



**FARMING**  
connect  
cyswllt  
**FFERMIO**

EIN FFERMYDD  
OUR FARMS

# Our Farms Network 2023-2026: *Trials to Results*



Ariennir gan  
**Lywodraeth Cymru**  
Funded by  
**Welsh Government**

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Further information and resources on all the projects within this booklet and other projects across the Demonstration Network are available on the Farming Connect webpage.

# WELCOME

Between April 2023 and March 2026, 288 Welsh farming businesses, representing various sectors and regions, have formed the Farming Connect Our Farms Network to drive innovation, resilience, and sustainability across the sector. Collectively, these businesses have participated in 128 unique on-farm trials, ranging from individual farm projects to pan-Wales, multi-site collaborations. The diversity and scale of this work reflects the breadth of challenges and opportunities facing our industry, and the commitment of Welsh farmers to continuous improvement.

This booklet offers an overview of 63 of the on-farm trials, each aligned to one or more of the Sustainable Land Management Outcomes and the Sustainable Farming Scheme (SFS) universal actions. These are presented in this booklet under ten theme goals, and demonstrates how practical, farmer-led research is shaping the future of farming in Wales.

The trials highlighted real-world demonstrations, developed and delivered by farmers, for farmers, with the support of Farming Connect. Each project is designed to bridge the gap between research and practice, ensuring that knowledge and innovation are applied where they matter most: on the ground, in day-to-day farm management.

The results and insights from these trials offer practical pathways for farmers to adopt both universal and optional SFS actions, supporting a more sustainable, competitive, and environmentally responsible industry.

We invite you to explore the summaries within this booklet.  
Together, we are building a resilient, forward-looking future for Welsh farming.



# Getting started with regenerative farming - A HOW TO GUIDE

CWMRISCA

## KEY RESULTS

- **Stronger soils:** Regenerative practices build soil organic matter and improve structure.
- **Natural fertility:** Thriving soil microbiomes cut dependency on artificial inputs.
- **Greater resilience:** Better water retention and deeper roots increase drought tolerance.
- **Higher biodiversity:** Diverse pastures and natural grazing improve animal health and habitat quality.
- **Reduced costs:** Lower fertiliser and pesticide needs improve business sustainability.

## AIMS

<p><b>Promote</b> farming practices that restore soil health, boost biological activity, and reduce synthetic input reliance</p> 	<p><b>Enhance</b> farm resilience to climate change through improved water retention, stronger root systems, and diverse pastures</p> 	<p><b>Support</b> farmers in adopting regenerative principles - adaptive grazing, biodiversity management, nutrient optimisation, and soil monitoring</p> 
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## OUTCOMES

- **Soil health significantly improves** under regenerative practices, with increased soil organic matter supporting nutrient cycling, water retention, and carbon storage - creating healthier, more productive soils over time.
- **Soil biology becomes more active**, as practices that minimise disturbance protect living roots and feed microbial communities, reducing the need for synthetic fertilisers and pesticides. This supports long term fertility and farm resilience.
- **Grazing management enhances pasture performance.** Frequent livestock movement followed by long rest periods enables root recovery and improves grass density.
- **Pasture diversity increases system stability.** Integrating legumes, grasses, herbs and deep rooting species increases resilience to drought, enriches forage quality, and improves biodiversity from soil microbes to pollinators.
- **Nutrient efficiency improves** when farmers use composted manure, soil amendments, and carbon focused strategies. Brix testing helps evaluate input effectiveness, supporting evidence-based decisions.
- **Trees and hedgerows create multi benefit landscapes**, improving shade, shelter, forage diversity, and habitat connectivity.
- **Risk management becomes proactive**, with farmers encouraged to monitor soils, track progress, and adjust practices continuously embracing adaptive management as a core principle.

## HOW TO APPLY ON YOUR FARM

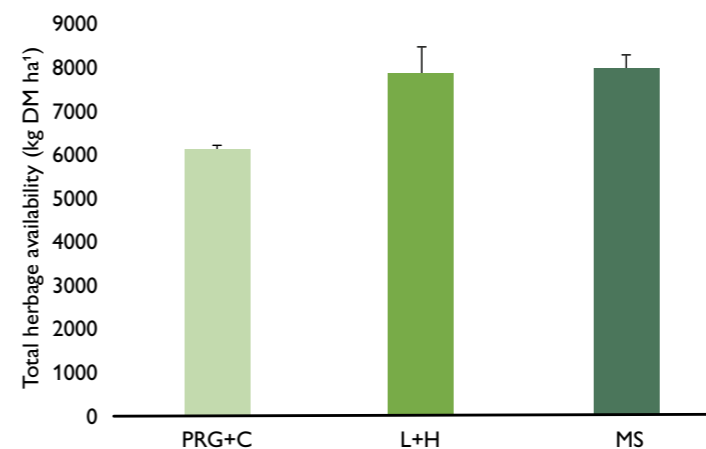
1.	<b>Start</b> by monitoring soil health - test minerals, carbon, biology, and leaf tissue to establish benchmarks
2.	<b>Implement</b> rotational grazing: short grazing periods, long rest periods, and frequent livestock moves
3.	<b>Increase</b> pasture diversity using mixed species suited to your soils; consider bale grazing to spread seeds and nutrients
4.	<b>Optimise</b> nutrients using composts, biological inputs, sugars, and cover crops - test impact using Brix measurements
5.	<b>Adapt</b> based on observation - adjust grazing, inputs, and species mixes; integrate trees and hedges for added resilience

# Future-Proof Forage - TACKLING DROUGHT WITH DIVERSE SWARDS

CILTHREW

## KEY RESULTS

- **2024 (No drought observed, abnormally wet summer)**
  - Legume and herb ley (7850 kg DM/ha) and multi-species ley (7977.35 kg DM/ha) produced significantly more biomass than perennial ryegrass (PRG) and clover ley (6074.65 kg DM/ha) under wet conditions
- **2025 (Drought observed)**
  - The treated multi-species ley averaged the highest DM% (33.35%), while the treated legume and herb ley averaged the lowest (20.96%)
  - Location is everything; The location of the plots had a significant effect on results. Shallow soils on slopes did not grow much biomass during the dry period, regardless of the ley established.



## AIMS

- **Evaluate** forage availability and quality of diverse sward mixes
- **Assess** potential drought tolerance benefits of multi-species leys
- **Determine** impact of mycorrhizal fungi treatment on ley performance

## OUTCOMES

- **Weather extremes shaped performance:** In 2024, unusually wet conditions favoured diverse leys - legume & herb and multi-species mixes produced substantially more biomass than traditional perennial ryegrass with clover, confirming their resilience under high rainfall.
- **Drought stress revealed hidden strengths:** During the 2025 drought, mycorrhizal fungi treatment significantly improved dry matter percentage (DM%) of the multi-species ley. The results suggest that a diverse multi-species ley (grass, herbs and legumes) treated with fungi provides greater nutritional value in terms of DM% for grazing livestock compared to legume and herb ley mix and traditional PRG with white clover with or without the fungi treatment.
- **Growth rate unaffected by treatment:** Despite the improvement in DM%, fungi treatment did not increase total kg DM/ha or accelerate growth rates, indicating its primary advantage lies in forage quality rather than quantity.
- **Site variability matters:** Plot location had a marked impact on results. Shallow soils on slopes produced minimal biomass during drought, regardless of ley type or treatment, highlighting the importance of soil depth and moisture retention in ley performance.
- **Practical insight for farmers:** These findings suggest that species diversity combined with fungi treatment can safeguard forage quality during drought but cannot fully compensate for severe site limitations or guarantee higher yields.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by assessing current sward diversity and soil conditions
2.	<b>Choose</b> fields that have adequate soil depth for maximum return on investment
3.	<b>Plan</b> seed mixes with legumes and herbs to improve resilience
4.	If considering using a product containing mycorrhizal fungi (MF), <b>read about</b> how they can benefit a multi-species ley and consider factors such as past cropping and establishment methods before deciding whether to use. Performing a Phospholipid Fatty Acid (PLFA) soil test is an option to give a snapshot of soil biology
5.	<b>Ensure</b> you are ready and equipped to manage the leys in a way that will ensure the herbs and legumes persist as long as possible in the sward to ensure maximum ROI

# Seed the savings - SKIP THE STEEL

HENDRESEIFION

## KEY RESULTS

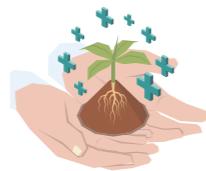
- £309 – £509/ha **savings** in establishment costs vs ploughing
- 76% **increase** in species establishment using treated seeds
- Overseeding more **effective** post-grazing than pre-grazing
- 653.67% **return on investment (ROI)** within 4 years

## AIMS

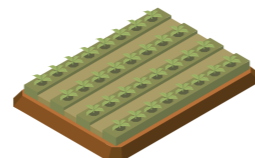
**Reduce** reseeding costs and mechanical inputs



**Enhance** biodiversity and soil health



**Improve** forage yield and nutritional quality



## OUTCOMES

The trial demonstrated that overseeding permanent pasture using livestock hoof action and an ATV-mounted broadcaster is a viable, low-cost alternative to full reseeding.

- Forage yield improved from **6.5 T DM/ha** to **8.6 T DM/ha**
- Combining biological seed treatment with post-grazing sowing achieved **76% higher species establishment** compared to untreated seeds



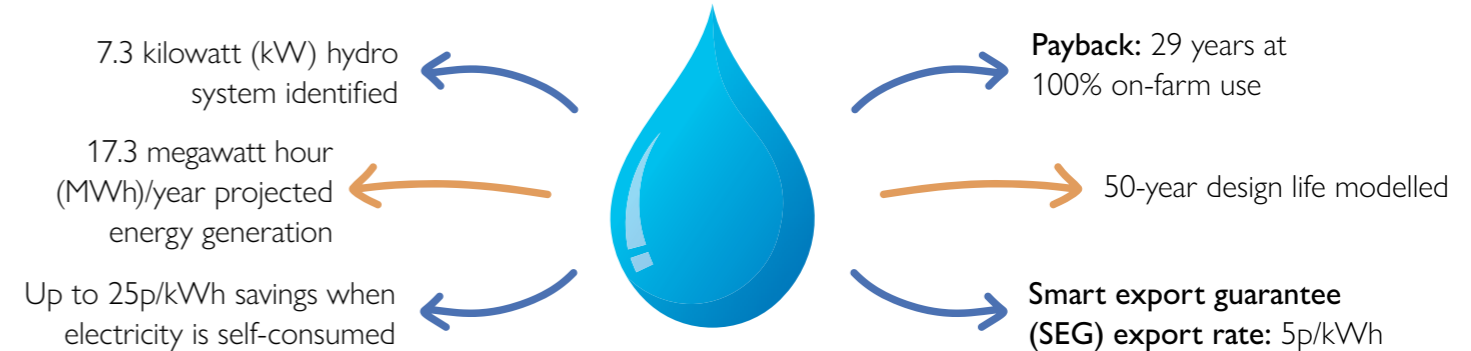
## HOW TO APPLY ON YOUR FARM

1.	<b>Correct soil environment:</b> Test pH and nutrient levels
2.	<b>Design strategic seed mix:</b> Use multi-species calculator
3.	<b>Time sowing precisely:</b> Use soil moisture and temperature data
4.	<b>Broadcast and incorporate:</b> Spread seed and use livestock trampling
5.	<b>Control competition post-sowing:</b> Graze lightly with low-demand stock

# Unlock long-term energy savings on-farm with hydropower

LOWER HOUSE FARM

## KEY RESULTS



## AIMS

- **Reduce** long-term electricity costs for the farmhouse and poultry shed
- **Evaluate** the technical viability of both low-head and high-head hydro options
- **Identify** the most financially resilient pathway for future renewable energy investment

## OUTCOMES

- The study confirmed technical potential for a 7.3 kW hydro-electric scheme, with suitable intake and powerhouse locations already identified.
- Energy modelling shows the system could generate 17.3 MWh annually, providing a meaningful contribution to on-farm electricity demand.
- Financial modelling demonstrates that self-consumption is critical. When electricity is used directly on the farm (farmhouse or poultry shed), savings are maximised at the assumed tariff of 25p/kWh.
- Exporting surplus electricity is significantly less valuable, generating only 5p/kWh under the SEG.
- Even with 100% self-consumption, the payback period is long - around 29 years - due to installation costs and modest system size.
- Both the low-head and high-head schemes have similar overall costs, but each carries different engineering challenges:
  - The low-head scheme benefits from shorter pipe runs and proximity to grid connection but requires larger intake structures.
  - The high-head scheme uses smaller components but requires a longer, more complex pipe route.
- The study concludes that the project is technically feasible but financially sensitive. Further refinement of installation costs and accurate measurement of on-farm electricity usage are essential before progressing.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by measuring real electricity demand
2.	<b>Test</b> feasibility by confirming intake access, pipe routing, and grid connection points
3.	<b>Measure</b> baseline energy costs to understand potential savings
4.	<b>Plan</b> for licensing, permissions, and contractor tendering early
5.	<b>Review</b> financial viability once detailed costs and consumption data are available, then scale to construction if favourable

# Strengthening Farm Sustainability - RENEWABLE ENERGY OPTIONS

PENGELLI

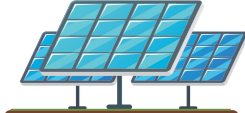


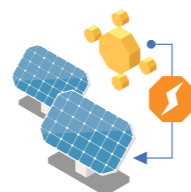


## KEY RESULTS

- **Best return on investment:** 6kWp solar photovoltaic (PV) on single-phase supply
- **Payback:** 9 years (6kWp); 10 years (15kWp with upgrade)
- **Net profit over 25 years:** £25,574 (6kWp); £52,298 (15kWp)
- **Wind turbines:** Less viable due to high costs
- **Battery storage:** Improves self-consumption, slightly reduces PV returns
- **Hybrid PV-Wind:** Technically good, financially weaker

## AIMS

- **Assess** renewable energy options for farm resilience and climate security
- **Evaluate** solar PV, wind, hybrid systems, battery storage
- **Consider** hydro, biomass, anaerobic digestion, heat pumps
- **Provide** financial modelling and energy efficiency recommendations



OUTCOMES	
 <p><b>SOLAR PV</b></p> <ul style="list-style-type: none"> <li>• 6kWp: Best financial return, minor export constraints</li> <li>• 15kWp: Higher output, needs costly grid upgrade</li> </ul>	 <p><b>WIND TURBINES</b></p> <ul style="list-style-type: none"> <li>• Britwind H5 (5kW): Marginal viability, long payback</li> <li>• Britwind H11 (11kW): Better performance, high capital cost</li> </ul>
 <p><b>BATTERY STORAGE</b></p> <ul style="list-style-type: none"> <li>• Improves self-consumption, enhances wind viability</li> </ul>	 <p><b>HYBRID PV-WIND</b></p> <ul style="list-style-type: none"> <li>• Technically complementary, financially weaker</li> </ul>
 <p><b>OTHER TECHNOLOGIES</b></p> <ul style="list-style-type: none"> <li>• Hydro, anaerobic digestion, biomass, heat pumps</li> </ul>	 <p><b>ENERGY EFFICIENCY</b></p> <ul style="list-style-type: none"> <li>• LED lighting, insulation upgrades, heat recovery recommended</li> </ul>

## HOW TO APPLY ON YOUR FARM



1.	<b>Review</b> annual energy use from bills/meters
2.	<b>Improve efficiency:</b> lighting, insulation, heat recovery
3.	<b>Check</b> electricity supply type (single/three-phase)
4.	<b>Identify</b> renewable opportunities: roof space, streams, biofuels
5.	<b>Consult specialists</b> for feasibility and financial modelling – consider using Farming Connect avenues to support

# Unlock the potential of integrated tree systems

TYN YR ONNEN

## KEY RESULTS

- Strategic shelterbelts **reduce** livestock energy waste **by 14%**.
- **4.91 hectares** transformed into a high-performance landscape.
- 1,476m biosecurity fortress via 1.5 km of new, hedgerows to create a **biosecurity shield**.

AIMS		
<p><b>Reduce</b> input costs by leveraging natural shelter and nutrient-dense tree browse</p> 	<p><b>Future-proof</b> the farm by securing the 10% habitat mandate required for the Sustainable Farming Scheme</p> <p><b>10%</b></p>	<p><b>Improve</b> lamb survival rates using sheltered microclimates</p> 

## OUTCOMES

- By targeting 4.91ha of wet, rushy ground, this project transforms a farm liability into a high-value productive engine.
- High-density planting in wet areas drains “fluke-prone” ground.
- Deploying 1,476m of strategic, double-staggered hedgerows provides strong biosecurity
- Shelter belts with nine native species (including willow and aspen), provide essential shade and shelter to heat stress and cold winters.



## HOW TO APPLY ON YOUR FARM

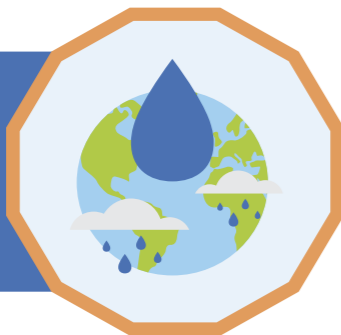
1.	<b>Plan</b> your implementation in phases over a 5-year period to manage labour and maximise available grant windows
2.	<b>Target</b> low productivity, rushy and wet field parcels for early agroforestry conversion to improve drainage and grass growth
3.	<b>Select</b> a diverse mix of native species, prioritising willow and alder for wet ground and oak for drier knolls
4.	<b>Secure</b> a Woodland Creation Planning Grant to professionalise your design and ensure regulatory compliance
5.	<b>Protect</b> young saplings with double-fencing or robust individual guards to maintain grazing while trees establish

# Unlock water security with smart monitoring

WALLOG

## KEY RESULTS

**30,000-50,000**  
litres water saved annually



**5 working days**  
labour saved per year

Enabled **strategic growth, improved habitat management and better animal welfare**



**BEFORE:**  
3 major leaks/year  
**AFTER:** 0

## AIMS

- Monitor water flow and storage to detect issues early
- Assess long-term water security for stocking decisions
- Improve usability with mobile dashboard and alerts

## OUTCOMES

- The LoRaWAN system transformed water management at Wallog Farm.
- By installing sensors and a gateway, the farm achieved real-time visibility of water flow and storage, reducing manual checks and preventing major leaks.
- Estimated savings include 30,000–50,000 litres of water annually and five working days of labour.

- Continuous monitoring enabled strategic investments, such as a new storage tank and trough network, unlocking rotational grazing and improving animal health.
- The project also enhanced biodiversity by fencing off a pond, reducing fluke risk and restoring natural habitats.
- Overall, efficiency, resilience, and sustainability have significantly improved.

## HOW TO APPLY ON YOUR FARM

1.	<b>Check</b> LoRaWAN coverage via The Things Network (TTN) map or local council
2.	<b>Install</b> a gateway if coverage is insufficient (look for grants)
3.	<b>Deploy</b> sensors for water, feed, security, and more
4.	<b>Register</b> devices on The Things Network and start collecting data
5.	<b>Integrate</b> with a dashboard platform for alerts and insights

# Maximise crop performance with precision fertiliser

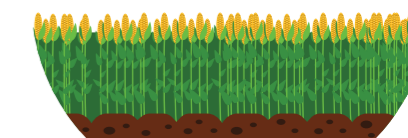
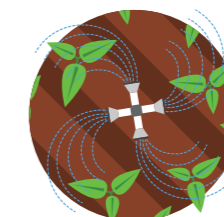
CHIRBURY HALL

## KEY RESULTS

Entire arable area managed with **variable-rate nitrogen**



Zero-rate zones **reduced fertiliser waste** in failed crop areas



**Consistent crop canopy** achieved - lower variability at harvest

## AIMS

- Reduce nitrogen wastage and environmental impact
- Optimise crop growth and yield through precision application
- Establish a replicable strategy for sustainable fertiliser use

## OUTCOMES

- Applied variable-rate nitrogen across winter wheat and oilseed rape using SOYL software
- Enabled zero-rate zones for failed crops, saving input costs and reducing leaching
- Managed mixed cropping (winter wheat and spring barley) with accurate in-field rate adjustments
- Satellite imagery **demonstrated reduced crop variability** and improved canopy uniformity over time
- Harvest reflected **more consistent crop performance**, despite weather-related challenges

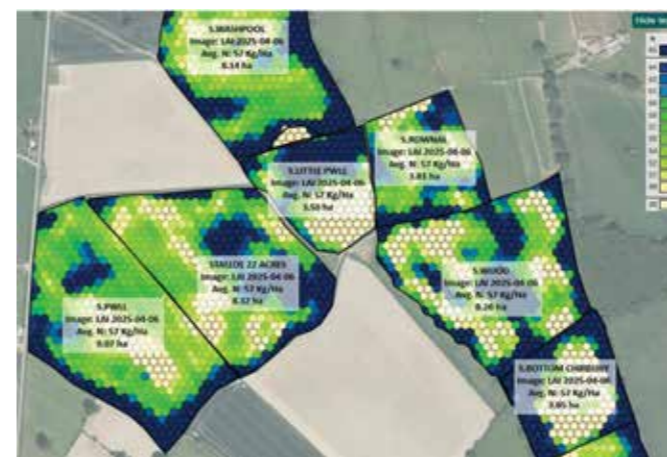


Figure 1: Selection of fields with imagery produced to apply N on 10-04-25.

