

Vertical Farming

OPPORTUNITIES, BARRIERS AND LIMITATIONS | OCTOBER 2025

Overview

On the 18th September 2025, the LUNZ Hub hosted a 'Big Tent Event' in Venue Cymru, Llandudno. As part of the event a series of 'Ask the Expert' breakout sessions explored key topics for a sustainable and just land-use transition. This note outlines the key messages and discussion points from the breakout.

This session examined the role of vertical farming and other intensive indoor food production systems in the UK's land-use and food strategy. While vertical farming is often presented as a high-tech solution to food security and sustainability, experts discussed the true opportunities, limitations, and how it might fit alongside conventional farming and local food systems.

Panel contributors: Steve & Laura Holland, Fresh and Tasty Microgreens & Ramin Ebrahimnejad, JHI.
Chair: Alan Radbourne

EVIDENCE & INSIGHTS

Vertical farming is often viewed as high tech, large scale, industrial farming – and for many enterprises this is the approach. However, in this session there was a successful example of a small scale, local, farm diversification approach. The benefits and challenges of large-scale and smaller-scale intensive indoor farming were discussed – including the barriers for new entrants – such as a lack of accessible skills & knowledge, avenues to market and financial practicalities.

OPPORTUNITIES & CHALLENGES

Fresh and Tasty Microgreens shared their story of supporting the diversification of a local farm business that has created a good income for the farm (while providing them the space they needed), yet other benefits have been developed with new avenues to market for both the farm and microgreens production, creating a co-benefit for two businesses to thrive, embedded in their local community.

A key challenge for the seeing vertical farming growing in the UK is that access to skills and knowledge is hard to come by, with YouTube being quoted as the best resource available.

Then for practically supporting the growth of the industry financing for starting and scaling production is a key challenge facing many new entrants to vertical farming. It is a very tech and infrastructure led enterprise that requires significant investment, alongside relatively high running costs – especially electricity costs.

Many vertical farming enterprises focus on high-value crops, yet some examples of incorporating this high-value focus with a whole farm business / small horticultural enterprises as part indoor-outdoor set up can also be an innovative opportunity – especially for diversification of local food producers.

POLICY & PRACTICE IMPLICATIONS

New entrants often struggle with expertise, finance and options for scalable growth. Policy should focus on development of routes to support new enterprises and farm diversification, especially those in possibly more rural smaller settings.

For large scale enterprises, these demand high levels of investment with significant risk, that often make the overall opportunity limited as they often cannot compete effectively within the current food system. If Vertical Farming is a priority (to enable the number of known benefits) it will need support to build confidence in these early establishment years.

As the UK government increasingly recognises Controlled Environment Agriculture (CEA) as a key component of its agri-food and land-use strategy, there is a growing opportunity to position vertical farming within this broader framework. CEA—covering vertical farms, modern glasshouses, and hybrid indoor–outdoor systems—can play a complementary role to conventional agriculture by decoupling production from soil and climate constraints, improving land-use efficiency, and reducing pressure on high-value farmland.

Vertical farming offers real potential for leafy greens and niche crops

High establishment and running costs are major barriers.

Access to skills and knowledge is limited.

Vertical farming could add co-benefits to a farm business diversification, creating jobs and opening new routes to market.

SUMMARY

While vertical farming is often presented as a high-tech solution to food security and sustainability, experts discussed the true opportunities, limitations, and how it might fit alongside conventional farming and local food systems.

Moving forward, framing vertical farming as part of the wider Controlled Environment Agriculture (CEA) ecosystem may help ensure it is recognised within national strategies for land use, net-zero farming, and food security. Integrating CEA into rural diversification and skills development programmes could also encourage more balanced growth between high-tech and community-based production models, creating a resilient and inclusive indoor farming sector for the UK.

ABOUT LUNZ HUB:

The Land Use for Net Zero (LUNZ) Hub is a consortium of 34 organisations that aims to provide the UK government and devolved administrations with the rapid evidence they need to develop policies that will drive the land use transformation required to achieve Net Zero and other environmental and social targets by 2050.

Partners include experts from research, farming and industry, working across issues including green finance, renewable energy, planning, soil health, afforestation and water management. LUNZ will play a pivotal role in supporting policymaker decision making and helping to communicate more widely the critical importance of land as a carbon sink or source.



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