AgriSearch NI

CHRISTMAS 2020 NEWSLETTER

As 2020 draws to a close, we at AgriSearch have produced a Christmas Newsletter, featuring a round-up of our activities throughout the year.

Like many others businesses during the COVID -19 pandemic, AgriSearch had to adapt to online platforms such as webinars and podcasts to deliver key outputs to farmers and industry partners, reaching a wide audience with our Virtual Farm Walks and other meetings held online.

While this year has been challenging, AgriSearch remains hopeful for 2021, with a number of prospective projects lined up for the New Year.

We would like to take this opportunity to thank all of our supporters and partners for the success of this year, and wish everyone a a Merry Christmas and Happy New Year.

AgriSearch NI
Driving Excellence & Innovation

Newletter Contents

Beacon farm network to shine a light on sustainable agriculture

"Farming must develop ways to prove and communicate its sustainability credentials to the increasingly sceptical public".

Harold Johnston; Edwin Poots MLA, DAERA Minister; Seamus McCaffrey, Chair, AgriSearch

We have recently announced plans to to develop a network of up to 50 "Beacon" farms across Northern Ireland to gather evidence for research into sustainable livestock farming systems that deliver for people, planet and profit.

Forming a key part of our new strategy, the Beacon network will benchmark carbon sequestration on-farm, quantify the benefit of ecosystem services delivered by farmers, and encourage the development of innovative, resilient and sustainable farm systems.

AgriSearch Chairman Seamus McCaffrey said, "The key challenge facing beef, dairy and sheep farmers over the coming years will be to continue producing high quality, affordable food to feed a growing population, while maximising animal welfare and environmental gains. Indeed, the government target for Northern Ireland to be carbon neutral by 2045 presents a challenge for all parts of industry and society as a whole. Farmers want to play their part in delivering these targets. For too long, agriculture has been presented as part of the problem, but we want to demonstrate through innovative practices and research how farming can be a big part of the solution.

"We have consulted widely in developing our new strategy, and our thinking has been shaped by the responses we have received from keystakeholders including farming organisations, policymakers, wider industry experts and of course farmers themselves. A common finding throughout our conversations was the need to become more focused on farm-level response to economic, environmental and social challenges.

"To that end, we intend to create a new network of Beacon farms – beef, dairy and sheep farms that will lead the way in developing cutting edge, innovative farm systems. Building on the success of the GrassCheck project, and representative of all parts of the ruminant sector in Northern Ireland, the Beacon farm network will measure and benchmark levels of carbon sequestration on livestock farms and quantify the benefits of ecosystem services delivered by farmers.

"Another key element of our new strategy will be to pursue partnership opportunities with industry, policymakers and academia that will deliver additional value for our research projects and ultimately the primary producer.

"We want to demonstrate both to farmers and the wider community how farming systems can fit together to deliver for people and the planet, as well as for their individual farm businesses. I would encourage farmers to get involved in this exciting project which help future proof the industry in Northern Ireland by promoting and developing farm systems that are both financially and environmentally sustainable".

An information pack and links to the online application form can be found on the AgriSearch website

Date for the diary: 15th December 2020 @ 8pm Webinar for farmers interested in Beacon Network

GrassCheck Podcasts

The new farming podcasts developed by AgriSearch General Manager Jason Rankin have been capturing the attention of NI farmers throughout the Covid-19 restrictions, providing them with up to date information assisting farmers with grassland management decisions on farm.

While in an ordinary year, AgriSearch would have been hosting GrassCheck farm walks, the podcasts have offered a convenient way for farmers to access quality information without having to leave the farm.

The podcasts have offered the opportunity to be able to dive deeper into various topics and discuss dairy, beef and sheep production individually, with episodes featuring technical experts, scientists and farmers who have shared their knowledge and practical experience.

This has proved to be an invaluable way of sharing farmer-funded research and promoting best practice on farms as Northern Ireland contended with changeable weather throughout the grazing period.

With 6 episodes available on the AgriSearch website and online streaming platforms, it has proved to be a huge success throughout the grazing season.

LISTEN NOW! On Buzzsprout

GrassCheck Seminar Videos Available Online

Recordings of the GrassCheck Seminar which took place back in February 2020 are now available to view on the AgriSearch website and YouTube channel.

The presentations delivered by AFBI scientists and PhD students cover a range of topics relevant to grassland management, including an overview of the 2019 GrassCheck season.

