

LettUs Grow

With support from UK Research and Innovation, a vertical farming startup has established its roots with leafy greens and is scaling up to larger crops and trees.

The world population is growing. Keeping everyone fed is challenging for traditional farms, which until now have had limits to their productivity. There is also a growing demand for produce that is grown without the use of pesticides and which has a minimal carbon footprint. LettUs Grow believes that its aeroponic system can provide the green shoots of change for the farming industry.

Co-founder and CTO Ben Crowther said, "We're looking to build the farms of the future. We're primarily involved with creating indoor vertical farms, but we're also looking at how traditional farms and greenhouses can increase their productivity."

The benefits of vertical farming are well known. Stacking plants in an artificial environment mitigates extreme weather and pests, and is space-efficient. And by placing production closer to consumption, it shrinks the carbon cost of transport.

LettUs Grow has proved that its aeroponic system has significantly faster growth rates than hydroponic systems – as much as 70% faster for certain crops. The system also uses fewer nutrients and, obviously, less water than its better-known counterpart.

Ben Crowther said, "We create a nutrient-dense mist, which allows the plants to breathe more readily and produces a voluminous, healthy set of roots."

According to Ben, LettUs Grow has removed some of the issues of existing aeroponic systems: "We remove all of the

high-pressure plumbing and create an airbed, which is as simple as a hydroponic grow-bed to install and operate."

LettUs Grow formed in Bristol in 2015. Co-founders Jack Farmer (operations lead) and Charlie Guy (managing director) organised food sustainability events at Bristol University. They met Ben Crowther who was interested in the production side.

Some early Design Foundation Call funding from Innovate UK helped the trio put their ideas into action. Ben said, "It gave us a real chance to explore the technology and do some important early-stage planning. We had much more headspace than most people have within a startup to look ahead and change."

The second grant was from the Industrial Strategy Challenge Fund's Transforming Food Production challenge, and was used to scale the business. LettUs Grow deepened its relationship with indoor, urban farm Grow Bristol, formed partnerships with ECH Engineering to improve the efficiency of its climate control system and worked closely with renewable energy supplier [Octopus Energy](#) to create a vertical-farming tariff.

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Growing as a business has meant that the company has been able to expand far beyond the micro-greens and 'lettuce' of its namesake and is now looking at further propagation including strawberry rootstock and tomatoes for greenhouses, crops and biomass production for farms, and even reforestation.

"We can produce more healthy tree whips in an incredibly efficient way compared to the market prices of production and import. We always used to joke that trees were impossible in vertical farming, but actually we have proved we can fulfil at least the early stages."

Katrina Hayter, the challenge director of UK Research and Innovation's Transforming Food Production has watched developments at LettUs Grow with interest. "The LettUs Grow project has shown why it's exactly the kind of innovation we are looking to support," Katrina said. "By taking a new approach their solution is already producing exciting results for the future of crop growth. It's been great to see the early stages of this revolutionary work in action."

