Beef and sheep health and welfare projects

on the demonstration network

FARMING connect
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Foreword

Managing and controlling disease and ensuring the highest standards of animal health and welfare are undoubtedly the most effective ways to maintain or increase productivity from livestock. Ensuring farm animals are healthy with optimum husbandry, housing, nutrition and veterinary interventions improve fertility, yield, longevity and disease resistance. Address these issues and you can expect to reduce costs and increase profits.

This booklet provides a brief snapshot of some of the animal health and welfare projects that have taken place at a small selection of Farming Connect demonstration sites during the past three years. They highlight how farmers participating in this initiative, which is unique in the UK for not only the number of sites involved but also the breadth of trials and projects undertaken, have benefited from introducing improved, more efficient systems which are now making a significant contribution to the overall health of livestock. Topics and issues addressed range from controlling parasites and lameness to improved biosecurity to assist with managing diseases.

Each farmer you read about has been supported to 'achieve more from less'. With support and guidance from some of the UK's leading sector specialists, they have increased outputs and reduced inputs. Learning from experience - of what works well and what does not - each one has developed sustainable 'high welfare' red meat systems which will enable them to compete in a global market in the years ahead and help them safeguard the future of their farm businesses for future generations.

For updates on projects and trials at all the sites in the Farming Connect demonstration network, visit our website at **www.gov.wales/farmingconnect**

The projects also illustrate the importance of working with your vet to ensure advice is bespoke to your livestock and farming system. Developing an animal health plan in conjunction with your vet is an essential part of managing any livestock enterprise. In addition, refer to the animal welfare codes of practice which can be found at **www.gov.wales/animal-welfare**

Dewi Hughes
Technical Development Manager, Farming Connect
Spring 2020

Farming Connect - helping you drive your business forward

Eligible businesses registered with Farming Connect can tap into a wide range of Farming Connect support services, guidance and training.

Many services are fully funded, others are subsidised by up to 80%.

Visit our website to find out how you can:

- benefit from subsidised business support, tailored to your business needs
- benchmark your performance and work towards progress and growth
- develop your skills as part of our continuous professional development/lifelong learning programme
- keep up to date with the latest innovations in technology through industry developments and the latest research projects
- share best practice and benefit from the knowledge of other farmers, industry experts and academic research
- be inspired by new ideas and find more efficient and innovative ways of working


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The health benefits of outdoor lambing

Lambing is one of the most resource intensive periods of the year for sheep farmers. Lambing some or all of the flock outdoors may help when there is limited shed space availability and there has been a build up of disease with indoor lambed flocks. However for outdoor lambed flocks, it is essential that there is sufficient labour availability to be able to make regular inspections and that shelter can be provided to mitigate against poor weather. Penwern focus site, near Lampeter, runs a 250 ewe flock on 64ha and wanted to investigate if outdoor lambing was an option for them.

A key focus was moving the flock to a low cost, low labour system, to continue farming profitably whilst earning income off the farm. A low cost outdoor system was established, with an emphasis on flock health and grass utilisation.

Project activities

- A move from indoor to outdoor lambing.
- Specific focus on tackling lameness and abortion issues.
- The establishment of a grass management system, producing high quality grass and silage.

Project outcomes

- More target driven, with regular monitoring of performance.
- Recognising the value of data collection.
- Using technical expertise - veterinarian, a grazing advisor, using a plate meter, blood testing and silage sampling.

Tackle lameness through the '5-Point Plan'

1 Cull repeat offenders; essential in the first year of a lameness control strategy.

2 Avoid exposure to bacteria, especially in handling and feeding areas (indoors and outdoors).

3 Seek veterinary advice as soon as lameness is seen.

4 Address problems before integrating into flock.

5 Vaccinate as part of a whole flock vaccination programme (including rams).

Split ewes into grazing groups - helps meet nutritional requirements from grass and silage alone.

Project results

	Indoors	Outdoors
Abortion	4 (7 lambs)	1 (2 lambs)
Still born lambs from mature ewes	18	0
Joint ill	20	9
Lambing labour hours	210	87
Straw costs	£350	£0
Silage cost of production £30/t FW	£750	£0
Concentrate costs	£1,250	£0

123 hours saved throughout the year

£4,510 annual savings from cost reductions and additional income

Health and productivity

↓ Abortion
↓ Still born lambs
↓ Joint ill

Savings made:

✔ Less straw needed
✔ Minimal concentrate use
✔ Reduction in labour requirements
✔ More lambs to finish and sell
✔ Quality grass and silage

Tackling lameness in sheep and beef systems

Lameness is a painful condition for the animal and a costly one for the producer. Not only is lameness a serious welfare concern, lame animals have reduced weight gains, take longer to finish and add to the cost of production due to increased labour, feed and pen space requirements.