The videos available include:

- GrassCheck 2019 Season Overview (Kathryn Huson)
- AFBI Soil Catchments Programme (Rachel Cassidy)
- Latest Research Findings on the use of Stabilised Urea (David Patterson & Suzanne Higgins)
- Fertiliser response in old and new pastures (Lauren Chesney)
- Grazing management strategies for dairy cows (Jessica Pollock)
- The effects of sheep grazing strategies on animal performance (Tara Meeke)

Additionally, members of the Precision Decision team appealed to GrassCheck farmers to subscribe to the MiGrass program as part of the Precision Grazing project, looking at innovative techniques for measuring grass growth. 18 farmers present signed up to this platform.

CATCH UP ON YOUTUBE

New Guidance from COWS: Integrated Parasite Control

The Control of Worms Sustainably in cattle (COWS) group published the final chapter in its guide on 'Integrated Parasite Control on Cattle Farms', bringing together technical messages from previous chapters on roundworms, lungworms, liver and rumen fluke and ectoparasites, additionally showing how these measures can be applied on farm.

The aim of this final chapter was to bring together the principles and treatments outlined in parasite-specific chapters and show how they may be applied to common farming scenarios, offering an idea of how strategies for various parasites can work together.

There are five scenarios considered:

- A beef suckler farm with spring-born calves
- A beef suckler farm with autumn-born calves
- An autumn or spring calving suckler herd with animals bought-in
- Dairy herds grazing all summer with weaned calves and youngstock turned out on the same farm
- Dairy herds with weaned calves and youngstock kept at a separate unit.

For each scenario, a control plan for the grazing season is outlined, including possible tests which may be carried out and a summary of key points at the end.

All chapters of the guide are available on the cows website, and are freely available. Visit the website at: www.cattleparasites.org.uk

BovIS Text Messaging Service being utilised by Farmers

Through funding from DAERA and AgriSearch, the Agri-Food and Biosciences Institute (AFBI) have created an online application the 'Bovine Information System', also known as BovIS, which is available via DAERA on-line services.

The application offers a collection of various management tools which provides farmers with valuable information and enables them to make informed management decisions regarding cattle within their herd based. Additionally, farmers can subscribe to a text messaging service which sends information regarding any livestock from their herd which has been culled at the abattoir. To date, over 2,000 texts have been sent out to Northern Ireland producers through the BovIS text messaging service.

By subscribing to the text messaging service, livestock farmers can receive updates on data surrounding livestock that have been killed at any abattoir in NI. The information provided in the text message includes carcass weight and conformation grade of each animal, enabling farmers to compare their livestock to current 'in-spec' carcasses and assess individual animal performance.

Farmers can subscribe to the text messaging service by clicking on the BovIS option on the DAERA online services homes page.

BovIS
Bovine Information System

Embracing virtual meetings with the robotic milking group

Debbie McConnell (AFBI), Alistair Carson (Chief Scientific Advisor, DAERA), Lyndsay Chapman (CEO, Centre for Innovation Excellence in Livestock) and Jason Rankin (General Manager, AgriSearch)

In keeping with the theme of embracing technology, this year the AgriSearch robotic milking group held its first meeting online with 23 participating farmers. The group will contribute to the AFBI project entitled 'The role of robotic milking for NI dairying' and will provide on-farm data for analysis alongside participating in discussions throughout the 4-year term.

The farmers in this discussion group will enable key areas requiring research to be identified, alongside benchmark performance and trials of new management strategies that will optimise performance across the board of farming systems.

With increasing numbers of NI dairy farmers installing robotic milking systems it is vital that farmers are equipped with the relevant knowledge and skills to make the most of this considerable investment. By recruiting 23 farmers with extensive experience of using robotic milking systems we can use their knowledge to identify the key areas requiring research, benchmark performance and trial new management strategies to optimise performance across a range of farming systems.

Early results on the use of Selective Dry Cow Therapy

To address the growing threat of antibiotic-resistant strains of bacteria in the livestock sector, AgriSearch is leading a major project in association with AFBI, Animal Health and Welfare NI, LMC and Farm Vet Systems which is titled "Strategic Antimicrobial use in Dairy, Beef and Lamb Production (STAMP)".

The aim of the project is to develop both user-friendly systems to benchmark antibiotic usage and decision support tools to help producers improve animal health. This is co-funded through DAERA's Research Challenge Fund and so far results are proving promising, particularly within the dairy sector where there appears to be considerable potential to reduce antibiotic use in relation to dry cow therapy (DCT).

