UK DAIRY Carbon Network

Farmer Information Webinar

18th March 2025

Housekeeping

- You are automatically muted
- Use the Q&A function (not the chat box) to ask questions
- If you have issues – leaving and re-joining usually fixes them
- The webinar will be recorded

Itinerary

Time	Topic	Speaker / Chair
20:00	Welcome & House Keeping	Jason Rankin (AgriSearch)
20:05	Introduction to the UK-DELL Project	Steven Morrison (AFBI)
20:15	The Four Farmer Networks	Nic Parsons (AHDB) Jillian Hoy (AgriSearch)
20:30	Potential Mitigations to be considered	Annie Williams (Ag-Tech Centre) John Newbold (SRUC) Paul Newall-Price (ADAS)
20:40	Q&A / Discussion Panel	Paul Flanagan (AHDB)
20:55	Sum-Up and Close	Jason Rankin (AgriSearch)

AGRI-FOOD
& BIOSCIENCES
INSTITUTE

Leading | Protecting | Enhancing

DEFRA Dairy Demonstrator:

UK- Dairy Carbon Network

UK DAIRY
Carbon Network

Overview

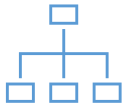
Prof. Steven Morrison

afbini.gov.uk

Background

Project objectives

Consortium



Project structure

Farm networks

Progress update

Summary

UK DAIRY Carbon Network

UK – Dairy Carbon Network - Background

Aims and Objectives

Demonstrate and measure...through a UK-wide programme on commercial dairy farms :

- Impact of proven GHG reducing measures
- Impact of multiple GHG measures in synchrony

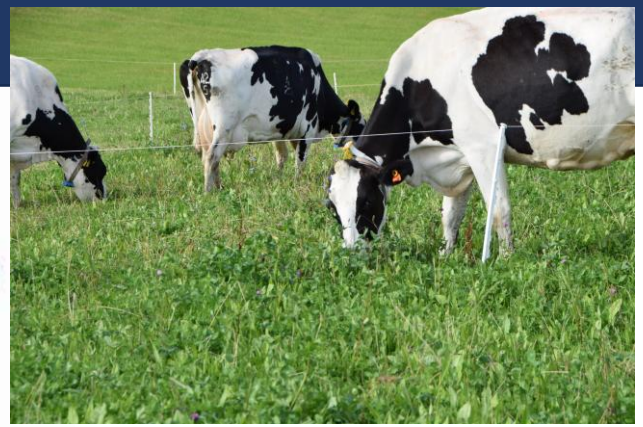
Examples of what's in scope:

- Precision formulated diets
- Technology to improve animal health and increase productivity
- Genetic testing and individual variability
- Functional ingredients within livestock diets
- Technology to estimate or measure animal's GHG emissions
- Technology and mitigations to reduce nitrogen excretion impacts
- Land and manure-based approaches

3-year project

UK DAIRY Carbon Network

AFBI led UK Consortium -core



Hybu Cig Cymru, QMS, DairyUK, AIC, NIGTA, Dairy Council NI, AHWNI

Over 50 supporting organisations and growing!

UK DAIRY Carbon Network

UK –DCN Project Structure

Project Management

Knowledge exchange

Website and on-line resources, social media, farm walks, webinars, conferences, press.

Research Harmonization, Coordination & Operations

- Mitigations centre
- Measurements & proxy centre

Development Centre

- Sensor testing and evaluation
- Proxy development
- Impact of nutrition
- Slurry emissions
- Processibility of milk

Data and Analytics

- Data pipeline & dashboards
- Data analytics and modelling

Farm Networks

Legacy

- Contracts signed and project underway
- Public launch of project commenced through coordinated press releases
- DEFRA Initiation meeting and project plan complete with initial deliverables achieved
- All work packages underway

AFBI-led project launched to promote sustainable farming

By FW CORRESPONDENT

Pictured are Dr Sam Strain (CEO, AHWNI), Martin Mulholland (DAERA), Professor Gerry Boyle (Chair of AgriSearch), Dan Morrow (CAFRE), Professor Elizabeth Magowan (Director, AFBI), Gill Gallagher (CEO, NIGTA), Professor Steven Morrison (Head of Sustainable Livestock Systems, AFBI), Ian Stevenson (CEO, Dairy Council NI) and Jason Rankin (Strategy Manager, AgriSearch).

