RED MEAT DASHBOARD

September 2022 – January 2023

FARMING connect
cyswllt **FFERMIO**

70% of all activity in this quarter relevant to the red meat sector

70% RED MEAT ACTIVITY
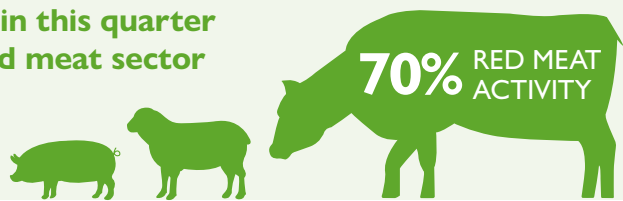
Knowledge Exchange Hub

Technical articles produced by the KE HUB:

- HITTING ROCK BOTTOM: CAN SILICA ROCKS MITIGATE AGRICULTURAL EMISSIONS?

- CIRCULAR SYSTEMS IN AGRICULTURE PART 1: LIVESTOCK PRODUCTION SUSTAINABILITY

- ORGANIC FARMING AND BIODIVERSITY – IS IT THE ANSWER?

Demonstration Network

Quantifying the impact of technical advice: a review of business performance following year-on-year management changes – Ty Draw Focus Site

Several management changes have been implemented at Ty Draw over recent years after technical advice through Farming Connect to improve business performance and efficiency.

Financial and physical performance data were gathered. The data collated included:

- Silage quality (analyses available for a number of years)
- Quantity and cost of purchased feed for ewes over several seasons
- Ewe scanning results
- Lambs reared

The data was gathered in order to assess the difference between performance before and after the changes were implemented. The information was standardised i.e. the fluctuating costs of inputs were standardised to ensure a fair comparison from year to year.

The main focus during this project was improving grassland and ewe nutrition. The data gathered on ewe nutrition showed that during the 2020 lambing period, feed use decreased by 10.47kg/ewe compared to the previous year. This equated to a saving of £2.57/ewe, however in 2022 it increased to an equivalent of £4.00/ewe. Total feed purchased for the ewes equated to less than 32 tonnes in 2022 in comparison to 58 tonnes in 2019.

Diet composition has also changed in recent years, from originally feeding concentrates to feeding sugar beet pellets and protected rapeseed meal by 2021. This cost saving was mainly due to the production of high-quality silage from reseeded grassland (including high sugar grasses and red clover), following specialist advice. The first cut red clover silage analysis from 2021 indicated a crude protein content of 16%, dry matter of 40%, D-value of 74 and metabolisable energy content of 12 MJ/kg DM. Reseeding costs were calculated as £667/ha. This figure includes liming and labour costs.

Ewe rations were also assessed to ensure a balance between silage and any supplements required. Along with feeding high-quality silage, this resulted in reducing the number of weeks ewes received purchased feed prior to lambing from seven to three weeks pre-lambing for the twin bearing ewes, and a week pre-lambing for the singles.

Key take home messages:

- Growing red clover as silage for sheep has helped to reduce purchased feed requirements at lambing by over 10kg/ewe
- This reduction in purchased feed requirements resulted in a financial saving of over £2.57/ewe and possibly more like £4/ewe in 2022 given the very high price supplements
- Flock numbers have increased from 1,200 to 1,400 ewes as a result of changing the feeding approach
- Silage quality has improved in terms of energy and protein content

Quantifying the carbon footprint of a lowland beef finishing system – Castellior Focus Site

The overarching aim of this project was to estimate the net carbon footprint of a lowland beef finishing system. By collecting and analysing data the objective was to determine the greenhouse gases (GHGs) produced from on-farm activities, as well as carbon sequestration to remove GHGs from the atmosphere on-farm.

Detailed farm data for 2020-2021 was collated via a questionnaire in order to estimate all GHG emissions produced from the farm's sources (e.g. livestock, manure management, soils and energy use). Information on the farm's soils, vegetation, trees and hedges was also captured to estimate levels of carbon sequestration on the farm. Both emission and sequestration values were divided by the farm outputs (kg of beef produced). The overall net emissions were calculated (sequestration subtracted from the emissions), to give the product carbon footprint (expressed in kg CO_2e/kg of beef cattle liveweight (LW)).