Year One Results

The first year of the study involved over 200 dairy cows, identified as either 'high risk' or 'low risk' based on their SCC and mastitis history. Those identified as high risk received conventional DCT while 'low risk' cows were allocated to one of two treatments, either receiving conventional DCT and the others treated with a teat sealant only (SDCT).

The 'high risk' group had a mean lactation number of 3.0, compared to 2.1 for the 'low risk' group, highlighting that SCC and mastitis incidence generally increases with increasing lactation number. The 'high risk' cows had a mean SCC of 273,000 cells/ml during the three milk recordings immediately prior to drying off, while 'low risk' cows had a mean SCC of 78,000 cells/ml during the three milk recordings prior to drying-off (Figure 1).

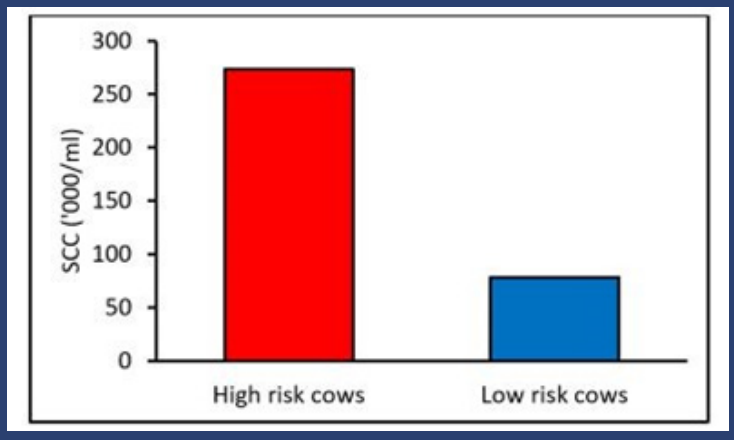


Fig. 1: Average SCC ('000/ml) of 'high risk' and 'low risk' cows during the three milk recordings prior to drying off.

The results showed that neither milk yield nor composition during the three months post-calving were affected by drying-off treatment (table 1).

During the three milk recordings post-calving, the mean SCC of the 'high risk' group was 214,000 cells/ml. This group had an average of 0.6 mastitis cases per cow during that period. However, the SCC of cows in the 'low risk' group remained low irrespective of the treatment they received. The cows that had been managed on SDCT had a similar incidence of mastitis during this period as those on the conventional DCT method.

Year One Outcomes

The results demonstrated that SDCT was successfully adopted on 'low risk' cows within the herd at AFBI without any negative effects on udder health or performance during subsequent lactation.

However, the success of SDCT is likely to be determined by a number of factors:

1. Overall SCC of the herd
2. Protocol used to determine 'high risk' cows requiring antibiotic treatment at drying-off and 'low risk' cows for which SDCT is appropriate (i.e. participation in milk recording, together with good record keeping of cows treated for mastitis)
3. Hygiene at drying off (excellent hygiene is essential to ensure that bacteria are not introduced to the udder at this time).

Incorporating On-Farm Experience

AFBI are planning to undertake a survey to complement the results of the current study, providing a better insight into farmer's experience of the adoption of SDCT. This questionnaire seeks to identify reasons for adoption, 'best practice' protocols and the impact on cow health and performance. Consequently, they are seeking to recruit farmers across NI who have already adopted SDCT, and who are willing to participate in this short questionnaire.

EIT Food Group's Virtual Farm Walk and Discussion Series

During the late summer and early autumn months, AgriSearch supported an EIT Food project involving ABP, Queen's University Belfast, University of Reading, and John Deere.

This project consists of a 6-episode series of virtual farm walks and discussions, featuring two leading farmers: Sam Chesney (from County Down) and James Evans (from Shropshire), The episodes aired live online on a fortnightly basis, starting on 10th August 2020. The recorded episodes are available to watch online and can be found on our YouTube channel.

The purpose of the project is to establish a dynamic digital forum to advance education among livestock farmers with focus on grassland agriculture as well as other key factors of consumer interest.

Following on from the first week of farmer ambassador introductions, the project followed the topics below:

- Optimising beef productivity from grassland
- Soil management
- Net zero carbon beef farming
- Farm animal welfare and one health
- Eating quality.

Catch up on all the episodes from the series now!