THE Agri-Food and Biosciences Institute (AFBI) is leading a UK

Pictured at the Northern Ireland project launch.

emissions from dairy farming in the UK."

At the Northern Ireland project launch, Ian Stevenson, CEO of Dairy Council NI, said: "The Dairy Council NI is delighted to be part of this UK wide project. Our NI dairy farmers have already done a lot of good work to reduce their carbon footprint. This collaborative project will demonstrate the practicalities and measure the impact of putting multiple carbon reduction strategies in place, while also reducing the nitrogen and phosphorus balances on our local dairy farms to improve local air and water quality."

Impact will be assessed through a combination of direct measurements, novel indicators, and farm-level carbon footprint models. This holistic approach is designed to enable GHG mitigation measures to be accurately captured within the UK Agricultural Inventory, accelerate the adoption of GHG-reducing practices and further improve the sustainability of dairy farming across the UK.

Knowledge exchange is central to the project's success. Within Northern Ireland CAFRE will also work closely with the project to ensure as many NI dairy farmers as possible can engage directly with the project.

The UK Dairy Carbon Network will implement a farmer-led, peer-to-peer learning model, ensuring that successful mitigation strategies can be widely shared and adopted within the dairy farming community.

FW LATEST KNOW HOW MARKETS MORE

Dairy carbon emissions project seeks farmer input

Judith Tooth
04 March 2025

More in

Dairy Environment Livestock

Recommended

Carbon markets: A beginner's guide

© Tim Scrivener

More than 50 dairy farms across the UK are sought to investigate ways greenhouse gas emissions can be cut by using innovative mitigation measures.

The aim of the UK Dairy Carbon Network is to speed up the adoption of practices that will reduce greenhouse gas (GHG) production, according to the Agri-Food and Biosciences Institute (AFBI), which is leading the project.

AgriSearch recruiting dairy farmers for major new project on emissions

AGRISEARCH are recruiting 20 dairy farmers from Northern Ireland to take part in a major new project which will work with farmers to demonstrate and evaluate practical approaches to manage greenhouse gas emissions.

'The UK Dairy Carbon Network' (UK-DCN) is a Defra-funded three-year project which will bring together dairy farms from across the UK to explore and implement practical solutions for reducing greenhouse gas emissions.

Through collaboration, research and real-world testing, the work will deliver valuable insights that strengthen farm resilience and benefit the wider industry.

Each participating farm will have a tailored action plan and ongoing support from a farm liaison officer. Financial support will be provided for active participation, including payments to farmers and access to products and services. Participants will also have access to networking and knowledge exchange events and connect with leading scientific experts.

The following mitigation strategies will not only reduce greenhouse gas emissions but also reduce input costs and increase output, improving overall profitability on farm.

These initial mitigation initiatives will fall under the following themes:

- Breeding for reduced methane or methane intensity;
- Improved forage quality;
- Changes to feed formulation;
- Improved feed efficiency/utilisation;
- Improved animal health and early intervention;
- Improved fertiliser efficiency;
- Manure management.

Further information can be found on the AgriSearch website where you can register your interest in the project by completing a short on-line form. On the website you can also register for an information webinar for interested farmers which is being held on Tuesday, March 18, at 8pm.