Measures to reduce the product's carbon footprint were considered. These included measures to improve efficiency (i.e. reduce GHG emissions produced) as well as enhance sequestration (i.e. to off-set GHG emissions produced on-farm).

The farm's total GHG emissions equated to 4.17 kg CO_2e/kg of LW beef cattle on the farm for a year (Figure 1). This figure is low in comparison with other beef farms that have used the same carbon footprinting tool and reflects the high efficiency of the system. As with most livestock farms, enteric fermentation was responsible for the greatest proportion of emissions (Figure 2).
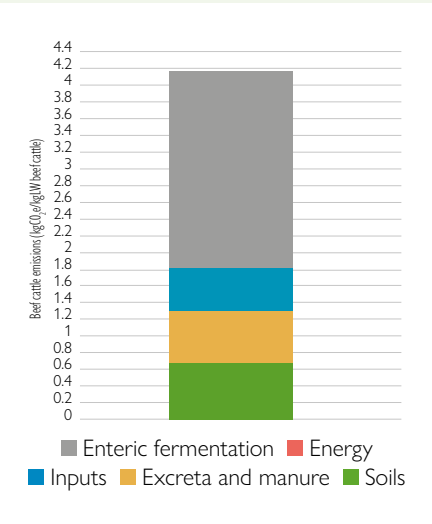

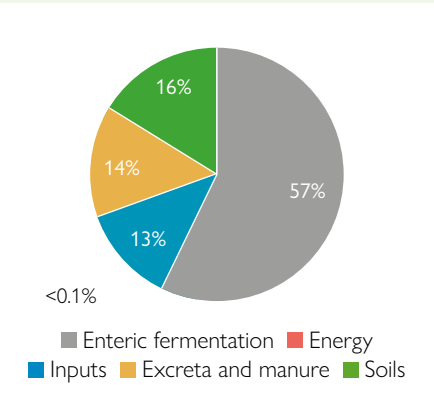Figure 1: Castellior's beef cattle emissions in kg CO_2/kg of LW beef cattle.

Figure 2: Castellior's beef cattle emissions as a percentage produced from each source. Emissions from energy is not visible on the graph due to being negligible (<0.1%).

The sequestration levels were 0.3kg CO_2e/kg of LW beef cattle, and therefore, the net emissions (kg CO_2e emissions minus sequestration) were 3.9 CO_2e/kg of LW beef cattle.

Castellior's current focus on maximising the performance of each individual animal is based on a vast amount of data gathered using farm management software, and is clearly yielding positive impacts.

Potential measures that were discussed are as follows:

- Options to reduce methane emissions from enteric fermentation, e.g. strategies related to optimising the diet of animals and altering feed rations as required, use of supplements (limited data availability at present), genetic improvement
- Reduce the burden of disease and parasites
- Improve the method of manure/slurry is applied
- Greater use of legumes when re-seeding – will help reduce GHG emissions due to their nitrogen-fixing properties, resulting in reduced fertiliser usage, as well as other advantages

In terms of enhancing sequestration, some options included:

- Leave hedges to grow wider and tall (where suitable/safe to do so)
- Use minimum tillage approached when re-seeding
- Incorporation of multi-species swards

Key principles to tackle calf pneumonia and promote a health rearing system – Pentre Farm Demonstration Site

Pneumonia is a common disease in young calves, caused by factors including exposure to infectious microorganisms, calf immunity and the housing environment. It has a significant effect on growing cattle performance, resulting in decreased growth, and in some cases, mortality. An increase in disease occurrence affecting 50% of dairy-beef calves instigated action at Pentre Farm to address the associated risk factors. The main aim of the project was to reduce the incidence of calf pneumonia from 50% to 10% by:

- Carrying out a thorough housing assessment to assess whether it is fit for purpose and implement any required adaptations.

- Creating a bespoke calf rearing protocol for the farm to improve calf performance and minimise calf pneumonia occurrence by using appropriate strategies to target the disease.