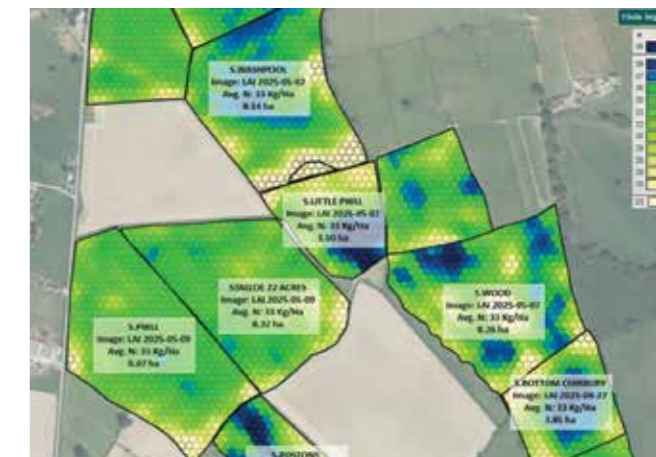


Figure 2: Selection of fields with imagery produced to apply N on 12-05-25.

## HOW TO APPLY ON YOUR FARM

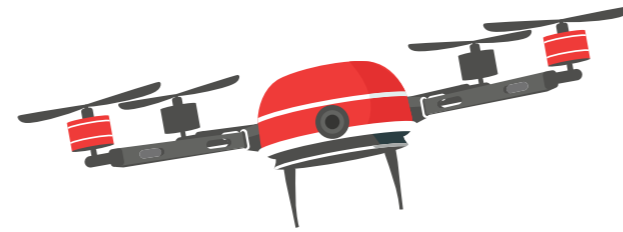
1.	<b>Start</b> by checking hardware compatibility for variable-rate application
2.	<b>Test</b> a reliable satellite imagery and mapping service (e.g., SOYL)
3.	<b>Plan</b> a fertiliser strategy with your agronomist based on crop needs
4.	<b>Measure</b> qualitative improvements like canopy consistency and disease reduction
5.	<b>Adapt</b> and refine strategy season by season for best results

# Unlock faster grazing insights with drone tech

MAESNEWYDD

## KEY RESULTS

+248 kg DM/Ha error margin



87% ACCURACY

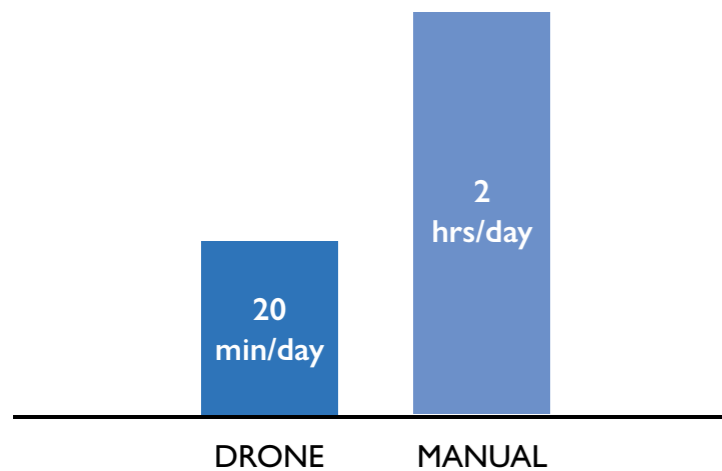


## AIMS

- Reduce labour time for pasture measurement
- Improve grazing management decisions
- Explore feasibility of drone integration on farm
- Compare results from two different drone specifications

## OUTCOMES

### DRONE VS MANUAL LABOUR HOURS



- **High accuracy:** Multispectral drone imagery predicted sward biomass with  $R^2 = 0.87$  and  $\pm 248$  kg DM/Ha error margin.
- **Low-cost option:** Visible-spectrum data achieved  $R^2 = 0.72$  – less accurate but still viable.
- **NDF prediction:** Strong correlation ( $R^2 = 0.98$ ), other forage metrics not reliable.
- **Time saving:** Drone flights took 20 min/day vs 2 hrs/day manual measurement.
- **Challenges:** Equipment cost, operator training, weather, and airspace restrictions.

### HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by sourcing a multispectral drone and registering it
2.	<b>Test</b> flights alongside plate meter readings for calibration
3.	<b>Measure</b> Normalised Difference Vegetation Index (NDVI) and link to biomass data
4.	<b>Adapt</b> calibration models using Excel or AI tools
5.	<b>Plan</b> regular flights and validate predictions with spot checks

# Using artificial intelligence to identify dairy cow lameness

MORETON FARM

## KEY RESULTS

- Sole ulcers **reduced by two-thirds**; white line lesions **nearly halved**.
- Return on investment (ROI): 37% (£15,650 savings vs £11,398 costs).
- CattleEye enabled **early detection** of lameness cases.

## OUTCOMES

- Daily mobility scoring dashboard (CattleEye) flagged cows needing attention.
- Foot trimming adapted to a 5-step method; cows checked at 60–80 days and dry-off.
- VetVisionAI cameras monitored cow comfort and lying times via heat maps.
- Heat maps showed excellent cow comfort and feeding patterns across barriers.

## AIMS

- **Assess** foot trimming and treatment data to identify key lesions
- **Implement** Healthy Feet Programme with risk assessment and action plan
- **Investigate** early detection options via technology



Figure 1. Cattle eye mobility scoring dashboard



Figure 2: VetVisionAI heat maps of the shed

### HOW TO APPLY ON YOUR FARM

1.	<b>Use</b> foot health data to identify causes of lameness
2.	<b>Create</b> an action plan with your vet (Healthy Feet Programme) or under the SFS Animal Health Improvement Cycle plan
3.	<b>Review</b> detection protocols; consider tech or mobility scoring
4.	<b>Engage</b> team and hold regular reviews
5.	<b>Upskill</b> staff for evidence-based treatment

## KEY RESULTS

- Genomic results for crossbred dairy animals now available in Wales **allowing timely decisions** in the first few weeks of the animal's life
- Highest genetically ranked animals will be kept for breeding and can **potentially reduce** replacement rearing cost and farm greenhouse gas emissions



## AIMS

- **Accelerate** genetic potential to get a more uniform herd by identifying the best replacement youngstock in the herd for kg of protein and butterfat %, fertility and Spring Calving Index (SCI) / Breeding Worth (BW) to breed with dairy sexed semen
- The option to **reduce** the cost of rearing unwanted lowest genomically ranked youngstock replacements, depending on the farming business's future ambition.
- **Improve** the efficiency and profitability of the herd to reduce greenhouse gas GHG emissions

Table 1. Average fertility, Protein and Fat % of all genomically tested animals at Rhydeden

	Fertility index	Fat %	Protein %
Rhydeden	8.30	0.28	0.21
Excellent / Targeting	10+	0.15-0.30+	0.1-0.2+

## OUTCOMES

- 131 replacement heifers were genomically tested over the project period at Rhydeden
- Three traits the farmer was targeting (fertility, protein & fat %), the average of the whole group came out almost all as excellent compared to the Holstein baseline
- There was a large variation in genomic traits within the group of heifers really highlighting the difference in an animal's potential in performance
- Fertility of the group ranged from 2.4-20.6
- Protein % ranged from 0.04-0.36
- Fat % ranged from -0.01-0.59
- The average SCC of the group was 15, this is high so the farmer should be aware to investigate SCC trait figures next time when selecting bulls
- PLI was an average of -85, milk yield, protein and fat kgs was the most significant factor affecting this comparing smaller capacity and milking potential crossbred heifers to AHDB Holstein base
- Being able to compare your own replacements against each other is the goal to aid accurate decision making for future breeding
- It will enable Rhydeden to compare heifers' ranking to cow PLI ranking, that are calculated through milk recording, enabling the farmer to identify the best genomic merit cows and heifers to breed with dairy sexed semen

## HOW TO APPLY ON YOUR FARM

1.	<b>Ear tag</b> heifers/cows through the tissue sampling unit (TSU)
2.	<b>Send</b> samples by post to NMR for analysis
3.	<b>Analyse</b> the genomic data for the cattle
4.	<b>Make</b> a breeding plan based on data

## KEY RESULTS

- Bedding cleanliness and foot/leg contamination **improved** after scraper routine changes.
- SCC **reduced** by 22,000 cells/ml to 198,000 during housing period (2023–24).
- SCC during the grazing season remains like previous performance, indicating **room for improvement**.
- Late lactation infections linked to teat health issues; milking machine **adjustments recommended**.
- **Potential financial benefit:** SCC improvement could add £66,300 annually; estimated yield increase worth £6,156–£7,638.

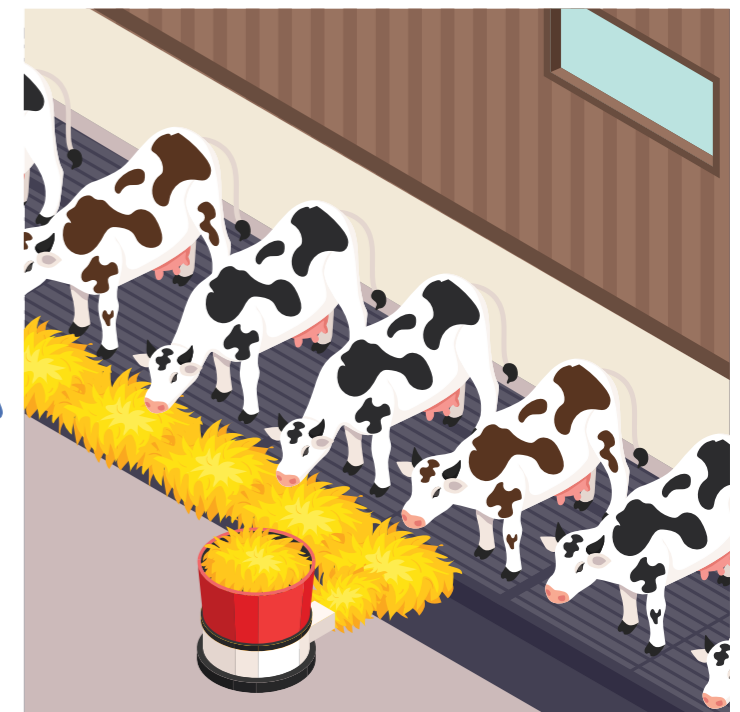
## AIMS

- **Improve** udder health and milking routine efficiency using lean management principles
- **Enhance** milking efficiency across the team
- **Reduce** SCC and clinical mastitis cases, lowering antibiotic use and costs

## OUTCOMES

- Interventions focused on reducing environmental challenges (increased passage scraping) and improving teat preparation during high-risk periods.
- Bedding cleanliness improved, reducing contamination.
- SCC dropped significantly during housed periods: 224k (2022–23) → 158k (2023–24) → 145k (2024–25).
- Bactoscan also improved (40 → 32).
- Grazing season SCC remains high, suggesting further improvement needed.
- Strategies implemented after Advance Milking visit in November 2023 correlated with reduced SCC and Bactoscan.

EVALUATE ENVIRONMENT



## HOW TO APPLY ON YOUR FARM

1.	<b>Arrange</b> a comprehensive udder health visit by a consultant
2.	<b>Review</b> udder health and milking data
3.	<b>Conduct</b> static and dynamic machine tests
4.	<b>Perform</b> time and motion study of milking
5.	<b>Evaluate</b> cow factors and environment
6.	<b>Discuss</b> findings and create an action plan through the SFS Animal Health Improvement Cycle plans

# Remote monitoring for welfare in an extensive conservation grazing system

OLD LANDS ESTATE

## KEY RESULTS

- At scale, bolus monitoring can cost ~£1 per animal per month, with additional costs for cameras and virtual fencing. These costs may be justified where labour, travel distances, and welfare risks are high, particularly for multi-site grazing operations.

## AIMS

- Extensive cattle grazing plays an important role in conservation and regenerative land management, but livestock are often managed across remote sites with limited infrastructure. Routine welfare checks can be time-consuming and costly, and early-stage issues may still be missed. This project explored whether **layered remote monitoring** could **support more efficient welfare management in extensive grazing systems**.

## OUTCOMES

- Layering different monitoring tools adds value, but no single technology is sufficient on its own
- Remote cameras were critical as verification tools, helping distinguish genuine welfare issues from false alerts and reducing unnecessary site visits
- Hardware reliability, power management and connectivity are key constraints in extensive systems
- Technologies designed for dairy cattle require adaptation for extensive beef and conservation grazing

### HOW TO APPLY ON YOUR FARM

1.	<b>Understand</b> your true costs first. Calculate labour, mileage, emergency call-outs, vet costs, fallen stock, and productivity losses before expanding onto land further afield.
2.	<b>Use</b> remote monitoring to support, not replace, in-person livestock management. Technology works best when layered with human checks, enabling earlier and more targeted intervention. The use of cameras as verification tools was critical in reducing unnecessary call-outs and building confidence in alert-based decision-making.
3.	<b>Assess</b> connectivity before deployment. Identify areas with adequate 4G signal to site gateways effectively.
4.	<b>Adapt</b> technology for beef systems. Boluses are designed for dairy cattle. Smaller boluses can be used for store cattle (2-year lifespan), while breeding cows can receive up to two boluses to extend monitoring to 8-12 years.
5.	<b>Compare</b> fencing options realistically. Factor in the labour and travel costs of setting up and maintaining electric fencing on remote sites. Virtual fencing can reduce these costs while also providing movement, escape, and welfare alerts, but it comes with its own ongoing requirements, including battery charging or replacement, resizing collars, and managing damaged or lost equipment.

# Evaluating the role of foliar feeds and tissue diagnostics for improving maize nutritional quality

TY COCH

## KEY RESULTS

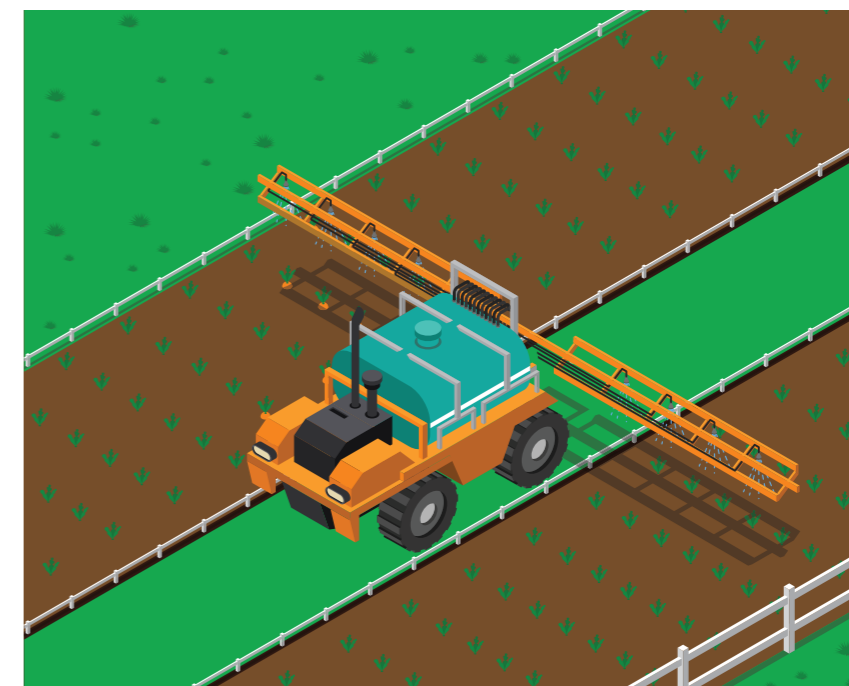
- **Yield:** Treated plot produced 23.8t/acre, 14.6t/acre more than untreated
- **Dry matter:** Treated 41.4% vs 37.8% untreated
- **Silage quality:** D value 72% vs 53%, ME 11.8 MJ/kg vs 8.6 MJ/kg
- **Foliar feeding** proved very successful in the sustained dry weather which hampered nutrient extraction from the soil

## AIMS

- To **correct** any nutrient deficiencies during the growing season using foliar applications
- **Evaluate** the impact of foliar feeding on maize yield and nutritional quality

## OUTCOMES

- Despite minimal tissue-level differences, treated plots delivered significantly higher yield, dry matter and forage quality. Foliar feeding improved digestibility (72% vs 53%) and energy value (11.8 MJ/kg vs 8.6MJ/kg). Visual inspection confirmed treated crops stayed greener longer, supporting higher performance in what was an exceptionally dry and prolonged period of hot weather.



### HOW TO APPLY ON YOUR FARM

1.	<b>Start:</b> Conduct soil analysis before planting
2.	<b>Test:</b> Use tissue diagnostics at key growth stages
3.	<b>Measure:</b> Identify and prioritise deficiencies (e.g. magnesium, manganese, boron)
4.	<b>Adapt:</b> Apply targeted foliar feeds based on results
5.	<b>Plan:</b> Monitor crop visually and adjust treatments as needed

# Streamline compliance: TECH-POWERED FARMING FOR 2026

AWEL Y GRUG

## KEY RESULTS

- Detailed geo-tagged soil sampling carried out across the whole farm over 2 years (UA1 compliance)
- 15% of farm mapped as habitat (above 10% Sustainable Farming Scheme (SFS) minimum)
- 5.1% of farms identified as hedgerow (SFS UA8 baseline established)
- Over 900 geo-tagged data points logged via Senus platform

## AIMS

Ensure compliance with SFS Universal Actions using accurate data



Reduce greenhouse gas emissions and maximise carbon storage



Enhance biodiversity and ecosystem resilience through informed management



## OUTCOMES

- UA1 Soil Health achieved: Comprehensive soil sampling across 100% of improved land, testing for K, P, Mg, pH, SOM, and texture. All samples GPS-tracked for RPW online compliance.
- UA5 Habitat Maintenance baseline set: Habitat mapping revealed 15% of farm as habitat, including 8.1% woodland and 5.1% hedgerows, exceeding scheme minimum.
- UA8 Hedgerow Management baseline established: Hedgerow extent mapped (6.1 Ha), ready for compliance reporting.
- Technology integration: Senus Soil and Senus Terrain enabled scalable, repeatable data collection and reporting, streamlining compliance and reducing admin burden.
- Next steps identified: Soil carbon sampling, hedgerow condition surveys, and environmental risk assessments (ERA) proposed to strengthen compliance and sustainability outcomes.

## HOW TO APPLY ON YOUR FARM

1.	<b>Familiarise yourself</b> with SFS requirements - Sustainable Farming Scheme 2026
2.	<b>Start</b> with soil sampling (GPS-tracked), complete 25% of the farm each year and record data on RPW online
3.	<b>Map</b> habitats and hedgerows for baseline compliance
4.	<b>Monitor</b> habitat and hedgerow condition regularly using digital tools
5.	<b>Integrate</b> data on a central platform for easy reporting and audits
6.	<b>Plan</b> the next steps: carbon sampling, hedgerow planting, and ecosystem surveys

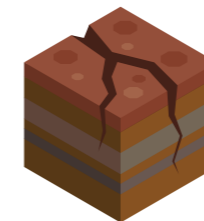
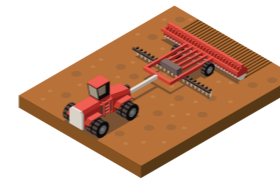
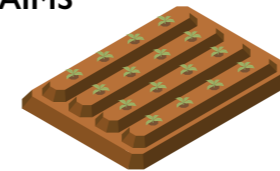
# Soil health baseline: FINDINGS FROM REGENERATIVE PRACTICES

PENTREFELIN

## KEY RESULTS

- No clear link between regenerative management duration and soil health in the short term.
- Un-ploughed field had the highest organic matter (DUMAS).
- Lucerne field showed the highest soil respiration and C:N ratio.
- Sandy soils at Pentrefelin demonstrated lower-than-expected organic matter levels.

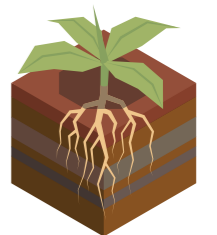
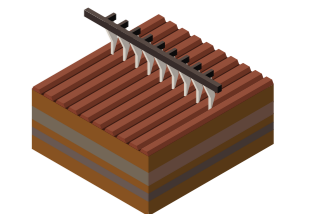
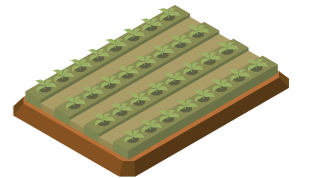
## AIMS



Assess the impact of regenerative farming practices on soil health

## DETERMINE A BASELINE FOR KEY INDICATORS:

VESS scores, organic matter, soil respiration, carbon stocks, pH, macronutrients, and trace elements



## OUTCOMES

- Five fields monitored with varying regenerative management durations (1–6 years).
- Field 1 included agroforestry with fruit trees for rotational grazing.
- Detailed soil sampling in three fields to 50 cm depth measured organic matter and carbon stock.
- Carbon stock estimates (t/ha): 0–10 cm: 24.4–30.4; 10–30 cm: 17.6–25.9; 30–50 cm: 8.7–16.6.
- Hedge soils generally had slightly higher carbon stock than field interiors.
- Organic matter converted to soil organic carbon; combined with bulk density for carbon stock calculations.