From left: Sam Strain, Gill Gallagher, Ian Stevenson and Jason Rankin.

farminguk News Featured Shows Directory Magazines Farm Shops Courses

Researchers seek over 50 dairy farms for emissions project

5 March 2025 | by FarmingUK Team | Dairy, Environment, News

The project will establish a network of dairy farms across four major dairying regions in the UK

Researchers are seeking more than 50 dairy farms across the UK to join an initiative which aims to significantly reduce the sector's emissions.

The project, funded by Defra, aims to support UK dairy to become greener through the deployment of innovative mitigation measures.

The UK Dairy Carbon Network will establish a network of 56 dairy farms across four major dairying regions in the UK.

UK DAIRY Carbon Network

- Demonstration of how to implement technologies / practices to reduce GHG emissions on commercial farms and dairy supply chains
- Real world evidence of the benefits and disadvantages at farm, supply chain and policy level
- Quantification of the impact on emissions and how impacts are captured in footprints and potentially by national inventory
- Peer to peer learning supported by industry, policy, science and wider society
- Impactful change further enhancing the sustainability of the UK dairy industry

UK DAIRY Carbon Network

Join the team

UK DAIRY Carbon Network

Farm Networks

UK-DCN Farm Networks

UK DAIRY Carbon Network

AHDB

- AHDB Dairy, funded by farmers (Great Britain)
- Promotes British dairy through high-level campaigns while also supporting UK exporters in accessing global markets.
- Baselining project is measuring the environmental impact of over 50 dairy farms across GB.
- Helping farmers make informed decisions, we provide independent genetic and genomics data, with 95% of dairy semen sold in GB using our insights.
- AHDB offer market analysis, pricing, and consumer trend data.
- Field-based Engagement team runs on-farm meetings, strategic farms, and webinars, connecting farmers with industry experts and research.

AgriSearch NI
Driving Excellence & Innovation

- Farmer funded levy body (Northern Ireland)
- Funds used to commission research into the improvement and development of beef, sheep and dairy farming.
- Facilitate numerous on-farm research projects.
- Overall aim of driving farm profitability and sustainability through science, research, and innovation.

Partner Organisations

UK DAIRY Carbon Network

afbi AGRI-FOOD & BIOSCIENCES INSTITUTE

1872 PRIFYSGOL ABERYSTWYTH UNIVERSITY

AHDB AGRICULTURE & HORTICULTURE DEVELOPMENT BOARD

AgriSearch NI Farmer Funded Research

UK Agri-Tech Centre

QUEEN'S UNIVERSITY BELFAST

University of Reading

SRUC

Newcastle University

Harper Adams University

Other partners include:

