TOP OF

Rising food prices and extreme weather events have pushed food security up the agenda, prompting unprecedented innovation in agritech. David Prosser explores a sector full of opportunity and flush with funding

Britain's farmers can't remember a worse summer. The scorching sun and lack of rain saw droughts declared in most of England and Wales, damaging crop production, even on farms with their own irrigation systems. Harvests of crops such as broccoli and lettuce were so poor that supermarkets had to import supplies of supposedly British staples.

And it might now seem like a lifetime away, but 2026 started with relentless heavy rainfall in the UK, resulting in severe floods. Waterlogged farmland resulted in widespread rotting winter root crops and the saturated soil delayed spring planting.

Such weather is becoming normal, warns the Royal Meteorological Society. Climate change does not explain every warm or dry or wet spell, but rising temperatures create feedback loops that make such extremes more likely.

Life support

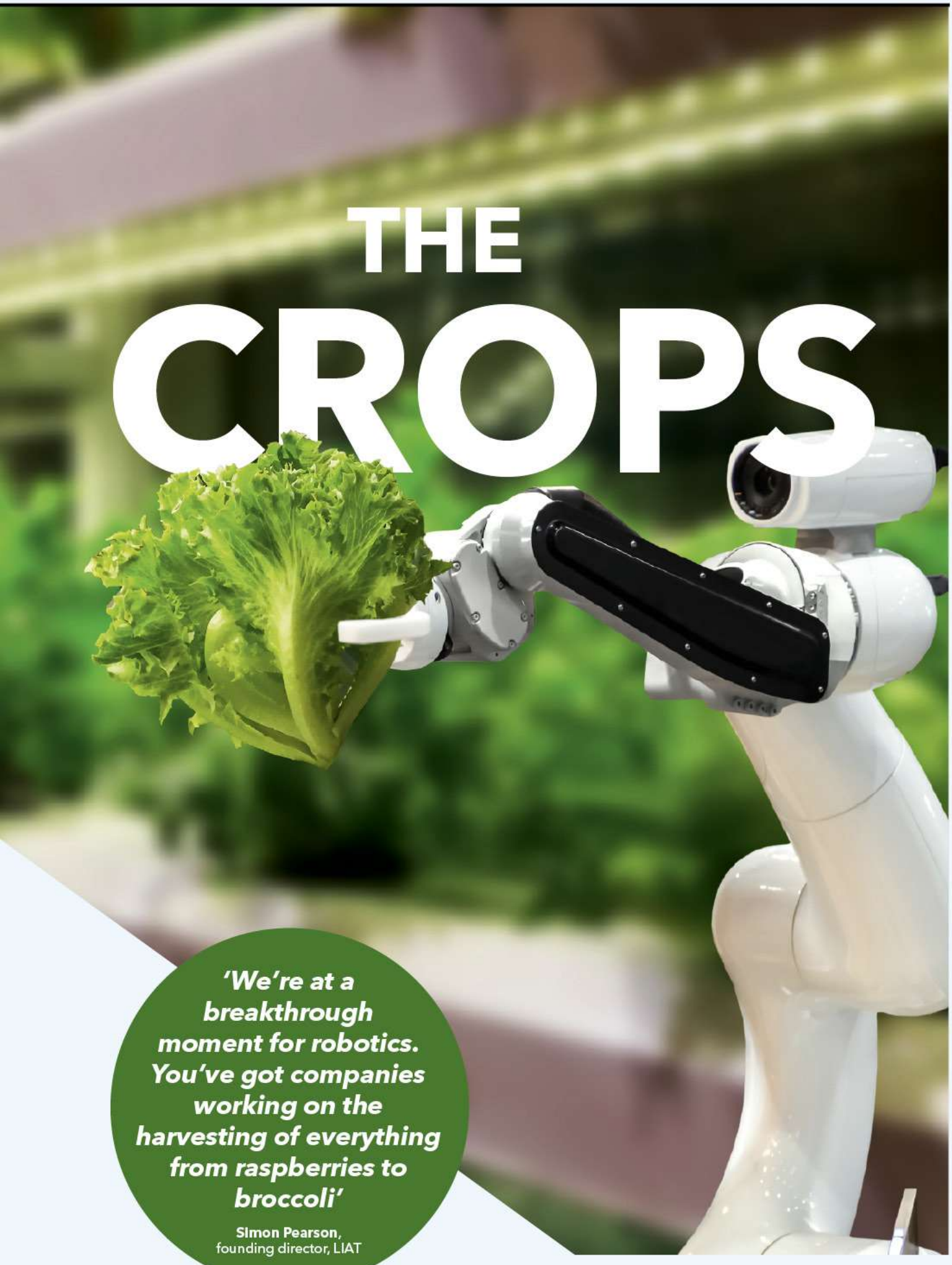
Innovative early-stage businesses such as CroBio and Rhizocore Technologies think they can help. CroBio's bioscience specialists have developed a new microbe that improves nutrient and water retention in soils, helping crops stay alive even when rainfall is in short supply. Rhizocore plants tiny fungal pellets alongside young trees; these pellets seed thin networks that help roots absorb nutrients and water, improving their tolerance to drought.