## HOW TO APPLY ON YOUR FARM

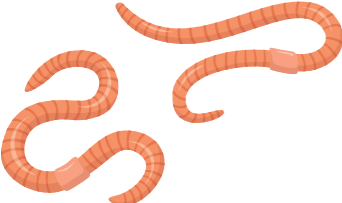


1.	<b>Collect</b> soil samples in a W-pattern; send them to laboratory for a broad-spectrum soil health test
2.	<b>Dig</b> a 20 cm hole for VESS assessment and earthworm count
3.	<b>Take</b> bulk density samples at 0–10 cm, 10–30 cm, and 30–50 cm; measure organic matter to estimate carbon stock
4.	<b>Repeat</b> three times in each field for accuracy
5.	<b>Seek</b> advice on how to analyze results

# Smarter soil checks

CILTHREW

## KEY RESULTS

- **VESS scores** improved from 2.3 (2024) to 1.5–1.7 (2025), indicating better soil structure.
- **Earthworm counts** varied widely (9.8–25 worms per pit) and showed no correlation with VESS ( $p=0.242$ ).
- **Weather strongly influenced results:** dry spring reduced worm counts; autumn counts highest.
- **Conclusion:** Earthworm counts alone are unreliable as a proxy for soil structure.

AIMS		
<p><b>Test</b> VESS and earthworm counts as quick, farmer-friendly soil health indicators</p> 	<p><b>Compare</b> physical (VESS), biological (worms), and chemical (lab analysis) measures for a holistic view</p> 	<p><b>Identify</b> practical steps for integrating these methods into routine farm soil monitoring</p> 

## OUTCOMES

- VESS proved a **simple, effective tool for assessing soil structure**, with scores improving between 2024 and 2025.
- Earthworm counts fluctuated significantly **due to seasonal and moisture conditions**, making them unreliable as a standalone indicator.
- Autumn surveys showed **higher adult worm counts across all categories** (epigeic, endogeic, anecic), reflecting lifecycle patterns.
- **Weather played a major role:** dry spring conditions reduced worm numbers and could lead to misleading conclusions if used alone.
- Combining physical (VESS), chemical (lab tests), and biological (worms or advanced microbial analysis) gives the **most accurate soil health picture**.
- **Field identification of worm species** could improve insights but is currently impractical for farmers.

### HOW TO APPLY ON YOUR FARM




1.	<b>Start</b> with VESS assessments during normal moisture conditions (avoid drought/waterlogging)
2.	<b>Send</b> soil samples for chemical analysis to understand nutrient status
3.	<b>Count</b> earthworms for a quick biological check but interpret cautiously
4.	<b>Consider</b> advanced biological tests (microbial activity, soil respiration) for deeper insights
5.	<b>Integrate</b> all three aspects - physical, chemical, biological - for a complete soil health strategy

# Welsh sustainable inputs in action project: ASSESSING BIOLOGICAL PRODUCTS' IMPACT ON GRASS QUALITY AND YIELD

CILTHREW / CRICKIE FARM / CWMRISCA

## KEY RESULTS

- **Most consistent performer:** *Kelp Crofters* - yield gains at **2 sites**, soil activity improvements at **3rd**.
- **Soil biology boost:** Strongest increases in microbial activity from **sylgen, kelp crofters, sea2Soil**.
- **Yield impact:** Highest DM yield at Crickie: **3.22 tDM/ha (Terrafed)** vs. **2.48 tDM/ha control**.
- **Nutrient cycling:** Combination treatment increased **calcium availability** at Cwmrisca.
- **Feed value:** CP, ME and NDF mostly **like control**, with minor site-specific improvements.

AIMS		
<p><b>Evaluate</b> whether biological products can improve soil health, nutrient availability, and microbial activity under Welsh grassland conditions</p> 	<p><b>Measure</b> their impact on grass yield, quality, and nutrient uptake across different farm environments</p> 	<p><b>Compare</b> consistency and effectiveness of multiple product types to guide future sustainable input decisions</p> 

## OUTCOMES

- **Biological products produced moderate, site dependent effects**, with no single product performing strongly across all locations. Environmental and soil factors influenced outcomes more than product choice.
- **Soil health responses were strongest where baseline biological activity was low**, with several products (especially kelp crofters, sylgen, sea2Soil) increasing microbial respiration and biomass. Combination treatments also improved calcium availability, indicating enhanced nutrient solubilisation.
- **Yield impacts were small but measurable**, with Kelp Crofters producing consistent dry matter increases at two sites. Terrafed showed the highest single site improvement (0.74 tDM/ha above control). However, improvements were not uniform across all farms or soil conditions.
- **Forage quality remained broadly unchanged**, with CP, ME, and fibre values largely within normal seasonal ranges. Some localised effects were recorded - such as kelp crofters and soil point increasing protein and fibre at Cwmrisca - but these were not consistent across locations.
- **Seasonal variability and natural soil fluctuations complicate interpretation**, with some large nutrient shifts likely reflecting weather and sampling variability rather than true treatment effects.
- **Overall, biological products show potential as supportive tools**, particularly in low fertility or stressed situations, but should not be expected to deliver uniform, high magnitude improvements.

### HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by identifying fields with low fertility, poor structure, or reduced biological activity - these respond best
2.	<b>Test</b> one product on a small area, prioritising stress resilience products like Kelp Crofters or microbial blends like Sylgen
3.	<b>Measure</b> soil biology, nutrient status, and DM yield before and after application to track real change
4.	<b>Adapt</b> product choice to site conditions: use humates on compacted soils, microbial products where soil life is low, and seaweed extracts during stress periods
5.	<b>Plan</b> follow up applications and monitor across seasons before scaling up

# Future-proof your pastures

TREATHRO

## KEY RESULTS

- Earthworm numbers were **highest** where grazing and organic inputs supported biological activity
- **Best** soil structure scores observed on cliff areas grazed by ponies despite lower earthworm counts
- Herbal leys and rotational grazing showed **improved** soil function and resilience indicators

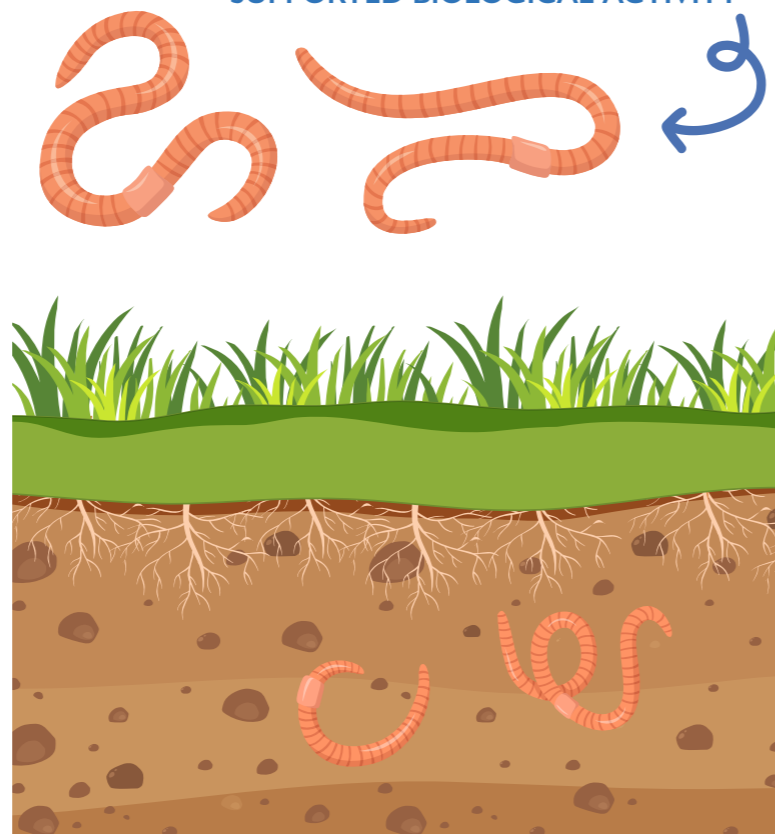
## AIMS

- **Evaluate** soil biology across contrasting grassland management systems
- **Assess** the impact of grazing intensity and cultivation on soil structure and carbon
- **Improve** understanding of below-ground biodiversity to support long-term farm resilience

## OUTCOMES

- **Soil sampling across four management systems** (rotational grazing pasture, pony-grazed coastal pasture, ryegrass/white clover haylage and min-till herbal ley) highlighted clear differences in soil health.
- Light pony-grazing and minimally disturbed systems achieved the **highest soil structure and carbon scores**, demonstrating the value of reduced compaction and disturbance.
- Earthworm numbers were highest where **grazing and organic inputs supported biological activity**, reinforcing the role of livestock management in soil ecosystems.
- Microbial analysis showed bacterial dominance across soils, indicating **scope to improve fungal populations** through deeper-rooting species and reduced tillage.
- Seasonal reassessment confirmed that building soil health is progressive and requires **sustained management changes over multiple years**.

EARTHWORM NUMBERS WERE HIGHEST WHERE GRAZING AND ORGANIC INPUTS SUPPORTED BIOLOGICAL ACTIVITY



## HOW TO APPLY ON YOUR FARM

1.	<b>Assess</b> soil structure using simple tools such as VESS scoring
2.	<b>Reduce</b> disturbance by trialing min-till or direct reseeding
3.	<b>Diversify</b> swards with herbal leys to encourage deeper rooting
4.	<b>Manage</b> grazing pressure to avoid compaction and protect soil biology
5.	<b>Monitor</b> change annually and adapt systems gradually

# Alyssum-Orius IPM strategy for strawberries

BELLIS BROTHERS

## KEY RESULTS

- **Average annual on farm thrip damage:** 5–10% crop loss, with previous financial losses of up to £23,000
- **Biological control trial:** Orius predator + alyssum companion crop show potential
- Weather conditions **increased thrip pressure** resulting in emergency application of Spinosad, disrupting trial

## OUTCOMES

- Thrips cause bronzing and discoloration, reducing saleability.
- Spinosad resistance is increasing among thrip populations.
- Trial introduced alyssum as a trap crop and orius as predator.
- Warm, dry weather increased thrip pressure during trial.
- Emergency spinosad spray disrupted trial, but orius presence confirmed before spray.
- Grower observed orius in strawberry flowers near alyssum plots.

## AIMS



## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by identifying thrip pressure in your crop
2.	<b>Plan</b> companion planting with alyssum during strawberry planting
3.	<b>Introduce</b> orius predators onto alyssum early in the season
4.	<b>Monitor</b> pest and predator levels regularly
5.	<b>Adapt</b> strategy based on weather and pest pressure; avoid emergency sprays where possible

# Maximise output while cutting inputs across your rotation

BUGEILUS FAWR

## KEY RESULTS

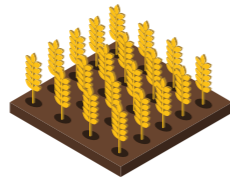
**25% reduction** in pesticide and fertiliser use through tailored applications



**20% labour saving** using combination of seeding and direct drilling



Improved establishment of **spring barley, winter barley, and ryegrass–red clover mixes**



Better control of **dock, chickweed, charlock, and slug pressure**



## AIMS

- **Optimise** fertilisation and seeding to increase barley yields
- **Establish** a resilient ryegrass–red clover mix with minimal soil disturbance
- **Enhance** resource efficiency through precise soil, pest, and weed management

## OUTCOMES

- **Reduced inputs:** Tailored fertiliser plans based on soil sampling and crop-specific nutrient guidance cut fertiliser and pesticide use by **25%**, improving soil health and reducing runoff risks.
- **Improved establishment:** Conventional ploughing for barley reduced weed pressure, while combination seeding ensured even placement of seed and fertiliser. The ryegrass–red clover mix was **direct drilled**, improving moisture retention and reducing soil disturbance.
- **Effective weed control:** Pre-seeding herbicides successfully reduced dock, chickweed, and charlock, leading to stronger early crop establishment and reduced competition throughout the season.
- **Pest management success:** Slug traps enabled timely molluscicide applications, preventing early grazing damage. Monitoring aphid thresholds helped minimise **BYDV** risk in winter barley, reducing the need for broad insecticide use.
- **Labour efficiency:** Combination seeding and direct drilling reduced labour requirements by **20%**, freeing up time for other farm operations and reducing machinery hours and fuel use.
- **Environmental benefits:** Reduced soil disturbance, lower chemical inputs, and improved nutrient targeting contributed to better soil structure, biodiversity support, and long-term sustainability.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> with soil sampling to understand nutrient status
2.	<b>Plan</b> fertiliser applications using crop-specific nutrient guidance
3.	<b>Use</b> ploughing plus combination seeding for barley to reduce weeds and improve establishment
4.	<b>Direct</b> drill grass–clover mixes to retain moisture and protect soil structure
5.	<b>Monitor</b> weeds, slugs, and aphids using traps and thresholds; apply targeted treatments only when needed

# Protecting brassicas: STRATEGIES AGAINST FLEA BEETLE IN HORTICULTURE PRODUCTION

LLYSIAU MENAI

## KEY RESULTS

- **Mesh netting:** Most effective - virtually eliminated flea beetle damage
- **Companion planting reduced damage;** spring onions were one of the most promising crops
- **Wildflower strips:** Significant pest reduction after flowering
- **Top crops for diversification:** Pak choi & chinese cabbage - high yield, strong market

## AIMS

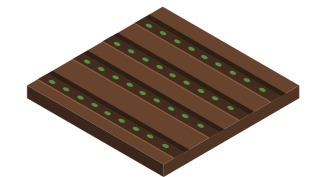
**Reduce** flea beetle damage using non-chemical methods



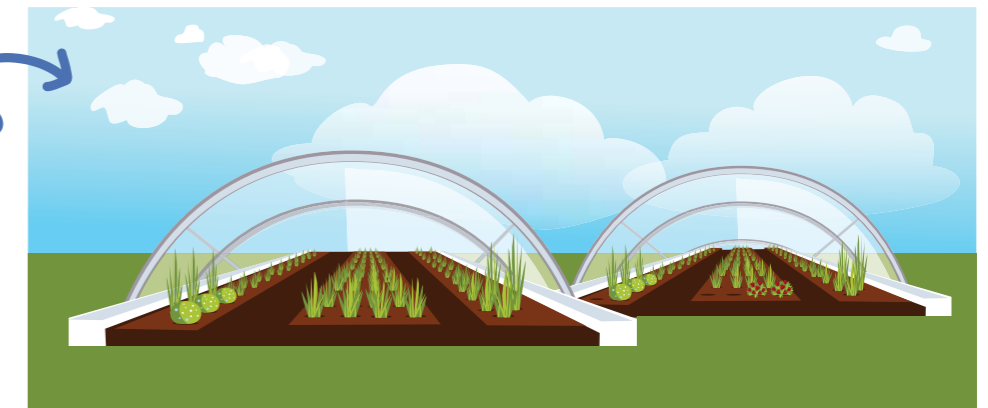
**Increase** crop diversity for veg box scheme



**Enhance** biodiversity and soil health through integrated planting



**MESH NETTING:**  
Most effective - virtually eliminated flea beetle damage



## OUTCOMES

- Mesh netting **provided** near-complete protection but requires temperature management
- Companion planting **reduced** cosmetic damage; spring onions were most effective
- Wildflower strips **improved** pest control post-flowering
- Mustard trap crop largely ineffective but **created** an unexpected market product
- Komatsuna showed **good resilience**
- Slug pressure and cool weather **influenced** trial success; multiple cultivations helped reduce slug damage

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> with a small pilot using mesh netting on high-value crops
2.	<b>Test</b> companion planting or predator-promoting flowers
3.	<b>Measure</b> pest pressure before and after flowering strips
4.	<b>Adapt</b> sowing timings for tender brassicas to suit your climate
5.	<b>Plan</b> for integrated pest management—for best results combine mesh, biodiversity, and crop rotation

# Maximise grass growth: ADAPT FOR RESILIENCE AND RETURNS

WELSH PASTURE PROJECT

## KEY RESULTS

- **Dairy farms:** Average grass growth rates rose from 10t DM/ha (2022) to 13.4t DM/ha (2023), peaking at 79.9kg DM/ha/day in May 2025
- **Beef & sheep farms:** Growth increased from 6.8t DM/ha (2022) to 8t DM/ha (2023), with a 2025 peak of 44.4kg DM/ha/day in June
- **Resilience:** Despite drought in 2025, late summer growth allowed extended grazing into autumn

AIMS		
<p><b>Encourage</b> regular pasture measurement for informed decisions</p> 	<p><b>Benchmark</b> growth rates regionally to improve performance</p> 	<p><b>Understand</b> weather and soil impacts to guide management</p> 

## OUTCOMES

- **Resilience through data:** Despite drought, farmers used growth trends to adapt grazing and avoid severe feed shortages
- **Extended grazing season:** Late summer recovery allowed longer autumn grazing, reducing bought-in feed costs
- **Improved decision-making:** Use of tools like Agrinet highlighted underperforming fields for 2026 improvement
- **Nutritional insights:** Grass analysis revealed seasonal energy dips and protein excess - guiding supplementation strategies
- **Knowledge sharing:** 39 farms contributed data, creating a robust benchmarking resource for Welsh livestock farmers

## HOW TO APPLY ON YOUR FARM

1.	<b>Start measuring:</b> Use a plate meter or ruler to record pre - and post-grazing heights weekly
2.	<b>Test and track:</b> Enter data into Agrinet or similar software to benchmark and identify underperforming fields
3.	<b>Measure and adapt:</b> Adjust fertiliser and stocking rates based on real-time growth data
4.	<b>Plan:</b> Forage budget to ensure sufficient fodder through the winter and identify animals to cull if needed
5.	<b>Review and scale:</b> After each season, review outcomes and plan improvements (e.g., introducing clover, adjusting grazing rotation). Investigate which SFS Optional Actions could support your journey to rotational grazing

# Clover in action: HOW TO FUTURE-PROOF YOUR FARM

RHYD Y GOFAINT

## KEY RESULTS

- Clover cover **increased** significantly only between May and October 2025. Crucially, while some areas hit 70% cover content.
- Stolon density average between two fields. **Average:** AberLasting 30.8 m/m<sup>2</sup> vs AberDairy 23.5 m/m<sup>2</sup>

## AIMS

- **Improve** nitrogen use efficiency by raising white clover content in grass swards.
- **Compare** establishment and performance of clover varieties (standard vs hybrid).
- **Evaluate** overseeding practicality and management to enhance persistence.



Figure 1: May 2025 Visual clover plant count



Figure 2: October 2025 Visual clover plant count

## → Morphology Findings

- No rhizomes found in AberLasting (despite claims).
- Stolon density consistently higher:
  - o Cae Ysgol: 23.5 vs 18 m/m<sup>2</sup>
  - o Cae Bargoed: 38 vs 29 m/m<sup>2</sup>

## → Establishment Insights

- Clover needs ~12 months to fully develop; vulnerable early on.

## OUTCOMES

- **Clover ground cover improved** during 2025, but establishment varied across plots.
- **AberLasting Performance**
  - Highest stolon density in both trial fields.
  - Strong horizontal growth → better persistence than standard blend.
- **Seasonal Growth**
  - Clover cover rose from 8–12% in May (Figure 1) to much higher levels by October (Figure 2) → strong late-season growth.

## → Agronomic Benefits

- Potential N savings: up to 150 kg/ha. (approximately £145/ha)
- Biggest benefits (N fixation, protein, grazing quality) appear from second full season → requires patience and consistent management.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> with a silage cut or heavy graze pre-drilling
2.	<b>Drill</b> clover (2 kg/acre) and protect with slug pellets at sowing
3.	<b>Graze</b> immediately; shorten rotation to ~20 days for Year 1 to reduce grass competition
4.	<b>Measure</b> cover at fixed points; don't judge success in first few months - expect variability
5.	<b>Adapt</b> and review after 12 months; scale from Year 2 when N-fixation and quality gains peak

# Low input grazing leys

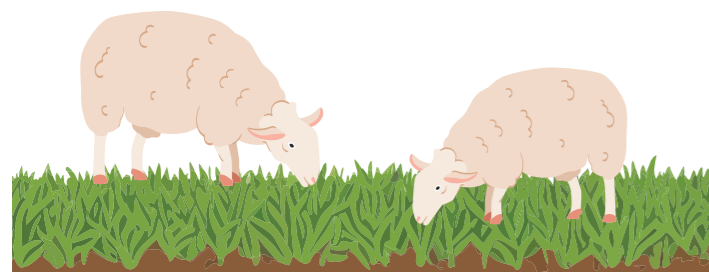
BRYNLLECH UCHAF

## KEY RESULTS

- **50%+ more forage** grown in all reseeded plots vs. control.
- **Multispecies mix = top performer** in dry 2025 season (12.68 T DM/ha).
- **£1,556/ha forage value** from multispecies vs. **£780/ha control**.
- **Up to 254% return on investment (ROI) by Year 4** for multispecies mixture.
- **No loss in forage quality** despite increased species diversity.
- **Clover establishment:** 10–20% in standard mix; <10% in diverse mixes.

## AIMS

- **Identify** resilient, low input seed mixtures suited to Meirionnydd hill grazing under increasing drought pressure.
- **Increase** homegrown forage availability to relieve pressure on improved land and support whole farm grazing flexibility.
- **Benchmark** diverse, multispecies, and ryegrass clover leys against permanent pasture to guide future reseeding strategy.



## OUTCOMES

- **Reseeding delivered major yield gains**, with all improved plots producing at least 50% more forage than the untreated pasture. This demonstrates the clear value of rejuvenating tired swards when supported with a modest nitrogen input.
- **The multispecies mixture showed the strongest resilience**, outperforming other mixes in the drier 2025 season and confirming that species diversity helps buffer moisture stress - important for farms facing warmer, drier summers.
- **Forage quality remained high across all mixtures**, with no evidence that increasing botanical diversity compromises nutritional value. This supports the idea that farmers can prioritise resilience without sacrificing performance.
- **Establishment proved challenging**, with key complex grasses (tall fescue, meadow fescue, festulolium) failing to establish meaningfully. Clover content was also low (<10%) in diverse swards. This suggests strong competition or suboptimal establishment conditions, highlighting the need for careful early management.
- **Financially, the multispecies mixture was the standout performer**, generating nearly double the forage value of the control and achieving a projected 254% ROI by year 4. Despite high establishment costs (£795–£818/ha), reseeding quickly pays back when drought resilience and summer feed supply are priorities.
- **The diverse grass and white clover mix performed steadily**, offering a balance between resilience and simpler management, whereas the ryegrass clover mix produced the lowest ROI of the reseeded options.

