BUSINESS

April 2022 – July 2022

FARMING connect
cyswllt FFERMIO

Number of businesses registered:

12,455

Number of individuals registered:

26,158

Personal Deveopment Plan

362 PERSONAL DEVELOPMENT PLANS WERE CREATED DURING THIS PERIOD

Knowledge Exchange Hub

Technical articles produced by the KE HUB:

FARM BUSINESS DIVERSIFICATION – A RESEARCH PERSPECTIVE

Demonstration Network

Glynllifon Agricultural College – Hydrogen Electrolyser project

Figure 1. Students from Glynllifon Agricultural College.

Farmers are coming under more pressure to reduce the amount of carbon dioxide created from the use of diesel and machinery in various farm processes. The use of new technology on newer tractors to reduce particulates and greenhouse gases is common; however, on older tractors, such technology is not available. Older tractors tend to be used for certain farm tasks; as such, they are replaced less often, as they generally are not used to carry out tasks on roads. One solution for older machinery is to retro-fit a hydrogen electrolyser (HE), which is a relatively cheap option to reduce emissions and diesel use.

The premise of the electrolyser is to split water into its component parts of oxygen and hydrogen, by passing an electrical current through distilled water with a potassium hydroxide electrolyte and collecting the gases. By introducing the hydrogen rich 'oxyhydrogen' mix into the engine, at a rate of approximately 6 per cent, a faster burn and more efficient combustion process takes place, thus reducing the amount of fuel used, and consequently lowering the amount of emissions produced.

The aim of the project was to investigate the effectiveness of hydrogen electrolyser on existing, out-of-warranty tractors. A tractor pulling a feeder wagon and a workshop tractor were used as the chosen tractors at Glynllifon Agricultural College.

What was done:

The HE kit was fitted to a John Deere 6630 workshop tractor and a McCormick CX90 college farm tractor in daily use on a feeder mixer wagon, and we used a control tractor – a Massey Fergusson 6470 (Common rail) – as a modern tractor for comparison.

Data on fuel use and $C0_2$ emissions was collected for one month prior to fitting, and then another month after being fitted. The task the tractor undertakes will be the same (i.e. mixing and feeding).

The data collected included:

- Tractor CO_2 reading prior to kit fitment
- Tractor CO_2 post kit fitment
- Tractor diesel usage for a month preceding kit fitment
- Tractor diesel usage for a month post-kit fitted

Project results

The results highlighted that the savings are minimal, and only on fuel consumption:

- JD 663 tested on the power harrow had a fuel consumption improvement of 4.6% or 1L/hr
- McCormick 95 tested on the Dynamometer showed a fuel consumption improvement of 3% or 0.5L/hr

In all of the other tests carried out, the performance of the HE kit showed the same or no improvement in performance.

Wern Farm – Enhancing bird health and performance through the use of sensor technology to control air, litter and water quality.

Background:

Sensors have been fitted in the unit that houses 32,000 birds at Wern to monitor its environment. These sensors record humidity, temperature, ammonia and CO2 levels and link to a LoRaWAN gateway, with live data being sent from the farm every 10 minutes throughout the day and night. In addition, the dashboard is also linked to a weather system which also takes into consideration heat index, dew point, wind direction and precipitation of Wern Farm's location, which may affect the data the sensors capture. To try and optimise environmental conditions within the shed, a system was installed to distribute Pruex product.

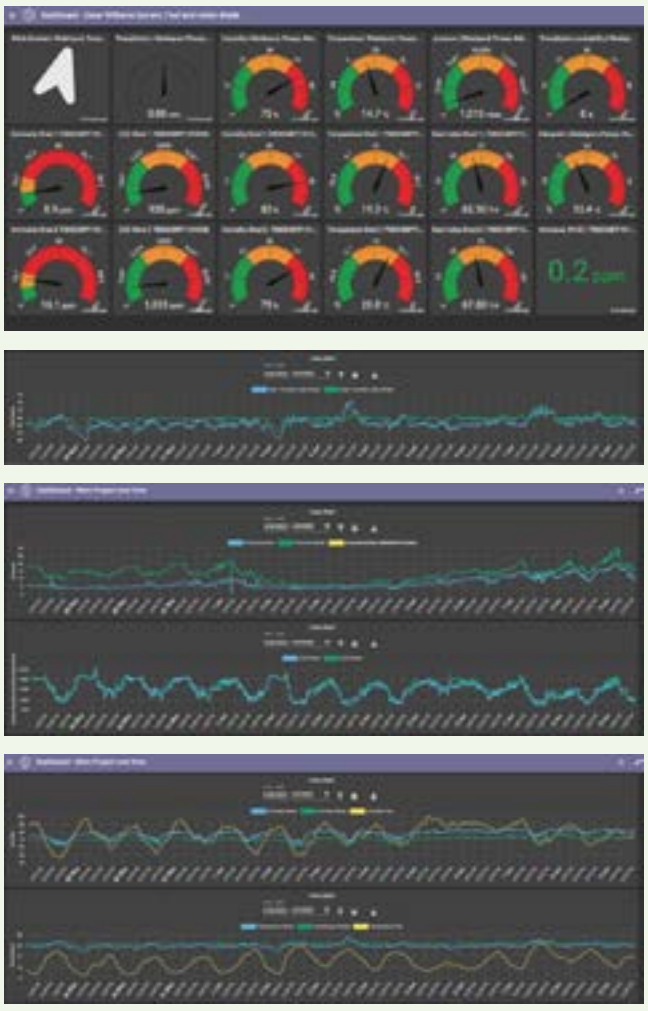


Figure 2. Wern Farms data system.

See below images taken of the dashboard 28 May – 9 June 2022, which highlight the parameters measured during the project.

