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The Agri-Tech Centres and their contribution to the UK's net-zero initiative

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The advent of COVID-19 brought about a lot of change—some welcome (showcasing your new Zoom background) and some less welcome (not knowing how to stop showcasing your new Zoom background)—but perhaps one of the more profound changes has been a newfound appreciation for the environment in which we live. This has led to a greater general engagement with the climate change crisis and, as a result, governments are implementing new legislative changes and redirecting funding to various bodies and initiatives with a view to minimising human impact on Earth's climate.

One such body is the UK Agri-Tech Centres of Agricultural Innovation which—with support from the UK's innovation agency, Innovate UK—is working to support food and farming innovators to become more productive, sustainable and enterprising, and in so doing support the UK's net-zero initiative.

It is known that emissions from UK farms contribute approximately one tenth of the UK's greenhouse gas emissions. Perhaps more notably, of those greenhouse gas emissions, UK farms contribute approximately two thirds of the UK's nitrous oxide emissions and one half of the UK's methane emissions, both of which are considered to have more potent greenhouse effects than carbon dioxide. However, with the National Farmer's Union of England and Wales (NFU) pledging to reach net zero greenhouse gas emissions across England and Wales by 2040, the sector is getting behind the UK's overall ambition of reaching net zero by 2050.

With agriculture being both a source and sink of greenhouse gases, the sector is uniquely placed to make a significant contribution to the UK's net zero goal; however, with tight profit margins and ever-changing regulations, the changes required do not come without significant challenge.

Hence, support from all avenues is welcomed. The likes of the Agri-Tech Centres help to funnel such support to where it is able to make the most impact by providing a gateway for companies and individuals seeking to stimulate new research, practice and technology for the agrifood sector, and, perhaps most importantly, transfer knowledge across the sector to encourage yet further beneficial developments.

The Agri-Tech Centres comprise Agri-EPI, Agrimetrics, CHAP, and CIEL, and each provide a specific set of expertise in order to support and develop the growth of innovative, scientifically robust, yet commercially viable solutions to the agrifood sector.

So in what way are these centres helping to solve the challenges faced by the agrifood sector? And in what way are they helping to fight the good fight to help this industry achieve net zero?

Agri-EPI

The focus of the Agricultural Engineering Precision Innovation (Agri-EPI) Centre is in the name—it helps to provide solutions to the challenges faced by the agrifood sector through precision agriculture and engineering.

An example of one such solution is the Soil Flux 360—a device developed at the Agri-EPI Crop Technology Southern Innovation Hub to automatically measure whether soil at a given site at any given time is a net source or a net sink of greenhouse gases.

In soil, decomposing plants and animals lead to the creation of solid organic carbon; however, over time the decomposition of this organic matter releases carbon back into the atmosphere as carbon dioxide. Gas released from the soil into the lower atmosphere is termed positive flux, gas that is absorbed into the soil is termed negative flux, and the balance between the two determines whether the soil is a source or a sink of greenhouse gases. By measuring this flux, the Soil Flux 360 has the capacity to quantify how soil is contributing to the UK's net zero efforts, and in so doing not only provides an indication as to how this contribution could be maximised, but also how to improve soil quality and thereby increase crop yields. Woody Harrelson (narrator of Kiss the Ground) would be pleased.

Agrimetrics

Agrimetrics offers the World's largest source of pre-linked, analysis-ready agricultural data—in essence, the first Agrifood Data Marketplace—enabling the sector to realise the value in collecting and sharing data.

Just one example of the way in which this data is being used to make positive net-zero waves is in the creation of the regenerative agricultural platform—RegenAgri—by Control Union UK. The platform promotes holistic farming techniques that increases soil organic matter, encourages biodiversity and sequesters carbon dioxide from the atmosphere, and is aimed at farms and organisations looking to restore land and make it carbon positive. The platform does this by providing the infrastructure to collect and assess a wide variety of data points on the practices and environment of an agricultural business and estimate the carbon sequestration of the business to, for example, award the business carbon credits.

CHAP

The focus of Crop Health and Protection (CHAP) is to address the need to nourish a growing population sustainably through the application of new technologies to enhance crop productivity.

Some such technologies are currently being developed following the launch of the RIPEHouse project by CHAPS—in conjunction with RIPE Building Services, University of Warwick, Evoponic, Mudwalls Farm Ltd and Valefresco Ltd—which is seeking to develop a novel low-carbon production system for controlled environment agriculture which aims to harness the benefits of natural light growing, alongside bespoke biostimulant formulations, to optimise not only the sustainability credentials but also the nutrition and flavour of fresh produce. At the Natural Light Growing (NGL) Centre, the benefits of using ethylene tetrafluoroethylene (ETFE)—a material that allows full UV penetration—in place of the conventional glass used in glasshouses are being explored, with a recent harvest of baby cucumbers showing promise that taste and carbon efficiency can go hand in hand.

CIEL

The Centre for Innovation Excellence in Livestock (CIEL) is—as the name suggests—focussed on innovating livestock food production. CIEL is at the heart of a collaborative network of industry members that span the livestock supply chain for all species, and as such acts as the sector's point of access to livestock research capability.

Research currently being conducted at the CIEL-supported National Pig Centre by researchers at the University of Leeds is looking at ways to ensure the future of outdoor pig production is resilient to climate variability and climate change. The researchers are looking to develop a climate-smart production system by monitoring pigs to quantify feeding behaviour, activity levels and manure, and by monitoring the weather over the same period, to adjust precision nutrition programmes in order to optimise the health of the pigs whilst mitigating environmental emissions.

If you are working in the UK's agrifood sector and looking to make an environmental difference, then we recommend investigating what support the UK Agri-Tech Centres can provide.

Solving some of the problems encountered when working towards net-zero might involve innovative solutions that may qualify for patent protection. A patent gives its owner the right to control use of the invention by preventing third parties from using it. However, a patent does not need to be used only in that way—it can be cheaply, or freely, licensed to third parties to encourage use of the technology while retaining a degree of control.

There are also other forms of intellectual property, such as trade marks, plant variety rights and design rights that can be used to protect argi-tech businesses. At AA Thornton, we have extensive expertise protecting the intellectual property rights in the agri-tech field. Please do not hesitate to contact Victoria Jones (vej@aathornton.com), or any of the AA Thornton attorneys, if you feel a discussion would be beneficial.