## HOW TO APPLY ON YOUR FARM

1.	<b>Assess</b> drought risk and identify fields that routinely underperform in dry summers
2.	<b>Select</b> multispecies mixes for maximum resilience, or diverse mixes for a balanced approach
3.	<b>Support</b> new leys with essential nutrition (N, P, K, lime) to unlock the 50%+ yield gains seen in the trial
4.	<b>Prepare</b> for establishment by ensuring strong seed to soil contact and reducing early competition
5.	<b>Monitor</b> species presence and performance, then adapt mixtures or management based on persistence and forage quality.

# Revolutionise your pasture: PRECISION GRAZING MADE SIMPLE

HAFOD Y FOEL

## KEY RESULTS

- **Two** groups of 40 Wagyu calves grazed on separate platforms
- **Grass growth potential:** 7.5t DM/ha/year without inputs (~30 kg DM/ha/day)
- **Rotation in two fields:** Weirglodd (4.6 ha, 16 paddocks), Ffridd (9.3 ha, 14 paddocks)
- **Water supply calibrated:** 2.97 L/min (150kg calves), 5.43 L/min (350kg cattle)

## AIMS

- **Design** and implement precise grazing platforms for different weight classes
- **Optimise** grass growth monitoring and match grazing demand with supply
- **Ensure** adequate water supply at cell level for animal health

## OUTCOMES

- **Implemented** Grasshopper plate meter linked to GrasslandTools for real-time data on farm cover and grass wedge.
- **Created** GPS-mapped cells with automated data uploads, enabling efficient grazing rotation.
- Cattle rotations **averaged** ~1.7 days per paddock for both groups, fitting planned rotation lengths.
- Water flow targets **successfully** paired to animal size and group number, ensuring welfare and performance.



## HOW TO APPLY ON YOUR FARM

1.	<b>Split</b> grazing groups by weight/age and allocate them to segmented platforms
2.	<b>Use</b> plate meter or sward measuring stick for continuous grass monitoring
3.	<b>Map</b> paddocks via GPS to ensure accuracy and consider the use of software to facilitate rotation planning
4.	<b>Calculate</b> water requirements based on liveweight and install pipes and troughs to match your requirement
5.	<b>Rotate</b> paddocks in cycles of ~1.5–2 days per cell, adjusting based on stocking density and grass growth

# Pre-mowing in rotations: A FLEXIBILITY TOOL, NOT A PROFIT DRIVER

MOOR FARM

## KEY RESULTS

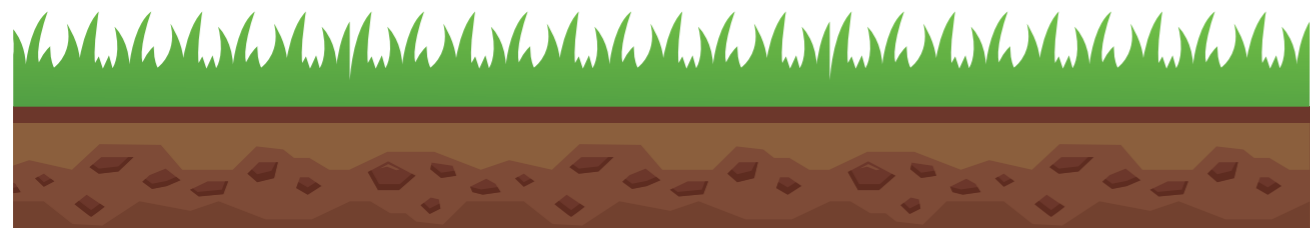
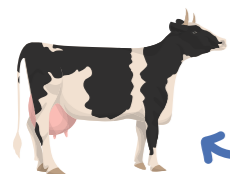
- Pre-mowing grass **did not improve** quality (ME, D-Value, crude protein).
- **No economic benefit** in rotational grazing systems except for aesthetic appeal and flexibility.
- **Useful** for managing high covers (>3,400 kgDM/ha) and during drought.
- Pre-mowed grass **grew** 0.4 t DM/ha less than control.
- **Did not** reduce weed burden.

## OUTCOMES

- Pre-mowing **did not** enhance grass quality or growth; control paddocks produced 6.4t DM/ha vs. 6t DM/ha for pre-mowed.
- **Grass analysis showed** similar ME (10.8–11.3 MJ/kg) and crude protein levels between treatments.
- **Cost of mowing:** £50–90 per hectare (labour, fuel, depreciation).
- **Pre-mowing** can help manage high covers when surplus paddocks cannot be removed, offering flexibility during drought.
- **No reduction** in the weed burden was observed.
- Animal behaviour and intake monitoring **recommended** using rumination collars for further insights.

## AIMS

**INVESTIGATE** pre-mowing effects on pasture quality, weed burden, grass growth, animal intake and behaviour, and cost-effectiveness.



# Boost spring growth by optimising winter diets

TANYGRAIG

## KEY RESULTS

- **177kg vs 150kg** total gain (concentrate vs silage-only)
- **0.91kg/day** peak winter gain with concentrates
- **159.75kg** extra concentrate consumed (£71.89 cost)
- **£7.23** margin advantage for concentrate group
- **0.77–0.81kg/day** similar gains at grass for both groups

## AIMS

- **Reduce** winter feed costs while maintaining cattle performance.
- **Test** compensatory growth potential of silage-only diets.
- **Evaluate** accuracy and practicality of the Beef Monitor system.

## OUTCOMES

- Cattle fed concentrates achieved **27kg more total gain**, driven mainly by stronger winter performance rather than differences at grass.
- Silage-only cattle showed **poor winter gains (0.28kg/day)** and did not demonstrate meaningful compensatory growth in spring, indicating winter underperformance was too severe to recover.
- Both groups performed similarly at grass (**0.77–0.81kg/day**), suggesting spring growth potential was not the limiting factor.
- The Beef Monitor worked well indoors but was less reliable at grass due to reduced water visits and inconsistent weighing opportunities.
- Economic analysis showed a **small positive margin (£7.23)** for feeding concentrates, driven by improved winter growth efficiency.
- Future systems should target **0.6kg/day winter gain**, supported by concentrate supplementation where silage quality (e.g. 66 D Value) is insufficient.



## HOW TO APPLY ON YOUR FARM

1.	<b>Use</b> a plate meter to monitor grass growth and covers
2.	<b>Send</b> grass samples for NIRS analysis to monitor through the season
3.	<b>Consider</b> using pre-mowing in drought conditions or high covers

## HOW TO APPLY ON YOUR FARM

1.	<b>Assess</b> silage quality and match concentrate levels to target 0.6kg/day winter gain.
2.	<b>Monitor</b> cattle regularly using crush weights for accuracy
3.	<b>Adjust</b> winter diets early if gains fall below target
4.	<b>Plan</b> turnout to maximise early spring growth and avoid setbacks
5.	<b>Review</b> performance annually and refine feeding strategy

# Unlocking the benefits of multispecies grazing

CRICKIE FARM

## KEY RESULTS

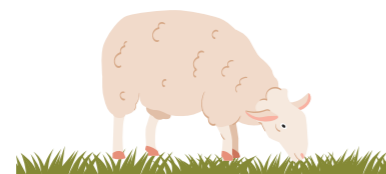
- Higher herbage biomass from multispecies leys across 2024–2025.
- Improved lamb performance in August and October (36.1 kg vs 35.4 kg; 40.3 kg vs 38.9 kg).
- No significant difference in FECs, but monthly monitoring proved a valuable management tool.
- Similar lamb performance in the establishment year between multispecies and conventional leys.

### AIMS

**Improve** understanding of how multispecies leys perform on commercial farms



**Enhance** lamb growth, pasture productivity, and resilience to weather variability.



**Identify** practical management approaches for integrating these leys into grazing rotations.



## OUTCOMES

- Multispecies leys consistently produced greater total herbage biomass throughout the grazing season in both 2024 and 2025, suggesting improved forage availability when managed effectively.
- Lambs grazing these leys achieved slightly higher weights in key months (August and October), though performance varied with weather, highlighting the importance of adaptive management.
- Monthly FEC monitoring demonstrated that although mean FEC levels were similar across groups, regular individual testing helped prevent unnecessary treatments and improved animal health oversight.
- Minimal differences were seen in mineral and trace elements between swards, indicating comparable nutritional balance.
- Evidence suggests that multispecies leys can deliver multiple farm-level benefits - improved forage resilience, potential performance gains, and reduced reliance on single-species grasses - when integrated into grazing plans.

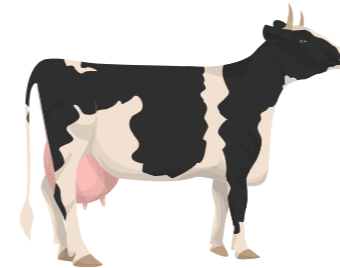
### HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> small by trialling a multispecies ley in one grazing block.
2.	<b>Measure</b> baseline lamb performance and pasture growth for comparison
3.	<b>Monitor</b> FECs monthly to refine parasite management
4.	<b>Adapt</b> grazing pressure according to seasonal weather patterns
5.	<b>Review</b> & scale successful approaches into wider farm rotations

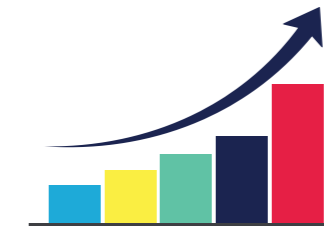
## Driving profit: FERTILITY AND FEED EFFICIENCY IN ACTION

RHYD Y GOFAINT

## KEY RESULTS



120 cows



17% increase in in-calf rate



£3 per cow/per % increase in 100d in-calf

Estimated increase in profit = £6,120

## AIMS

- Increase 100-day in-calf rate to improve herd fertility and productivity
- Reduce metabolic disease risk through proactive body condition management
- Maximise economic returns by lowering feed costs and improving health outcomes

## OUTCOMES

- **Better fertility:**
  - o 100-day in-calf rate improved from 56% to over 70%
  - o Fewer empty days and more consistent calving patterns
- **Health improvements:**
  - o Milk fever cases reduced from 8 to 2
  - o No displaced abomasum cases compared to previous averages
- **Cost savings:**
  - o Saved £1,800 on feed (7.2 tonnes less concentrate)
  - o Tailored feeding through regular body condition scoring
- **Profit boost:**
  - o Estimated £6,120 increase in profitability

### WHAT MADE THE DIFFERENCE:

- Regular ketone testing
  - Metrichick
  - Confirmatory pregnancy diagnosis
  - Structured fertility management

### HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> with a fertility consultation and set clear KPI targets via the SFS Animal Health Improvement Cycle plan
2.	<b>Test</b> ketone levels and monitor body condition regularly
3.	<b>Measure</b> submission and conception rates monthly
4.	<b>Adapt</b> feeding strategies based on BCS and health data
5.	<b>Plan</b> pregnancy checks and review progress every 6–12 months

# Lower inputs, higher returns

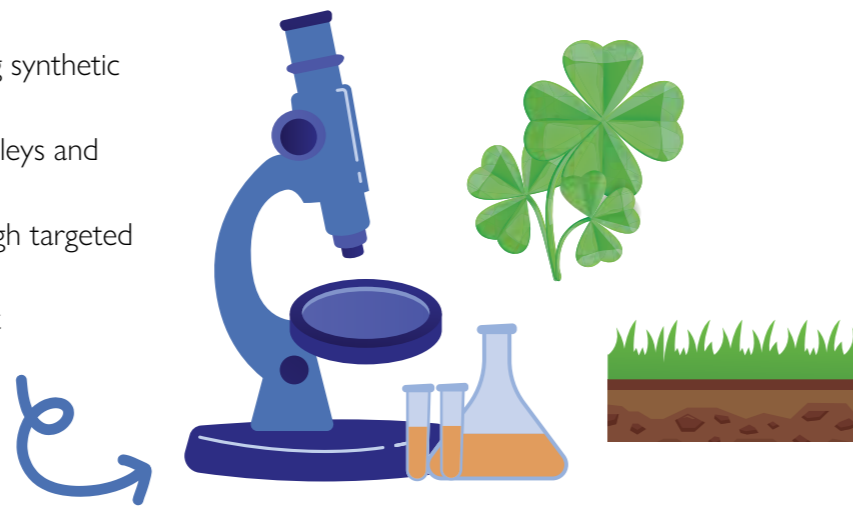
GLASCOED

## KEY RESULTS

- **Maintained** 120–130 LU across 250 acres (1.18–1.28 LU/ha) with 36% reduction in nitrogen and 76% reduction in sheep concentrate feed
- **Dramatic reduction in key farm inputs:** Nitrogen (N) fertiliser ↓36% decrease, phosphorus (P) fertiliser ↓83% decrease, potassium fertiliser (K) ↓72% decrease, sheep concentrate feed ↓76% decrease
- **Smarter forage replaced concentrate feed:** High protein clover and herbal leys, along with quality baled silage contributed to alleviating reliance on purchased feed
- **Targeted health management:** Proactive monitoring reduced wormer use and addressed mineral deficiencies effectively

## AIMS

- **Maintain** stocking density while lowering synthetic inputs
- **Enhance** forage quality via multi-species leys and better silage
- **Optimise** soil fertility and biology through targeted nutrient sampling
- **Ensure** animal health with trace element supplements and parasite management



## OUTCOMES

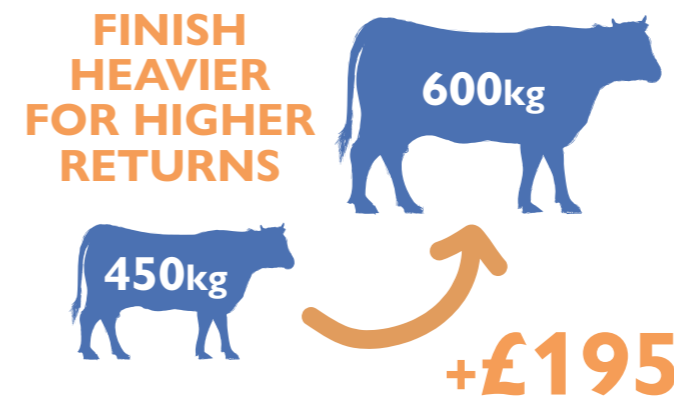
- **Achieved** stable livestock units (~1.2 LU/ha) with major cuts in nitrogen and concentrate inputs.
- Soil sampling **informed** precision nutrient applications and liming requirements.
- Red/white clover and herbal leys significantly **reduced** P and K fertiliser use.
- High-yield red clover/PRG reseed delivered **excellent** DM but revealed iodine deficiency issues.
- Big bale silage **improved** energy density (11.5 MJ/kg DM), replacing riskier clamp silage.
- Strategic worm testing allowed for **reduced**, more effective anthelmintic use.
- Trace element management **addressed** multiple mineral deficiencies, protecting ewe and lamb health.

# Transform cattle performance with cost efficient management

GRAIANFRYN

## KEY RESULTS

- **£19 net margin** per finished animal (£0.03/kg liveweight) vs industry minus £0.31/kg.
- **£116,158 variable costs**, with **£84,748** feed costs (73% of variable costs).
- **£41,002 fixed costs**; total production cost of £157,160; net margin **£2,009**.
- **Finishing to 600kg** is more profitable than selling at 450kg:
  - o **+£130.45/head** (indoors)
  - o **+£195.90/head** (outdoors)
- Homegrown barley **reduces** feed costs but weather limits production.



## AIMS

- **Identify** inefficiencies affecting profitability across the finishing system.
- **Assess** alternative management, breed, and system options to improve performance.
- **Evaluate** cost effectiveness of rearing calves vs purchasing weaned calves.

## OUTCOMES

- **Feed costs dominate:** Feed totalled **£84,748**, representing **73% of variable costs** and **54% of total production costs**. This highlights the need for ration optimisation, improved forage quality, and greater reliance on homegrown feed to protect margins.
- **Marginal profitability:** The enterprise achieved a **£19 net margin per finished animal**, outperforming the industry average loss. However, the margin is narrow and highly sensitive to feed price volatility and cattle sale values, meaning profitability could quickly shift into loss without careful monitoring.
- **Finishing outperforms store sales:** Financial modelling shows clear benefits to finishing cattle to **600kg**, with margins **£130.45–£195.90/head** higher than selling at 450kg. These gains must be balanced against additional labour, feed, and overheads, but the overall direction favours finishing.
- **Expansion benefits:** Increasing cattle numbers is expected to reduce overheads per head and improve profitability through economies of scale, assuming gross margins remain stable.
- **System transition:** The 2023 figures reflect a transition period with additional rearing costs not yet offset by sales. A follow up review once the system stabilises will provide a clearer long term financial picture.
- **Strategic improvements:** Opportunities include diversifying homegrown protein sources, reviewing breed choices for better feed conversion, and refining health and management protocols to reduce costs and improve growth rates.

## HOW TO APPLY ON YOUR FARM

1.	<b>Use</b> benchmarking tools such as Farmdata+ under the Sustainable Farming Scheme (SFS) to understand your enterprises' current performance and track improvements
2.	<b>Regular</b> soil sampling (pH, P, K, Mg, SOM) to guide lime and fertiliser use precisely. Sampling 25% of the farm each year would ensure compliance with SFS UA1 (Soil Health)
3.	<b>Integrate</b> red/white clover and herbal leys in reseed for natural fertility gains (multi-species leys are an option for compliance with the 10% habitat requirement of the SFS, via temporary habitat creation (UA6))
4.	<b>Monitor</b> lamb growth Daily liveweight gain (DLWG) and conduct regular Faecal egg count (FEC) monitoring, treat only low-performing animals to combat resistance
5.	<b>Conduct</b> a farm trace element audit for precision, targeted mineral supplementation, aligned with expert advice

## HOW TO APPLY ON YOUR FARM


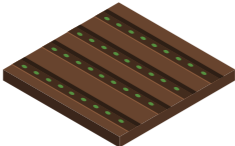

1.	<b>Monitor</b> financial performance, including feed costs, overheads, and net margin per finished animal.
2.	<b>Analyse</b> feed efficiency by reviewing rations, increasing homegrown forage use, and reducing purchased feed reliance.
3.	<b>Evaluate</b> breed and system options to identify cattle types that perform best on your forage and finishing system.
4.	<b>Compare</b> the costs of rearing calves vs buying weaned calves or stores, including labour, feed, health, and risk.
5.	<b>Scale</b> cattle numbers where possible to reduce overheads per head and improve enterprise resilience.

# Futureproof your farm: 'PICK YOUR OWN' HORTICULTURE DIVERSIFICATION

LOWER HOUSE FARM

## KEY RESULTS

- **Profit** from the diversification trial was £17,330 for 1.5 acres of pumpkin production
- **Pick your own pumpkins** was a profitable investment and will remain a key part of the farm's business model.
- **Direct drilling vs. plug plants:** Seeds were more cost-effective, but plug plants established better and suppressed weeds more effectively.
- **Visitor pricing model** (charging per car and per pumpkin) worked well for both the farm and visitors.

AIMS		
<p><b>Diversify</b> farm income through pumpkin production</p> 	<p><b>Test</b> best methods for pumpkin establishment</p> 	<p><b>Enhance</b> visitor experience with added-value farm experience</p> 

## OUTCOMES

- Seeds were **cheaper** but plug plants established better and resisted weeds
- Weed control was the **biggest challenge**; thistles outcompeted direct-drilled plants
- Manual irrigation during dry weather was **time-consuming**; sprinkler system recommended
- Manual planting and harvesting were **labour-intensive**; mechanical planting advised
- During open days, charging per car through advance booking **guarantees income** for the farmer
- Catering and free activities **increased** visitor satisfaction and revenue

FINANCIAL RESULTS		
<p><b>+ REVENUE</b></p> <p>PYO Ticket sales - <b>£5,630</b> (£9 per car)</p> <p>Pumpkin Sales - <b>£12,000</b></p> <p>Catering revenue - <b>£4,000</b> (hog roast, burgers, sausages, coffee van)</p>	<p><b>- COSTS</b></p> <p>Pumpkin trial setup - <b>£2,297</b> (Including seeds, plants, irrigation, contractors and professional advice)</p> <p>Catering costs for open days - <b>£2,100</b></p>	<p><b>= PROFIT</b></p> <p><b>£17,330</b></p>

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> with a small pilot plot (1–2 acres)
2.	<b>Test</b> different propagation methods (seeds vs plug plants)
3.	<b>Measure</b> costs and yields to identify best approach
4.	<b>Adapt</b> field layout for machinery and visitor access
5.	<b>Plan</b> added-value activities and catering for extra income during open days

# Maximizing your farms return on investment (ROI) on technology investment

PENYPARC

## KEY RESULTS

- **Strong farm layout** reduces need for urgent investment; technologies should align with long-term goals.
- **Automatic calf feeders:** ROI 14%, payback 7 years.
- **Cow collars:** ROI 7%, payback 14 years; limited added value due to strong baseline fertility.

## AIMS

- **Assess** ROI for automatic heat detection and calf feeders.
- **Identify** opportunities to improve farm performance and work-life balance.