CroBio, which secured backing for a £670,000 Defra-funded collaborative project last year, and Rhizocore, which raised £4.5m from investors, are just two examples of agricultural technology (agritech) businesses in a sector where the UK is becoming a world leader. The government estimates that the agritech sector is worth £13bn to the UK economy. Rival hubs for innovation include the Netherlands, and — addressing different climatic challenges — Brazil and the UAE. However, the UK is second only to the US on numbers of agritech start-up and scale-up businesses.

"We have so much brilliant R&D going on in the UK and that is beginning to translate into practical change in farming," says Steve McLean, CEO of the UK Agri-Tech Centre, which works with farmers and agritech developers to advance the adoption of new technologies. "We just need to support more of these companies so they're investor-ready and really focused on the practical needs of farming," he adds.

"Our technologies are providing solutions for farmers around the world," says Louise Sutherland, director of Ceres Agri-Tech, an agritech university collaboration founded by Cambridge Enterprise, the organisation that commercialises research activity at the University

THE CROPS



'We're at a breakthrough moment for robotics. You've got companies working on the harvesting of everything from raspberries to broccoli'

Simon Pearson, founding director, LIAT

of Cambridge. "UK agritech is exciting in terms of improving productivity at home, but also as a driver of GDP growth."

It's a huge opportunity: the imperatives for innovation highlighted by the UK's scorching summer are just part of the story of agritech globally. As the global population continues to grow – the UN expects it to reach 9.6 billion by 2050, from 8.3 billion today – the challenge of feeding all those people is ever more daunting. And the impacts of climate change, including more extreme weather, increased risk of flooding and wildfires, and the degradation of natural habitats, only add to the challenge.

Agritech solutions are therefore crucial. New technologies can help farmers raise production levels and yields, adapt to climate change impacts, and manage their own environmental impacts. They can also drive down costs – vital in a sector where margins are often paper-thin and where rising food prices are part of a broader societal cost-of-living problem.

"Without exception, all agritech companies are about making a positive contribution," says Sean Butler, CEO of Cambridge Agritech, a syndicate set up 10 years ago by large-scale UK farmers and farming business owners keen to invest in new technologies. "They're all focused on improving the economics of agriculture and on reducing environmental damage."

Robot farmers

There is no shortage of new ideas – and scientists, engineers and entrepreneurs are pushing at an open door according to Simon Pearson, founding director of the Lincoln Institute for Agri-Food Technology (LIAT). "Farming is unbelievably innovative: farmers have always had to adapt and evolve," he says. "New technology boosts resilience, supports growth and ensures farmers can thrive."

AI is one piece of the jigsaw. Data-powered tools can ingest vast quantities of data – from weather forecasts to soil analysis, as well as information from sensors on the land and aerial data from drones – to help farmers make smarter decisions about how to use their land to maximise yield.

LIAT has worked closely with agritech start-up FruitCast, which has developed an AI platform that analyses weather forecasts, historical yield data and advanced computer vision analysis of crop imagery. The platform generates yield predictions – which have proved to be up to 90% accurate – so that fruit growers can plan labour, reduce waste and improve profitability. "It's a way to precisely match supply and demand," explains Pearson.

Robotics is another key area, with autonomous machinery becoming increasingly common. Pearson points to another start-up, Dogtooth Technologies, which manufactures robots that can pick strawberries. "We're at a breakthrough moment for robotics," he says. "You've got companies working on the harvesting of everything from raspberries to broccoli and more."

Ceres Agri-Tech-supported Agaricus Robotics, a mushroom-harvesting robotic specialist, is another example. "Mushrooms grow in tunnels, and they're stacked up like bunk beds, which makes for a challenging environment in which to pick, plus they're delicate, and they grow quickly," explains Sutherland. "Autonomous harvesting makes sense in these controlled environments. You maximise productivity, by picking when they're biggest, and that leads to sustainable intensification."