EIT 'Ambassador Farmers'

Sam Chesney, County Down, Northern Ireland.

One of our GrassCheck beef farmers, Sam Chesney was featured as an ambassador farmer for the duration of the EIT discussion series, giving an insight into the daily running of his beef and sheep farm and sharing his expertise and opinions on a number of topical issues within the beef production industry.

James Evans, Partridge Farm, Shropshire.

Acting as a representative for beef farmers in England, other ambassador James gave an insight into how beef production on his organic farm differs to that of Sam's in Northern Ireland, alongside his experience in transitioning to organic production.

EIT Episode Overview

Episode 1 - 'Farmer Introductions'
Following an introduction to the audience and providing an insight into their farming systems, Sam Chesney and James Evans identified some of the differences in how they are working to achieve the same goal: sustainable and profitable beef production.

Episode 2 - 'Optimising Beef Productivity from Grassland'
Featuring guest speaker Dr Francis Lively (AFBI), who provided an update on current research surrounding the value of grazed grass. Sam outlined the benefit of measuring grass growth to plan ahead, while James shared how he grazes for profit on his organic farm.

Episode 3 - 'Soil management'
Guest speakers David Humphries and Martin Lukac (Reading University) joined ambassador farmers to discuss indicators of soil health, how it can be improved and the use of diverse forage mixtures in grassland production.

Episode 4 - 'Accelerating the journey to net zero carbon beef production'
Attracting a large audience, this episode saw Sam detailing steps he has taken to reduce carbon output on his farm and James sharing the results of a carbon calculation carried out on his farm, outlining the importance of carbon sequestration. In addition to this, John Gilliland (Devenish Nutrition) delivered a presentation on how carbon has been measured on the Devenish Estate in Dowth, Co. Meath through the use of various innovation technologies in order to implement different mitigation strategies.

Episode 5 - 'Farm animal welfare and one health'
Parasite control in grazing animals and the effect of drug resistance in changing climate was the focus of guest speaker Eric Morgan (QUB), while Gareth Arnott spoke on the wider topic of animal welfare and how this interacts with the concept of one health. Farmer ambassadors Sam and James concluded with how they strive to maintain high health and welfare standards on farm amidst changing policies and advice.

Episode 6 - 'Eating Quality'
Nigel Scollan (QUB) delivered a thought-provoking presentation on eating quality of beef, using examples of grading systems in Australia and outcomes of research conducted in Wales he demonstrated that there is room for change to meet consumer needs and strengthen beef's share of the marketplace. James and Sam shared their thoughts on current grading systems and how practical on-farm decisions can influence eating quality.

Date for the diary: 14th December 2020
Final EIT Focus on Farmers Episode, 8pm

To date, the live events have been very successful, with a final round-up episode being scheduled to take place on 7th December following popular demand.

Further details and the link to register can be found on our website!

EIT Christmas Special

Following on from the great success of the series earlier this year, the decision was made to hold one final 'Christma Special' EIT episode, entitled Productivity: the silver bullet to zero carbon'.

The episode is due to air on Monday 14th December at 8pm and in keeping with the theme of previous episodes, will feature farmer ambassadors Sam Chesney and James Evans, alongside a number of guest speakers who will provide a wealth of combined knowledge and experience within the agri-food sector.

Guest speakers on the evening will include:

- Sir Peter Kendall, who has been leading the productivity working group of the Food and Drink Sector Council will outline the importance of improving agricultural productivity for economic, social and environmental reasons and the steps he has been taking to improve productivity on his own farm.
- Stuart Roberts, Deputy President NFU, will then speak on the implementation of the agricultural productivity strategy in GB and how this links up with the new Agricultural Act recently enacted by Parliament.
- Nick Whelan (CEO Dale Farm & Northern Ireland representative on the Food & Drink Sector Council) will speak on the challenges and opportunities of improving agricultural productivity in the dairy sector and on implementing the agricultural productivity strategy in Northern Ireland.
- Also joining the discussion panel is Victor Chestnutt, President of the Ulster Farmer's Union.

Sir Peter Kendall

Stuart Robers

Nick Whelan

Victor Chestnutt

RamCompare Results 2020

The results of the fourth year of the RamCompare project, co-funded by AgriSearch have been recently released, revealing how sires with key breeding traits can drive productivity and optimal new sire purchases.

