

Amaranth: Another Ancient Wonder Food, But Who Will Eat It?

An ancient, nutritious crop might make a comeback in Oaxaca.



Amaranth is a broad-leaved, edible plant that some say may hold the answer to improving diet in the world's most obese country—Mexico.

PHOTOGRAPH COURTESY ROQUE REYES

By Brian Clark Howard

National Geographic

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Grown by the Aztecs and then all but eliminated in the Spanish conquest, the ancient crop amaranth may become the next quinoa. Advocates hope amaranth can help Mexicans eat healthier, better connect to their roots, and lessen their impact on the environment. But will people eat it?

Amaranth is a broad-leaved, bushy plant that grows about six feet (1.8 meters) tall. It produces a brightly colored flower that can contain up to 60,000 seeds. The seeds are nutritious and can be made into a flour. Not a true grain, amaranth is often called a pseudocereal, like its relative quinoa. Both plants belong to a large family that also includes beets, chard, spinach, and lots of weeds.

There are around 60 different species of amaranth, and a few of them are native to Mesoamerica. For the last decade, the Oaxaca-based advocacy group Puente a la Salud Comunitaria (Bridge to Community Health) has been working to promote the plant's virtues.

Pete Noll, the group's executive director, argues that his work couldn't come at a more important time. In July, the United Nations announced that Mexico had overtaken the United States as the world's most obese country. According to the report, 32.8 percent of Mexican adults are obese, compared with 31.8 percent of American adults.

"Obesity is a devastating problem in Mexico," Noll said. "Amaranth may be part of the solution. It is a whole, healthy food that can be produced locally, and it may create the possibility of change."

Noll pointed to widespread availability of fast food, urbanization, lack of physical activity, and heavy advertising of junk foods as culprits in the obesity epidemic. As evidence of the devastating effects, he noted a recent media report about a 13-year-old Mexican boy who died of a heart attack.

At the same time, many people in Mexico still struggle with hunger. Some 10,000 children die from malnutrition in the country each year, Noll noted. "These issues are linked: Childhood malnutrition makes people seven to eight

times more likely to be overweight or obese as adults," he said.

"Oaxaca has a cuisine that is known worldwide, but it also has food deserts," Noll added, referring to areas where it is difficult for consumers to find fresh, healthy foods.

Nutritious Plant

Amaranth is gluten free and its seeds contain about 30 percent more protein than rice, sorghum, and rye, according to a USDA Forest Service report. It is also relatively high in calcium, iron, potassium, magnesium, and fiber, according to Puente.

"Amaranth's amino acid profile is as close to perfect as you can get for a protein source," Noll said. The plant contains eight essential amino acids and is particularly high in the amino acid lysine, which is largely lacking in corn and wheat, he explained.

"So if you make a tortilla with amaranth and corn, you give people a low-cost, culturally acceptable, healthy basic foodstuff," he said.

Florisa Barquera, a doctor and nutritional expert at the Universidad Anáhuac, Mexico City, and a member of the Mexican Academy for Obesity, told National Geographic that amaranth has been recommended by the World Health Organization as a well-balanced food and recommended by NASA for consumption in space missions. The variety of amaranth consumed in Mexico is 16 to 18 percent protein, she said, compared with 14 percent protein in wheat and 9 to 10 percent protein in corn.

Some studies have shown that amaranth also contains beneficial omega-3s and may help reduce blood pressure, said Barquera, who writes and speaks frequently about nutrition in Mexico but is not affiliated with Puente.



A young boy plants amaranth in the San Isidro community of Oaxaca.

PHOTOGRAPH COURTESY ALICE STAFFORD

Amaranth's Bloody History

During the pre-Columbian period, the Aztecs cultivated amaranth as a staple grain crop, according to Kate Seely, a co-founder and the president of the board of Puente. But things changed when the Spanish conquistadors arrived.

