QUINOA: HARVESTING THE WORLD’S SUPERGRAIN

The crop has remarkable genetic diversity, resilience and adaptability to grow in harsh environmental conditions like that of the Middle East

By Ismahane A. Elouafi | Special to Gulf News

Quinoa, once a staple food only for the indigenous people in the Andes (in South America), has become a darling of food aficionados around the world in recent years. So popular has the food grown that some restaurant chains have now introduced dishes and are expanding on their menu. Its exceptional nutritional composition makes it one of the healthiest grains and an upmarket offering. Unlike many other grains such as wheat, quinoa is highly wholesome quality; it is gluten-free and rich in essential protein, amino acids and vitamins.

Quinoa is linked to global advertising and promotion lately, including the declarations of 2013 – the International Year of Quinoa, the food has seen a rising demand beyond South America. While Peru and Bolivia remain the main producers, companies and farms around the world have jumped on the bandwagon to produce quinoa. Global production reached 137,000 tonnes in 2015, up from 74,353 tonnes in 2009. According to Quinoa, a market research and business intelligence portal, but it is not only quinoa’s nutritional value that is winning it followers around the world. The crop has resulted in genetic diversity, climate adaptability and hardship to harsh environmental conditions. It can grow in poor soils with annual rainfall as low as 200mm. As a result, more and more farmers from the Middle East, Central Asia and South Asia are warming to the plant.

At a time when major crops like wheat, rice, barley and corn are progressively failing to withstand soil and water salinity, heat and drought, quinoa looks like a perfect alternative in regions where these problems pose growing risks to agriculture and food security. It offers more hope for the fight against hunger, malnutrition and poverty in the Middle East, North Africa, Sub-Saharan Africa, South Asia and Central Asia.

The International Food Policy Research Institute, a think tank, reckons every country faces at least one public health challenge from malnutrition. In countries like India and China, more than 190 million people are undernourished according to the FAO Hunger Map 2015. The country ranks 17th among 185 countries (including 48.1%) in terms of prevalence of the women of reproductive age.

Scientists believe introducing nutritious grains like quinoa into the diet can be a sure way to combat malnutrition. According to Poznanski, Swaziland, the first World Food Prize laureate and father of India’s green revolution, quinoa can be cultivated in India as an additional grain, though not as a staple widely used millets in the country.

Suited to different geographies

While the future may look promising for quinoa cultivation because of its nutritional value, there are still many challenges to be addressed before the plant takes off in regions with marginal conditions.

In 2016 the International Centre for Biosaline Agriculture (ICBA) and several other organizations convened one of the biggest conferences on quinoa in Dubai, UAE, attended by over 120 delegates, to look at what needs to be done to make the plant a feasible alternative in marginal environments. The conference issued the Dubai declaration calling for, among other things, initiating a multi-year global research and development programme on quinoa.

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Since 2007 ICBA has, however, been running its own international programme to evaluate quinoa germ plasm and single out lines suited to different geographic locations and environmental conditions. The centre stores around 1,000 quinoa accessions in its germ bank and has four lines ready for scaling out in the Middle East, North Africa, South Asia and Central Asia.

The programme is currently under way in Egypt, India, Jordan, Kyrgyzstan, Morocco, Oman, Pakistan, Spain, Tajikistan, UAE, Togo, Turkey and Yemen. For example, multi-year trials have shown that ICBA’s lines produce on average, up to 5.41 tonnes of seed per hectare under highly saline, sandy and acid conditions in the UAE. In Central Asia, the lines have been reported to yield as much as 5.52 tonnes of seed per hectare. Work with farmers, private companies and research organisations to test quinoa further and grow it for seed is also continuing in Morocco. Farmers in southern regions suffer from the acute salinity on agricultural soils while studying quinoa cultivation in these conditions, scientists found that it was possible to produce up to 3.8 tonnes per hectare with water as saline as 12 dS/m.

Similar trials run by a local seed company in western India have also shown positive results. And in Pakistan, drill seeds - a company is promoting quinoa among smallholder farmers. Know Foods is distributing ICBA quinoa lines, sharing technical know-how and providing monitoring and support. And this effort is paying off. Local smallholders are already reporting bumper harvests.

Other international organizations are also implementing initiatives to introduce quinoa into agriculture. For example, the Food and Agriculture Organization of the United Nations has worked in Algeria, Egypt, Iraq, Iran, Lebanon, Mauritania, Sudan and Yemen with international research centres, universities, cooperatives, civil society organisations, agribusinesses and seed enterprises to study, assess and evaluate characteristics of quinoa genotypes and select the ones most suitable for local conditions.

All this is good news. But there is yet a long way to go before quinoa really makes it into local diets. Limited production is still focused on the global market. There are other problems too. Adoption is slow as there is little funding, knowledge and technology transfer.

What is more, farmers might be keen to grow quinoa but lack of other access to the production chain means they would have to bundle post-harvest processing and marketing themselves. These and other problems slow down the process.

Research green revolution data indicates that quinoa may be a viable option to cope with threats such as salinity, heat and drought. It shows even more potential in the context of climate change. The super grain may hold great potential towards contributing to the UN’s Sustainable Development Goals too. But realising it requires more coordinated and sustained efforts by international research, development and donor organisations. Until then, it will still be largely enjoyed by health-conscious food lovers.