Hybu Cig Cymru, QMS, DairyUK, AIC, NIGTA, Dairy Council NI

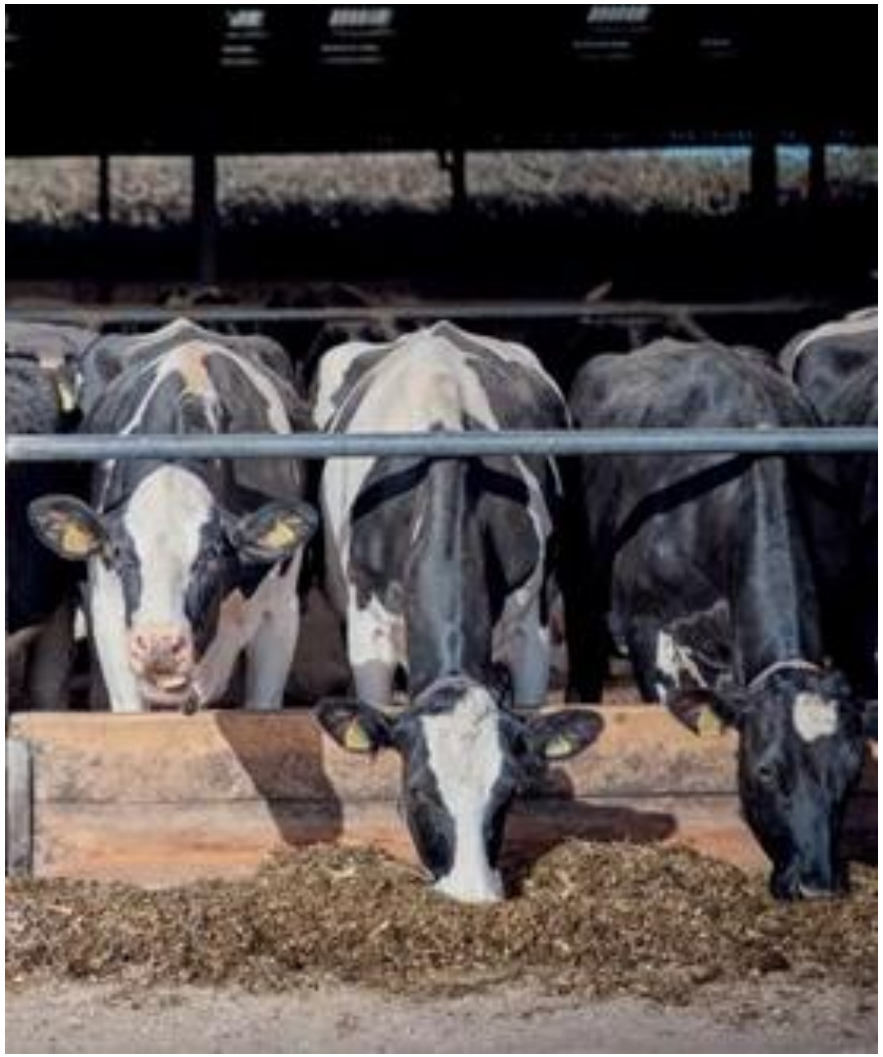
Network Locations

UK DAIRY Carbon Network

- 4 Farm Networks
- 56 Dairy Farms
  - Northern Ireland (20)
  - South Scotland and North England (12)
  - NW England (12)
  - South Wales, South and SW England (12)

Farm Commitment

- Commit to a three-year programme of activity
  - Implement a range of GHG mitigation strategies on farm
  - Provide access for staff to collect data
  - Actively participate - attend meetings and provide feedback
  - Share experiences through farm walks and media content



Why take part?

UK DAIRY Carbon Network

- Be part of the process – contribute to robust, industry relevant pathways for reduced GHG emissions on farm
- Gain access to support and information from experts in their field
- Improve on-farm profitability through reduction in waste and driving efficiency
- Implement strategies that benefit the overall farm business as well as mitigation of GHG emissions
- Learn and share from like-minded farmers in your industry
- Receive compensation for active participation

Application Process

UK DAIRY Carbon Network

Expression of interest QR Code

- Expression of interest form is available online via the AHDB website
- Closing date for applications is 31st March
- Early submission is encouraged

Farm Selection Process

- Information provided in submitted expression of interest forms will be used to assess a farms suitability for the project
- Additional information may be sought via phone call, or a pre-arranged farm visit
- Final selections will be made based on project objectives and required deliverables
- Should the project be oversubscribed a reserve list may be put in place
- Selections will hopefully be finalised in April

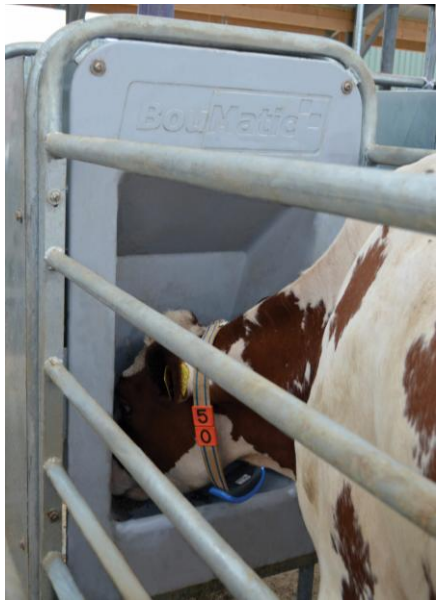
If selected… Step 1

- Baseline data collection
  - High level enterprise information
  - Similar to information you might have provided for a carbon footprinting exercise
  - Use farm software where possible – automated data flows
  - To inform selection of the most relevant mitigation options