## OUTCOMES

- **Cow collars:** Investment £23,850; annual savings £1,680; payback 14 years.
- **Limited fertility improvement expected;** intangible benefits include peace of mind and flexibility.
- **Calf feeders:** Investment £11,000; annual savings £1,525; payback 7.2 years.
- **Labour efficiency improved** by 21%, saving 76 hours annually.
- **Recommended investment sequence:**
  - 1) Grazing infrastructure (soil fertility, reseeding, roadways) for rapid returns.
  - 2) Facilities development (milking, handling, slurry storage) to reduce work time and improve safety.
  - 3) Automation technologies (calf feeders, drafting gates, cluster removers, auto-wash, heat detection) for workload reduction and flexibility.

## HOW TO APPLY ON YOUR FARM

1.	<b>Prioritise</b> investments that deliver the greatest benefit first.
2.	<b>Start</b> with grazing infrastructure, then improve milking and handling facilities.
3.	<b>Introduce</b> automation technologies gradually to reduce routine workload and enhance flexibility.

# Boosting your bottom line: A GUIDE TO UDDER HEALTH AND MILKING EFFICIENCY

WELSH UDDER HEALTH AND MILKING BENCHMARKING PROJECT

## KEY RESULTS

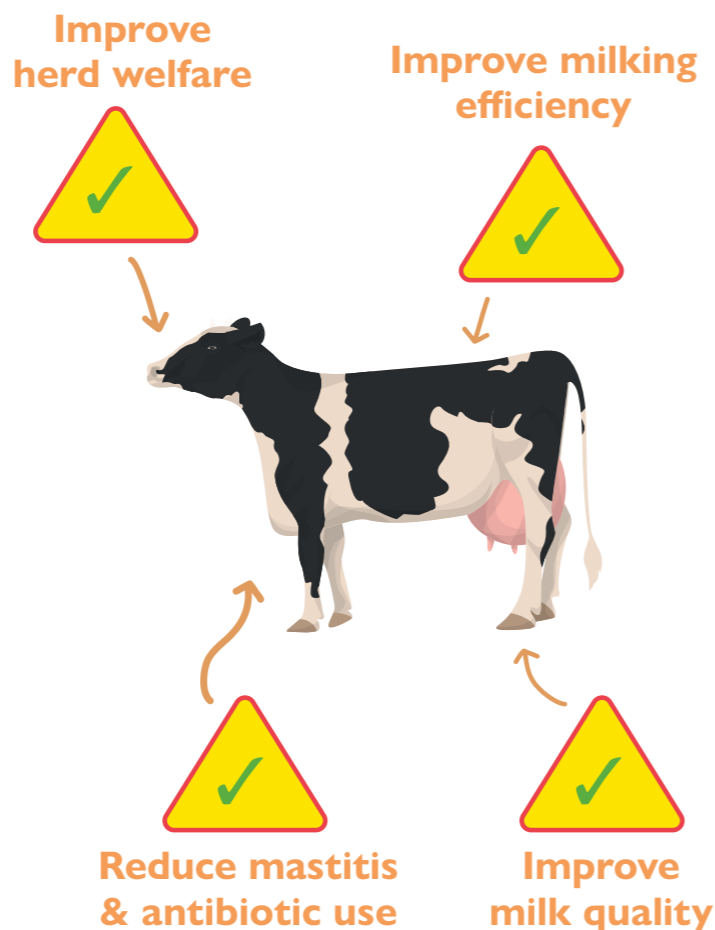
- Herds involved in the project **ranked** in the top 25–50% nationally for udder health.
- All herds were **in the top 50%** for milking efficiency (milk per unit per hour).
- **Udder health costs:** £3,000–£10,000 per 100 cows/year (impact: 1.0–1.25 ppl).
- Efficient milking **improved** cow welfare, health, fertility, and yield.
- Lower mastitis rates **reduced** medicine use and waste milk, improving sustainability.

## OUTCOMES

- Farmers **gained** insight into herd strengths and weaknesses.
- Benchmarking **reassured** strong performance but highlighted improvement areas.
- **Reduced** mastitis incidence and improved confidence in management practices.
- **Small** improvements in udder health significantly boosted profitability.
- Some herds **exceeded** elite targets; others needed to focus on heifer mastitis, lactation infections, and dry period cure rates.
- Rotary parlours were most efficient; ACR settings and teat preparation **improved** milking speed.
- High-performing herds could **relax** some mastitis controls to save time/money; others needed modest changes for big financial gains.

## AIMS

- **Evaluate** farm performance and identify improvement areas in udder health, milking efficiency, and cost management.
- **Reduce** mastitis and antibiotic use, improve milk quality and herd welfare.
- **Upskill** farmers to monitor performance and integrate Uniform Ag software for herd data.



HOW TO APPLY ON YOUR FARM	
1.	<b>Focus</b> on udder health, milking efficiency and costs.
2.	<b>Use</b> milk recording and mastitis cost calculators to identify losses.
3.	<b>Set targets</b> (e.g., top 25% mastitis incidence: 13 cases/100 cows/year).
4.	<b>Monitor</b> heifer mastitis, dry period cure rates, and older cow infections.
5.	<b>Optimise milking efficiency:</b> check ACR settings, teat prep, and parlour use.
6.	<b>Reinvest</b> savings from reduced mastitis into herd management.
7.	<b>Look</b> at including in your Animal health improvement cycle (AHIC) plan through the Sustainable Farming Scheme.

# Agroforestry impact: BOOST MILK YIELD, PROTECT HERD WELFARE

KILFORD

## KEY RESULTS

- **Heat-stress days:** Over a 150-day summer, 30% of those days were at or above the Dairy Heat Load Index resulting in heat stress when cows were out in full sun. Compared to 4% of days where shade was available
- **Milk loss per cow:** 179 litres full sun vs 13 litres shade
- **£ loss per cow:** £77 full sun vs £5 shade
- **Loss for herd:** £34,675 vs £2,438 ((based on 43.13 ppl at the time of the project)

## AIMS

- **Quantify** heat stress under grazing and the mitigation effect of shade
- **Reduce** milk yield and welfare losses through practical shade, water, housing, and airflow strategies
- **Validate** intraruminal sensors against external indices to improve on-farm decision-making

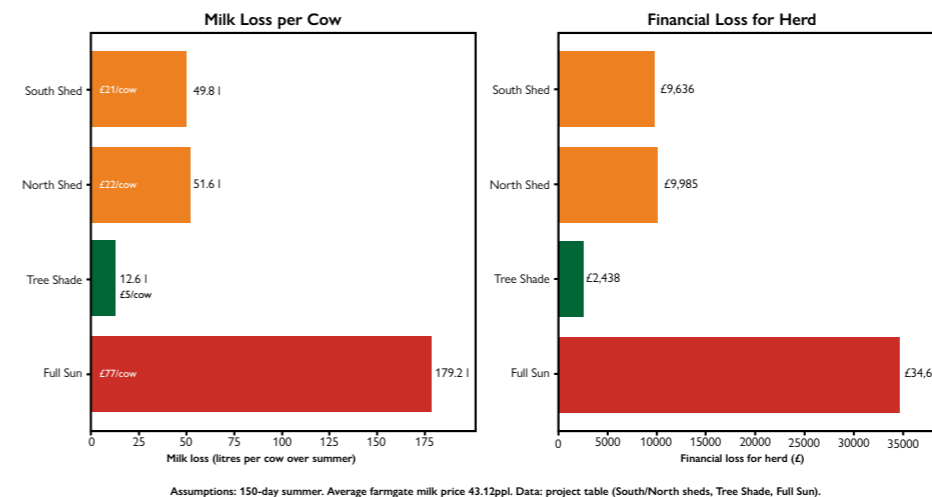


Figure 1. Impact of heat stress on milk production and financial loss

## OUTCOMES

- Across **150 days (5 May–1 October 2025)**, Heat-stress days dropped from 30% in full sun to just 4% under trees, demonstrating the protective effect of agroforestry. Predicted milk losses: estimated to lose **179.2 l/cow** in full sun; compared to **12.6 l/cow** with shade
- At an average milk price of **43.12ppl**, that translates to **£77/cow** lost in full sun vs **£5/cow** in shade. For a **450 cow** herd, the tabled losses are **£34,675** (full sun) vs **£2,438** (shade)
- Housed areas (South/North sheds) still showed heat related impacts highlighting the need to shade pressure points.
- **Tech insight:** Rumen sensors tracked heat stress accurately, helping smarter decisions.

HOW TO APPLY ON YOUR FARM	
1.	<b>Start</b> by mapping heat “pressure points” (collecting yard, parlour, holding areas)
2.	<b>Provide</b> shade: use existing trees; plan planting on field boundaries; protect young trees periods
3.	<b>Ensure</b> ample clean water at multiple access points
4.	<b>House</b> cows during hottest hours; graze mornings/evenings/overnight
5.	<b>Fit</b> fans (plus simple water sprays) in high-pressure areas; monitor with rumen boluses or heat indices; adapt weekly

# Regenerating the common: PRACTICAL INSIGHTS FROM VIRTUAL GRAZING MANAGEMENT

WHOLEHOUSE FARM

## KEY RESULTS

- 10 Belted Galloway heifers **successfully grazed** Buckland Manor Common from May to November 2025
- Vegetation conditions **improved** over one season, with better structure and reduced dominance of problem species
- **Virtual fencing** enabled safe, low-labour grazing of remote and unfenced land
- **Mineral deficiencies identified** (Cu, Se, Mg) → informed future supplementation

## AIMS

**Reinstate** effective cattle grazing to improve habitat structure and reduce bracken/fire load



**Develop** a low-labour, low-input suckler herd aligned with family business and land capability



**Test** virtual fencing as a tool to manage large, rough, under-utilised common land



## OUTCOMES

- Grazing the common with heifers and calves led to **visible improvements** in vegetation structure within one season.
- Larger-scale species change will require longer-term monitoring. Despite limited forage quality, cattle **maintained** condition with close BCS monitoring, and mineral deficiencies informed supplementation decisions.
- Winter feed budgeting **proved accurate** and informed future bale planning.
- Virtual fencing **reduced** labour and opened land previously unusable due to lack of physical boundaries.
- The system **supported** wider business goals, linking grazing practices with direct-beef marketing, and improving sheep grazing management.
- The project **increased** confidence and knowledge, enabling long-term planning for grazing and biodiversity.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by mapping area to be grazed and identify reliable water sources. Use system as a potential management option for habitat areas in the Sustainable Farming Scheme
2.	<b>Train</b> cattle with virtual fencing collars and test with large paddocks first (25–50 ha) to observe cattle behaviour
3.	<b>Measure</b> forage quality and conduct mineral analysis to inform supplementation
4.	<b>Adapt</b> stock classes for habitat goals - use dry cattle or steers for bracken trampling
5.	<b>Plan</b> winter feed budgets early using deferred grass + bale estimates to determine stocking rates

# Futureproof your farm's woodlands through continuous cover forestry

GLYN ARTHUR FARM

## KEY RESULTS

- **228 tonnes** of timber extracted in first thinning
- **Average £75/tonne** timber sale price vs **£55/tonne** felling/extraction and **£13/tonne** haulage
- **£2,791** net additional income after contractor costs
- **20.1m<sup>3</sup>/ha** estimated annual timber volume increment
- **Increased** confidence and skills for ongoing woodland management

**Improve woodland condition and explore value adding opportunities.**



## AIMS

- **Improve** woodland condition and restore native and ancient woodland features
- **Transition** towards continuous cover forestry for long-term ecological and economic resilience
- **Explore** markets and value adding opportunities for timber as a farm resource

## OUTCOMES

- **Baseline data established:** Detailed measurements now track species composition, tree size, and structural changes as the woodland transitions to a continuous cover system.
- **Improved woodland resilience:** The shift from unmanaged, even aged stands to mixed age, mixed species woodland increases resilience to pests, disease, and climate impacts.
- **Targeted thinning benefits:** Halo thinning around veteran trees reduces competition, protects root systems, and enhances the health of parkland features. Selective thinning also removed diseased ash while conserving resistant individuals to encourage natural resilience.
- **Disease responsive management:** Rapid intervention reduced larch stock due to disease risk, improved stem quality, and diversified species through enrichment planting.
- **Timber income generated:** First thinning removed 228 tonnes of lower grade timber sold to six local buyers, generating £2,791 net income after costs.
- **Enhanced future value:** Post felling improvements in Lodge Wood will accelerate timber quality and yield, with an estimated 20.1m<sup>3</sup>/ha annual increment and an £807/ha annual value increase.
- **Strengthened management capacity:** Training, plot marking, and contractor collaboration have increased the farm's confidence and capability to continue woodland management independently.




## HOW TO APPLY ON YOUR FARM

1.	<b>Speak</b> to your Farming Connect local Development Officer to explore creating a woodland management plan with specialist support to understand how this could help you achieve the Sustainable Farming Scheme actions.
2.	<b>Confirm</b> funding sources and allocate budgets for thinning, restocking, and contractor work.
3.	<b>Assess</b> your skills and capacity; bring in foresters, arborists, or machinery operators where needed.
4.	<b>Explore</b> timber sale options, whether selling standing timber or roadside timber, and align this with contractor scheduling.
5.	<b>Ensure</b> compliance with felling licences, environmental regulations, and health and safety requirements before starting any operations.

## KEY RESULTS

- 46 bird species recorded, including 8 Red List species
- **Highest species diversity** among 8 dairy farms in the project
- **Strong** presence of insectivores and granivores indicating healthy trophic structure
- Hedgerow and woodland habitats **supporting** extensive ecological niches

## AIMS

<p><b>Assess</b> bird diversity as an indicator of habitat quality</p> 	<p><b>Establish</b> a biodiversity baseline using automated acoustic monitoring</p> 	<p><b>Identify</b> opportunities to enhance on-farm habitats and support priority species</p> 
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## OUTCOMES

- **Moor Farm recorded 46 species** - the highest diversity in its comparison group, demonstrating strong habitat provision across hedgerows, woodland, and neighbouring landscapes.
- Eight Red List species were detected, indicating the **farm contributes positively** to regional conservation priorities.
- Trophic niche analysis revealed **high representation** of insectivores and granivores, suggesting robust invertebrate populations and effective habitat structure.
- Birds of prey were under-represented, presenting a targeted **opportunity** for habitat enhancement through provision of hunting perches, nesting sites, and management of prey-supporting habitats.



## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by deploying acoustic sensors during peak breeding season
2.	<b>Measure</b> baseline bird diversity and compare with habitat features
3.	<b>Plan</b> habitat improvements such as enhanced hedgerows or field margins
4.	<b>Adapt</b> management practices to support priority species (e.g., hay meadows or late cut silage crops to support ground-nesting species such as curlew)
5.	<b>Review</b> progress annually and adjust habitat plans based on new monitoring data

## KEY RESULTS

- 51ha marshy grassland surveyed across 3 parcels
- **Positive indicator species recorded:** meadowsweet, ragged robin, water mint, marsh bedstraw
- **Lapwing recovery:** from 3 pairs (1998) to **23 pairs by 2010**
- **Long-term agri-environment participation:** 26 years improving habitats and farm economics

## AIMS

- **Record** plant species and habitat condition across marshy grassland
- **Assess** how current practices benefit biodiversity and ground-nesting birds
- **Align** habitat management with Sustainable Farming Scheme objectives

## OUTCOMES

- Survey confirmed **rich species diversity** in wetter and drier zones, including key indicators of long-established wet grassland.
- Habitat supports **wetland birds, amphibians, and invertebrates**, aided by water-level control and mixed grazing.
- Management practices - rotational rush cutting, cattle out-wintering, and sluice installation - **create ideal conditions for ground-nesting birds.**
- Collaboration with **RSPB** expanded conservation impact to adjacent land, increasing Lapwing and Snipe populations.
- Farm's environmental work **underpins** premium meat sales and strengthens local supply chains.



## HOW TO APPLY ON YOUR FARM

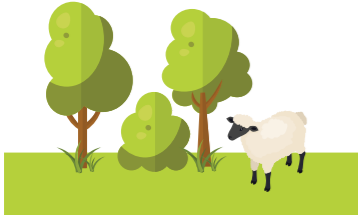

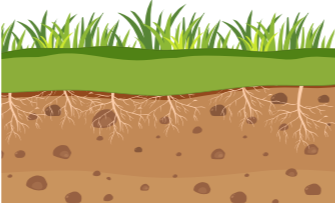
1.	<b>Plan and map</b> habitat areas to meet SFS requirement of managing 10% as habitat (UA5).
2.	<b>Maintain</b> a varied sward height where a variety of native marshland plant species are frequent and able to flower and where native animals (including invertebrates) can thrive.
3.	<b>Test</b> cattle out wintering and rush-cutting regimes in key habitat blocks; technologies such as virtual fencing may be beneficial to support this.
4.	<b>Manage</b> water levels where possible especially in drier summers and wet winters with use of dams or sluice.
5.	<b>Measure</b> progress through habitat monitoring and geo tagged photos.

# Regenerative agroforestry: TURNING TREES INTO PROFIT AND RESILIENCE

PENCEDNI

## KEY RESULTS

- Black Locust leaf forage **delivers protein** levels superior to high-quality hay, providing a “free” homegrown alternative to expensive soy-based concentrates
- Every field tested **achieved the highest possible** VESS score of 1
- Mycorrhizal fungi networks **increase water and nutrient uptake**, acting as a natural insurance policy
- Active dung beetle populations **reduce the need** for costly chemical anthelmintics

AIMS		
<p><b>Cut costs</b> with farm-grown nutrient-dense forage</p> 	<p><b>Optimise</b> biodiversity through measurable, data-driven soil microbiology and ecosystem management</p> 	<p><b>Determine</b> mycorrhizal networks and nutritional diversity across all soil types</p> 

## OUTCOMES

- The integration of “vertical crops” like black locust **creates a vital buffer** against volatile global feed markets and drier summers.
- Pencedni **exemplifies** a shift toward preventative livestock management. Utilising high-magnesium species like the Tulip Tree allows animals to self-regulate mineral intake, naturally mitigating risks like grass tetanus. This biological efficiency contributes to reducing vet costs.
- The presence of 16 CHEGD indicator fungi **serves as a biological audit**, certifying the land as a premium environmental asset.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by dedicating a small area to high-nutrition native and non-native trees to create a drought-resilient, self-medicating forage crop
2.	<b>Minimise</b> soil disturbance through no-till practices and planned grazing to nurture the “free fertiliser factory” of mycorrhizal fungi
3.	<b>Test</b> insect biomass using pitfall traps to understand your “essential workers” and how they currently cycle nutrients
4.	<b>Use</b> livestock as a biological tool, employing temporary fencing to prevent overgrazing and allow both pasture and trees to recover
5.	<b>Track</b> livestock health, soil structure, and tree growth to refine your strategy based on tangible, data-driven farm observations

GOAL → MAXIMISING VALUE FROM HOMEGROWN FORAGE

# Invest smart: PLOUGHING COSTS MORE BUT SECURES BETTER LEYS

CILYWINLLAN

## KEY RESULTS

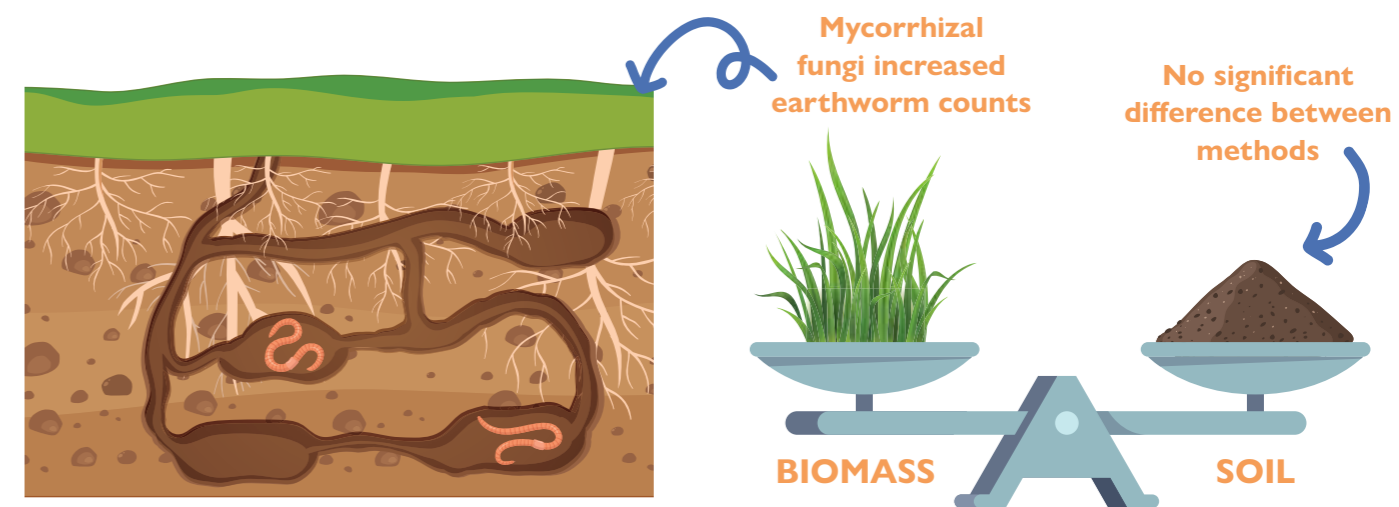
- **£24.71/ha cost saving** over 4 years using direct drilling vs ploughing
- **Direct drill:** Lower species establishment (22.5%) vs ploughing: Higher species establishment (60%)
- **No difference** in soil structure or herbage biomass grown between methods
- **Mycorrhizal fungi boosted** earthworm activity

## AIMS

- **Establish** which is the most effective multi-species ley establishment method
- **Enhance** soil biology through mycorrhizal fungi application
- **Improve** ley persistence to maintain grazing during challenging seasons

## OUTCOMES

- The trial **compared** ploughing vs direct drilling across six subplots on loamy soils
- **Cost analysis:** Ploughing was the most expensive method; direct drilling saved £24.71/ha over 4 years
- **Botanical composition:** Ploughed plots retained more sown species (up to 60%) vs direct drilled (22.5%) post-grazing
- **Soil & biomass:** No significant difference in soil structure or herbage biomass between methods
- **Earthworms:** Mycorrhizal fungi increased earthworm counts, indicating potential long-term soil health benefits



## HOW TO APPLY ON YOUR FARM

Herbal leys are classed as temporary habitats under the Sustainable Farming Scheme if you are under the 10% habitat requirement.