These crop pickers, as well as machinery such as robotic weeders and even animal milking and feeding systems, help farmers to tackle the shortage of agricultural labour in the UK – and reduce costs. For some crops, the UK Agri-Tech Centre estimates automation could deliver labour cost savings of more than 40%.

Elsewhere, agricultural bioscience specialists are focused on improving crop and livestock health, productivity and resilience. Advances in areas such as precision breeding, plant and animal genetics, and vaccines and biopesticides, all hold huge promise.

> ***'Agritech companies want to improve agriculture economics and reduce environmental damage'***
>
> **Sean Butler**, CEO, Cambridge Agritech

One of Cambridge Agritech's first investments, for example, was in Tropic Biosciences, which uses gene-editing techniques so that crops develop traits such as disease resistance and yield quality. "They started out

How does Gardin grow?

The business case for vertical farming and smart greenhouse production is that growing crops in a carefully controlled environment should be a cost-effective and predictable way to manage production; large harvests, produced on a small footprint close to retailers and wholesalers, should reduce logistics expenses too. However, getting it right is a constant balancing act. The amount of light, water and nutrients supplied to the plants can make a massive difference to the end result.

Abingdon-based Gardin has developed an innovative new technological solution to this challenge. Its optical sensors measure how efficiently plants are photosynthesising, enabling farmers to adjust the conditions inside their facilities very precisely – and to make those adjustments far earlier than would be possible by relying on a naked-eye inspection of the crop.

The company's success – some customers report yield improvements of up to 35% – has prompted significant interest from investors. Last year, it completed a $4.5m Seed 2 financing round led by Navus Ventures, with participation from Oxford Innovation Finance. Previous investors, including LDV Capital, MMC Ventures, Seedcamp, Alchimia Investments and several angel investors, also joined the round.

"We can help growers optimise yields, reduce waste and produce higher-quality food more efficiently," explains Sumanta Talukdar, CEO of Gardin. "This is a major step forward in making precision plant intelligence accessible at a global scale."

The funding is critical as Gardin continues to scale, supporting the expansion of its commercial team to drive customer acquisition and strengthen partnerships. The company is also continuing to invest in R&D, particularly in high-volume greenhouses, where it sees an opportunity to optimise large-scale food production.

'Investor willingness to back energy-efficient, land-light food production has held up through successive funding cycles'

Lily Ruaah, analyst, Beauhurst

Going Dutch?

The Netherlands is the world's second-largest exporter of agricultural products and foods, behind only the US. Although a third of this €137bn total is attributed to re-exports from other countries, the country still punches above its weight. The Dutch government's early embrace of agritech – enabling massive gains in crop yields while reducing water consumption and almost completely eradicating pesticide use – must take a lot of the credit.

Many rural areas of the Netherlands are now home to sprawling greenhouses, in which environmental conditions can be tightly controlled to produce fruit and vegetables such as cucumbers, tomatoes and chillies. Elsewhere, farmers use drones to monitor potato and onion fields. Autonomous robots for soft-fruit picking and potato processing have become near-ubiquitous.

Successive Dutch governments have launched a series of funding initiatives, both as part of its implementation of the European Union's Common Agricultural Policy and on a standalone basis. Grants and subsidies are available to support agritech developers and to encourage sustainable farming. There has also been significant investment in facilities such as the Wageningen Campus at Wageningen University & Research.

The campus has an explicit objective to foster advances in sustainable agriculture, food production, and health, with researchers and scientists working alongside private sector businesses. More than 230 organisations – including global businesses such as FrieslandCampina and Unilever, as well as start-ups – now have a presence on the campus, which styles itself as the "epicentre of agri-food innovation in Europe".

with bananas, addressing the spread of disease in a genetically homogenous crop, but they're expanding across plant breeding," says Butler.

Another group of innovators is taking a fresh look at where agriculture can take place. The UK Agri-Tech Centre suggests technologies such as vertical farming and advanced greenhouses could contribute an additional £300m worth of fruit and vegetable production in the UK each year.

"Controlled-environment agriculture remains one of agritech's most well-funded themes," says Lily Ruaah, an analyst at Beauhurst, the research platform that tracks investment in growth businesses. "Investor willingness to back energy-efficient, land-light food production has held up through successive funding cycles."

Backing growth

The UK government is highly supportive of the sector. Agritech is one of six frontier industries referred to in its *Advanced Manufacturing Sector Plan*, published last year as part of its broader Industrial Strategy. The plan provides direct support for early-stage projects and companies through schemes such as the Farming Innovation Programme, with at least £200m of funding available until 2030.