A building assessment was carried out at the start of the project to consider its suitability for calf rearing. Recommendations on suitable adaptations to improve the pre-weaning rearing shed were implemented, focusing on warmth. A LoRaWAN sensor was used to monitor shed temperature, humidity and light to gauge if calf coats were required to reduce cold stress. The feeding strategy around weaning was altered to encourage rumen development, and consequently, the calves to eat more concentrates. Calf performance was monitored by recording individual calf weights regularly.
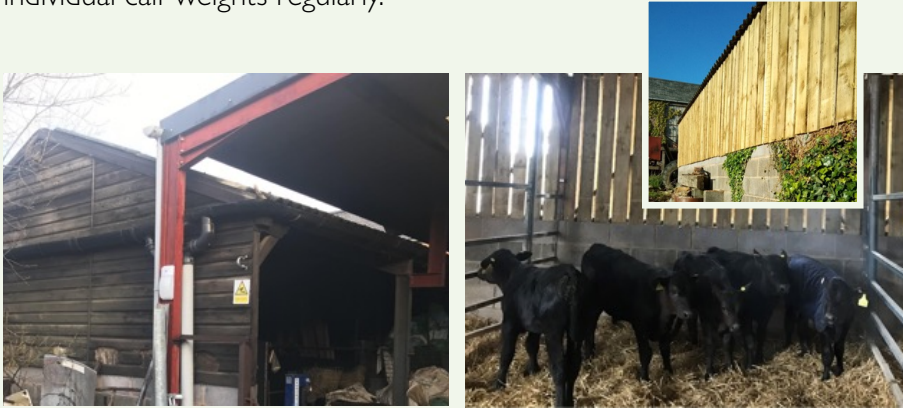

Figure 3: (left) Pre-weaning calf rearing shed prior to any adaptations.
Figure 4: (inset) Yorkshire boarding replaced the solid walls (from outside of shed).
Figure 5: (right) Double layer of Yorkshire boarding (from inside of shed).

The main changes made to infrastructure included replacing the solid walls on two sides of the shed with a double layer of Yorkshire boarding to protect the calves from draught (figure 4). An example of other changes included replacing and re-siting water troughs to avoid spillage onto straw bedding.

In terms of the feeding strategy, two main changes were made. Firstly, calves were fed a higher rate of calf milk replacer when they first arrived on-farm, divided between two daily feeds. This was to maximise early weight gains for a greater resilience to cold stress, and for improved immunity.

Secondly, a step-weaning policy was adopted, whereby milk powder intakes were reduced to 375g of milk powder diluted to three litres once a day (from twice a day) three weeks before weaning, in order to encourage greater concentrate intakes and rumen development at that stage. Ad-lib concentrate and good quality hay fed from a rack were made available from the first day on-farm. The calves were weaned at around nine weeks old, when eating 2kg of concentrates per head per day. A target average growth rate was set of 0.85kg/day, monitored by weighing all calves at arrival and 6-8 weeks later (figure 6).
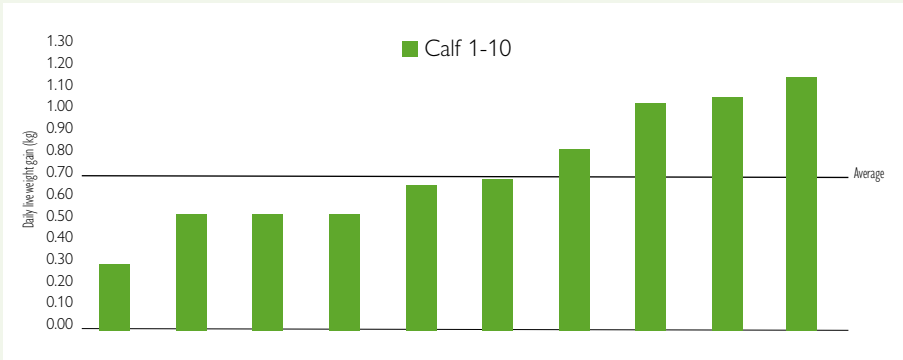

Figure 6: Growth rates of the summer calves from 1 August to 15 September 2022 (45 days).

