

£250,000 Innovate UK funding secured

First Milk and Scotland’s Rural College (SRUC), together with our customers Nestlé and McQueens Dairies, have recently won UK government funding. The funding has been awarded for the development of new tools to provide consumers, retailers and processors with verifiable information about the environmental footprint and animal welfare standards in dairy production systems. The project addresses some key concerns voiced by consumers and retailers about milk and dairy products, who need to be reassured about the environmental footprint and animal welfare standards of dairy production systems.

We are delighted our bid was successful, with the funding coming from Innovate UK. SRUC is the lead academic partner, with First Milk leading on farm engagement. The project will run over 18 months and is summarised below:

- Manual recording of health and welfare is both time consuming and has inherent weaknesses. A feasibility study will ascertain how monitoring technologies, including environmental sensors, animal-mounted sensors and camera technologies can be used by farmers to manage technical aspects of their systems
- By relating this information to manually-recorded information, using advanced machine-learning techniques, we will be able to develop new algorithms to provide indices of environmental emissions and cow welfare in ways that are easier, cheaper and more reliable



- This will assist First Milk to deliver one of the responsible sourcing objectives, ‘to create an automated animal health and welfare index’.

A proportion of the funding has been allocated to pay for new technology to be introduced on some members’ farms, while also making best use of what has already been implemented.

We are looking for around 30 First Milk members to be part of this exciting initiative. If you are interested in being involved, please contact your Area Manager or email membershipteam@firstmilk.co.uk

RABDF Entrepreneurs in Dairying sponsorship

First Milk is once again offering sponsorship to five individuals for the RABDF Entrepreneurs in Dairying course. A business training programme for aspiring dairy producers, it covers all the important aspects of running a successful dairy business. The course begins in October 2020. Sponsorship covers course fees and travel, although most content will be delivered virtually this year.

APPLY NOW

To apply for a sponsored place, please email your CV and a covering letter to membershipteam@firstmilk.co.uk by Friday 4th September.

“The course was very interesting and beneficial to our farm business. We looked at topics from understanding the milk market to people management to tax and trading structures. Many thanks to First Milk for the sponsorship.”

Delyth Robinson
Pembrokeshire

“I am finding the course really useful for developing myself as a person and understanding how to communicate with different personalities within a workplace to obtain strong teamwork. Thank you for the opportunity.”

Jessica Langton
Nottinghamshire

Winner of Chairman's award leads innovative slurry project



John Owen has been an advocate for First Milk over many years. His loyalty to the co-operative, valued contribution and on-going dedication to the wider Welsh dairy industry were central to him receiving the 2019 Responsible Farming Chairman's Award.

After 10 years at the University of Bangor, John moved south and has spent the last 25 years at Coleg Sir Gâr's Gelli Aur Farm. As Farm Manager, he has played a key role in educating the sons and daughters of many First Milk members. He has also hosted countless open days for the local farming community and agricultural businesses, reflecting his and the College's commitment to the industry, situated in the heart of Welsh agriculture.

Prosiectsllyri

Still based at Gelli Aur Farm, John has now handed over its management to focus on a new project management role. And it is this current project work which was highly commended in the Earth category of last year's awards.

In short, Prosiectsllyri (Slurry Project) is about making better use of slurry. Slurry management is becoming an increasing issue for many farmers and the environment. Investing in greater and improved storage capacity is costly, and according to Natural Resources Wales (NRW), 60% of pollution incidents on Welsh dairy and beef farms occur within the dairy sector.

"Agriculture has a role to play in protecting the environment through enhanced slurry management and improving water quality," says John. "But making better use of farm resources, such as slurry, also makes financial sense."

As the saying goes, 'one man's waste is another man's treasure', and slurry is being increasingly recognised as a valuable and cost-effective source of nutrients. Rather than looking at more efficient ways of storing and using 'whole' slurry, Prosiectsllyri is focused on extracting and recycling the solids and water separately. By treating the slurry, the water produced can be of a suitable quality to be recycled for use on farm, and the solids provide a good quality fertiliser.

"We estimated savings of £18-20K could be achieved from this process and although we have yet to do a full evaluation, I'm confident there'll be a monetary value," says John.

Of most surprise during the project has been the variability in slurry constituents day-to-day. Standard %DM is usually given as 4-5%, but this project has seen a range of 1-12%. The variation is most likely due to rainfall and other climatic conditions, feed and bedding (housed or grazing), and requires understanding in order to be managed. "As slurry is usually stored and applied without analysis, its true nutrient value is unknown but is important," explains John. "If the variability can be reduced, by removing the water, the product is far more stable and useful for today's precision farming techniques."

The variability, and a consistency of around 50% solids, prevented the researchers from using an electro-chemical process of separation. However, the chemical process used was simpler and cheaper, and although correct procedures are still required, the chemicals used aren't as toxic as other farm solvents.

