

Philips GreenPower LED technology for Iceland's first vertical farm

The challenge

With its cold climate and rocky, volcanic landscape, Iceland poses obvious challenges for traditional methods of farming. Andri Bjorn Gunnarsson and Andri Gudmundsson had a vision to solve one of the country's everlasting problems – its reliance on imported food. They were also influenced by the impact of food imports on climate change, as many countries seek to boost local food production as a more sustainable model for agriculture.

In 2017, the two men founded VAXA, Iceland's first and only vertical farm, located outside Reykjavik. The Icelandic market is in many ways ideal for vertical farming, with the country's clean water, its educated workforce, and the relatively short distances that make logistics easier. What's more, 100 percent of Iceland's electricity is generated renewably.



Indoor farming alone will not heal the negative impact from global food production, but it will play a key role in making agriculture a more sustainable business."

Andri Bjorn Gunnarsson, founder and CEO of VAXA

The solution

Purity, efficiency, control: these qualities are at the heart of vertical farming. So, it's not surprising that VAXA's growing facility looks like a high-tech clean room. Produce is cultivated in symmetrical trays. An HVAC system regulates temperature and humidity levels very precisely, while ceiling fans re-create the perfect wind conditions. No pesticides are necessary because there are no pests.

Key benefits

- VAXA offers quality produce, consistent output and resilient supply
- 10 times more produce than a traditional greenhouse
- A million lettuce heads each year across its 1,600 square meters of cultivation space





Most strikingly, the windowless facility does not get any sunlight from outside. Instead, lighting is provided by LED technology. VAXA's partnership with Signify's horticultural lighting experts has been important as it even went beyond the Philips GreenPower LED hardware. In a tech-intensive field, where slight gradations in performance can make a difference, trusting someone else to provide the right equipment is crucial. Signify's plant specialists are an expert resource that the VAXA team can rely on at any time, always ready to provide the information needed to get the best out of a specific crop.

Benefits

Less than five years after its launch, VAXA is steadily producing lettuce heads, baby greens, microgreens, and herbs. The company offers quality produce, consistent output, resilient supply, and an ability to satisfy the changing habits of consumers who want environmentally friendly products. Consumers can also enjoy VAXA's produce via a weekly farm-box subscription program while some restaurants even have the VAXA brand on their menus.

VAXA can now grow 10 times more produce than a greenhouse and 100 times more than a traditional farm, plus it can deliver anywhere in the city within a 10-to-15-minute drive. Additionally, it can grow a million lettuce heads each year across its 1,600 square meters of cultivation space. It is already Iceland's second-biggest producer of leafy greens and has captured 10% of the Reykjavik area's greens market - no small achievement for a start-up.



"We don't feel that we have to develop a lot of the technology ourselves – we can leave that to companies like Signify."

Andri Bjorn Gunnarsson,
founder and CEO of VAXA

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