This is part of the five year project which has taken nominated performance-recorded rams from various terminal sire breeds for use on nine commercial farms in the UK. One of which is AFBI Hillsborough, part of a larger Northern Ireland sister project led by AgriSearch and involving AFBI, Dunbia and Sheep Ireland. This joint-levy project is one of the largest trials of its kind and has recorded the performance of 19,000 lambs sired by 211 rams through AI and natural mating, over the duration of 4 breeding seasons. This clearly demonstrated how commercial producers can use specific estimated breeding values (EBVs) to identify rams with a high genetic potential and prove their worth when assessing financial impact.

The latest results have shown a great spread of rams among a recent list of trait leaders, with producers being urged to focus on traits that will deliver the greatest profit to their system.

Results

Among the leading sires for the 2019 lamb crop is a Meatlinc ram bred by George Fell(HRF:09012), which tops the rankings for Scan weight EBV (speed of growth) and comes second for Days to Slaughter EBV to a Hampshire Down bred by C M Brant and Son (27Z1700622).

In terms of overall Carcase Merit Index, the top sire is a Texel bred ram by Maurice Hardy-Bishop (HMF05019). However, the top ram for Carcase Conformation EBV is a Blue Texel bred by Jan Rodenburg(08441:24891).

Within the project, carcases are dissected to asses primal yields at a fixed weight, a Southdown (883:170545) from Rob Beaumont and a SuffTex (UK 0 304652 06765) from Robyn and Nick Hulme, provided the greatest weight of meat in the middle (loin) and haunch sections respectively. Once again, a Charollais ram topped the list for Shearforce EBV, a breeding value indicating meat tenderness. This year, the top sire was Crogham Lambert (11AB00035) bred by Crogham Charollais and provided to the project by the Ingram family.

With seven different breeds topping at least one of the RamCompare leader tables, the UK sheep industry shows extensive range and genetic variation and a wealth of opportunities. Ultimately, decisions made on farm should reflect the profitability of each trait to the enterprise. However, RamCompare clearly shows the benefit of EBV-based ram selection to enhance those traits on which producers are paid.

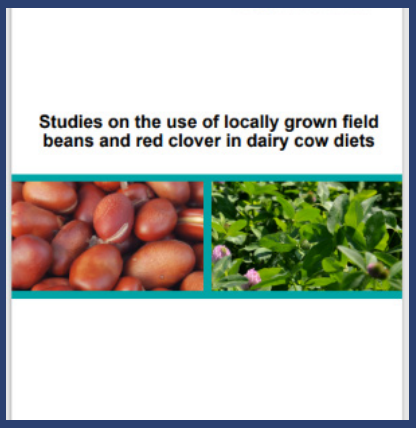
AgriSearch publishes booklet on home-grown proteins

AgriSearch have published a booklet summarising the results of six studies on the use of home-grown proteins in dairy cow diets. The studies were carried out by AFBI and funded by the Department of Agriculture, Environmental and Rural Affairs (DAERA) and AgriSearch.

Protein sources such as soya beans and rapeseed meal have traditionally been incorporated in the diet of dairy cattle in Northern Ireland. Such sources, however, have to be imported to Northern Ireland and as a result are subject to price fluctuation and, in the case of soya beans, increasing environmental concern. As a result, a research project to investigate the potential use of homegrown proteins in NI dairy systems was commissioned and funded by the Department of Agriculture, Environmental and Rural Affairs (DAERA) and AgriSearch.

The studies focused on the use of locally grown 'protein crops', such as field beans and red clover. The options for partially replacing imported protein feedstuffs with locally grown 'protein crops' in the diets of dairy cattle and how this may impact on cow performance were examined. The experiments were titled as follows:

- Experiment 1: The effect of degree of milling of dry field beans, and acid preservation of moist field beans, on dairy cow production
- Experiment 2: The impact of including 'low' levels of field beans in the diet of mid-lactation dairy cows



- Experiment 3: The effect of including high levels of field beans in the diet of early lactation dairy cows
- Experiment 4: Effect of mixing grass silage and red clover silage at four different ratios on cow performance
- Experiment 5: Milk production potential of silage made from red clover/grass swards
- Experiment 6: Do red clover swards wilt more slowly than grass swards?

Results from the study are promising, indicating that locally grown protein crops have the potential to replace half of the imported soya currently found in dairy cow diets. In addition, it was also found to significantly reduce the cost of dairy cow diets and have a positive impact on the carbon footprint and sustainability of dairy systems in Northern Ireland.