There are a number of causes leading to lameness in sheep, including contagious ovine digital dermatitis (CODD), foot abscesses, footrot, interdigital dermatitis (OID), granuloma, scald, shelly hoof and white line separation.

Footrot is responsible for **90%** of sheep lameness cases in the UK

CODD may now affect between **35%** and **53%** of flocks and can affect up to **50%** of the flock at any one time

Lameness in the sheep flock

A project at Rhiwgriafol demonstration site, near Machynlleth, focused on implementing the 5-point lameness plan. In 2016, lameness was a significant issue with 15% of ewes affected.

Actions included

- Working out what percentage of the flock were lame.
- Identifying the cause as being CODD.

Implementing the 5-point plan at Rhiwgriafol

- **Cull.** Persistent offenders were culled from the flock
- **Avoid.** Affected animals are isolated from the main flock to prevent the disease passing on. Pastures that carried affected sheep are rested for 14 days before reintroducing animals. Muddy, damp conditions that help bacteria to spread are avoided by moving sheep to fresh grazing.
- **Treat.** With support from their vet a treatment plan was developed that includes footbathing with formalin and injecting with antibiotics (Betamox and Tylan). Treatments are repeated one week later if required.
- **Quarantine.** Lame animals are removed from the main flock and not returned until fully fit. Quarantine measures were also addressed as part of the health plan to avoid bringing in any disease on to the farm.
- **Vaccinate.** Following veterinary advice, the Footvax vaccine has been used on all ewes and will be used in future on all retained ewe lambs.

By participating in the Life without Lameness initiative, both Rhiwgriafol and another demonstration site, Tynyberth, near Abbeycwmhir, saw rapid reductions in sheep lameness.

Ewe performance as a result of 5-point plan implementation over winter 2016-2017

	Scanning Results	Ewe Body Condition Score 1-5
Rhiwgriafol	Increase by 10%	Increase by 0.5
Tynyberth	Increase by 15%	Increase by 0.5

Lameness in the beef herd

There are a number of potential causes of lameness in beef cattle but the most common are due to infections e.g. foul and digital dermatitis, or injuries. Farming Connect has raised awareness of lameness in the beef herd through farmer meetings and technical articles.

A project undertaken at Gop Farm, in Flintshire, demonstrated how using EID to monitor liveweight gains highlighted the impact of health issues such as lameness. This coupled with good stockmanship and daily inspections led to prompt detection of disease.

Project results

Data gathered via the EID and weigh crate provided the following results:

If an animal was lame for **4** weeks they would lose condition

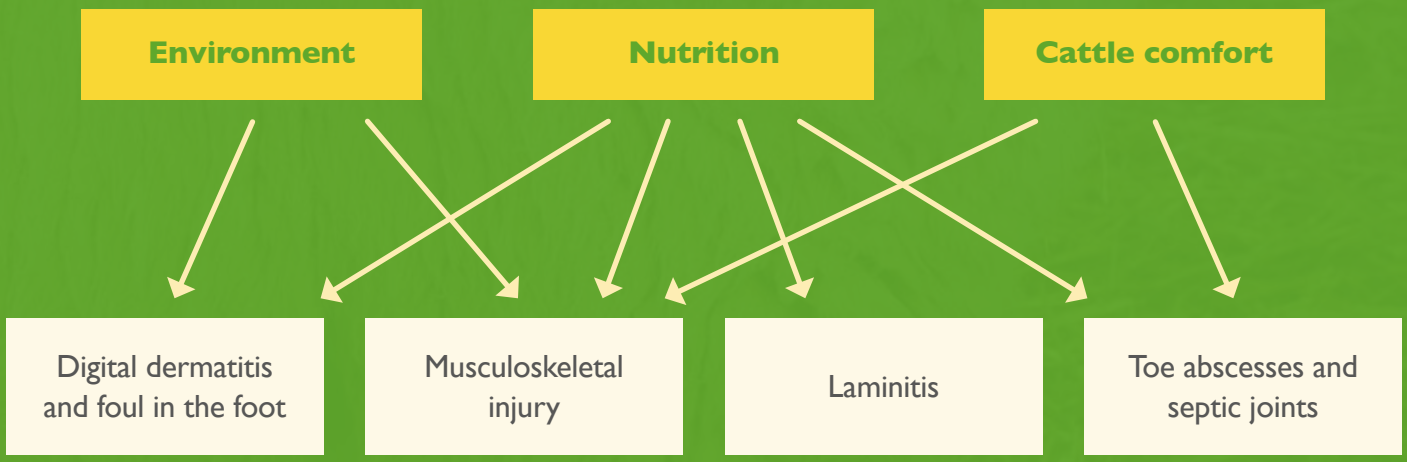
Even though lame cattle were fed **£46** worth of feed, it would take another **£46** of feed and an additional **4** weeks to get them back to the desired condition