1.	<b>Test</b> soil conditions (pH ~6.3, P & K index 2) before reseeding
2.	<b>Plan</b> weed control pre-establishment for best results
3.	<b>Use</b> a multi-species seed mix calculator to match ley requirements
4.	<b>Consider</b> mycorrhizal fungi - evaluate soil biology (Phospholipid fatty acids (PLFA) test optional) before use
5.	<b>Manage</b> leys effectively to maintain legumes and herbs for maximum return on investment

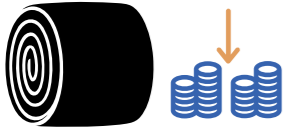
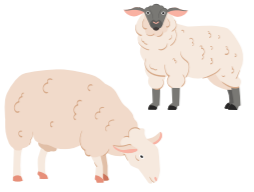


# Unlock efficiency: RED CLOVER FOR EWE NUTRITION AND LAMB FINISHING

AWEL Y GRUG

## KEY RESULTS

- **Feed cost savings:** £1.85/ewe (twins) and £2.31/ewe (singles) pre-lambing; £1,040 saved for 500-ewe flock
- **Silage quality:** Red clover ME 11.1–11.4 MJ/kgDM; CP >20% in later cuts
- **Growth rates:** Twins from ewes fed RC outperformed white clover (227 g/day vs 206 g/day)
- **Finishing advantage:** RC grazing reduced days to slaughter; only 22% of lambs remained by 29 October vs 81% on permanent pasture
- **Feed bills reduced:** Projected feed bills reduced by £10,684.48 in 25/26, compared with 22/23

## AIMS

<p><b>Reduce</b> purchased feed costs through high-quality clover silage</p> 	<p><b>Improve</b> ewe condition and lamb performance pre- and post-lambing</p> 	<p><b>Accelerate</b> lamb finishing using clover-rich grazing systems</p> 	<p><b>Promote</b> sustainable practices reducing nitrogen use and carbon footprint</p> 
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## OUTCOMES

- **Economic impact:** Significant savings on feed. By directly comparing feed costs per lamb reared in 22/23 with the prediction for 25/26, adjusting 22/23 sheep numbers to match 25/26 (672) and assuming 115% lambs reared for both (772), it could equate to a feed bill that is £10,684.48 less in 25/26 than in 22/23
- **Nutritional benefits:** High-protein, energy-rich silage reduced need for concentrates; excellent colostrum quality (>26.5 Brix)
- **Performance gains:** Faster lamb growth and finishing on RC; improved ewe health and lamb viability
- **Environmental gains:** Reduced nitrogen fertiliser use and improved soil fertility through clover integration

## HOW TO APPLY ON YOUR FARM

1.	<b>Correct soil environment:</b> Test pH and nutrient levels
2.	<b>Establish red clover leys:</b> Integrate red clover into dual purpose leys, for producing high quality silage and grazing for finishing
3.	<b>For lamb finishing, manage acclimatisation:</b> Allow for a 2-week “lag phase” where lambs adjust to the sward. Ensure the clover does not become too mature and stemmy, as this significantly increases the time required for lambs to acclimatise.
4.	<b>Select heavier lambs:</b> Red clover leys are best for heavier lambs that can capitalise on the high protein for a final finishing sprint.
5.	<b>Adopt rotational grazing:</b> Subdivide fields to maintain residual and clover longevity.

# Maximise lamb output while cutting feed costs

CARREGCYNFFYRDD

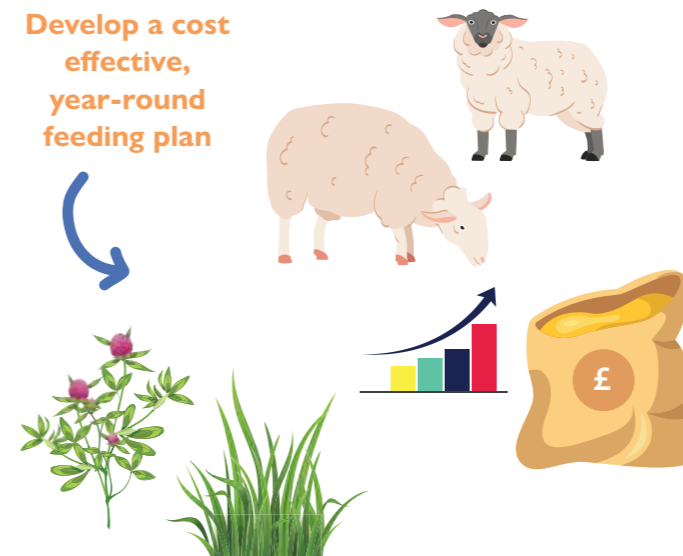
## KEY RESULTS

- **166% scanning** in treated group vs **173%** in untreated group, pre-tupping propylene glycol dosing ineffective
- **£0.06/day** feed saving per ewe by replacing part of the diet with barley
- **£168 saved** over two weeks for **200 twin bearing ewes**
- Feeding plan **aligned** energy and protein supply with late pregnancy requirements

## AIMS

- **Develop** a cost effective, year-round feeding plan for the flock
- **Reduce** reliance on imported and high-cost feed ingredients
- **Trial** pre-tupping propylene glycol dosing to assess impact on lamb numbers

Develop a cost effective, year-round feeding plan



## OUTCOMES

- **Improved feeding strategy:** Silage analysis showed good protein but low fermentable energy. Barley was introduced to boost energy while reducing concentrate use. With barley at **£158/t** versus **£365/t** for concentrates, this significantly reduced feed costs without compromising ewe nutrition.
- **Tailored late pregnancy ration:** Twin bearing ewes received **500g concentrate + 300g barley/day** alongside adlib silage in the final two weeks before lambing. This ration matched energy and protein needs based on ewe size, condition, and litter size, demonstrating how targeted feeding can maintain performance while lowering costs.
- **Cost savings achieved:** Replacing part of the diet with barley saved **£0.06 per ewe per day**, equating to **£168** over two weeks for 200 ewes - a meaningful saving during the most expensive feeding period.
- **Propylene glycol trial findings:** The treated group scanned at **166%**, while the untreated group scanned higher at **173%**. The difference was **not statistically significant (p=0.1)**, indicating that the treatment, as administered, did not improve ovulation or scanning results.
- **Context from wider research:** Other studies suggest propylene glycol may boost ovulation when used within a short window (approx. 12 hours) before synchronised mating. This may explain why no benefit was observed in this non synchronised flock.
- **Strengthened management insight:** The project reinforced the value of body condition scoring, forage analysis, and ration formulation in improving flock efficiency and reducing unnecessary feed costs.

## HOW TO APPLY ON YOUR FARM




1.	<b>Analyse</b> silage for energy and protein to build cost effective rations ahead of the final eight weeks of pregnancy
2.	<b>Body condition score (BCS)</b> ewes regularly; allow <b>6–8 weeks</b> on good feed to improve BCS by one unit
3.	<b>Match</b> energy supply to ewe size, condition, and litter size throughout the year
4.	<b>Review</b> feed costs and consider substituting concentrates with homegrown or locally sourced alternatives where forage quality allows
5.	<b>Seek</b> support through the Farming Connect Advisory Service to develop a tailored ewe nutrition plan

# Boost forage output with optimised seed and nitrogen plans

CRICKIE FARM

## KEY RESULTS

- 40% more forage from primed seed plus nitrogen vs. standard
- 35% higher bulb yield from primed seed
- Lowest cost of production: 6.3p/Kg DM (primed + N)
- Extra 50kg N/ha increased bulb yield by 29% (standard) and 10% (primed)

AIMS		
<p><b>Evaluate</b> fodder beet establishment, yield, and grazing suitability for Welsh livestock farms</p> 	<p><b>Compare</b> primed vs. non-primed seed and nitrogen application strategies</p> 	<p><b>Identify</b> grazing and management practices that reduce wintering costs and environmental impact</p> 

## OUTCOMES

- Primed seed consistently outperformed standard seed, producing a **35% increase in bulb yield** and establishing faster with a more even canopy, improving light capture and weed competitiveness.
- The combination of primed seed and additional nitrogen (N) delivered the **highest overall forage yield** and the **lowest cost per kg DM**, making it the most cost-effective option.
- Late season nitrogen applications **increased leaf mass across all treatments**, improving bulb protection from frost and extending potential growth during mild winters.
- Feed analysis showed a **metabolisable energy at 13 ME/kg DM** across all treatments, confirming high energy value. Late nitrogen increased crude protein in both bulbs and leaves, partially addressing fodder beet's naturally low protein profile.
- Mineral uptake (ash content) **was higher in late N treatments**, indicating improved nutrient absorption.
- Strip grazing 25 cattle across the trial plots **reduced wastage** and demonstrated practical integration of fodder beet into winter grazing systems.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by selecting a sheltered field suitable for winter grazing
2.	<b>Plan</b> buffer strips to minimise runoff risk
3.	<b>Transition</b> cattle gradually to prevent acidosis
4.	<b>Time</b> herbicide and pesticide applications carefully - fodder beet is highly sensitive early on
5.	<b>Monitor</b> crop growth and adjust nitrogen applications to optimise yield and winter resilience

# Unlock higher-value winter feed with home-grown mixes

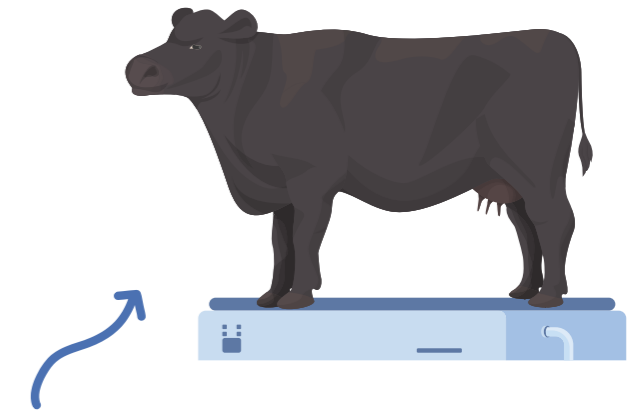
GELLI GOLL

## KEY RESULTS

- Daily liveweight gain (DLWG) achieved: **1.01 kg/day** (Group 1), **0.82 kg/day** (Group 2) vs target DLWG: 1.1–1.2 kg/day
- Whole crop protein: **9.1% CP**; Grass silage protein: **14.1% CP**
- Whole crop cost: **£29.30/t fed**
- Limiting factor identified: **Insufficient dietary protein**

## AIMS

- **Develop** a productive, cost-effective winter-feeding system using a cereal-legume crop
- **Measure** feed quality and economics to understand protein contribution
- **Reduce** reliance on external inputs to improve farm self-sufficiency



**MEASURE CATTLE PERFORMANCE REGULARLY**

## OUTCOMES

- Whole crop silage provided valuable starch (**17.2%**) essential for finishing cattle but was low in protein (**9.1% CP**), limiting growth potential
- Grass silage complemented the whole crop with higher protein (**14.1% CP**) and strong energy values (**10.9 ME, 68.1% D-value**), improving rumen stability when fed together
- Feeding a 50:50 mix of whole crop and grass silage, plus **3.5kg rolled barley**, delivered predicted intakes but did not achieve target DLWG
- Analysis confirmed that **protein deficiency** restricted fibre digestion and muscle growth, explaining the lower-than-expected performance
- **Future improvements** include adding high protein molasses, incorporating rapemeal, or increasing the proportion and quality of grass silage (e.g. boosting clover content, optimising cutting dates)
- The crop was grown following soil sampling and standard establishment practices, including glyphosate application, 100 kg/acre seed rate, and 125 kg/acre 20.10.10 fertiliser

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by selecting the crop mix that best aligns with livestock performance needs
2.	<b>Test</b> protein levels by analysing both whole crop and grass silage to inform ration formulation
3.	<b>Increase</b> grass silage protein by improving clover content and reviewing cutting dates
4.	<b>Measure</b> cattle performance regularly through weighing to ensure DLWG targets are met
5.	<b>Adapt</b> forage ratios or introduce protein supplements (e.g., molasses, rapemeal) where required

# Reduce feed costs by growing more protein on farm

TAFARN Y BUGAIL

## KEY RESULTS

- **+2% crude protein** in maize–sunflower silage (9.5% → 11.5%)
- **£130/day** feed cost saving by reducing NovaPro from 2kg → 1.2kg/cow/day
- **+420 litres/day** milk from including westerwolds ryegrass (worth £189/day)
- **Westerwolds ryegrass** delivered 24.9% CP and 12.8 ME

## AIMS

- **Increase** home-grown protein by trialling sunflowers as a companion crop to maize
- **Stabilise** soils and improve winter cover by establishing westerwolds post-harvest
- **Reduce** winter feed costs by integrating higher-protein forages into the dairy ration.

## OUTCOMES

- Growing sunflowers with maize did increase protein content, raising CP from **9.5% to 11.5%**. However, this came with a drop in energy (11.0 ME → 9.5 ME) and higher indigestible fibre (uNDF240), likely due to shading and a poor-sunlight summer
- The **maize cobs** in the companion crop failed to ripen fully, reducing starch and overall silage quality compared to straight maize
- First-cut grass silage on the farm tested at **16.5% CP**, suggesting that grass silage remains a more reliable protein source than sunflower–maize mixes in this climate
- Direct-drilled westerwolds ryegrass after maize harvest provided excellent-quality forage (**24.9% CP; 12.8 ME**) and acted as an effective winter soil cover

- Including cut westerwolds in the late winter ration enabled a 40% reduction in purchased protein supplement, saving £130/day
- Milk yield **increased by 2 litres/cow/day**, adding 420 litres/day to the tank and generating £189/day extra income
- Overall, the sunflower–maize mix delivered modest protein gains, but the westerwolds ryegrass delivered the strongest economic and nutritional benefits



## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by trialling a small sunflower–maize companion plot to assess shading and ripening
2.	<b>Test</b> soil nutrient status and ensure adequate early nitrogen for both crops
3.	<b>Measure</b> forage quality (CP, ME, NDF, uNDF) to understand ration impacts
4.	<b>Integrate</b> a fast-growing ryegrass (e.g., Westerwolds) immediately post-maize to protect soil and boost winter forage
5.	<b>Review</b> and adapt ration formulations based on forage analysis and milk response

# Boost productivity by improving manure consistency

FFERM Y CARREG

## KEY RESULTS

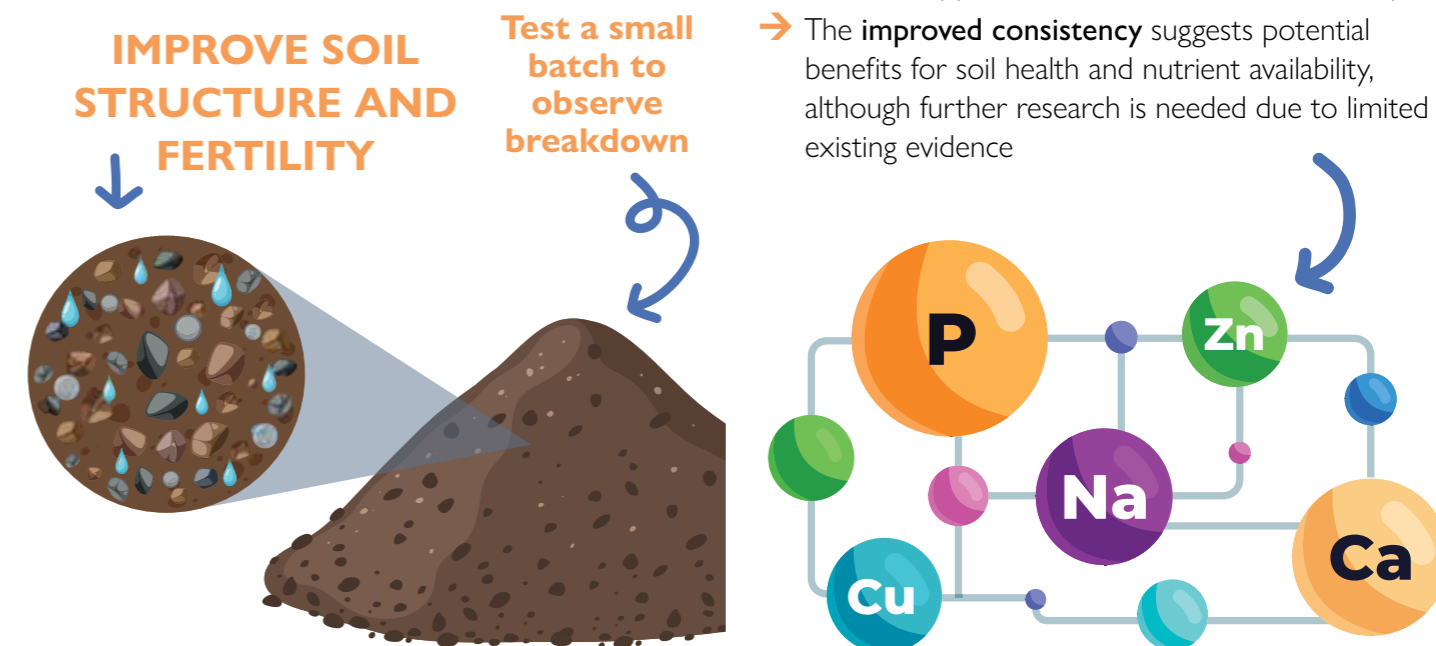
- **Treated farmyard manure (FYM)**: noticeably finer, less straw, improved consistency
- **Easier handling** and more even field spreading
- **Faster** soil incorporation vs. untreated FYM
- **Dry matter** reduced from 52.5% (control) to 32.3% (bokashi)
- **Nitrate-N dropped** from 517 mg/kg to <10 mg/kg

## AIMS

- **Promote** sustainable manure handling practices using anaerobic fermentation
- **Improve** soil structure and fertility through enhanced FYM breakdown
- **Increase** long term productivity by optimising manure management

## OUTCOMES

- Bokashi treatment **did not** change bedding use or cattle cleanliness during housing, indicating no visible difference in the shed between treated and control areas
- The **major difference** emerged after fermentation: the bokashi treated heap showed significantly better breakdown, with less visible straw and a finer, more uniform texture
- Farmers reported the treated FYM was **easier to handle and spread**, producing a more even distribution across fields. This reduced the presence of large clumps and allowed quicker incorporation into the soil
- **Laboratory analysis highlighted notable changes**: reduced dry matter, lower ammonium-N and nitrate-N, and increased levels of phosphorus, zinc, sodium, copper, and calcium in the treated sample
- The **improved consistency** suggests potential benefits for soil health and nutrient availability, although further research is needed due to limited existing evidence



## HOW TO APPLY ON YOUR FARM


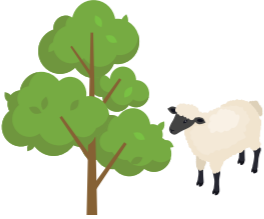

1.	<b>Start</b> by researching suppliers of effective microorganisms (EM) and comparing product guidance
2.	<b>Test</b> a small batch of FYM using bokashi to observe breakdown and handling differences
3.	<b>Measure</b> nutrient content before and after fermentation for clearer comparison
4.	<b>Adapt</b> your setup by covering heaps securely to maintain anaerobic conditions
5.	<b>Review</b> results after one cycle and scale up if benefits are observed

# Boost lamb growth and trace elements with willow

CASTELL CRUGIAU

## KEY RESULTS

- **Significant rise** in blood vitamin B12, copper, and selenium levels
- **100%** elimination of cobalt deficiency
- **+1 kg** average weight gain in willow-fed lambs over 6 weeks

AIMS		
<p><b>Reduce</b> reliance on expensive mineral drenches and boluses</p> 	<p><b>Harness</b> tree forage nutrients for sustainable lamb nutrition</p> 	<p><b>Improve</b> flock health and performance through natural supplementation</p> 

## OUTCOMES

- **Cobalt & vitamin B12:** Willow-fed lambs showed markedly higher vitamin B12 levels; cobalt deficiency eliminated across all lambs
- **Copper & selenium:** Both groups improved, but willow-fed lambs had greater increase. Copper levels remained high - monitor for toxicity risk if using additional supplements
- **Growth:** Despite poor summer grass growth, willow-fed lambs gained 1kg more than untreated group
- **Practicality:** Feeding willow is effective but requires efficient delivery methods (e.g., feed barriers or paddock browsing)
- **Context:** Herbal leys already boost trace elements; willow supplementation adds further benefit, especially in traditional grass systems

### Why willow is a valuable addition to farm businesses

Willow is an important multifunctional tree species that delivers significant benefits for livestock and farm productivity. Its leaves provide high levels of essential minerals such as cobalt and zinc, supporting animal health when grass quality dips in summer. Willow bark contains natural anti-inflammatory compounds that can help ease pain in sheep and cattle, while regular browsing supports gut health and can reduce worm burdens. As a fast-growing tree, willow offers reliable shade, shelter, and high-quality browse, while also improving soil health, reducing flood risk, and storing carbon. Together, these advantages make willow a resilient, profitable addition to farm systems.

