

# From camels to catfish, Algeria boosts fish farming in the Sahara Desert

By [Thin Lei Win](#)

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In a corner of his sprawling farm, Milouda Mohammed proudly unveiled his latest venture - a pond full of catfish that could herald a new future for farmers like him on the Sahara desert. He is hoping to earn extra income from selling fresh, farmed fish from the world's largest and hottest desert and use the water to irrigate his olive and date trees and vegetables.

"Five years from now, I'm expecting different kinds of products from this land," said Mohammed, 49, clad in thick, long-sleeved overalls, oblivious to the searing afternoon sun.



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The 15-hectare farm, some 600 km (370 miles) by car from the capital Algiers, bustled with chickens, quails, ducks, camels, goats and sheep - a hive of activity in this stark landscape where, for miles, there is little else besides sand.

"I'm excited about this. *Inshallah*, it works," he added, using the Arabic phrase for "God willing" as he threw some home-made feed of leftover chicken and vegetables into the pond.

Farming fish in the desert might sound counterintuitive but Algeria hopes to tap the huge aquifers beneath the Sahara - that covers about 80% of the country - as it seeks new ways to feed its growing population and diversify its oil-based economy.

Algeria's population is forecast by the United Nations to rise 25% to nearly 50 million people by 2030, increasing demand for food and jobs in the North African nation, one of many countries battling water scarcity and population growth.

For several years the government has been promoting agriculture in southern Algeria, offering cheap loans and concessions to farmers willing to take up the Sahara challenge - and with some success, according to government officials. Taha Hammouche, director-general for fisheries at Algeria's agriculture ministry, said about 13,000 farmers have expressed interest in aquaculture projects, enthused after the Sahara yielded its first harvest of farmed desert shrimp two years ago.

The government is providing training on raising fish and using the waste water on plants instead of chemical fertilisers.

"Fishery resources in the Mediterranean Sea have decreased so we cannot rely on that anymore to increase our production," Hammouche told the Thomson Reuters Foundation.

## **Plenty of fish in the desert**

Hammouche said Algeria hopes aquaculture in the Sahara will help to nearly double the nation's annual fish production by 2022 from current levels of about 100,000 tonnes a year. Currently, Algeria's fish comes mostly from along its 1,280 km (800 miles) of Mediterranean coastline which experts fear is in danger from pollution, climate change and overfishing.

Valerio Crespi from the United Nations' Food and Agriculture Organization (FAO) said integrating agriculture and aquaculture could provide protein to rural and isolated desert communities globally but cautioned about over-use of underground water.

Studies have shown consuming fish is particularly beneficial for pregnant women and young children, said Crespi, who has been working with Algerian authorities since desert aquaculture was first mooted in the country a decade ago. "Raising fish in deserts are going to be really critical, even for developed countries, because we've got to be more efficient with water," said Kevin Fitzsimmons, a University of Arizona professor.

Arizona farmers who raise fish improved their soil quality, saved money on fertilisers, and received a premium price for their fish, added Fitzsimmons, who has advised desert aquaculture farms in the United States, Mexico, and the Middle East.

Data shows that drylands, including deserts and grasslands, take up about 41% of the world's land surface and are home to more than two billion people. But UN studies say climate change means nearly half the world population will live in high water stress areas by 2030.

Fitzsimmons said action is needed now and he is looking to develop aquaculture in dry zones in Myanmar and India. "Making their agriculture more efficient and their land more productive with more vegetables, more fruits, and more fish, is going to be critical to support the fast-growing populations (in dry areas)," he told the Thomson Reuters Foundation.

Raising fish can be more efficient than livestock because less space is needed and fish are edible quicker, he added. Other advantages include better disease control because fish farms in deserts are not connected to water systems, said Dina Zilberg, an expert on fish disease at Ben-Gurion University of the Negev in Israel, a pioneer in desert aquaculture.

Critics, however, say aquaculture - the fastest growing agricultural sector for the past 40 years - destroys the environment and put diseases and invasive species into the wild. Zilberg said while some criticism is warranted, solutions now exist to prevent contamination and besides, she added, there is little alternative, with global fish stocks under strain. "If we want to continue consuming it, we will have to grow it," she said. "The thing to do is not (stop) aquaculture but make the farms treat the water properly."

## **Cultural barriers**

Those wanting to try desert aquaculture can expect challenges, ranging from climate change - with average annual rainfall down more than 30% in recent decades and temperatures rising - to consumer perceptions.

In Israel's Negev desert, where costs of water, land and electricity are high, only ornamental fish farms are thriving as these fetch higher prices than fish for eating, Zilberg said. Meanwhile, thousands of miles away in Ouargla, southern Algeria, a commercial fish farm set up nearly a decade ago has had to reduce production due to a lack of consumer demand. "People prefer fish from the sea ... but we expect this project to be profitable in the future," said the farm's supervisor, who did not want to give his name.

Sometimes supplies are an issue. The high-tech shrimp centre in Ouargla produced its first harvest in 2016 but is yet to reach its potential due to a lack of shrimp larvae locally. The centre, a joint venture between Korea and Algeria, is importing shrimp larvae from Florida, but that is costly and the quantity is limited, said Kashi Massaoud, the centre's director.

Still, the converts are forging ahead.

Farmer Kaboussa Mohammed, 52 - no relation to Milouda Mohammed - is optimistic for the tilapia and catfish being raised on his one-hectare farm, saying the nutrient-rich water from his pond has improved his dates. "I used to use chemical stuff for the plants but this is very natural and they grow faster too," he said.

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