On-Farm Impact: Rob & Jo Hodgkins

CASE STUDY

- Aiming to improve the efficiency of farmers through the use of technology
- Aiming to offer UK farmers the world's lowest carbon and most efficient sheep
- Agri-EPI able to tap into co-operative to discover future needs and concerns of growers

Background

Kaiapoi Farm is an innovation farm for Agri-EPI, the centre for engineering, precision and innovation in farming. They collaborate with real farmers, start-ups and established companies to help develop profitable and productive agri-tech solutions to empower more sustainable farms.

Agri-EPI Centre's farm network is diverse, comprising of different farming systems, sectors, sizes and business structures. They provide a true representation of producers and growers across the UK and abroad to provide bespoke trial and research and development opportunities for agri-tech systems as a service, or grant project.

Meet Rob and Jo.

Kaiapoi Farm, in North Hertfordshire, was set up by Rob and Jo Hodgkins in 2013 with 200 ewes on 60 rented acres of grass.

They have worked hard driving the

business forward, and now farm 2000 acres of arable farmland, with 2000 New Zealand Romney ewes, and 300 ewes for milking.

Rob and Jo are keen on integration and making sure each enterprise meshes nicely into the next one. They have faced challenges as a relatively new farm financing massive expansion and trying to find quality staff, who are on board with taking part in the complex projects they are doing.
They have imported Romney Rams from New Zealand to create the ultimate outdoor lambing ewe for the UK climate.

Farmer-led research and development

Methane emissions are a major cause of climate change and farmers are coming under pressure to act. Every sector of UK farming is responsible for finding ways to minimise their carbon footprint, including the sheep sector. Rob and Jo at Kaiapoi Farm have identified a huge opportunity to use genotyping and selective breeding to drive down methane emissions from sheep, through funding from Defra's Farming Innovation Programme which is delivered in partnership with UKRI's Transforming Food Production Challenge.

The main goal of Rob and Jo's feasibility study is to explore how cutting-edge technology can be leveraged to produce sheep with 10-25% lower emissions. Research on this concept has been carried out in New Zealand previously, leading researchers to believe that methane emissions are a heritable trait in sheep. This means sheep emissions can be managed quickly and easily throughout flocks by changing their rams. Their project will work towards breeding 'Ultra-Low Emission Sheep' by comparing UK sheep DNA markers with New Zealand DNA markers for low methane emitting sheep. By using a USA based laboratory

for DNA markers and a genetics company in New Zealand, the first world class breeding program in the UK to drive this technology forward will be developed.

“Working with international partners will help us produce a global solution to a global problem. The project will also incorporate in-field methane measurement from Scotland's Rural College (SRUC), who are an industry leader in livestock emissions research. This will provide ground truthing data to confirm the DNA comparison made between the UK and NZ sheep. In addition, we will look at increasing meat and wool yield further to reduce carbon per kg of meat for no increased inputs. Wool itself stores carbon so increasing wool yield will enable further carbon sequestration - 1.4kg of wool stories 1kg of carbon.”

The aim: to offer UK farmers the world's lowest carbon and most efficient sheep.

Agri-EPI making an impact

Agri-EPI aims to improve the efficiency of farms through the use of technology. Tapping into the co-operative to discover the future needs and concerns of growers, Agri-EPI has worked on a number of projects with Kaiapoi Farm.

Rob said:

"We now run several projects with Agri-EPI including ones looking at interrow hoeing, novel crops, and methane measurement.”

One of Rob and Jo's projects in collaboration with Trimble and Agri-EPI was using the Garford Interrow hoe, controlled by the Trimble RTK auto-steering system, to control black grass regeneratively on the farm, utilise non-chemical control, and cut down pesticide use. They have also looked at a project with Affinity Water and SoilEssentials to mitigate nitrogen leaching and to use satellite imaging of the farm to estimate the biomass of their crops.

“We try to be very progressive young farmers, and act as a tech incubator to push forward ideas and concepts may not be immediately financially viable, but have the potential to be in the future.”

> “We have a very beneficial, very positive relationship with Agri-EPI. We have worked with the team to identify challenges on the farm and then trial the technology as part of our farming system”.
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> **Rob Hodgkins, Farmer, Kaiapoi Farm**

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