### HOW TO APPLY ON YOUR FARM

1.	<b>Test</b> for trace element deficiencies - start with pooled faecal egg count (FEC) and blood samples
2.	<b>Plan</b> willow feeding - cut branches or allow paddock browsing
3.	<b>Measure</b> baseline weights and mineral levels before introducing willow
4.	<b>Adapt</b> feeding system - use barriers to reduce waste and replenish every few days
5.	<b>Review</b> impact after 6 months - compare growth and mineral status

# Unlock smarter nitrogen decisions with real-time soil data

WELSH LIQUID NITROGEN PROJECT

## KEY RESULTS

- **Farm X:** Autumn soil N ≈ reserves **20kg N/ha**, low variability, efficient uptake, minimal leaching risk.
- **Farm Y:** Higher N reserves below 30cm - linked to historic manure; probe and soil data aligned well.
- **Probe accuracy:** Mostly reliable, but anomalies in areas require more research

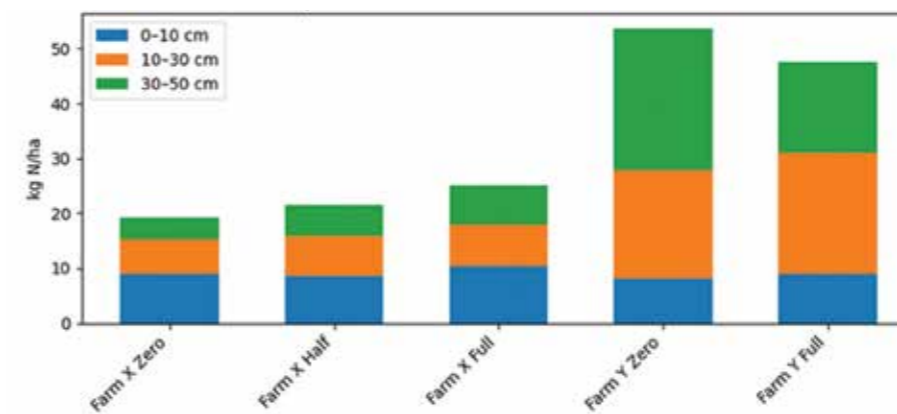


Figure 1. Depth distribution of autumn soil N across all treatments

## AIMS

- **Assess** nitrogen availability and leaching risk
- **Improve** nitrogen management for efficiency and sustainability
- **Validate** nitrogen probe data against soil sampling



## OUTCOMES

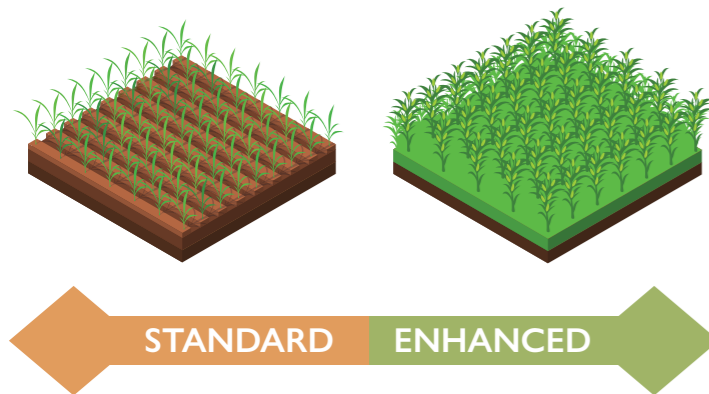
- **Farm X** – provided three different treatment areas of liquid N; full rate, half rate and zero rate.
  - Soil N data was **very consistent** with very low variability. There was a very slight increasing trend of soil N with increasing application rate – but not significant.
  - 19–25kg N/ha with **shallow-balanced** distribution suggest **efficient uptake** and low leaching risk. Probe anomalies (Zero/20cm; Half/5cm) point to placement or hardware reliability issues; use **replicate probes** and avoid compacted/poached areas.
- **Farm Y** – provided two treatment areas of liquid N; full rate and zero rate.
  - Soil data aligned well with probe readings overall.
  - **Higher N levels below 30cm** than Farm X - suggesting greater reserves and potential leaching risk.
  - Evidence of **historic manure incorporation** at 20–30cm depth.
  - Indicates **higher soil nitrogen reserves** compared to other sites.
  - Less efficient use of N – so scope to **reduce application rate** without compromising yields

### HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> with soil sampling to benchmark N levels
2.	<b>Test</b> probes alongside traditional methods
3.	<b>Measure</b> N at multiple depths for leaching risk
4.	<b>Adapt</b> application rates based on late-season uptake
5.	<b>Plan</b> probe placement to avoid compaction and animal hotspots

## KEY RESULTS

- **Enhanced** phosphate fertiliser provided the most efficient phosphate utilisation, confirmed by both tissue and grain analysis (improved phosphate and zinc [Zn] uptake by 5-10% compared with the standard equivalent fertiliser)
- Grain phosphorus (P) and zinc were consistently higher in the enhanced phosphate treated area, demonstrating better transfer of nutrients from soil to harvested grain (Grain protein – 1.8% vs 1.68%)
- **Enhanced** phosphate fertiliser performance suggests clear agronomic and efficiency benefits where soils are moderate in P index and require improved nutrient use efficiency. Return on investment (ROI) was estimated at £35-£45/ha gain through improved nutrient use efficiency
- The associated environmental benefits could include **less risk of phosphate lock-up** and lower losses to watercourses



## AIMS

- To investigate if the application of AVAIL-enhanced phosphate in compound fertiliser to a spring barley crop would result in • **Improved** crop establishment • **Higher** yields • **Better** overall returns on phosphate fertilisers

## OUTCOMES

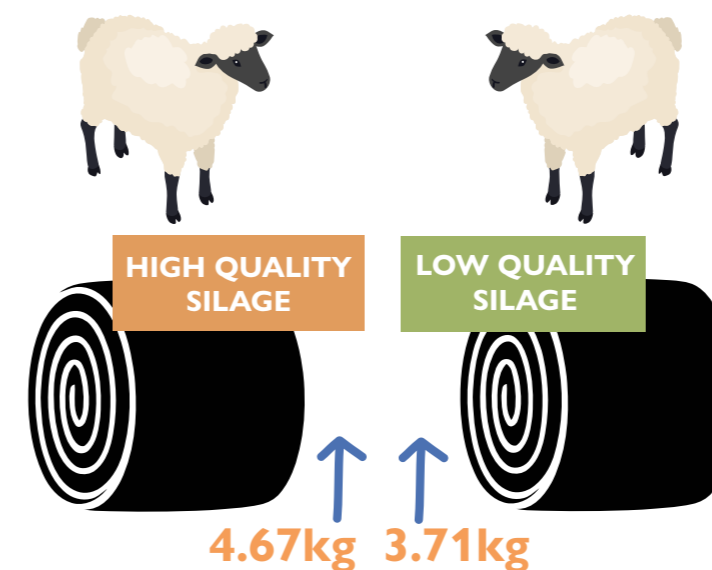
- **Soil analysis (April 2025):** All plots within maintenance range. The control was highest in potassium (K) and organic matter (OM); plot 2 had a balanced profile with higher available Cu and S than in plot 1.
- **Tissue analysis (May 2025):** Plot 2 showed early advantages in nitrogen (N) (2.9%) and P (0.34%) uptake over plot 1 (N - 2.6%, P - 0.31%).
- **Tissue analysis (June - pre-foliar feed application):** Plot 2 maintained strongest uptake of N (3.1%) and Zn (32 ppm). The control was higher in K, Mg and S.
- **Talisman application:** Improved canopy colour and leaf retention across all plots; greatest visual benefit seen in plot 2.
- **Grain analysis:** Plot 2 grain contained 0.36% P, 30 ppm Zn, and 1.80% N – all higher than plot 1, showing improved nutrient efficiency and protein.
- **Economic & environmental impact:** Reduced phosphate loss potential, less risk of deficiency, and an estimated return on investment (ROI) of £35–45/ha based on improved nutrient use efficiency.
- **Overall:** The enhanced phosphate fertiliser offered a consistent yield and nutrient efficiency advantage, confirming the benefit of enhanced phosphate products under the region's light soils.

## KEY RESULTS

- **0 cases** of neonatal disease (diarrhoea, navel infections, joint ill, watery mouth)
- **Higher quality silage (11.5 MJ/kgDM, CP 13.7%)** produced lambs up to **4.67 kg** and **41% Brix colostrum**
- **Lower quality silage (ME 10.4 MJ/kgDM, CP 11%)** produced **3.71 kg** lambs and **32% Brix colostrum**
- **0.3 kg concentrate** one week pre-lambing improved both lamb weight and colostrum density

## AIMS

- **Improve** utilisation of conserved forage to reduce reliance on bought in feed while supporting lamb growth
- **Optimise** ewe condition, parasite control, and disease prevention to strengthen lambing outcomes
- **Enhance** colostrum quality and lamb birth weights by targeting higher quality silage to priority groups



## OUTCOMES

- Higher quality silage had the **strongest influence** on lamb performance.
- Concentrate feeding supported performance but had **less impact than silage quality**. For example, **0.3 kg concentrate** one week pre-lambing improved lamb weight and colostrum density, but high-quality silage still delivered the greatest gains.
- **No cases of ketosis or neonatal diseases** were recorded in 2024, indicating that the combined approach of improved nutrition, targeted parasite control, and vaccination strengthened ewe and lamb health.
- **Managing ewe body condition** (3.5–3.0 pre-tupping; 2.5–3.0 pre-lambing) ensured ewes entered lambing with adequate reserves, supporting both lamb growth and colostrum production.
- **Strategic forage allocation** - prioritising high ME/CP silage for twin bearing ewes - helped match nutritional supply to demand, reducing the need for additional purchased feed.
- **Routine monitoring** (Brix refractometer, metabolic profiling, lamb birth weights) provided clear evidence of the link between forage quality, ewe nutrition, and lambing outcomes.

## HOW TO APPLY ON YOUR FARM

1.	<b>Use</b> your soil test taken under the Sustainable Farming Scheme before choosing fertiliser - target Index 2 for spring barley
2.	<b>Use</b> enhanced phosphate fertilisers where soils are low or prone to lock-up
3.	<b>Sample</b> tissue at growth stage (GS) 23–25 and GS 31–32 to monitor nutrient balance
4.	<b>Apply</b> foliar feed if Mg and S levels fall below maintenance range
5.	<b>Record</b> grain nutrient analysis to assess long-term soil and fertiliser performance

## HOW TO APPLY ON YOUR FARM

1.	<b>Monitor</b> ewe body condition regularly and adjust feeding groups accordingly. Consider discussing with your vet under the AHIC in the Sustainable Farming Scheme
2.	<b>Analyse</b> silage quality and match higher quality forage to twin bearing or thinner ewes
3.	<b>Supplement</b> with concentrates only where forage analysis or blood profiling shows energy/protein gaps
4.	<b>Test</b> for parasites and maintain vaccination schedules to protect ewe and lamb health
5.	<b>Measure</b> colostrum quality using Brix refractometer

# Future-proof grassland nutrition with high-value poultry manure

LOWER HOUSE FARM & CWMCOWDDU

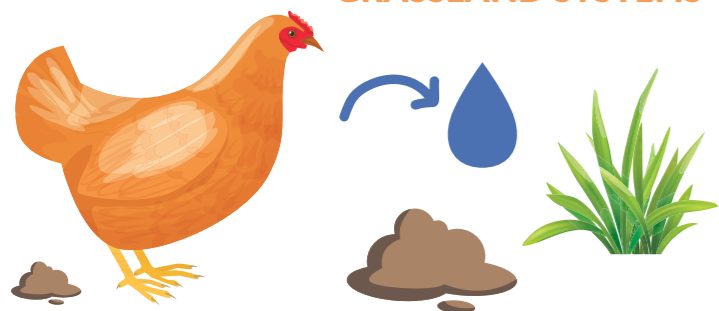
## KEY RESULTS

- Poultry manure **contains high** nitrogen (N) and phosphorus (P) levels (approx. N:P ratio 1.2:1)
- **>30% Readily Available Nitrogen (RAN)** - high nutrient value but requires careful timing
- **Up to 250kg** total N/ha/year limit under CoAP regulations
- **Incorporation** within 24 hours significantly improves nitrogen use efficiency
- Dry, well-handled manure **improves** application accuracy and financial value

## AIMS

- **Optimise** nutrient management by integrating poultry manure into grassland systems without exceeding phosphorus requirements
- **Reduce** reliance on bagged fertiliser by utilising the high nutrient value of poultry manure
- **Protect** water quality, air quality, and biodiversity by ensuring compliant, low-risk manure applications

### INTEGRATE POULTRY MANURE INTO GRASSLAND SYSTEMS



## OUTCOMES

- Poultry manure offers **significant nutrient and financial value**, particularly due to its high N and P content. When managed correctly, it can offset purchased fertiliser and improve soil organic matter.
- Grassland farms **often face challenges** because phosphorus requirements are lower than nitrogen needs, meaning poultry manure can easily oversupply P. This increases the risk of soil P build-up and watercourse pollution through eutrophication.
- CoAP regulations place **strict controls** on storage, spreading conditions, field suitability, and application rates. These rules are essential for preventing nutrient losses, ammonia emissions, and pathogen risks.
- **High readily available N** content means poultry manure can release ammonia rapidly if left on the surface. Incorporation into soil within 24 hours greatly improves N utilisation and reduces emissions.
- Pathogen risks (e.g., salmonella, campylobacter) require an **8-week grazing interval** after spreading and avoiding applications close to silage cutting.
- **Strategic management options include** testing manure to build a phosphate budget; selecting fields with low P index; rotating manure applications; incorporating manure during reseeding; and exporting surplus manure to neighbouring farms.
- Incorporation during spring reseeds or cereal establishment can **significantly increase** nutrient efficiency and allow multiple applications within a season.

### HOW TO APPLY ON YOUR FARM

1.	<b>Test</b> manure to understand nutrient content and build a P budget
2.	<b>Select</b> fields with low P index and plan rotations to avoid oversupply
3.	<b>Incorporate</b> manure during reseeding or cereal establishment to boost N efficiency
4.	<b>Monitor</b> grazing and silage timings to avoid pathogen risks
5.	<b>Plan</b> long-term nutrient strategy, including exporting surplus manure where needed via the CoAP workbook

# Evaluating winter forage mixes for suckler cows

PENWCWM

## KEY RESULTS

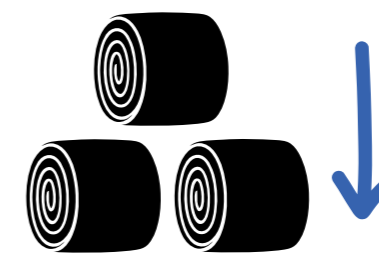
- **Mix 2** (80% forage rye, 14% winter vetch, 2% stubble turnip, 2% plantain, 2% tillage radish) yielded 20.5 t/ha, the highest of all mixes
- **Mix 1** (60% tetraploid ryegrass, 16% brassica, 16% crimson clover, 8% plantain) was the lowest at 9.5 t/ha
- **No grazing wastage** or preferential grazing observed across mixes

## AIMS

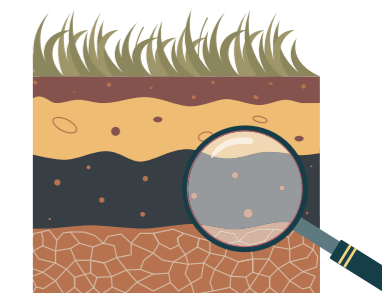
**Develop** a cost-effective, productive winter forage mix for suckler cow nutrition.



**Reduce** reliance on silage bales.



**Assess** the impact of diverse forage crops on soil health.



## OUTCOMES

- **Soil health:** Visual Evaluation of Soil Structure (VESS) scores showed poor structure at 0–10 cm (score 4), good at 10–15 cm (score 2), and very good at 15–30 cm (score 1)
- **No improvement** observed during the project's timescale but mix 2 offers greatest potential due to diversity
- **Crop yield:** Mix 2 produced 20.5 t/ha; mix 1 only 9.5 t/ha; kale yielded 14.5 t/ha
- **Future cropping:** Barley grown after mixes showed higher weed pressure, requiring two sprays where mix 1 and mix 2 were located

### HOW TO APPLY ON YOUR FARM

1.	<b>Choose</b> fields considering shelter, access, runoff, and soil conditions
2.	<b>Select</b> species mix based on winter crop goals
3.	<b>Calculate</b> livestock feed needs and allocate grazing area accordingly
4.	<b>Move</b> fences frequently in winter to prevent poaching and reduce wastage

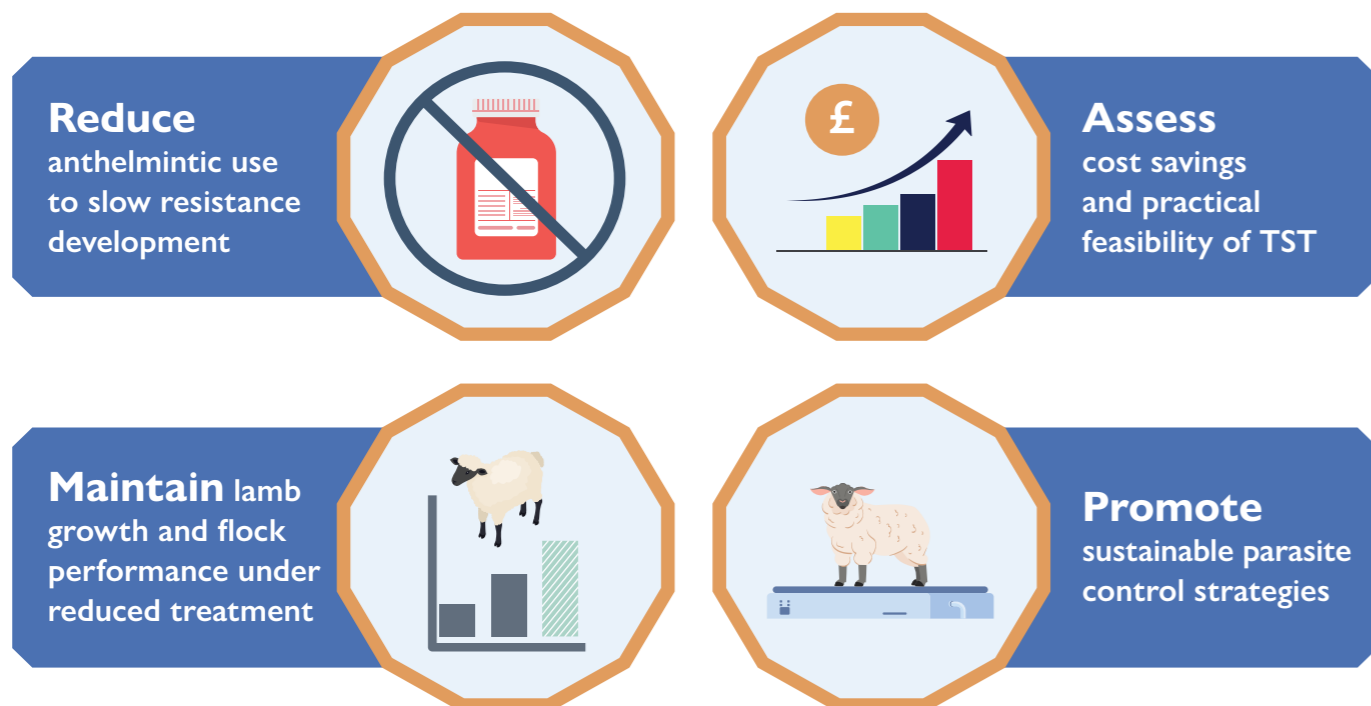
# Smarter worm control: TARGETED SELECTIVE TREATMENT (TST) IN ACTION

AWEL Y GRUG

## KEY RESULTS

- 45% reduction in wormer use compared to blanket treatments
- 52% cost saving: Significantly lower farm expenses on anthelmintic products with TST approach
- Performance maintained: TST lambs achieved similar end weights (28.4 kg) compared to the control group (27 kg)

## AIMS



## OUTCOMES

- **Economic benefits:** Significant reduction in wormer costs and improved dosing accuracy
- **Environmental gains:** Lower chemical use reduces resistance risk and environmental impact
- **Performance consistency:** No negative effect on lamb growth; treated group averaged end weights of 28.4 kg vs 27 kg in control
- **Management insights:** Some lambs repeatedly failed targets, indicating underlying health issues beyond parasites
- **Technology hurdles:** Connectivity issues with auto dosing gun and weigh systems; labour and equipment costs remain barriers

### HOW TO APPLY ON YOUR FARM

1.	<b>Set growth targets:</b> Use minimum daily liveweight gain benchmarks for decision-making
2.	<b>Weigh regularly:</b> Every 2–4 weeks to monitor performance and identify underperforming lambs
3.	<b>Use tech tools:</b> for real-time treatment decisions and compliance records
4.	<b>Combine strategies:</b> Integrate TST with faecal egg count (FEC) tests, nematodirus forecasts, and vet advice
5.	<b>Plan for exceptions:</b> Investigate lambs failing targets repeatedly; consider separate management or additional health checks

# Assessing the effects of LED lighting on productivity and health and welfare in a poultry layers unit

GLANALDERS

## KEY RESULTS

- Egg production increased by 6.1% worth £27,192 following LED light installation
- Energy costs reduced by £2,724.08 over the 78-week laying cycle
- Laying cycle carbon savings of 1,828 kg CO<sub>2</sub>e achieved

## AIMS

- Improve energy self-sufficiency by replacing fluorescent strips with LEDs
- Assess LED impact on flock health, welfare and productivity
- Calculate economic benefits of the upgrade.

