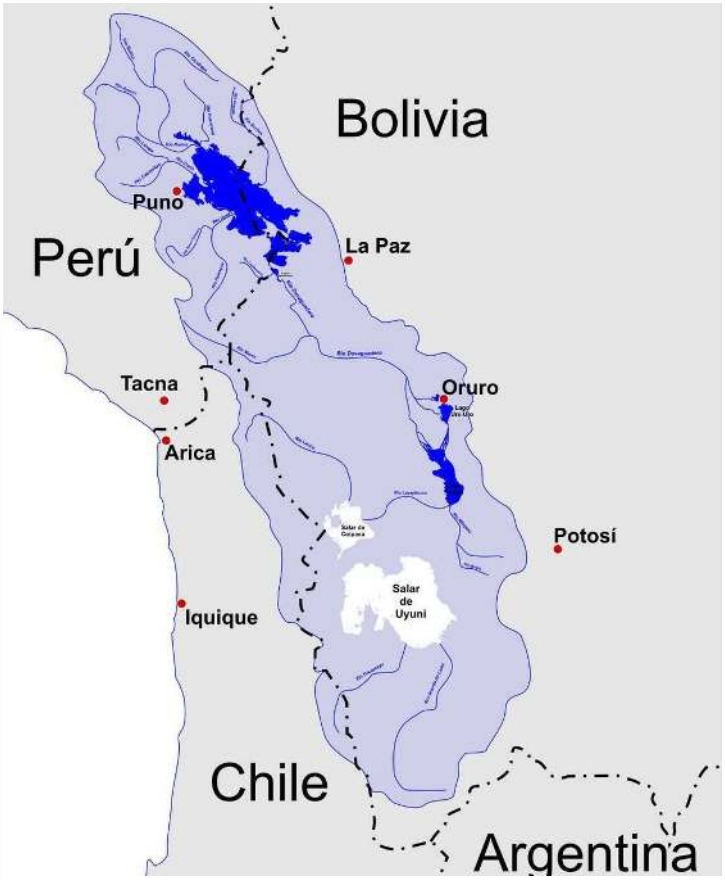
Engraving of Chenopodium quinoa in Feuillée,...

Since quinoa is native to the Andes, popular promotion mostly associates it with the Inca Empire, which the Spanish conquistadors defeated in the mid-sixteenth century. But quinoa was domesticated and important to Andean diets long before that. Quinoa was certainly important to Inca diets, though the extent to which it was central to its culture and cuisine is unclear. The Inca also referred to quinoa as chisiya mama, or Mother Grain.[5]



Inca rulers began expanding t...

Archaeological evidence suggests that quinoa was likely first domesticated more than 5,000 years ago in the altiplano—a high-elevation plateau approximately 3,800 meters above sea level in a region of South America that spans present-day Bolivia and Peru, near Lake Titicaca. The domestication process increased the diversity of quinoa varieties and highlights the important relationship between plants, humans, and animals.[6] Before Andean peoples in the altiplano became large-scale agriculturalists, they were predominately pastoralists, herding llamas and alpacas—two domesticated camelid species. Archaeologists have concluded that camelids would eat the wild species of quinoa, release the seeds in their droppings near herding communities, and wild quinoa seeds would sprout nearby. Over time, ancient Andeans would come to formally cultivate quinoa. It is this relationship between camelids, quinoa, and people that allowed quinoa to be domesticated thousands of years ago.[7]



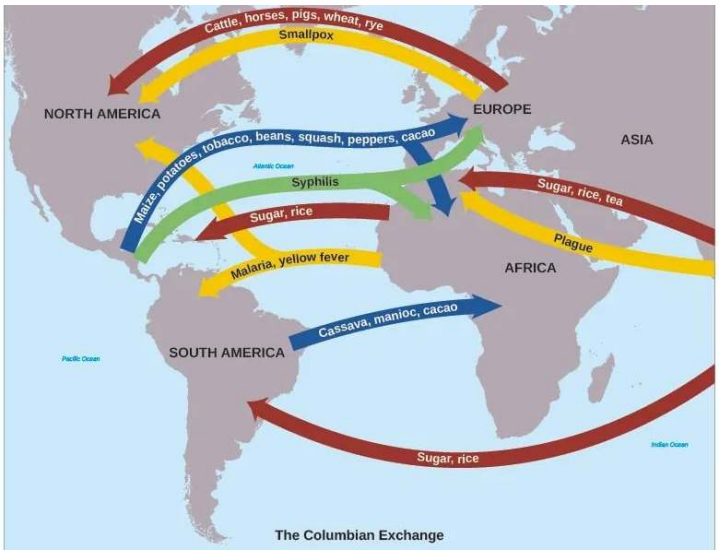
The altiplano, shaded in light blue, is a vast platea...