In addition to summarising each experiment and the outcomes, the booklet also provides an overview of field beans and red clover alongside practical considerations for the use of field beans in dairy cow diets.

This booklet can be viewed here.

Promising early results for 'STAMP'

Antimicrobials have made a major contribution to the health and welfare of cattle with farmers and vets having joint responsibility to ensure the correct and appropriate use. There has been a sustained and collaborative effort across the livestock industry to raise awareness of antibiotic use, with some retailers and stakeholders in the food supply chain requiring regular reporting of usage data.

A key challenge faced by the livestock industry is gathering accurate information on the purchase and use of antibiotics on beef and dairy farms. The Strategic Antimicrobial Use in Dairy, Beef and Lamb production (STAMP) has developed a web-based platform that captures and monitors antibiotic prescription use at farm level. The platform provides an analysis system helping farmers understand their antibiotic use and discuss with their vet how responsible use could be improved through management changes. This could help farmers meet the requirements of livestock assurance schemes, retailers and consumers and demonstrate that Northern Irish produce is high quality, sustainable and safe.

The STAMP project fits within the Department of Health, the Department of Agriculture, Environment and Rural Affairs and the Food Standards Agency wider five-year action plan entitled 'Changing the Culture 2019-2024 - One Health' which compliments the UK action plan to fight antimicrobial resistance and addresses issues which are more specific to Northern Ireland.

The project is led by AgriSearch in collaboration with the Agri-Food and Biosciences Institute (AFBI), Animal Health and Welfare Northern Ireland, LMC and Farmvet Systems Ltd, home of VetIMPRESS. The project aims to develop a user-friendly system to benchmark antibiotic usage and provide decision support tools to help producers on commercial farms in Northern Ireland improve animal health. The project is co-funded through DAERA's Research Challenge Fund.

You can read more about this project here.

"The STAMP benchmarking application offers farmers and their veterinary surgeons a quick and easy way to monitor antimicrobial use over time with minimal data input. It is part of a suite of activities in the STAMP project that will help farmers to improve animal health and reduce the use of antimicrobials"
Jason Rankin

AgriSearch NI

Funding Received for 3 EIP Projects

Following initial stage one funding, AgriSearch are pleased to share their success in receiving funding for 3 projects under the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP) scheme.

The aim of this scheme is to bring together expert advisers, researchers and business alongside farmers to tackle the challenges of farming through innovation.

The projects will see AgriSearch working with Northern Irish farmers to consider practical solutions for three main issues:

1. **Anthelmintic resistance**
2. **Controlling leatherjackets in grassland**
3. **The potential role of multi-species swards in beef and sheep systems.**

Work is already underway across all three groups, bringing in experts from AFBI, Queens University, Animal Health and Welfare NI and Teagasc.

In addition to leading three EIP projects AgriSearch are also delivering promotional and dissemination activity for a 4th project entitled ARCZero (Accelerating Ruminant Carbon Zero).

Keep an eye on the AgriSearch website and social media platforms for more up to date information!

Funding is provided by the European Agricultural Fund for Rural Development (EAFRD) and the Department of Agriculture, Environmental and Rural Affairs (DAERA) and is being delivered by CAFRE.

EIP PROJECT SUMMARIES

Anthelmintic TST Group: To investigate targeted, selective treatment for parasites in ruminant livestock

Background

Helminth (worm) infections are a hugely significant drain on production efficiency in grass-based ruminant systems such as those prevalent in Northern Ireland (NI). At present the control of parasitic helminths relies upon anthelmintics, but their widespread application at whole-herd level is leading to anthelmintic resistance (AR), reducing their effectiveness.

To tackle AR new strategies such as targeted, selective treatment (TST) have been investigated in recent years - targeting anthelmintics at the right time and/or leaving a proportion of the flock or herd untreated. Research has concluded that TST would be suitable for use on commercial farms, but uptake remains limited. Uptake of the approach and its success will largely depend on its on-farm practicality and wider economic benefit. This has not yet been evaluated in Northern Ireland.

Aim

To determine the feasibility and practicality of implementing targeted selective treatment of helminths on Northern Ireland commercial farms - bridging the gap between research and implementation and enabling advice to be shared to encourage wider uptake across the sector.