Step 2 – Mitigation Options

UK DAIRY Carbon Network

- Each farm will implement between 2 and 4 mitigation options on farm simultaneously
- Which mitigations and how many will depend on your farm business
- You will have an active role in mitigation option selection
- Mitigation options will cover both land and animal with prevision technologies utilised where possible
- Version 1 of Mitigation Catalogue is now available
- 7 Core themes:
    1. Breeding for reduced methane
    2. Improved forage quality
    3. Changes to feed formulation
    4. Improved feed efficiency/utilisation
    5. Improved animal health and early intervention
    6. Improved fertiliser efficiency
    7. Manure management



Step 3 – Implement and Measure

UK DAIRY Carbon Network

- On farm activity expected to begin spring/summer 2025
- Testing and measurement carried out on farm will be dictated by the mitigations selected
- Frequency of collection will depend on the mitigations selected but will be agreed with you before commencing any activity
- Data collected by the projects dedicated Farm Liaison Officers or scientific partners within the project

On Farm Support

UK DAIRY Carbon Network

- The project is intended to be a collaborative and dynamic process involving farm stakeholders
- Participating farms will each be aligned to a Farm Liaison Officer
- Farm liaison officers will coordinate activity and ensure both the needs of the farm, and the project are met
- Additional support will also be available from the range of industry experts and scientific partners taking part in the project

Step 4 – Knowledge Exchange

UK DAIRY Carbon Network

- Participating farms will be expected share their experience and results through
  - Farm walks
  - Open days
  - Farmer meetings
- Peer to peer learning recognised by both AHDB and AgriSearch as keyway to influence
- Learning and sharing on the practical aspects of implementing multiple mitigations strategies on commercial farms
- Use of existing networks to share the learnings
  - Strategic Dairy Farms
  - AHDB Baselining Farm groups
  - GrassCheck programme
  - Beacon Farm Program

Farmer Contract

If selected farmers will be issued with a contract outlining the responsibilities of both the farmer and AHDB/AgriSearch

The contract will also cover:

- Commitment
- Data Sharing
- Confidentiality
- Farmer Payment

Application Process

UK DAIRY Carbon Network

Expression of Interest QR Code

- Expression of interest form is available online via the AHDB website The UK Dairy Carbon Network | AHDB *(Posted in the webinar chat)*
- Closing date for applications is 31st March
- Early submission is encouraged

For more details -> Tel: 028 9002 8280
Email: uk-dcn@agrisearch.org

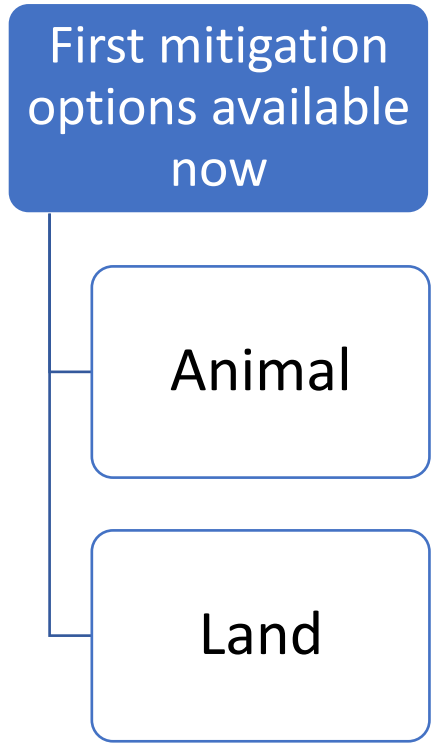
Mitigation and Measurement

UK DAIRY Carbon Network

Measurement: Measurements, indicators and models that will be implemented in the farm network to measure effects of mitigation

