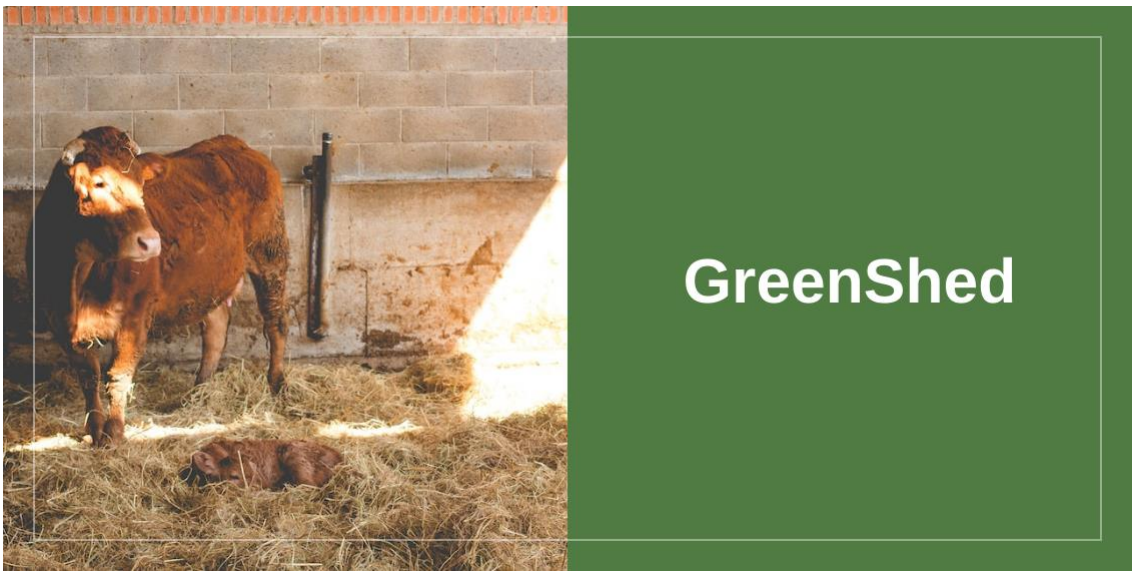
Newsletter 1: 07/10/2022

GreenShed Phase 2



Welcome to the first newsletter about Phase 2 of the pioneering GreenShed project which aims to explore net zero beef production.

Rapid solutions to reduce emissions are essential to meeting the UK's ambitious net zero targets by 2050.

GreenShed addresses the need for the livestock farming sector to reduce its GHG emissions whilst improving productivity, by developing an integrated low carbon, circular, cattle and vertical farming system, bolstering green technology for UK agriculture.

The state-of-the-art shed will use cattle waste products to power a methane capturing system and grow indoor crops has received nearly £3 million from the UK Government.

Across the three year project you will receive key updates about project, being the first to hear about the key milestones on the journey to net zero, including:

- Building a demonstration facility at SRUC Easter Howgate
- Testing the technical performance (carbon savings that can be achieved)
- Demonstrating animal welfare
- Developing supply chain models for incentivising low-carbon beef

Project lead: SRUC

Scotland's Rural College is a public land based research institution focused on agriculture and life sciences.

Project Partners

University of Strathclyde

The University of Strathclyde is a public research university located in Glasgow, Scotland.

Agri-EPI Centre

The centre for engineering precision innovation in farming. They help develop profitable and productive solutions to empower more sustainable farms.

No Pollution Systems

No pollution provides bespoke soundproofing, heat recovery and precision HVAC solutions across various industries. They also supply climate controlled research chamber systems, used within the agricultural research sector.

Organic Power Ireland

This Anaerobic Digester from OPI is a containerised modular plug and play system designed to deal with much lower daily tonnages than traditional systems and much more appropriate for normal sized livestock farms.

Galebreaker

Galebreaker exists to enable agricultural businesses to perform at their best in any weather or climate. Our weather protection, ventilation and access solutions help provide ideal housing conditions for healthy, productive livestock.

Saturn Bioponics

Developers of the award-winning Saturn Grower hydroponic production system for leafy produce, herbs and soft fruits.

N2 Applied

N2 Applied has developed a technology that enables local production of fertiliser using only livestock slurry, air and electricity, – dramatically reducing harmful emissions and improving yield at the same time.

John Farquhar from SAC Consulting and Dr Carol-Anne Duthie from SRUC at SRUC's research farm in Midlothian.

GreendShed renewable methane capture system

The project led by Scotland's Rural College (SRUC), the GreenShed system will produce low-carbon fertiliser and has the potential to remove the equivalent of 237 tonnes of carbon dioxide per farm per year.

The project aims to capture methane from housed cattle and utilise the outputs from its combustion (heat, power, carbon dioxide (CO2)) within an integrated cattle and vertical farming system to yield low carbon produce (meat, vegetables/fruits) and optimise resource use efficiency.

The nearest current state-of-the-art techniques for removing methane from air and converting it to CO2 are performed using either animal mounted systems for direct enteric emissions only, or combustion of biogas produced using anaerobic digester (AD) which only combats indirect emissions from waste and bedding.

After receiving £200,000 last year to refine the system's design, GreenShed has now received a further £2.9m from the Direct Air Capture and Greenhouse Gas Removal programme, part of the UK Government's Net Zero Innovation Portfolio.

It is hoped building of the shed, which is supported by partners at the University of Strathclyde, Agri-EPI Centre, Edinburgh-based no pollution Industrial Systems Ltd, Galebreaker Agri, Organic Power Ireland, N2 Applied and Saturn Bioponics, will begin in Midlothian later this year.

The shed's anaerobic digestion plant will use waste cattle bedding to produce energy to run a methane capture system. Excess energy will then be used to power a vertical farm and low-carbon fertiliser system.

In practice, farmers could benefit from an additional income stream of up to £40,000 a year, while it is estimated that a 100-cattle shed using the GreenShed

system could also save them £1,000 a year in fertiliser and heat energy costs.

Quote from Professor Wayne Powell, Principal and Chief Executive of SRUC, said: “GreenShed provides an innovative working example of how researchers, businesses and other partners can collaborate effectively to shape a more resilient, nature-positive producer supply chain that’s aligned with the aims of the national Food Strategy. We are hugely grateful to ministers for their support.”

SRUC’s Dr Carol-Anne Duthie, who leads the project, said: “We’re thrilled to have received this funding to make the exciting GreenShed project a reality. The value of the project is clear: farmers will improve their profitability, expand their saleable food products, and reduce the environmental impact of beef production.”

September's on-site technical meeting held with the consortia partners

GreenShed Technical Update meeting on 22nd September was held at SRUC Easter Howgate Farm, Edinburgh with the project partners.

Easter Howgate Farm will see the build of the GreenShed facility. Keep up to date with the build and the project.