

## What Is a ‘Gigafarm’?

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The UAE made global headlines at the close of last year when it announced it would be building a closed loop ‘Gigafarm’ at Dubai’s FoodTech Valley. Working in collaboration with Scottish vertical farming specialists Intelligent Growth Solutions (IGS), the UAE will build a landmark farm capable of producing two billion plants per year from minimal resources.

What’s more, the farm will use carbon-friendly technologies to source its power, while it will also leverage the value from its waste streams as much as possible to comply with the principles of circular agricultural. Covering a site almost 90,000km<sup>2</sup> in size, the Gigafarm will represent a dramatic breakthrough in what can be achieved in sustainable agriculture – and all in one of the world’s most inhospitable climates.

### Modern farming by ReFarm

The historic project is being managed by ReFarm, a consortium of Emirati interests which aims to bolster the country’s food security. Comprised of SSK Enterprises, Christof Global Impact (CGI) and FoodTech Valley, the consortium has outsourced the infrastructural aspects of their project to Dundee-based vertical farming outfit IGS.

Once completed, the farm will produce a staggering three million kilos of fresh produce each year, replacing as much as 1% of that which is currently being imported from other countries. Construction of the farm is due to begin in mid-2024 and the architects of the project hope it will be fully operational two years down the line in 2026.

### Closed loop circularity

As well as drastically improving the UAE’s domestic food production capacity, the Gigafarm will also serve as a blueprint for the future of sustainable agriculture. That’s because the farm will be integrated with a solar facility to curb its use of fossil fuels, while its adoption of low-voltage LED circuitry will slash energy consumption. It will also use just one litre of water for every 250 litres used in traditional field farming and every 25 litres used in greenhouse farming.

What’s more, 50,000 tonnes of waste from the site will also be recycled each year. The use of black soldier fly larvae will facilitate the conversion of waste into new and usable resources like animal feed, organic compost and irrigation water. As much as 90% of the ammonia sulphate used in the process will be recovered from wastewater for use as a natural fertiliser, too.

## An example for all the world

Perhaps the most exciting thing about the ReFarm Gigafarm is the way in which it ties together a variety of different technologies to achieve the most sustainable form of agriculture possible. In a global first, six different technologies are to be integrated in the FoodTech Valley site to create a self-contained and self-sustaining ecosystem.

“This site takes the concept of vertical farming as just one building block in a system that brings together technologies to solve multiple challenges simultaneously, all in one of the most extreme environments on the planet,” [said the CEO of IGS, David Farquhar](#). “We are confident this innovative model has applications in many geographies across the globe.”