For centuries, quinoa has been recognized for its exceptional nutritional qualities. Indigenous people also considered it healthy because of its medicinal properties, although Europeans mostly ignored these attributes. The famed sixteenth-century colonial chronicler Inca Garcilaso de la Vega, son of a Spanish conquistador and an Inca noblewoman, explained that “the Indian inhabitants use flour made of quinoa in various illnesses.”[8] Today’s ethnobotanical researchers have documented that quinoa was used to treat broken bones by immobilizing limbs and making poultices.[9] Quinoa was also used in coca chewing, a long-standing tradition among Indigenous Andean peoples to alleviate altitude sickness, fatigue, and hunger. To extract the stimulant properties of coca, Andeans made llipta, an alkaline ash powder often made from quinoa stalks.

Standing figurine chewing coca from the Inca…

Quinoa in the Colonial Period

Spanish colonization in the sixteenth century brought significant changes to farmers growing quinoa. As part of the Columbian Exchange, the Spaniards brought wheat, barley, rice, and other crops from the Old World and introduced them to Andean farming systems. Early colonial policies made Indigenous people pay a tribute tax, which could only be paid in wheat or barley. As the geographer Karl Zimmerer explains, this policy essentially forced farmers to grow less quinoa and more European crops. Nevertheless, despite the impositions of Spanish colonialism, Indigenous people continued to grow quinoa.[10]



Map showing the transfer of important plants,…

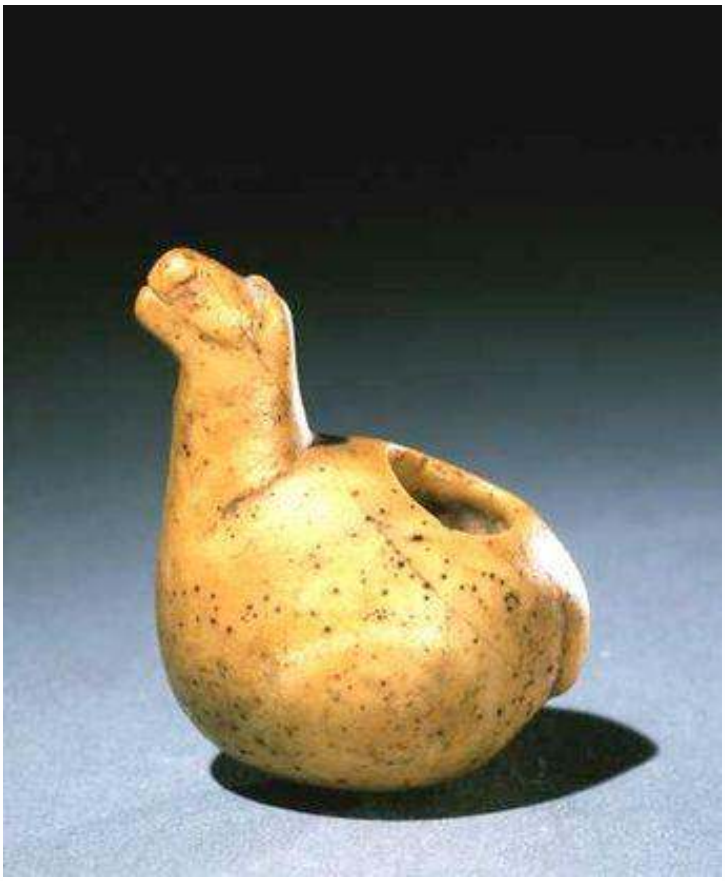
In an illustrated chronicle written in 1615 in the form of a letter to the king of Spain, the Indigenous nobleman Felipe Guaman Poma de Ayala explained the agricultural habits of Indigenous Andeans. Alongside quinoa, they grew potatoes, oca (a tuber), maize, coca, and many other plants. Guaman Poma explained that in September, farmers planted quinoa. While the Inca did not have a writing system, they devised a way to maintain important records on knotted threads called a quipu. While present-day scholars have not discovered how to read quipus, it is likely that they served more as a recording device than a formal writing system. Guaman Poma explained that "[The Royal Accountant] kept track of the amount of wool of the deer called *taruca*, that of the Indians, and the food called quinoa. He counted the quinoa and the Indians. He was very capable, as if he used paper and ink."[11] In this context, Guaman Poma relayed to the Spanish king quinoa's place in sophisticated Andean administrative methods. Other than this description, quinoa mostly figures as one crop among a wide variety of cultivated tubers, grains, and other plants.