Mitigation

- Actions that will reduce GHG emissions on dairy farms
- Assessed by experts from across the UK and selected to be implemented on a range of dairy systems
- Mitigations are commercially readily available, regulatory approved, have extensive evidence and accepted by the supply chain
- Implement a range of GHG mitigation strategies on farm
- Current focus on those where the mitigation is seasonal and needs to be long-term
- Continued addition and assessment of mitigation list

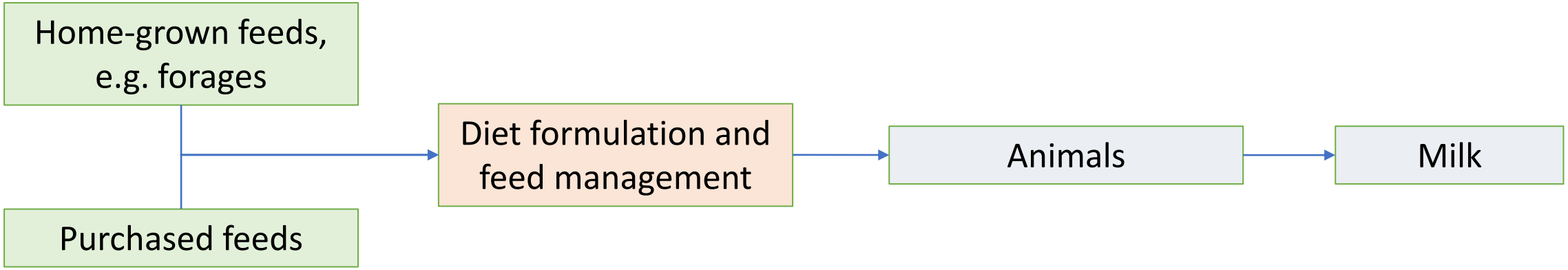


Commercial stakeholder interested in submitting a mitigation or measurement for assessment?

Submission will be available via AHDB website very soon!

Mitigations: Animal Measures

Emission Intensity = GHG emission / milk production



- Improved feed quality
- Lower embodied emissions

- Feeding level
- Energy source (e.g., starch, fat)
- Feed supplements
- Feeding precision

- Breeding
- Animal health

Close collaboration with farmers and their advisers, suppliers and customers

Mitigations – Animal Measures

UK DAIRY Carbon Network

Intervention i	Intervention i-1	Intervention i-2	Intervention i-3	Intervention i-4
1. Breeding	Select for feed efficiency	AHDB Envirocow index		
	Select for lower methane	Low methane semen	Specific commercial product	
2. Forage quality	High sugar grass	Specific commercial varieties		
	Multispecies swards	Specific commercial seed mixes		
	Optimise maturity at harvest	Precision grazing	Biomass monitoring	Specific commercial services
		Multicut silage		
	Forage conservation	Best practice fill/compaction/cover		
		Faster pH drop	Homofermentative silage additive	Specific commercial product
		Less aerobic spoilage	Heterofermentative silage inoculant	Specific commercial product
	Forage pre-treatment	Enzyme	Specific commercial product	
3. Diet formulation	Formulate for low embodied C	Specific database/model		
		Home grown feeds		
	Increase fat concentration	Diet re-formulation		
		Specific commercial fat supplement		
	Increase starch concentration	Diet re-formulation		
		Specific commercial fat supplement		
	Lower protein	Rumen-protected amino acids	Specific commercial product	
4. Feed utilisation	Feed delivery	TMR preparation technologies	Specific commercial product	
		Optimised supplementation in AMS	Specific commercial service	
	Reduce feed waste	Optimised feed bunk management	Specific commercial service	
5. Animal health	Prevention	Vaccines	Specific commercial product	
	Diagnosis	Lameness detection technology	Specific commercial product	
		On-farm mastitis pathogen testing	Specific commercial service	
	Endemic disease control	Johne's management plan		