Lameness cost the business an additional eight weeks in the beef finishing unit at an extra cost of **£82** with no weight gain

The profit from any cattle identified as lame was either non-existent or significantly diminished

Key messages

Specific causes of lameness are predisposed by risk factors within one or more of these three categories. It is an important part of the herd's health plan to identify which of these areas are the most significant when it comes to lameness on the farm, so that they can be addressed through a robust action plan which should be produced in consultation with the farm's vet.



Tackling cattle lameness risk factors

Environment

The environment in which cattle are kept is important in reducing the risk of digital dermatitis, foul and musculoskeletal injuries. It must be clean and dry, and the floor must provide grip to reduce the risk of slipping and injuries.

Stocking density is the single most important factor when it comes to cleanliness and infection risks.

Stocking density guidelines for cattle on slats and bedded pens

Live weight (kg)	Target space allowance per head in slatted pens		Target space allowance per head in bedded pens	
	Pen area (m^2/head)	Number in 10 x 20 ft pen (3m x 6.1m)	Pen area (m^2/head)	Number in 10 x 20 ft pen (3m x 6.1m)
300	1.5	12	3.4	5
400	1.8	10	3.8	4
500	2.1	9	4.2	4
600	2.4	8	4.5	4

Cattle comfort

- Poor cattle comfort is a risk factor for musculoskeletal injury, toe abscesses and septic joints.
- Handling, transport and housing facilities must be properly designed to reduce the risk of injury and bullying.
- Pens must not be overstocked and there must be sufficient feed barrier space for all animals in the group to feed at the same time, as pushing and sharp turns increases the forces on the feet.
- Placing rubber on slats or high traffic areas reduces the risk of lameness and joint swelling.

Nutrition

Nutrition has an impact on all of the commonly seen causes of lameness in beef cattle. The main risk for finishing cattle is from acidosis as this has numerous negative effects on hoof health.

To reduce the risk of acidosis the diet must be balanced and consistent since any sudden dietary changes can upset the balance of the rumen microbes. This is particularly important when introducing cattle on to a high energy diet – this must be done slowly to allow the animal to adapt, otherwise acidosis will occur. Where this is not possible it is essential that strong acid buffers are in the diet to counteract the risk.

The integrity of the skin is important in reducing the risk of digital dermatitis and foul, and therefore it is important to ensure that the diet is balanced and delivers trace elements at the levels required for optimal skin and hoof integrity.

Calcium and phosphorus are key components of the skeleton and ensuring adequate levels in the diet and at the right ratio is critical, particularly in fast growing animals.

Managing pneumonia in young calves

Pneumonia usually occurs in young housed calves (five weeks to five months old) either being reared as dairy replacements or in beef systems. Low environmental temperatures, high humidity, poor ventilation and also direct draughts onto calves themselves are all contributing factors.

There may be breed differences in susceptibility to calf pneumonia and colostrum status and time of weaning can all affect immune status of the calf.

Stresses such as mixing groups, movement and poor housing conditions can also affect immune status.

Young calves at Llindir

The intensive indoor calf rearing enterprise at Llindir, a focus site in Conwy, has an annual throughput of 1,400 calves/year. The calves come into the unit at 3-6 weeks old, reared until they reach 180kg, then moved on to a beef finishing unit. Incidents of pneumonia were high with 20% of calves requiring treatment. Working with their vet, the farm investigated the extent of the pneumonia challenge by individually scoring the calves and measuring daily liveweight gain (DLWG). This has enabled the farmer and vet to update the herd health plan for the farm to include a proactive response to pneumonia levels.

Cost of pneumonia: **£13,020/year**
Based on **280** calves becoming infected

An example scoring system

Assesses six clinical signs. A total score of 5 or higher is a case needing attention.