Illustrations by...

Poma2

In general, Spanish colonizers rejected all types of Indigenous foods in part because they associated it with Indigenous people and in part because they suspected that the foreign foods would harm their bodies.[12] Over time, countless New World foods, such as maize, chocolate, peppers, tomatoes, pineapples, and potatoes, became widely popular in Europe.[13] Some of the earliest Spanish explorers and chroniclers of the Andes were fascinated by quinoa, but it took much longer for quinoa to become popular outside the Andes compared to other plants. Garcilaso explained that both Indigenous people and Spaniards enjoyed quinoa in various soups and stews “for they are tasty and very nourishing.”[14]

Whether the Spanish enjoyed quinoa as much as Garcilaso suggests is not entirely clear. For one, the tribute policy and the continual decline in quinoa production throughout the colonial period suggest that the Spanish did not quite so appreciate quinoa. Sometimes called the first “mestizo”—a person of mixed Indigenous and Spanish descent—Garcilaso sought to defend racial mixing at a time when Spaniards marginalized mestizos. His excellent early account of Indigenous customs, including quinoa consumption, describes how Indigenous people made quinoa into a beverage, brewing it along with maize into a beer known as chicha. Today, chicha remains an important part of Andean societies, although it is most often made exclusively with corn. During ceremonies, and before taking a sip, attendees spill several drops of chicha onto the ground as an offering to Pachamama, a deity in Indigenous Andean cosmologies that is similar to the idea of “Mother Earth.”[15]



A small llama effigy made of stone used in Inca...

Early Descriptions of Quinoa

As European crops entered the New World, Europeans quickly introduced plants from the Americas to the Old World. Overall, the Spanish were skeptical of New World cuisine. Now ubiquitous foods like corn, chocolate, chilies, and potatoes once caused great hesitation and rejection among conquistadors due to racist perceptions of Indigenous people. Because maize was so important to Indigenous diets throughout the Americas, Spaniards analogized the crop to wheat. As the food historian Rebecca Earle explains, church officials debated the extent to which wheat and corn were the same. For the Catholic ritual of communion, Europeans would always use wheat, but Spaniards debated whether maize could be used instead in the colonies. Ultimately, they determined that maize was not a suitable replacement, and as Earle describes, corn became a sort of “anti-wheat.”[16] Analogies also applied to New World animals. Initially, llamas and alpacas, cornerstones of Andean cultures and foodways, were likened to sheep. Europeans used terms like “Peruvian sheep” or “Indian sheep” despite quite different physical features, behaviors, and Indigenous husbandry practices.[17]