Ministers also point to a relatively light-touch regulatory environment. The UK's departure from the European Union prompted new rules for approving certain agricultural products, which has accelerated the innovation cycle. Brexit has also enabled a rethink of the subsidy regime (see below).

Government backing appears to be catalysing private sector investment too. In March, Syngenta announced a new £100m centre at its existing R&D facility in Berkshire. The agricultural technology company said the UK's strong record of agritech innovation, allied with a supportive government stance, had influenced its decision on where to locate the facility, which will serve as its global research centre.

Elsewhere, agritech start-ups and scale-ups are proliferating. Beauhurst says UK agritech companies raised £367m in 2025, the strongest year on record for the sector. These businesses have now raised more than £1.6bn over the past decade, Beauhurst reports.

Of course, this is not to suggest agritech ventures are a sure thing. "The challenge is to identify the right technologies, and then to work out how to commercialise them in real-life farming situations," says McLean. "Sometimes, what farmers need is very different to what scientists want to deliver."

Such concerns are particularly acute because the sector's tight margins have historically left farmers with little room for investment. "They're not going to spend money on innovation unless they are confident it will deliver a return on investment," adds McLean. "Farmers want to understand whether the business case stacks up on paper, but also whether it works for their individual farming environment – their soil type, their access to water, their labour supply and so on."

"It's really important to be co-creating," argues Sutherland. "It has to be pull rather than push: we have to shape and curate the tech to actually fulfil real farming needs, by

'We have to shape and curate the tech to actually fulfil real farming needs, by getting academics and scientists out into the fields to see the challenges'

Louise Sutherland, director, Ceres Agri-Tech

Brexit of champions?

The UK's decision to leave the European Union back in 2016 has led to major changes in the way farmers qualify for public sector support. Prior to Brexit, UK farmers received subsidies from the EU's Common Agricultural Policy, with payments largely based on the amount of eligible land they owned. Today, by contrast, the UK Government's approach is to award payments for 'public good' rather than quantity of land.

How this works in practice varies according to where farms are located, because UK agricultural policy is devolved from Westminster to the governments of Scotland, Wales and Northern Ireland. Each has its own incentive scheme, but the broad principles - that funding should reward farmers pursuing environmental goals, from reducing fertiliser and pesticide usage to restoring ponds, stone walls or hedgerows - are the same. One byproduct of the new approach has been that farmers turning away from pesticides and fertilisers are encouraged to invest in agritech solutions to keep yields up.

Separately, the Department for Environment, Food & Rural Affairs (Defra) has recently announced a new round of the ADOPT fund, which funds farmers willing to participate in trials and testing of new technologies. The scheme is intended to help smaller farmers adopt agritech solutions more quickly.

"ADOPT is a brilliant programme because farmers get to trial the latest technology with very little risk to themselves," says the UK Agri-Tech Centre's Steve McLean.

getting the academics and the scientists out into the fields to see the challenge for themselves."

Testing times

Seasonality is a related problem, says Cambridge Agritech's Butler. In other areas of technology, innovators iterate constantly to perfect their designs – something that often isn't possible in farming. "Most technology is relevant only at a particular point of the life cycle, so there is only one window each year," Butler says. "Innovation might be targeted at preparation of the land, say, or at sowing or drilling, or at harvesting the crop."

With only a few weeks each year to test new ideas in the field, progress for agritech developers can be slow. "In the meantime, agritechs often have a meaty cash-burn rate, particularly as they try to scale," Butler warns. "They may try to get their technology out earlier than is ideal, for fear of missing the window of opportunity; some agritechs overpromise and underdeliver."