1. Cough = 2 points
2. Eye discharge = 2 points
3. Fever (> 39.2°C) = 2 points
4. Abnormal respiration = 2 points
5. Nasal discharge = 4 points
6. Ear droop or head tilt = 5 points

Incorporating good practice at Llindir

- Provide a constant blanket of fresh air throughout the shed - just above calf height
- Reduce the number of calves per pen if stocking density is a problem
- Maintain clean, dry environments with plenty of deep bedding
- Areas around feeders are kept clean and dry
- Consider slatted flooring to help drain away spilled milk and urine

Project outcomes

- Changes to the housed environment.
- Ventilation, stocking density and drainage were the key risk factors identified.
- Deep beds were traditionally used at Llindir, but a trial to introducing plastic slatted sheets around the automatic feeders to allow urine and spilt milk to drain and reduce ammonia build up was set up.
- Stocking density was lowered to ensure each calf had 2.8m^2 bedded area per calf and at least 18m^3 of air space to help reduce bacteria build up.
- Lack of ventilation was the primary issue due to the close proximity of adjacent buildings and prevailing wind direction.
- The recommendation was to install a bespoke positive-pressure tube ventilation system to target a minimum 6-8 complete air changes per hour.

DLWG increase of **0.2kg** per calf

Reduced antibiotic usage

Reduced calf mortality

Using FEC and SCOPS principles to improve flock performance

Medicine treatments are an essential part of the livestock farmer's health kit, and ensuring these are used to optimise production can result in significant cost savings and increased output. Working with the farm vet to develop effective health plans is the first stage and beyond that incorporating additional monitoring tools can increase the benefits. Three farms: Hendre Ifan Goch, Bridgend; Rhosgoch, Aberystwyth and Tyn y Pant, Welshpool participated in a Farming Connect parasitology project focussing on worm burdens in their sheep flocks. All farms incorporated faecal egg counting (FEC) into their flock management regime to see if they could adapt to using it routinely as a tool to improve worm burden management. They also ensured they put the Sustainable Control of Parasites in Sheep (SCOPS) principles into practice.

Project objectives

1. Reduce reliance on wormers whilst maintaining good lamb performance
2. Utilise FEC to allow for informed decisions
3. Taking a preventative approach to lowering worm burdens
4. Putting the SCOPS principles into practice.

Project results

Increased lamb weaning weights:

After monitoring and treatment, Hendre Ifan Goch achieved an extra 100g/day liveweight on lambs up to 12 weeks, weaning at 34kg.

Lambs at Rhosgoch administered with yellow drench reached higher weights than those drenched with the clear and white anthelmintics. Resistance was suspected and subsequently proven.

Increased lamb daily liveweight gain:

Lambs grew well to eight weeks at Hendre Ifan Goch, and reached an average 290g DLWG, with some growing at 300g DLWG.

Early warning of resistance issues:

- Resistance to the liver fluke treatment, Triclabendazole, was found at Hendre Ifan Goch. Pregnant ewes were housed for 10 weeks and treated with Closantel to clear the fluke infection.
- FEC monitoring and an anthelmintic resistance profile at Tyn y Pant revealed resistance to yellow drenches, with white, clear and moxidectin anthelmintic drugs more effective. These results enabled targeted use of the correct wormer, maximising lamb growth rates.

Resistance testing results at Rhosgoch, July 2017

	Start FEC			End FEC			% Reduction	
Drench	Date	Strongyle EPG	Nem EPG	Date	Strongyle EPG	Nem EPG	Strongyle	Nematodirus
1 BZ	01/07/2017	525	245	15/07/2017	315	0	40	100
2 LV	01/07/2017	700	420	08/07/2017	0	35	100	92
3 ML	01/07/2017	350	140	15/07/2017	210	0	40	100

Testing highlighted resistance for white (benzimidazole) and clear (macrocyclic lactone) drenches at Rhosgoch. A (levamisole) yellow drench was tested and proved to be effective.