## OUTCOMES

- **Productivity:** The LED-lit flock came into lay earlier and produced more eggs than the previous flock, resulting in a 6.1% cumulative increase worth £27,192. No differences in health or welfare were observed.
- Energy efficiency for the laying cycle

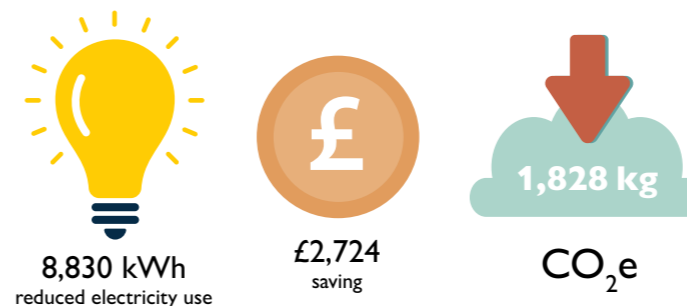


Figure 1: New crop of birds with LED light installation

- The LED lighting upgrade has delivered clear economic and environmental benefits. Energy savings alone will recover the initial capital investment of £9,200 within five years, while the 6.1% increase in egg production provides significant additional returns, although many factors can influence the success of a new flock coming into lay.

### HOW TO APPLY ON YOUR FARM

1.	<b>Research</b> optimum specification, number and siting of new LED lights
2.	<b>Prepare</b> in readiness for installation between two crops of birds
3.	<b>Take</b> advice on lighting pattern specifications appropriate for the laying cycle

# From audit to action: MINERAL STRATEGIES THAT DELIVER RESULTS

BRYNLECH UCHAF

## KEY RESULTS

- Cobalt **maintained only** in home-mix group (every 3 weeks)
- Daily liveweight gain (DLWG) **consistent** across all groups (~102–108g/day)
- Iodine **remained low** in all groups despite drenching
- Selenium and copper **successfully raised** to high-normal levels
- Tick-borne fever outbreak **masked** potential growth benefits

## AIMS

**Correct** farm-specific mineral deficiencies identified in audit



**Compare** home-mix vs proprietary drench strategies for efficacy



**Assess** return on investment (ROI) considering labour, health, and performance outcomes



## OUTCOMES

- Cobalt status **improved only** with 3-week home-mix drench, confirming 6-week intervals are insufficient.
- Iodine **deficiency persisted** across all treatments, indicating oral drenches are ineffective for iodine supplementation.
- Selenium and copper **maintained at optimal levels** in all groups, proving bolus and drench methods effective for these elements.
- **Growth rates unaffected** by mineral strategy due to Tick-borne fever, which capped performance.
- **ROI analysis:** Extra labour for home-mix not justified short-term by weight gains, but improved mineral status produces likely benefits of long-term health and survival.

## HOW TO APPLY ON YOUR FARM

1.	<b>Audit first:</b> Conduct forage and mineral analysis before buying products. Discuss this with your vet under the animal health improvement cycle plan (AHIC) in the Sustainable Farming Scheme
2.	<b>Test don't guess:</b> Use blood sampling to confirm efficacy of supplementation
3.	<b>Adjust frequency:</b> For cobalt, drench every 3 weeks or switch to boluses
4.	<b>Watch for interferences:</b> Investigate disease if growth lags despite mineral correction
5.	<b>Rethink iodine:</b> Consider boluses or injectable options if oral drenches fail

# Transform herd efficiency by targeting the right replacements

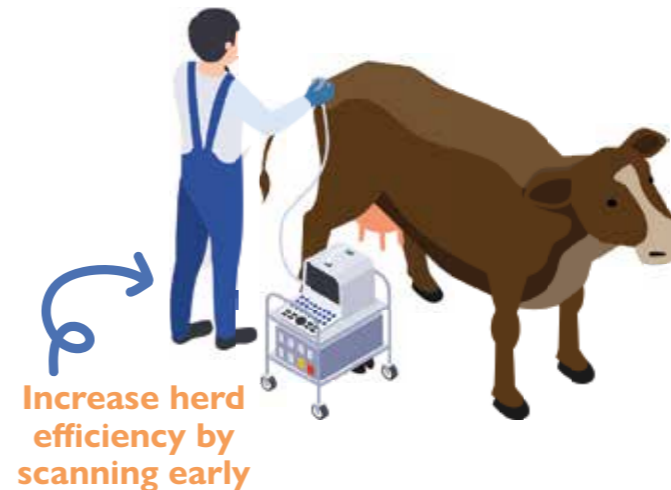
CORNWAL UCHA

## KEY RESULTS

- **33% of heifers scanned empty** despite meeting weight and pelvic targets
- **Pelvic areas ranged from 116 to 166 cm<sup>2</sup>**, all above the 100 cm<sup>2</sup> minimum
- **19.6% empty rate** across the herd (12/61 animals)
- **Potential of £3,120 saving** by removing 12 non-productive animals (based on £260–£300/head overwintering cost)
- Younger stock underperformed compared to cows: **10 of 12 empty animals were heifers**

## AIMS

- **Improve** heifer selection accuracy using weight targets and pelvic measurements to reduce calving risk and improve fertility
- **Identify** any underlying disease factors affecting herd performance through proactive screening
- **Increase** herd efficiency by scanning early and culling empty animals to maintain a compact, productive calving block



## OUTCOMES

- Pre breeding assessments were highly effective, with **100% of selected heifers** meeting both weight and pelvic area targets (116–166 cm<sup>2</sup>). This confirmed that the physical selection criteria were being met consistently.
- However, scanning results revealed a **19.6% empty rate** across the herd, highlighting that physical suitability alone does not guarantee fertility.
- The most significant finding was the **disproportionate failure in younger stock: 10 of the 12 empty animals were heifers**, meaning **33% of heifers scanned empty** despite appearing ideal for breeding.
- Removing the 12 empty animals represents a potential **cost saving of £3,120** in overwintering costs, demonstrating the financial value of early scanning and decisive culling.
- The project reinforced the importance of a **strict 12-week breeding window**, which helps tighten the calving block and improves long-term herd efficiency.
- Moving forward, the **vet recommends** continuing pelvic measuring, trace element testing, and disease screening to ensure heifers are both physically and nutritionally prepared for breeding.
- Retaining replacements from cows that calve early is **expected to improve herd fertility over time**, as these animals are more likely to be genetically and physiologically efficient breeders.

## HOW TO APPLY ON YOUR FARM

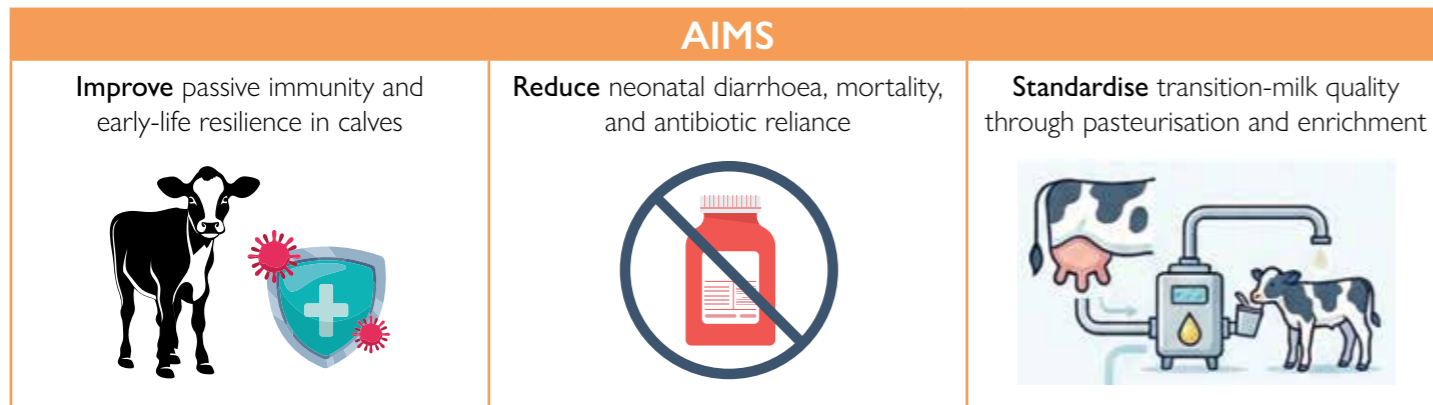
1.	<b>Weigh</b> heifers pre breeding to ensure they reach at least 60% of mature weight
2.	<b>Pelvic measure</b> all potential replacements to confirm a minimum area of <b>&gt;100 cm<sup>2</sup></b> at 12 months
3.	<b>Limit</b> bull exposure to a strict <b>12-week breeding block</b> to tighten calving patterns
4.	<b>Scan</b> cows and heifers immediately after removing the bull to identify empty stock early
5.	<b>Cull</b> non-productive animals promptly to reduce overwintering costs and improve herd efficiency

# Maximise early-life immunity with enriched transition milk

ESCALWEN

## KEY RESULTS

- Neonatal calf diarrhoea (NCD) mortality **reduced from 9.5% → 3%** (2023–24)
- **31% failure of passive transfer** (FPT) rate identified as major mortality driver
- **Antibiotic use reduced**, including complete cessation of critically important antibiotic use
- **Higher-quality transition milk** = increased liveweight gain
- Bulk pasteurisation **effective at** reducing pathogen load (60°C x 60 min)



## OUTCOMES

- Bulk pasteurisation (60°C for 60 minutes) **proved practical and effective** for large dairy systems, reducing labour compared with individual colostrum pasteurisation.
- Transition milk quality **varied significantly**, especially later in the calving block when pathogen pressure increased - highlighting the value of BRIX testing and enrichment.
- Feeding enriched, pasteurised transition milk for 10 days **reduced neonatal calf diarrhoea** and reduced **NCD-related mortality** from 9.5% to 3%.
- Antibiotic usage **dropped overall**, with complete elimination of critically important antibiotics.
- Calves receiving higher-quality transition milk **showed improved liveweight gain**, supporting better long-term performance.
- Pasteurisation **reduced bacterial contamination** (notably coliforms), lowering disease risk, though mycoplasma and mycobacterium species may require additional control measures.
- **Regular IgG monitoring** before and after pasteurisation ensured immunoglobulin preservation and validated process consistency.
- Transition milk's bioactive components (IGF-1, growth hormone, oligosaccharides, antimicrobial peptides) **supported gut health and reduced pathogen challenge**, even in calves showing failure of passive transfer.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by pooling and pasteurising transition milk at 60°C for 60 minutes
2.	<b>Test</b> BRIX levels after pasteurisation; enrich with colostrum powder if below 12.5%
3.	<b>Measure</b> IgG levels periodically to ensure quality preservation
4.	<b>Integrate</b> transition-milk feeding for all calves from feed 2 to day 10
5.	<b>Review</b> calf health, mortality, and antibiotic use after each calving block to refine the system. This could be carried out with your vet under the animal health improvement cycle (AHIC) in the Sustainable Farming Scheme

# Thoracic ultrasound in dairy calves to detect early pneumonia

DISCUSSION GROUP PROJECT

## KEY RESULTS

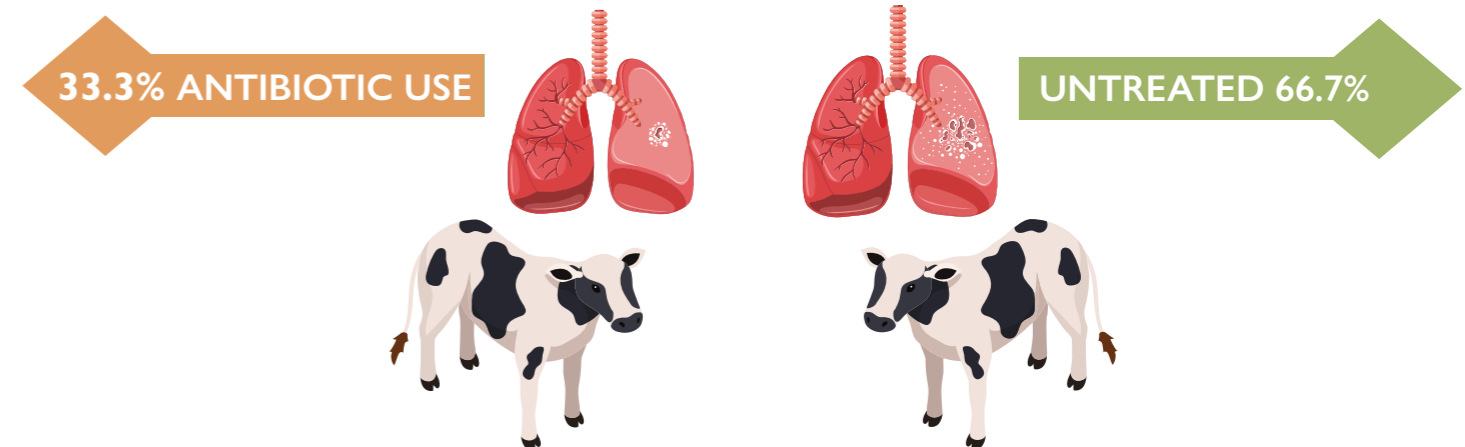
- **21.1%** of the calves scanned had abnormal lung lesion scores (>1).
- **33.3%** of calves with abnormal lung lesion scores showed clinical signs of bovine respiratory disease (BRD) and were treated with antimicrobials, whereas the remaining 66.7% did not receive any antimicrobials
- Across the study period, calves with abnormal lung lesion scores had **lower growth rates on average by 0.17 kg/ day**

## AIMS

- **Maintain** and achieve high standards of animal health and welfare on Welsh dairy farms by raising awareness of the impact and importance of reducing BRD
- **Investigate** the use of thoracic ultrasound scanning as a diagnostic tool for BRD in dairy calves
- **Reduce** BRD on Welsh dairy farms and in turn improve calf performance and reduce the use of antimicrobials

## OUTCOMES

- Around **two thirds of calves** with abnormal lung lesions were not treated with antimicrobials, suggesting disease to be subclinical or to have gone undetected, this highlights clinical signs of disease to be the “tip of the iceberg”.
- Benefits of Thoracic ultrasound scanning.
  - Early detection and treatment of disease
  - Aid antimicrobial use decisions
  - Inform management decisions e.g., heifer replacements
  - Identify calves with damaged lungs



## HOW TO APPLY ON YOUR FARM

1.	<b>Contact:</b> your veterinarian about lung lesion scoring, this could be done as part of your AHIC plan for the SFS
2.	<b>Measure:</b> Select a group of calves to scan. Ideally calves should be >3 months old and weigh >150 kg. It is recommended to scan at stressful times when calves are most susceptible to disease e.g. weaning*.
3.	<b>Plan:</b> Discuss the results with your vet and create a plan for any improvements.
4.	<b>Act:</b> Implement the plan to measure the success of any changes made.
5.	<b>Review:</b> re-scan calves to measure the success of any changes made.

\*AHDB (2026)

Ollivett, T.L. and Buczinski, S. (2016). On-farm use of ultrasonography for bovine respiratory disease. *Veterinary Clinical North American Food Animal Production*, 32 (1), 19-35.

# Reduce lamb losses by optimising early nutrition

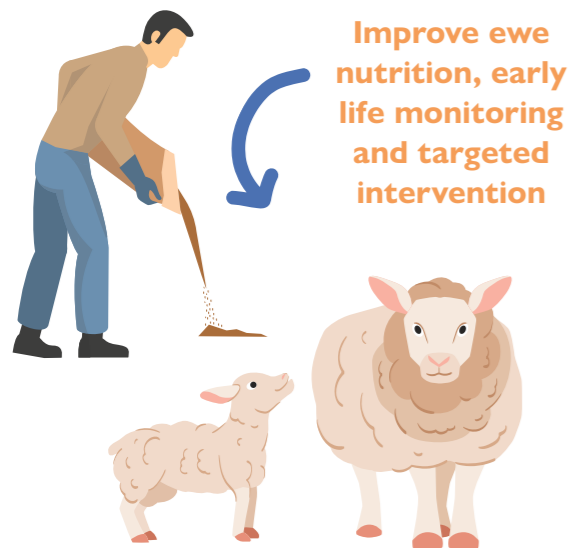
TY COCH

## KEY RESULTS

- Ewes at BCS 3 were more likely to produce good quality colostrum
- Triplets had lower Brix scores than twins
- 40% mortality in lambs with inadequate colostrum vs 4% in well-fed lambs
- Lambs with the highest Brix scores tended to be better grown at 8 weeks and weaning

## AIMS

- Assess colostrum quality and identify factors influencing intake in newborn lambs
- Understand the relationship between early colostrum status and lamb survival, health, and growth
- Reduce lamb losses by improving ewe nutrition, early life monitoring, and targeted intervention



## OUTCOMES

- Ewes lambing in optimal body condition (BCS 3) produced better quality colostrum, reinforcing the importance of pre lambing nutrition and condition scoring. However, good colostrum alone was not enough - lambs needed to ingest it promptly, and those that were full at birth had significantly higher Brix scores.
- Triplet lambs consistently showed poorer colostrum intake, highlighting the need for early topping up in larger litters where competition is high.
- Lambs with inadequate colostrum were ten times more likely to die, with 40% mortality compared with 4% in lambs with sufficient intake. Many of these deaths showed signs of pneumonia, suggesting weakened immunity linked to poor passive transfer.
- Growth outcomes were mixed: overall daily liveweight gain (DLWG) was not conclusively linked to colostrum status, but lambs with the highest Brix scores tended to be better grown at 8 weeks and weaning.
- The flock reared 138% from a scanning percentage of 163%, representing a 15.5% loss, above the industry target of 10%.
- Economic modelling showed that reducing losses by 5.5% would save £2000–£2500, enough to fund 150+ hours of lambing labour, making targeted early life intervention highly cost-effective.

## HOW TO APPLY ON YOUR FARM

1.	<b>Score</b> ewe body condition regularly (a requirement under the Sustainable Farming Scheme) and correct any animals falling below target
2.	<b>Analyse</b> forage quality and build a diet plan that meets late pregnancy energy and protein needs
3.	<b>Blood sample</b> ewes two weeks pre lambing to confirm nutritional adequacy
4.	<b>Ensure</b> every lamb receives sufficient colostrum within 24 hours - check stomach and top up where needed
5.	<b>Maintain</b> strict hygiene in lambing sheds, including clean bedding and sterile feeding equipment, to reduce disease pressure

# Maximise livestock health: COMBAT ANTHELMINTIC RESISTANCE

WELSH ANTHELMINTIC RESISTANCE STATUS PROJECT

To empower Welsh farmers with the knowledge and tools to monitor, manage, and reduce anthelmintic resistance, ensuring healthier livestock and sustainable farming practices.

## KEY RESULTS

- 60+ Welsh farms participated in resistance testing
- Over 40% of the farms had resistance to at least one wormer group
- Targeted advice led to measurable improvements in worm control
- Farmers reported reduced treatment costs and improved flock performance

AIMS		
<p><b>Reduce</b> the spread of anthelmintic resistance in Welsh sheep flocks</p>	<p><b>Equip</b> farmers with practical, science-based strategies for worm control</p>	<p><b>Enhance</b> animal welfare and farm profitability through informed decision-making</p>

## OUTCOMES

- Resistance to wormers is a growing challenge in Wales, threatening livestock health and farm productivity. The project provided free testing to identify resistance on participating farms, revealing that resistance is widespread and often undetected without proper monitoring.
- Farmers received tailored advice based on test results, including recommendations for alternative treatments, grazing management, and targeted dosing. This led to improved worm control, reduced reliance on ineffective products, and better overall flock health.
- The project highlighted the importance of regular testing, record-keeping, and adapting management practices to local conditions. Collaboration between farmers, vets, and researchers was key to success, fostering a community of learning and innovation.

## HOW TO APPLY ON YOUR FARM

1.	<b>Start</b> by contacting your vet to book a resistance test for your flock. This could be done as part of your AHIC plan for the SFS
2.	<b>Gather</b> baseline data on worm burdens and treatment history
3.	<b>Measure</b> results and adjust dosing strategies based on expert advice
4.	<b>Adapt</b> grazing and management practices to reduce reinfection risk
5.	<b>Plan</b> regular reviews and collaborate with local vets and advisers

# JOIN THE FARMING CONNECT OUR FARMS NETWORK

Apply now to be a part of the next cohort!

## WHY GET INVOLVED

- Run funded trials on your own farm (minimum of two long-term trials, between summer 2026 and March 2029).
- Work with industry experts and Farming Connect Sector Officers, aligned to your business priorities and the Sustainable Land Management framework objectives.
- Know what works for your system; former participants report gains in profitability, sustainability and resilience.
  - Share & learn: host at least one Farm Walk to share the knowledge gained with other local farmers.

## WHO SHOULD APPLY

Open to all sectors: dairy, red meat, pigs, poultry, arable, horticulture, farm woodland - at any point in your improvement journey, in or out of the Sustainable Farming Scheme.

## QUESTIONS?

Contact - Siwan Howatson  
siwan.howatson@mentera.cymru  
07399 783398



## APPLICATION WINDOW

16 March 2026 - 10:00am 18 May 2026



## APPLY NOW



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