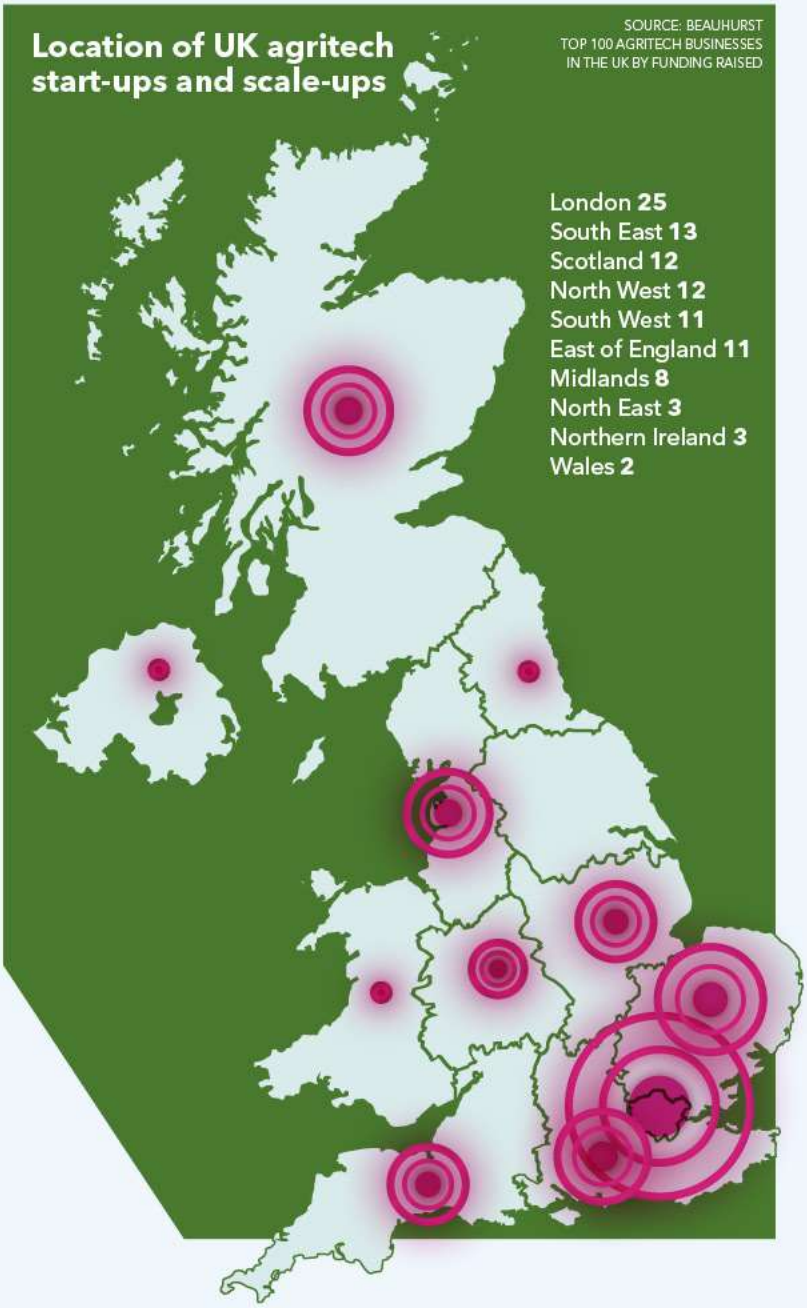
The risks in agritech are exemplified by setbacks in vertical farming. In theory, this approach has much to offer: crops are grown inside, in trays which can be stacked in towers, reducing the space required for production; growing goes on all year-round, requires no pesticides, and sites can be placed close to cities or key supply chain hubs.

However, there have been a series of high-profile vertical farming failures over the past 18 months, including Jones Food Company, the largest operator. It collapsed with £22m of debt, despite having received the backing of grocery chain Ocado. Vertical Future and Eider VF have also failed.

In each case, the technology worked but the business case did not. High energy costs and the need for significant upfront capital investment stretched operators' finances. Retailers proved reluctant to commit to bulk purchases and long-term contracts and small-scale projects struggled with high unit costs.

But there are success stories too. In the US, Oishii has successfully scaled vertical farming of Japanese Omakase strawberries – a superior indoor-grown specialty fruit that customers are prepared to pay a premium for.

On another positive note, other areas of agritech are generating big winners. Aquaculture company Benchmark Holdings, which has raised almost £350m since its launch in 2000, is now consistently profitable and returned more than £30m to investors last year following the sale of its genetics business. LettUs Grow, which manufactures aeroponic irrigation systems for greenhouses and vertical farms, has been involved in more than 25 projects worldwide. And Frontier Agriculture, which has built its grains business on precision farming, digital tools and analytics capabilities, had revenues of close to £2bn last year.

One very positive sign is the increasing level of M&A activity in the sector, both in the UK and in Europe. Chemicals giant BASF acquired biological insect control firm AgBiTech in March, and Chesterfield-based AI-powered livestock technology firm Optifarm was bought by Munters. In the Netherlands, greenhouse construction firm Atrium Agri merged Bom Group and Havecon Horticultural Projects.

Such deals point to growing agritech sector maturity – and indicate strong appetite from both investors and trade buyers for the most innovative companies. Beauhurst's Ruaah argues that, with a more diverse set of agritech companies now raising money, there is good reason to be optimistic. "Agritech is evolving from a narrow crop-and-livestock productivity play into something closer to the commercial infrastructure of the food-and-land economy," she says.