Managing liver fluke infection levels on your farm

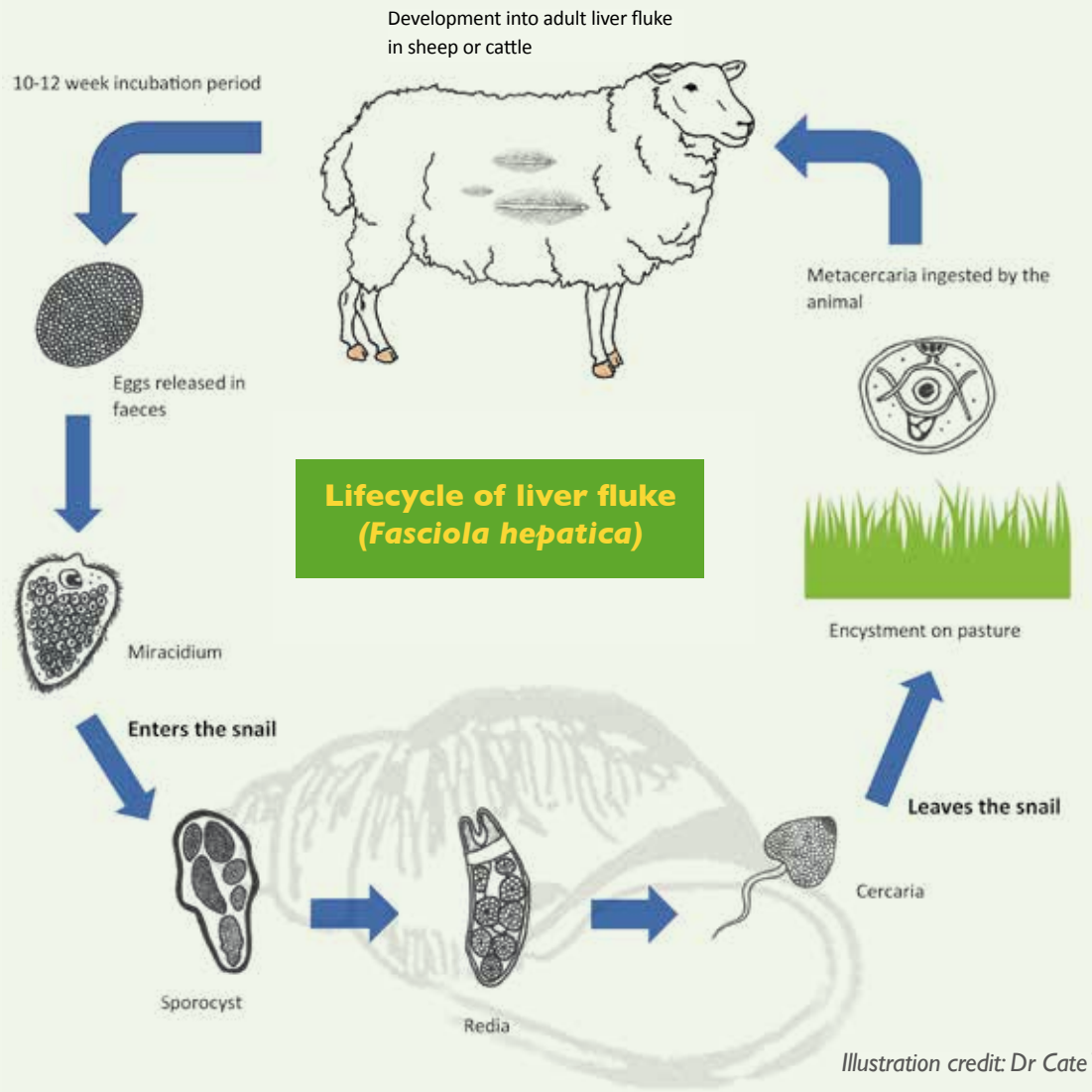


Illustration credit: Dr Cate Williams, IBERS

- Liver fluke control should be part of a of wider livestock management strategy.
- Actions should be coordinated between farmer and vet.
- Liver fluke needs to be tackled alongside other priorities: nutrition, body condition scoring, grazing and forage management.
- Use routine monitoring to provide an up to date parasite burden status.
- Tailor measures towards individual farm needs whether this be by treatment or management.

How important is rumen fluke?

The clinical importance of rumen fluke is currently under debate in the UK, but it is significant from a diagnostic perspective. Liver and rumen flukes are often found as co-infections and because their eggs are similar, this could lead to misdiagnosis and/or misinterpretation of liver fluke treatment outcomes. An accurate diagnosis is important because there are only a small number of flukicides that can kill rumen fluke.

Tackling a risk based approach to fluke on-farm

Understanding how field characteristics affect parasite burdens is part of effective on-farm fluke management.