In addition to its use as a core food crop, amaranth had been used in a religious context. "Native folks would pop the seeds and mix them with sacrificial human blood," said Seely, who is now based in Oakland, California. "They would form the seeds into sculptures and then eat them in religious ceremonies. This was seen as pagan [by the Spanish], so it was outlawed."

Amaranth crops were seized, fields were burned, and those who tried to grow the plant were punished. According to Noll, the locals replaced their former staple by eating more corn.

But amaranth cultivation did survive in a few isolated pockets. The grain lived on in a traditional treat called *alegría* (joy), in which popped, whole-grain amaranth is made into bars with honey and sunflower and pumpkin seeds. The bars are often enjoyed during Day of the Dead and other festivals.

"What we're trying to do is bring amaranth back into cultivation and consumption," said Seely. "It has high levels of micro- and macro-nutrients that are lacking in the Oaxacan diet, and it is a source of vitamins and nutrients that can help combat malnutrition," she said.

Fighting Birth Defects

Seely first identified amaranth's potential after doing research in Oaxaca in the summers of 2001 and 2002. She and a group of other students were doing research on neural-tube birth defects for the Oaxacan Secretary of Health. The rate of such defects is high in southern Mexico. Seely learned that folic acid is largely absent from the local diet, which increases the risk of the birth defects.

Invited to run educational programs on the importance of folic acid, the students "didn't want to be vitamin proselytizers," Seely said. They looked for a local, natural source of the nutrient, and found amaranth.

In 2003, Seely turned that project into an organization by founding Puente with Katherine Lorenz, who was doing similar humanitarian work in the region. Lorenz is currently the Puente board's treasurer and secretary.

Puente now operates in three regions of Oaxaca, serving three different indigenous groups. It works at the national level on agricultural policy reform, and works at the community and individual levels to convince farmers to plant amaranth and consumers to eat it.

Puente teaches classes, broadcasts on community radio, and runs ad campaigns. The group is also working with a network of some 250 small-scale farmers. Staffers hand out starter seeds and provide training and technical assistance. Puente is also building a regional network of markets to sell the amaranth locally.



A woman demonstrates how to prepare amaranth in Mexico.

PHOTOGRAPH COURTESY NIKHOL ESTERÁS ROBERTS

Environmental and Cultural Benefits

Amaranth may have some environmental advantages over corn, noted Seely. The plant needs less water to grow, which is particularly important in water-stressed areas like much of Oaxaca. "Amaranth can exist up to 40 days without rain and still produce seeds, unlike corn," said Seely.

Amaranth also grows fast and is easy to harvest, and can help reduce reliance on imported food, said Seely.

Farmers can get three to four times more money for a bushel of amaranth than a bushel of other grains, said Noll. Even so, adoption of the forgotten plant has been slow. Puente estimates that about 200 acres is planted with amaranth in Oaxaca now, compared with two million acres of corn in the state.

"We are at the very beginning of a long journey," Noll said.

Seely added, "The most common response when we started the program was, 'My grandparents used to farm this,' or 'I know this through alegría [the traditional treat].'" People aren't used to farming it today.

Even if farmers are convinced to take a gamble on amaranth, it typically takes two to four years for them to start seeing much production, said Seely. She said it takes practice for farmers to learn to get everything right at all stages of production on their land, from sowing to tending and harvesting. Technical assistance helps, but there is still some trial and error to the process.

Perhaps the hardest step is convincing Mexican consumers to eat it on a large scale. Besides baking the meal in tortillas, Puente encourages people to experiment more with eating amaranth leaves, by putting them in soups or blending them in juices. Puente even distributes an amaranth cookbook.

Barquera says few people in Mexico are aware of the nutritional properties of amaranth. "Why do people prefer corn? Maybe it has to do with the fact that we are exposed to it in many different forms since childhood, and because it is so accessible," she said.

It may also have to do with the fact that amaranth is currently far more expensive than corn, running around \$1.50 a kilogram versus 40 cents a kilogram for corn in Mexico. Barquera counters that relying too much on corn has nutritional costs; she would like to see people eat a more varied diet.

