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04-09-20

# Abu Dhabi is investing \$100 million in indoor farming as it tries to become more resilient

With little water, scorching temperatures, and not much arable land, the UAE currently imports 80% of its food. Can it go local?



1/5 [Photo: AeroFarms]



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#### 4 THINGS TO READ

In an industrial park built off a highway in the arid land between Abu Dhabi and Dubai, a sprawling new indoor farm will soon grow tomatoes under LED lights in a climate-controlled warehouse near a plastic production facility and other factories. The farm, the first in the world to commercially grow tomatoes solely under artificial light, is one part of a push to transform food production in the United Arab Emirates, where 80% of food is imported. The government realizes that to be resilient, it will need to find new ways to grow food in a desert climate with little rain and temperatures that regularly stay above 100 degrees.

In a new investment announced today, the Abu Dhabi Investment Office, a central government hub supporting businesses, is putting \$100 million into four agtech companies, including Madar Farms, the startup building the indoor tomato farm; Aerofarms, a New Jersey-based vertical farming company that will build a massive new R&D center; RDI, a startup developing a new irrigation system that makes it possible to grow plants in sandy soil; and RNZ, a startup that develops fertilizers that make it possible to grow more food with fewer resources. The investments are the first in a larger \$272 million program to support agtech.



[Photo: AeroFarms]

“Agtech will be part of the solution to how we can better utilize water, how we can be more efficient, and how we can drive yield in farms,” says Tariq Bin Hendi, the director general of the Abu Dhabi Investment Office. “We’re embracing technology because we know it’s the future.”

Indoor farming, which grows food in far less space and with far less water than traditional agriculture (and without being subject to extremes in outdoor temperatures), makes particular sense in the area. “First, we have to deal with a very limited supply of arable land,” says Abdulaziz Al Mulla, CEO of Madar

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company has leased in the industrial park.

In Abu Dhabi, Aerofarms will use the new investment to build a 90,000-square-foot facility to continue its research in how to grow crops indoors, including new research in breeding seeds that are optimized for indoor growing conditions. “We have been talking to people in the UAE for a long time,” says Aerofarms CEO David Rosenberg. “Part of our business model, the way we think of it is: Where’s our value proposition most strong? Where are there a lot of people without access to fresh food? And it’s basic—where there is water scarcity, arable land scarcity.” In New Jersey, Aerofarms works in a series of buildings repurposed for indoor growing—an [abandoned steel factory](#), an old paintball facility, an abandoned nightclub—but the new R&D facility in the UAE will be designed from scratch.

[Photo: AeroFarms]

More than 60 engineers and scientists will study plant science and automation at the new center. “We want to grow more plants, know how to grow better, know how to grow with lower capital cost and operating costs,” Rosenberg says. “That all stems from an ability to understand plants.” By growing in a controlled environment, he says, it’s easier to understand the variables that affect factors like growth rate, nutrition, and taste. In the past, the company has focused mostly on environmental factors, such as the right “light recipe” or temperature to make plants grow well. Now it will also study breeding. “Most seed breeders work to optimize drought resistance, or pest resistance,” he says. “Here, because it’s fully controlled, we get to say, you know what, let’s focus on taste, texture, yield, nutrition.”

The new investments add to a small but growing indoor agriculture sector in the region. A startup called [Badia Farms](#) grows microgreens inside a warehouse and delivers them to local restaurants in Dubai, where the Ministry of Climate Change and the Environment [made a deal](#) to establish 12 vertical farms. In the middle of the desert, [Pure Harvest Smart Farms](#) grows tomatoes in a climate-controlled greenhouse with imported bumblebees. In a town on the outskirts of Dubai, an [indoor farm raises salmon](#) in huge, computer-controlled circular pools. A 130,000-square-foot indoor farm from a startup called [Crop One](#), producing three tons of greens a day, is expected to break ground in Dubai later this year.

The indoor farming industry is still nascent, and it’s possible that the new wave of support in the UAE could help push it forward. The challenges that are most pronounced in the desert also exist elsewhere: In the U.S., for example, most lettuce is grown in California and Arizona, where water shortages will continue to increase with climate change.

Abu Dhabi and Dubai are also testing technology designed to help in other parts of the food system, including tech that can reduce food waste in restaurants, drones that can map plants on outdoor farms to save resources, and artificial caves in the Persian Gulf that are meant to help fish stocks grow. “It really has to be comprehensive coordination across different solutions, if you really want to build a truly resilient, food-secure sector,” says Al Mulla.

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