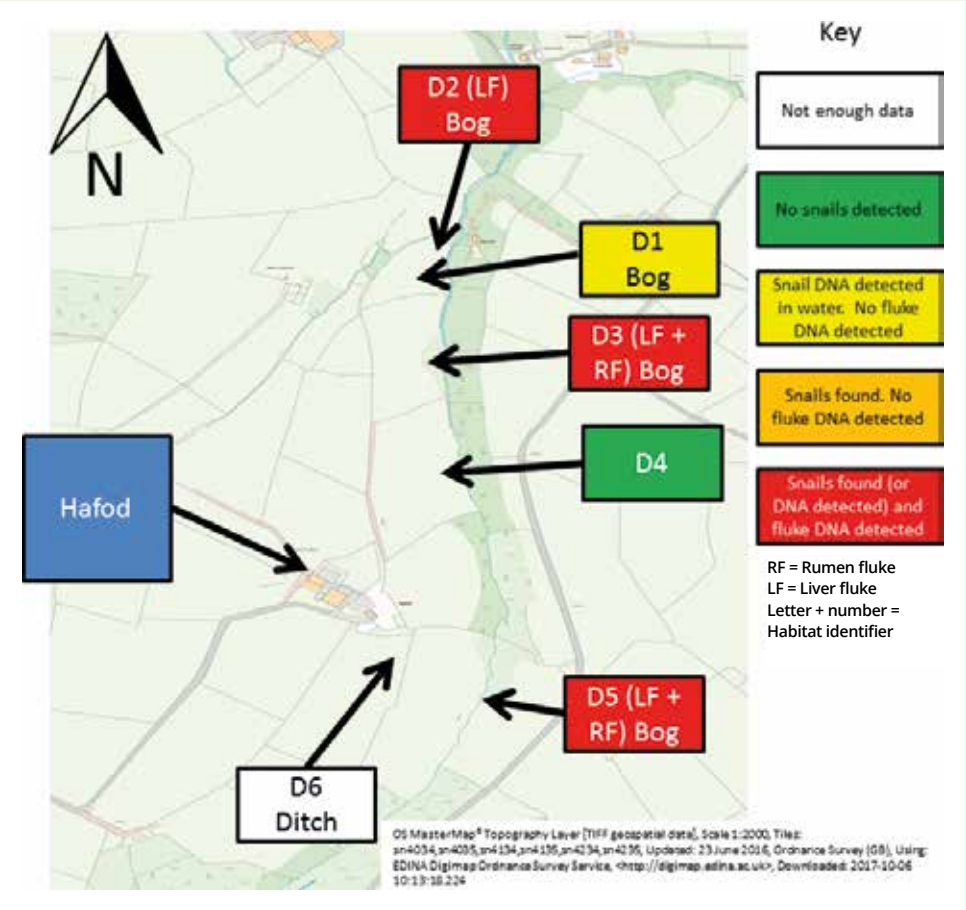
Five focus sites: Aberkin, Criccieth; Brwynog, Holyhead; Gelli Goll, Cowbridge; Hafod, Llandysul and Tynyberth, Abbeycwmhir all identified the presence of liver fluke in either their cattle or sheep. Working with Aberystwyth University the farmers were keen to identify the level of infection in individual fields to adapt and tailor their grazing management. This would then reduce the risk of infection and contribute to a proactive fluke treatment approach.

Project results

- Rumen and liver fluke infections were found in fluke snail populations across several habitats at Gelli Goll and Hafod.
- Fluke was not found in the Brwynog flock, corresponding with the lack of fluke snails found in habitats. A targeted treatment regime and drainage work contributed to breaking the reproduction cycle of the snails.
- Both liver and rumen fluke were found in livestock at Aberkin. However, fluke host snails were found to be low in number. This may have been due to the coastal location.
- Habitats sampled at Tynyberth were wet and boggy with running water. However, fluke incidence (not snail incidence) was low, indicating that habitats prone to snails do not necessarily host snails infected with fluke.

The benefits of identifying snail habitats

Mapping results at Hafod



- Helps to map out an effective grazing management programme across the farm.
- Helps with control if an outbreak does occur.
- Pipes and water troughs should be maintained to minimise threats posed by pools created from leaking pipes.
- If snail habitats are localised those areas could be fenced off or not grazed during periods of high risk.
- Conduct drainage works on extensively wet areas - expensive in the short term but an excellent preventative management tool.

Avoid grazing the following:
• Wet/acidic soils • Banks or ditches
• Edges of small ponds and streams • Pools around water troughs • Muddy areas

Seek veterinary advice when choosing to treat and check resistance through FEC and laboratory testing.

Farming Connect

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