Barquera advises consumers to consider choosing products that incorporate amaranth into processed foods like bread, chips, pasta, and even desserts like marzipan and ice cream. Puente tries to distance itself from such products, instead promoting consumption of amaranth in as pure a form as possible.

U.S. Market?

Seely said health-conscious consumers in the U.S. and other developed countries would likely gobble up Oaxacan amaranth, but Puente is "not ready" to begin an export business.

"We're very conscious of not wanting to make amaranth a cash crop," Seely added. "Our focus is consumption within the household, and then whatever is left is sold on a small scale locally."

Seely said she doesn't want to drive an amaranth bubble along the lines of what has happened to quinoa. In Bolivia, high international demand for quinoa has driven conversion of natural areas to big fields, and the price has soared so much that some locals can no longer afford their native food.

In 1977, *Science* magazine called amaranth "the crop of the future," thanks to its hardiness and nutritional profile. The advocates of Puente hope it will become an important crop of Oaxaca, today, but there's no telling yet if it will take off.

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cyril deons vithali

Sep 15, 2013

it is a valuable information.it also serves as a wonderfood both cheap and nutritious and can easily be produced.Amaranthus a leafy vegetable is popular .it is available having green leaves and the other with red leaves.it is used to make curries.slender stem and leaves are used.also very shortlived.

cyril

[Like](#) [Reply](#)



Anna V.

Aug 15, 2013

I was introduced to Amaranth oil a few years ago in Ukraine by a well known doctor.
This is the oil I've been using: <http://bioproduct.com.ua/en/products/dietary-foods/454/>

1 [Like](#) [Reply](#)



Od King

Aug 14, 2013

i love when the winnowings of seed cleaning grow with joy

1 [Like](#) [Reply](#)



Phil Blank

Aug 14, 2013

This isn't a new food, they have talked about it for several years, the problems are 1 where to find it and 2 the cost.

1 [Like](#) [Reply](#)



robert luera

Sep 19, 2013

@Phil Blank Phil, you can find it in Mexico. I live here and can readily buy it. It is not expensive. About the cost of rice. It is sold in bulk or in bars with honey and nuts.

1 [Like](#) [Reply](#)



Nuwan Samaranayake

Aug 14, 2013

Promote this food all around the world....

1  Like Reply



Ashok Manvati

Aug 14, 2013

IT IS USED AS A SPICE IN kASHMIR

1  Like Reply



Brigitte Meier

Aug 14, 2013

The biggest advantage this plant has is that it is a weed. Weeds have longer, deeper roots and therefore keep the soil stratified and humid. It will take way less fertilizer and no glyphosate, because the plant, being a weed, can compete against other weeds and they don't have to be weeded out. It would be good to plant such crops a bit everywhere where they grow. That would keep Monsanto and GMO corn with all the artificial fertilizer, pesticides and herbicides out of the food chain. That will go a long way to be better nutrition.

1  Like Reply



Spero Latchis

Aug 13, 2013

grow your own. It is a weed, and its almost impossible to not thrive. At the very least a small 10ft by 10 ft patch will supply you continuously with greens all summer.

1  Like Reply



C. Dufour

Aug 13, 2013

This is gonna get picked up by the americans as the next food craze and like the acai berries will force all crops for export rather than feeding those who need it.

2   Like Reply



Pete Noll

Nov 3, 2013

@C. Dufour Thx for your post. That is a concern that has been expressed with quinoa, too. Our current approach is to support local economies to assure they both grow it and consume it with the region. I guess time will tell.

[Like](#) [Reply](#)



Natasha Armstrong

Aug 13, 2013

I've been eating amaranth for years, and love it!

1 [Like](#) [Reply](#)



Pete Noll

Nov 3, 2013

@Natasha Armstrong Would you like to share with us your favorite recipe?

