



Airponix
Fog generation system

Why horticulture technology is key to food security >>>



Horticulture – the branch of agriculture concerned with plant cultivation and growing plants for food – is a key component in the quest for food security.

Controlled Environment Horticulture (CEH) is an umbrella term that includes smart technologies for managing glasshouses right through to vertical farming, where fresh produce is grown in stacked layers under LED lighting. Traditional agriculture is adversely affected by the climate, uses a lot of resources (e.g. water), as well as pesticides to grow and protect crops.

CEH solutions, such as vertical farming can produce crops with 70 to 95 per cent less water than normal cultivation, key for arid climates. Indoor vertical farms are less impacted by an unfavourable climate and weather changes, providing greater certainty of harvest output throughout the year, and can grow crops without the use of chemical pesticides.

Land scarcity and increasingly severe weather fuelled by climate change, have driven the UK to innovate in this space.

The UK is at the forefront of developing technologies to manage every aspect of the growing environment – lighting, temperature, humidity, nutrient delivery, irrigation, harvesting and cultivation – and to automate where possible.

UK Controlled Environment Horticulture expertise for the Middle East

Airponix

Cambridge-based Airponix Ltd offers a radical solution to feed sustainably the growing population locally. It is a smart, soilless system that uses 95 per cent less water, no soil, a fraction of the footprint and no harmful chemicals with its proprietary disruptive fog-based technology. Fog penetrates right into the suspended and exposed plant roots, letting them absorb exactly what they need, when they need it, mimicking nature like an orchid growing in mid-air, absorbing light, oxygen and nutrients from its humid surroundings. It is lower cost, more effective, and without the limitations and environmental impacts of other methods including hydroponics and aeroponics. It's thus particularly suitable for the Middle East especially as tall A-frame structures allow for vertical growing while utilising natural light.

Fera Science

Fera Science is the UK's largest and longest serving provider of agri-food research, service and regulatory advice. They utilise their scientific expertise to address the most important issues in farming, agriculture and the environment for clients around across the globe. Fera Science works extensively across the Middle East, supporting government and industry in delivering food safety and plant health services, and innovative research. They are currently collaborating with TP Bennett, an internationally renowned architectural design practice, and WAGTech Projects, an award-winning manufacturer and supplier of specialist water and environmental equipment and services, to support Silal Food & Technology LLC's R&D activity in the UAE to aid the growth of the horticulture and farming sector in the country.



Intelligent Growth Solutions (IGS)
Vertical farming innovation

Aquagrain

Aquagrain is a unique, organic-based, biodegradable soil and compost improver which can absorb and release up to 30 times its mass in water. Produced using organic waste from the food industry, it cuts the need for inorganic fertilisers and enables all plants and crops to grow using a fraction of the water normally required. Aquagrain increases yield, by providing the nutrients for crops to grow stronger and live longer. In commercial demonstrations, it delivered yield increases of 40% in Middle Eastern rainfed cereal, 100% in Nigerian groundnut crops and 23% in UK red onions grown in sandy soil. It requires no specialist infrastructure or equipment to use and is simply added to the soil, where it, biodegrades over 12 months to leave just water, CO₂ and organic matter.

IGS

Scotland-based IGS has developed a highly scalable, modular vertical farm system which uses Total Control Environment Agriculture (TCEA) to deliver the optimum conditions for crop growth. The farms can operate in heat up to 60°C, wind speeds over 100mph and feature irrigation systems which recycle up to 97 per cent of all water in each crop cycle. This makes them extremely energy efficient and environmentally sound, with zero emissions. The company has seen a significant increase in interest from customers looking to improve food security and localise crop production and is now deploying systems on four continents around the world, always operated by local farmers. These systems can grow a wide range of crops including roots, fruits, leafy greens, flowers and even young trees.

Learn more about UK agritech solutions for your business.

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