Key take home messages:

- Pneumonia cases at Pentre Farm have reduced from approx. 50% at the start of the project to 10% by the end of the project.
- Zero mortalities have been experienced since the changes were put in place during 2022.

Targeting anthelmintic use in sheep

This EIP Wales project, involving five commercial sheep farms across Wales clearly links increased worm burden in ewes before and after lambing, commonly known as the 'spring rise', with low body condition and nutritional stress.

Using that knowledge, gained from taking faecal egg count (FEC) samples six weeks before and six weeks after lambing, and with close attention to ewe diets with forage analysis to ensure ewes weren't underfed, the farmers in the study were able to treat the least number possible.

Project specialist, independent sheep consultant Lesley Stubbings, said the project had shown that it is not necessary to blanket treat ewes – it is likely that around 80% of pasture contamination is caused by as few as 20% of ewes.

"There is the perception that worming at lambing time does the ewe good, this is the bit that we must try to separate from. It is really all about reducing the number of worm eggs the ewes drop on to pasture in their dung, which then become a challenge to lambs later in the season," Ms Stubbings told farmers attending a EIP Wales event at Aberystwyth in January.

It even applies to leaner ewes, she said. "The message has always been that you have to treat your leanest ewes but just because a ewe is thin it might not be necessary to drench, it is the nutritional pressure point that matters."

For instance, on several of the farms FECs increased when ewes were short of grass. The graph below shows that peak FEC did not occur until after lambing, when the body condition loss tends to occur as twin-bearing ewes are under pressure for grazing.
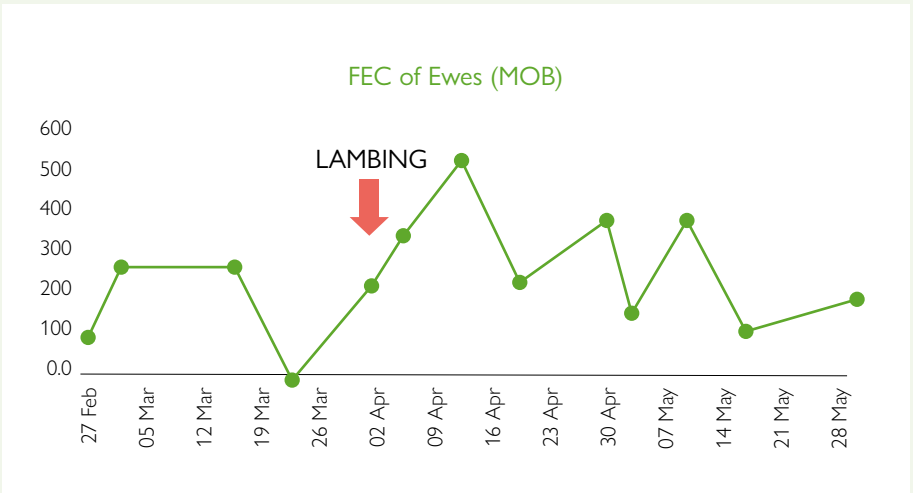

Figure 7: Weekly FEC of Ewes.

Monitoring body condition score (BCS) will allow farmers to identify which ewes to treat, leaving a higher proportion untreated.

"Combined with some FEC monitoring they can also pinpoint the time to give a treatment for maximum effect," said Ms Stubbings.

"There is a cost element to this, if we are trying to keep costs under control there is no point in treating if we don't have to," Ms Stubbings advised.

But the most important reason for not using anthelmintics if unnecessary is to protect flocks from resistance.

Surgeries

72 SURGERIES held with **401** ATTENDEES

Key topics included:

Agriculture Pollution: Workbook	Marketing and diversification
Planning	Law

Businesses from the red meat sector attended all of these surgeries.

Strategic Awareness Events (face-to-face & webinars)

43 RED MEAT THEMED EVENTS

held with **572** ATTENDEES

Examples of events held include:

Agriculture Pollution: Risk Mapping	Agriculture Pollution: Workbook Workshop	Reducing Energy Costs

Discussion Groups

47 RED MEAT DISCUSSION GROUP MEETINGS

held with **269** ATTENDEES

Case Study

Sheep Discussion Groups in North Wales had meetings focusing on liver fluke.