[Like](#) [Reply](#)



Pete Noll

Aug 13, 2013

You can find a lot of information US-based at www.amaranthinstitute.org

[Like](#) [Reply](#)



Richard Alexander

Aug 13, 2013

I have waited for years for the chance to buy amaranth. I think I found some amaranth cold breakfast cereal, once, but nothing since then. Of course, I don't want to exploit another group for my meals, but I'm intrigued by the reported nutritional content of this grain.

2 [Like](#) [Reply](#)

**Swiftright Right**

Aug 13, 2013

looks alot like one of the weeds i use to pull out of my parents garden. Im gonna look into seeing if i can grow it in zone 5

1 Like [Reply](#)**Brian Howard**

Aug 15, 2013

@Swiftright Right Hi. Thanks for reading. Amaranth does in fact grow as a weed in some areas, and it's a very weedy plant.

[Like](#) [Reply](#)**Pete Noll**

Aug 12, 2013

<http://www.youtube.com/watch?v=TfGdJfaEhZs>

[Like](#) [Reply](#)**Rita B**

Aug 12, 2013

I heard of this wonderful food before, just have one question; Is it true that it is high in carbohydrate? If so, is it a low glycemic index food? I tried amaranth before and I really loved it, but i am not sure about the high content of carbs.

Thanks for the article !!

2 Like [Reply](#)**Pete Noll**

Aug 12, 2013

Thank you for sharing your comments. I commend Brian on capturing the information from the interviews and his own research to give a glimpse into our work with amaranth and food systems, starting with Oaxaca. Amaranth is a road less traveled, so I am glad you have found it!

1  Like Reply



Spero Latchis

Aug 12, 2013

In northern India is also a local food. As ex pats living here we grow our own and eat it as a main staple. The locals pretend to disapprove as it is considered a poor persons food and no one wants to be seen growing it. However they can not help asking us for some to share for their dinner table when they see us alone.

2  Like Reply



Pete Noll

Nov 3, 2013

@**Spero Latchis** I would be curious, in India, do they eat it as a leafy vegetable or as a grain food?

Like Reply



Spero Latchis

Aug 12, 2013

In northern India is also a local food. As ex pats living here we grow our own and eat it as a main staple. The locals pretend to disapprove as it is considered a poor persons food and no one wants to be seen growing it. However they can not help asking us for some to share for their dinner table when they see us alone.

1  Like Reply



Álvaro Díaz

Aug 12, 2013

I grew up in Peru eating kiwicha (amaranth) as cereal my entire youth, and I can tell you it's great!

3  Like Reply



Virginia Feaster

Aug 12, 2013

A "weed" version of Amaranth grows - like a weed - in my garden in Central Texas. This great article inspires me to plant a row of the Oaxacan variety, and pop it. We can make our own, healthier, version of "krispy treats".

3    Like Reply



Michael E. Conroy

Aug 12, 2013

Thanks for the good background piece. Two gentle corrections:

1. The second photo does not display a "comal," rather it seems to show a tin pan on a charcoal brazier, probably being used to show how to "pop" the amaranth seeds.
2. Your description of the history of the abolition of amaranth by the Spanish "conquistadores" omits the broader and well-documented fact that amaranth fields were burned and cultivators were punished as a deliberate attempt to eliminate a most important source of food protein for the rebellious indigenous people of pre-Colonial Mexico who resisted Spanish conquest... Similar to strategies in the U.S. South during the civil war, and the U.S. use of Agent Orange in Vietnam.

3    Like Reply



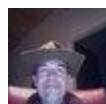
Brian Howard

Aug 15, 2013

@Michael E. Conroy Thanks Michael. I checked with my sources on the comal and you are right, we had our wires crossed on that one, so I updated it.

Thanks for the thoughts on point 2.

Like Reply



Bill Laven

Aug 12, 2013

Amanranth - to think, we grow this as a decorative garden plant that we call "love lies bleeding". It's a colorful addition to the garden and now we can eat it too! Very informative article.

3    Like Reply

C. Gonzalez

Aug 12, 2013

 Nauru is the world's most obese country, not Mexico.

1  Like Reply



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