Over the duration of the project, from May 2020 to August 2022, sensors have captured over 24 months of environmental data.

Bird productivity information such as mortality, vet and med usage, feed consumption and eggs per bird have also been selected and used to identify correlations and relationships when considering the effectiveness of Pruex products pre- and post-use.

Ammonia was one of the key air components we wanted to reduce. This is due to it having a negative effect on the environment and to bird and human health.

Key findings:

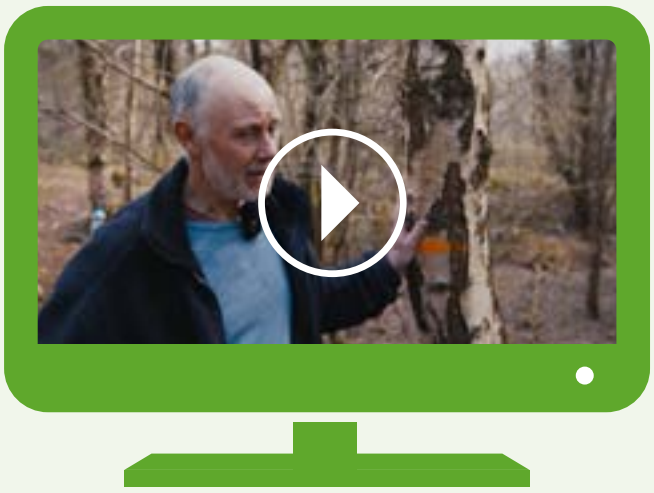
- Ammonia in the shed has been greatly reduced during the project – up to 75%.
- Increased litter dry matter (DM) – moisture on the muck belts has reduced by over 50%, meaning Osian runs his muck belts once every 10 days. He could stretch this to two weeks if necessary. This is instead of typically running them every three to four days. Reducing the frequency of mucking out from twice a week to fortnightly reduces labour requirements by more than 75%.
- Bird health has been greatly strengthened – higher natural resistance to fight challenges (red mite, disease/bacteria), which has resulted in no antibiotics being used. Mortality has also reduced by over 1%.
- Improvements in production – taking pressure off the immune system of the birds allows the animals to put more energy into production. Egg production has been optimised, generating an additional £12,000 per flock in egg sales.

EIP Wales

Comparing on-site preservation techniques for fresh Welsh birch sap for use in artisan products by local businesses

Birch is the third most common broadleaf tree species in Wales, covering an estimated 11,000ha of private woodland – much of which is on farms. Since these trees are not intended for timber, they are generally under-managed, but with some inputs, are potentially available as a source of birch sap and other (non-timber) products while growing, and as firewood at maturity.

The group behind the EIP 'Dewis Bedw' project were unsure about the best way of conserving sap for the production of syrup (a high-value, gourmet food product) after it has been tapped. This project aims to trial and evaluate methods for conserving and adding sufficient shelf-life to the sap for it to be transported off-site for further processing and adding value. Removing this barrier to market during harvesting would allow foresters and farmers to consider market opportunities for products based on tree sap, and in particular birch tree syrup.



Click here to watch the video.

Advisory Service

Number of business that have received support through the Business categories of the Advisory Service during this period:

67 individuals received one-to-one support through the Business categories of the Advisory Service during this period.

1 Joint Venture groups received support through the Business categories of the Advisory Service during this period.

Discussion Groups

North Montgomeryshire Poultry Group and Grŵp Dofednod y Dyffryn

Following on from the success of last year's benchmarking and with the poultry industry currently facing major cost inflation challenges, both poultry groups have decided to do more benchmarking to understand where their businesses are, and where improvements can be made.

This meeting was designed to give an overview of the data required and answer any initial questions that members had. Data required includes both physical and financial flock figures, and once collected, can be analysed and compared against average and high performing flocks from BFREPA benchmarking data.

After this meeting, the intention is to collect data from group members and then review these (confidentially).

A second meeting is planned for August to review the findings, financial implications and identify where the business can perform better.

The meeting was also an opportunity for poultry farmers from Mid and North Wales to share ideas and discuss challenges and share suggestions for overcoming these.

Surgeries

41 SURGERIES HELD with **252** ATTENDEES

- **3 Business Surgery (18 attendees)**
- **8 Marketing and Diversification (56 attendees)**
- **4 Succession and Law (25 attendees)**
- **5 Planning (35 attendees)**
- **2 Accountancy (13 attendees)**
- **8 ICT (48 attendees)**
- **11 RPW (57 attendees)**

Several businesses wanted advice regarding diversifying into tourism, such as starting up a glamping site. This fitted into several surgery options such as Marketing and Diversification, Planning, Business and Accountancy:

Feedback from an attendee of an RPW Surgery:

> *"Valuable information on how to use the RPW site and gave us confidence to be able to use it in future."*

Training

There were claims for **228** courses in the period, **48** of which were for business related courses. Some of these courses are shown in the table below.

Courses delivered included:	Number of individuals trained during this period
Emergency First Aid at Work	17
Book Keeping	12
Planning a Diversification or New Enterprise on a Farm	4
Introduction to Agricultural Business Planning	4
Understanding Your Accounts and Financial Statements	4

E-learning

Some of the e-learning courses completed within this period include:

- PLANNING & FINANCE
- VAT
- FARM HUMAN RESOURCES
- FARM BUSINESS DIVERSIFICATION

Click here to visit the website.

Cronfa Amaethyddol Ewrop ar gyfer Datblygu Gwledig: Ewrop yn Buddsoddi mewn Ardaloedd Gwledig
European Agricultural Fund for Rural Development: Europe Investing in Rural Areas
Llywodraeth Cymru Welsh Government