Flockhealth Ltd had prepared a video presentation on liver fluke. Points covered in the presentation were as follows:

- NADIS autumn fluke indicator currently indicating a low risk in the area
- The forecast is based on rainfall and temperatures seen in October, November and December
- Autumn is generally considered a greater risk than summer
- Both cattle and sheep are susceptible to liver fluke but with acute disease more common in sheep
- Weather is one of the major factors of risk but other on-farm factors need to be considered such as grazing high-risk pastures during wet periods
- NADIS is just a guide; monitoring the situation on each individual farm is of utmost importance.

Emma and Marc from ADAS discussed further with the group:

The lifecycle of liver fluke: Eggs shed by snails encyst on grass and are then ingested by sheep in the autumn. Pasture management can help the control of fluke at this stage, by keeping sheep away from snail habitat as much as practically possible e.g. fencing off wet areas.

Acute liver fluke: Causes acute liver damage, bleeding and anaemia and sudden death of sheep 6 weeks after eating cysts.

Chronic liver fluke: Causes weight loss, anaemia, a dry open fleece, ill thrift and bottle jaw.

Cost of liver fluke: Poor condition, poor fertility and poor milk production will all have a detrimental effect on lamb rearing numbers due to reduced scanning percentages, increase in ewe and lamb mortality and poorer growth rates.

The situation on farm should be monitored using different methods, such as abattoir feedback, post mortems, fallen stock monitoring, faecal testing and blood testing.

The group were reminded that fluke treatment resistance can be commonly seen in sheep, and to minimise the risk of this occurring, having knowledge of the liver fluke lifecycle will aid treatment decisions and avoid creating resistance on farm. A chart was shared showing the suitability of products in comparison to the liver fluke lifecycle that will aid group members with their flock health planning in future.

Clinics

231 CLINICS held with **933** ATTENDEES

Key topics included:

Animal health	Nutrition
Infrastructure	Soils

Animal health & welfare workshops

45 WORKSHOPS held with **632** ATTENDEES

Examples of workshops held:

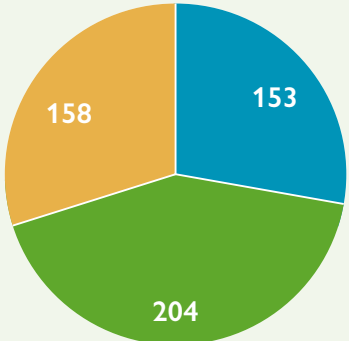| Antibiotic resistance	Controlling BVD (Bovine Viral Diarrhoea)	Flock fertility management
Lambing losses	Parasite control in cattle	Sheep lameness
Understanding Johne's disease	Youngstock health	

Training

During this period, **515** instances of face-to-face training were delivered to the Red meat sector.

Number of individuals that completed training per category

153
204
158

Total per category
- Business
- Land
- Livestock

The most popular courses in each category were:

	Total
Emergency first aid at work	45
Rough terrains telescopic lift truck	33
Cattle foot trimming	29
DIY AI	25
Book keeping	25
Chainsaw maintenance and cross-cutting	22
Woodland management for conservation	21
Level 2 award Safe use of pesticides (PA1) & (PA2)	16
Planning and diversification or new enterprise on a farm	15

E-learning

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

ANTHELMINTIC RESISTANCE ON SHEEP FARMS	PRECISION TECHNOLOGY IN AGRICULTURE
SHEEP LAMENESS	GRAZING SYSTEMS

Click here to visit the website.

Some key highlights on our Website and Social Media platforms recently...

Yesterday, we were with Huw and Meinir Jones, Bryn Farm (Farming Connect Demonstration Farm), to hear more about the management changes that have been implemented on the farm in recent years, and their effect on the business.

Thanks to the family for the warm welcome and Rhidian Jones (RJ Livestock Systems Ltd) a Hefin Richards (Rumenation Nutrition) for talking about the projects held on the farm.

For information about the trials held on Bryn Farm, visit our website.

Post Impressions: 7,894
Post Reach: 6,509
Post Engagement: 979

www.gov.wales/farmingconnect