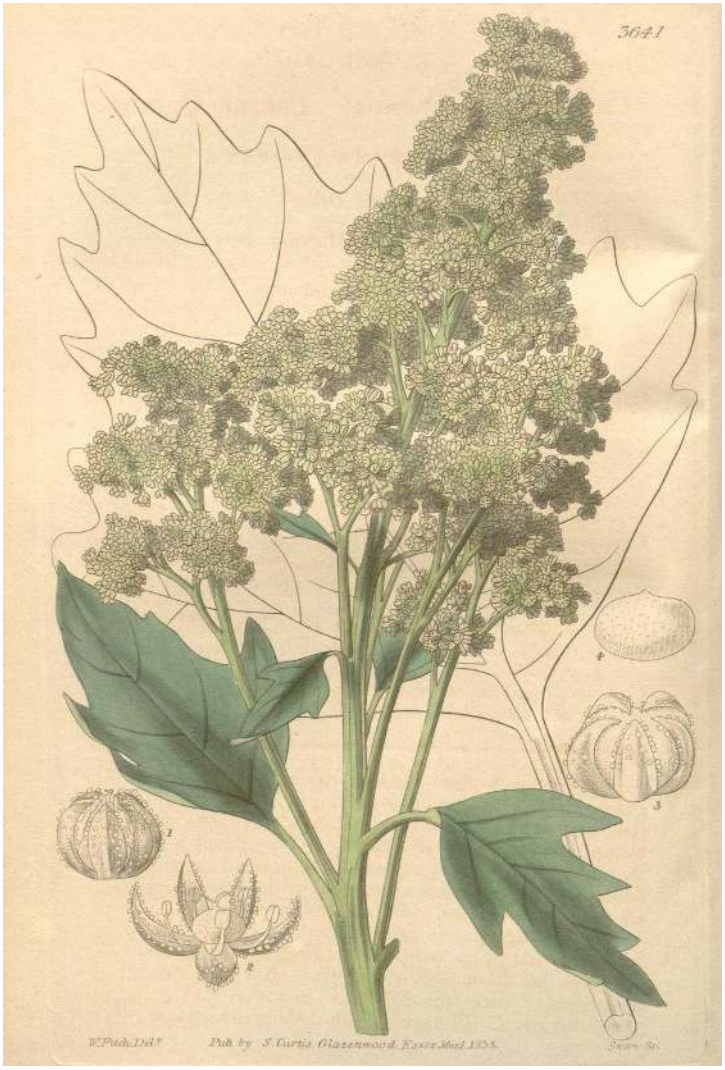

Parte primera de la

nera que en este capitulo dire.
En los valles de los llanos, y en otras partes calientes siembrã los naturales algodon: y hazẽ sus ropas del, con q̃ no sienten falta ninguna: porque la ropa de algodõ es conueniente para esta tierra.
En la serrania en muchas partes como es en la prouincia de Collao los Soras, y Charcas de la villa de Plata y en otros valles no se cria arbol: ni el algodon aunque se sembrara daria fructo. Y poder los naturales, sino lo tuuieran de suyo por via de contractaciõ auer ropa para todos: fuera cosa imposible. Por lo qual el dador de los bienes, que es Dios nro sumo biẽ crio en estas partes tanta cãtidad del ganado q̃ nosotros llamamos ouejas: que si los Españoles con las guerras no dieran tanta priessa a lo apocar: no auia quẽto ni suma, lo mucho que por todas partes auia. Mas como tengo dicho en Indios y ganado vino grã pestilencia con las guerras, que los Españoles vnos con otros tuuieron. Llaman los naturales a las ouejas Llamas, y a los carneros Uacos. Unos son blancos, otros negros, otros pardos. Su talle es que ay algunos carneros y ouejas tan grandes como pequeños asnillos, crescidos ó piernas, y anchos de barriga: tira su pescueço y talle a Camello: las cabeças son largas parecen a las de las ouejas de España. La carne deste ganado es muy buena si esta gordo; y los

Parecemeque de ninguna parte del mũdo se ha oydo ni entendido, que se ouiesse hallado la manera de ouejas como son las destas Indias: especialmente en este reyno, en la gouernacion de Chile, y en algunas de las prouincias del rio de la Plata: puesto que podra ser, que se hallen y vean en partidas q̃ nos estã ignotas y escõdidas. Estas ouejas digo que es vno de los excellẽtes animales q̃ Dios crio, y mas prouechoso. El qual parece que la magestad diuina tuuo cuydado de criar este ganado en estas partes, para que las gentes pudiessen biuir y sustentarse. Porque por via ninguna estos Indios, digo los serranos del Peru, pudieran passar la vida sino tuuieran deste ganado o de otro que les diera el prouecho que del sacã. El qual es de la mas

Illustration of llamas, depicted as sheep

Quinoa was not immune to these sorts of colonial prejudices and analogies. Garcilaso de la Vega made quinoa understandable to European readers by comparing it to rice or millet because of their comparable size and shape. Questionable comparisons lingered well into the nineteenth century. In 1839, an article in *Curtis's Botanical Magazine*, a prominent English garden and botanical magazine, said quinoa is "like the Corn in Europe, the 'chief nourishment of the people.'" The magazine was exaggerating; quinoa was certainly important, but potatoes would have been, and still are, the centerpiece of Andean diets. Making another dubious comparison, the article stated that after boiling quinoa like rice or oatmeal, "the seeds are described as floating in the liquid coiled up and looking like little white worms."[18]



Curtis's botanical magazine.