"The benefits of this process definitely outweigh any disadvantages," insists John. "The resulting product is good organic matter ideal for soil conditioning. It

allows slurry to be applied more efficiently rather than drowning land in it."

The three-year project secured EU and Welsh Government funding and is a collaboration between Coleg Sir Gâr and Power & Water, a technology company specialising in wastewater recovery. Governance is provided by representatives from interested parties, such as farming, fishing and environmental/conservation groups. "Far from being antagonistic, the conservation groups have been totally supportive as they can see what we're trying to achieve," comments John. "Projects like this build bridges not barriers."

Coleg Sir Gâr doesn't have a commercial interest in the project but became involved for the good of the industry and concerns for the environment. The college is keen to work closely with the local farming community to take the technology forward while their project partners take it on commercially.

"Our research work is always farm-based and applicable to a farm setting. The project has given us a 'whole farm' system for other farmers to see," says John. "We're keen to develop it further to include reed beds and further electro-chemical treatments to produce potable water, plus catchment techniques, making it more individual to support farmers on nutrient management."



John Owen, Gelli Aur Farm

Work is currently underway to secure further funding in order to marry up the development work achieved with other emerging technologies.

"Demand for better nutrient management has seen a plethora of innovation processes and systems being developed worldwide," explains John. "Our aim is to evaluate these processes and find the most appropriate to Welsh and UK weather conditions. Slurry is a massively untapped resource; it's seen as a pain and not made the most of to date. From here, massive improvements can be made. Water recycling is a priority and we are uncovering an applicable and cost-effective solution for farmers."

The stages of liquid purification



WHAT'S IN IT FOR FARMERS?

1. Financial benefit
2. Legislation, e.g. proposed All Wales NVZ
3. Government 'public good' funding
4. Public demand for a cleaner environment
5. Easier and reduced slurry storage/management

Right: Prosiectsllyri plant



SOIL CARBON – an opportunity to promote grass-based dairy farming

Current carbon foot-printing methodology does not credibly account for carbon sequestration in soil (or carbon loss from soil). As a result, soil management has a low influence on a farm's carbon footprint number. Factors such as renewable energy and increasing yield per cow are often prioritised in preference to increasing soil health, i.e. organic matter and carbon.

Soil carbon can range from 50 tonnes/hectare in intensive arable land up to 250 tonnes/hectare in low input permanent pasture. The Farm Carbon Toolkit (www.farmcarbontoolkit.org.uk) claims a 0.1% increase in carbon content per hectare per year can capture an additional 8.9 tonnes of carbon pa.

Based on a carbon footprint of 1.2 kg CO₂e per litre of milk, a 1 million litre pa dairy farm would theoretically be responsible, each year, for 1,200 tonnes of carbon equivalent GHG emissions. If that farm achieved a 0.1% increase in soil carbon it would offset its milk production with 135 hectares. However recent research by Oxford University has resulted in a proposed new way to account for methane produced by ruminants. This could potentially reduce the GHG emissions of a dairy farm by 40-50%. Based on this figure, the area of carbon-sequestering grassland required to offset 1 million litres of milk production is reduced to 74 hectares.

There are a number of other critical benefits to encourage dairy farmers to increase soil organic matter (and soil carbon). Soils with a higher carbon content are less prone to drought and able to absorb more water before becoming saturated. They are capable of good yields with lower inputs and enhancers of soil biodiversity, e.g. earthworms, microbes and beneficial fungi. This in turn aids nitrogen fixation, plant health and soil structure.

Higher carbon content soils therefore provide significant benefits to farmers. Resilience to drought and flood is an important strategy for dairy farms in dealing with climate

change. Many farmers comment on the lack of grass after relatively short dry periods and have concerns about waterlogged soils after equally short wet periods.

First Milk is actively engaged in discussions with customers, government bodies and other companies about recognising the value of additional soil carbon created by the best grass-based dairy farmers. Critically dairy alternatives, such as soya, find it very difficult to compete because annual cultivations and high input arable crops normally result in a net loss of soil carbon.

With the vast majority of First Milk members having now signed the First4Milk Pledge, we have started to engage with our customers on using your commitment to better promote First Milk. The Pledge asks all members to implement a soil and nutrient management plan. This is designed to demonstrate responsible use of fertilisers and manures and to maintain levels of soil organic matter to improve soil health and carbon storage.

Please ensure you soil sample a proportion of your farm every year and, this year, ask for your samples to be tested for soil carbon and soil organic matter. By sharing this information with us, we can build a national picture to help further promote First4Milk to customers. By providing reports and benchmarking via our app, we also hope to aid your soil management planning for future seasons.



Women in Agriculture

Our Nestlé Women in Agriculture group, set up earlier this year, has enjoyed some good friendly debates and helped members discuss their everyday farming challenges. We are considering a similar group for women on all First Milk farms and would love to know your opinion. Please take part in the short survey to be circulated by e-mail very soon. Thank you in advance; we look forward to hearing your views.



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