Methane suppressing feed supplements

UK DAIRY Carbon Network

Emission Intensity = methane emission / milk production

- Feed supplements will be included in catalogue v2.0, August 25, for use in winter 25/26
- Products must meet all our criteria:
  - Authorised
  - Effective
  - Evidenced
  - Available
  - Acceptable

Direct suppression of methane

Dilution of methane through improved productivity

- Feed Materials, e.g.
  - Specific fat supplements
  - Garlic
  - *Asparagopsis* seaweed
  - Nitrate
- Feed Additives
  - 3-nitrooxypropanol (Bovaer 10)
  - Various products based on secondary plant compounds (essential oils, etc)

Close collaboration with farmers and their advisers, suppliers and customers

Mitigations – Land Measures

- Mitigation Options for improved fertiliser efficiency:

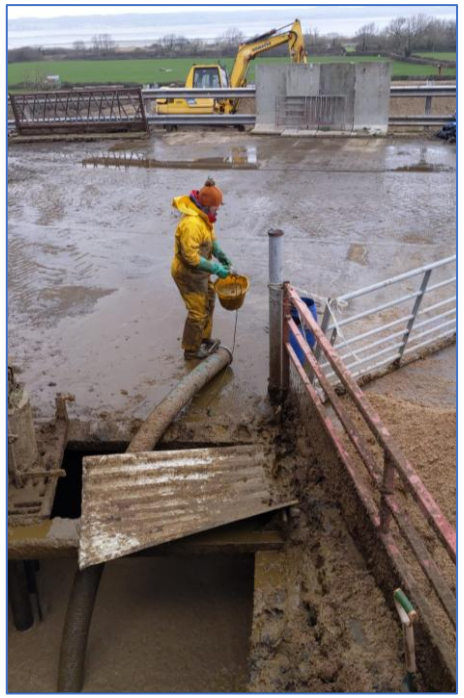
- Use of Urease Inhibitors – Must be one of NBPT, 2-NPT, NPPT
- Low Emission Spreading
  - Direct injection
  - Dribble bar
  - Application with GPS
  - Soil mapping
  - Variable rate spreaders
- Biological Nitrogen Fixation (e.g. legumes)
  - Seeding technologies

Method 31 – Use clover in place of fertiliser nitrogen

Direction of change for target pollutants on the area of grassland.

Nitrogen			Phosphorus		Sediment	BOD	FIOs	Ammonia	Nitrous Oxide	Methane	Carbon Dioxide
Nitrate	Nitrite	Ammonium	Part	Sol							
↓	↓	↓	~	~	~	~	~	↓↓	↓↓	~	~

Mitigations – Land Measures



Reception pit

Separators

Separated solids heaps

Separated liquid - slurry lagoon

Method 63 – Use liquid/solid manure separation techniques

Direction of change for target pollutants at the farm scale.

Nitrogen			Phosphorus		Sediment	BOD	FIOs	Ammonia	Nitrous Oxide	Methane	Carbon Dioxide
Nitrate	Nitrite	Ammonium	Part	Sol							
↓	↓	↓	↓	↓	~	↓	↓	(↑↓)	(↑↓)	~	↑

( ) Uncertain.

Defra project RDE 372: EVALUATING THE AGRONOMIC & ENVIRONMENTAL IMPACTS OF SLURRY AND DIGESTATE SEPARATION

UK DAIRY Carbon Network

Q & A

Application Process

UK DAIRY Carbon Network

Expression of Interest QR Code

- Expression of interest form is available online via the AHDB website The UK Dairy Carbon Network | AHDB *(Posted in the webinar chat)*
- Closing date for applications is 31st March
- Early submission is encouraged

For more details -> Tel: 028 9002 8280
Email: uk-dcn@agrisearch.org