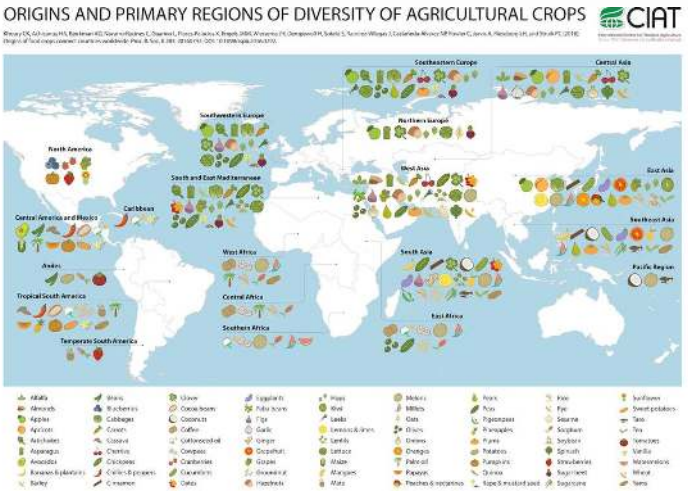
The International Community Latches onto Quinoa in the Twenty-First

Century

Since the recent rise in international interest in quinoa, scholars in a variety of disciplines have begun to study more closely its scientific properties, politics, economics, and cultural importance. Quinoa serves as a case study to understand the possibilities and limitations of Western and Andean traditions. As the anthropologist Linda Seligmann writes, “The story of quinoa highlights points of incommensurability in the Andes between Indigenous and western perspectives, especially around politics, land, and social relationships, but also shows how problematic it is to romanticize Indigenous ontologies and epistemologies.”[19] As a result, quinoa has become a useful plant to conceive of new global relationships to food, crops, and natural resources and the potential challenges of doing so.

A group of farmers discussing quinoa production.

Scientists and international development agencies, such as the FAO, have hailed quinoa as an important crop to alleviate the challenges of global hunger and maintaining world’s food supply exacerbated by climate change and a narrowing of crop diversity. Wheat, rice, and corn make up two-thirds of all calories consumed, and we rely on very few varieties of those crops. This means that pests, diseases, and unforeseen climate disasters could dramatically impact global public health if there is a major crop failure.[20] As such, policymakers and leaders have encouraged diversifying diets and the genetic makeup of agricultural farms. In 2011, Bolivian officials claimed that quinoa was an “ancient crop to contribute to world food security.”[21] The FAO agreed and thus was born the International Year of Quinoa.



Geographical distribution of crop diversity around...

Why does quinoa have so much potential? In short, because of its cultural, nutritional, and ecological characteristics. In an era of multiculturalism, crops with a long history and cultural significance among marginalized populations have become appealing to consumers and international policymakers. And in the context of globalization, fears of losing cultural traditions motivate efforts to preserve “traditional” knowledge and ways of living. One can see the results of this mindset in the slogan for the International Year of Quinoa: “A future sown thousands of years ago.” Quinoa’s success has made it “a poster child for multicultural development to integrate cultural difference” into a path toward economic growth.[22]

The official logo of the 2013 International Year of...

Quinoa is better nutritionally than many other grain crops, such as wheat, rice, or barley. The first chemical analysis to show this was performed in 1850. Augustus Voelcker, a chemist at the Royal Agricultural College in Cirencester, England, determined that quinoa contains 19 percent protein by mass—not far off from today’s estimates of 15 percent. It would take almost a century and a half, however, for quinoa’s nutritional facts to be widely appreciated.[23] Today’s scientists continue to hail quinoa as a better source of protein, because it has almost twice as much compared to rice and slightly higher than wheat. The quality of the protein is better, too. Scientists have determined that quinoa is a high-quality protein source and one of a handful of crops that contain all essential amino acids.[24]


Quinoa soup, a common way to serve quinoa in th...

Ecologically, quinoa can adapt to many types of growing environments because there are thousands of quinoa varieties, sometimes called ecotypes. Looking at boxes of the grain on the shelves of an American grocery store, it may seem that there are only three types: white, black, and red. But quinoa varieties differ more than by color, and can be classified into five broad categories based on geography: the coasts of Chile, the inter-Andean valley regions, the altiplano (high plateau) region that spans Peru and Bolivia, the Yungas (eastern slopes of the Andes), and the salt flats of Bolivia. Each of these areas has a different climate based on altitude, rainfall, temperature, and soil conditions.[25] Seed-saving efforts around the world have collected thousands of quinoa seed specimens from subsistence farmers in all these regions to preserve quinoa's high genetic diversity and climate adaptability.

Primary producers of quinoa in South America. Per...

Quinoa Nutrition Goes Global and Changes Indigenous Livelihoods


Virgilio & Malena Martínez: Peruvian Cooking; Science &...

To arrive at the International Year of Quinoa, the plant rode several waves to international stardom. First, there was a growing interest in non-Western mysticism among American counterculture movements in the late twentieth century. Although there is no definitive history of how quinoa became so popular among American consumers, according to some accounts, this worldview was an impetus for introducing quinoa into health-food grocery stores in the 1980s.[26] Second, diet trends like low-carb or gluten-free diets pushed eaters toward alternative grains, and quinoa, having no gluten and low amounts of carbohydrates, made it a good candidate for several food fads. Finally, quinoa became associated with fine dining thanks to a recent culinary movement in Peru called "novoandina" cuisine, which combines European fine dining aesthetics and tastes with traditional Andean ingredients.[27] "Quinotto," a risotto made from quinoa and created by Bernardo Roca Rey in the 1980s, is considered the dish that sparked the novoandina gastronomy movement that has since made Peruvian cuisine world famous.

Since the International Year of Quinoa, journalists and scholars have debated whether the quinoa boom has improved or exploited the lives of Indigenous quinoa farmers. Proponents argue that profits return to the communities, stimulating economic growth and reducing poverty. However, critics point out that Western consumption of quinoa is example of the economic exploitation of an important Indigenous resource that does not adequately compensate the communities that have cultivated it for centuries. Finding a middle ground between promoting sustainable development without harming the communities themselves, therefore, is no simple task.

UN sustainable development goals.

One potential problem for quinoa growers in the Andes aside from cultural appropriation is the introduction of commercial quinoa farming in the United States, China, and elsewhere. These markets may be able to produce more quinoa at a lower price and outcompete Andean farmers. While this has not happened yet, it is not an entirely unfounded fear. In 1994, American researchers patented an improved variety of quinoa based on seeds cultivated by Bolivian farmers, and in response, the National Association of Quinoa Producers (ANAPQUI) in Bolivia fiercely challenged the patent, arguing that it stole intellectual property from the Indigenous farmers. The patent was upheld but the owners let it expire in 1998. Spurred by the memory of this event, the 2009 Bolivian constitution makes explicit that the state controls, monitors, and regulates biological and genetic resources.[28] This may prevent international biopiracy, the unauthorized exploitation of biological knowledge or resources. But even the state-controlled solution is not perfect. As Emma McDonnell writes in the Peruvian context, “As indigenous farming communities lose control over quinoa’s genetic resources, they become consumers of seeds created in state and private laboratories and no longer are they the key decision-makers regarding quinoa [plant genetic resources].”[29]

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RECENT POLITICAL HISTORY OF QUINOA

Quinoa has been at the center of several political issues throughout the Americas in recent years. It has become implicated in discussions of food justice and Indigenous

ANAPQUI IS ESTABLISHED

ANAPQUI is established

1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

TimelineJS

The patent disputes and present-day issues of Indigenous and state sovereignty over potentially valuable plant resources show that the ethical dilemmas of quinoa consumption go beyond questions of profits and fair compensation in the short-term. Copper mining near quinoa farms threatens the sustainability of quinoa production for Peruvian and Bolivian farmers as the two industries are fundamentally at odds with one another.[30] Overall, quinoa's history forces us to question whether and how we can improve global nutrition by eating foods from around the world while protecting the interests of the communities that have stewarded those foods for centuries.

For thousands of years, Andean...

pinParrotCorn

LasBambas

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