Activity

Group members will design, utilise and evaluate relevant TST strategies to better understand the feasibility of widespread use on-farm. Each farmer participant, with support from the group, will determine a suitable TST approach for their individual farm scenario. To support decision making, liveweight gain information and faecal worm egg count (FEC) information will be used in tandem to indicate the need for anthelmintic use – utilising new technology where possible (Fecpak kits and EID weigh stations etc.)

To aid in the deciphering of the results and interpretation of the outcomes, decision support services will be available from QUB and AHWNI throughout the study period. The results and experiences of the farmer members will be collated and outcomes determined to give an indication of the feasibility of wide scale uptake of TST across the ruminant sectors in Northern Ireland. Throughout the project a range of dissemination activity will be undertaken.

EIP PROJECT SUMMARIES

Multi-species Swards for Beef and Sheep: To investigate the incorporation of multi-species swards on ruminant grazing systems

Background

Low profitability in beef and sheep production enterprises is a real threat to the viability of the NI livestock sector. Finding a suitable balance between maintaining profitable and sustainable livestock performance from grassland and improving farm ecosystem service provision is critical.

There is a growing body of evidence to suggest that increasing the diversity of plant species within grasslands, by using multispecies swards, can meet many of these challenges; delivering a wide range of ecosystem services, reducing management costs and positively influencing livestock production. Incorporation of multi-species swards presents a significant opportunity but success will, however, be dependent on uptake and there is currently a distinct lack of information on their establishment and management on Northern Ireland commercial Beef and Sheep farms.

Aim

To investigate the feasibility and practicality of incorporating multi-species swards on Northern Ireland commercial beef and sheep farms.

Activity

Each farm will establish multi-species swards suitable to their specific farm conditions and objectives. Information gathered as a result of this project will include measurements and observations of animal performance on multi-species swards such as live weight gain, animal preference, nutritional effect and health benefit. Information on management techniques, fertiliser requirements, weed burdens and persistence will also be recorded. Of particular relevance will be observations of performance in times of extreme weather, both drought and waterlogging.

Measurement of changes in biodiversity and soil carbon have also been included. In addition a significant proportion of the move towards sustainable and environmentally beneficial farming has been driven by consumers and so the use of multi-species swards in livestock production could open up added-value routes to market which the project will explore in more detail. The results and outcomes will be communicated through a wide range of dissemination events to enable best practice establishment and management information to be provided to the wider sector but also inform a feasibility and cost-benefit analysis of enhanced multi-species use within Northern Ireland grazing systems.

EIP PROJECT SUMMARIES

Leatherjacket Mitigation Strategies Group: Integrated Pest Management approaches to leatherjacket mitgation in County Fermanagh

Background

Leatherjackets feed on the roots and stems of grass or cereal plants and can cause significant damage from loss of yield and the presence of large bare patches. In particular, grass reseeds and new leys can be devastated if leatherjackets are not controlled. On average, 100,000 ha grassland in Northern Ireland may be suffering an annual loss of 1.0 tonne of herbage DM/ha -which can have a significant effect on farm profitability. For the past 40 years, leatherjackets were controlled by agrochemicals containing chlorpyrifos (e.g. Dursban), however, approval for use of this active substance was withdrawn in 2016. Agrochemicals could kill grubs much later in their lifecycle which means land managers are accustomed to spraying in response to infestations, which are usually identified in the spring (Leatherjackets eat the roots, so farmers often don't know they have an infestation until they notice stunted crop growth). A move to pre-emptive mitigation strategies is now required but there is very little known about this or its effectiveness.

Aim

To determine the leatherjacket problem within an area of Northern Ireland (Fermanagh) and the factors that influence their prevalence, from which alternative mitigation strategies can be proposed to aid decision making on farm. In particular, there is anecdotal information from farmers that grazing strategies influence leatherjacket prevalence.

Activity

An study will be undertaken to determine the presence and impact of leatherjackets across participant farms in Fermanagh. The survey will focus upon the population and species distribution of leatherjackets and will be overseen by AFBI with assistance from Farmers and AgriSearch. The sampling results will be accompanied by measurements of crop (grass) damage (reduction in yield and visual evidence) in the following seasons. Prevalence of leatherjackets will be correlated to influencing factors (sward age, grazing strategies, soil conditions, weather conditions, biotic factors) and suggestions made of practical mitigation strategies. Control through management will be the focus such as sward management.

The effects of various agronomic activities, including cutting and grazing regimes, minimal cultivation techniques and fertiliser application on subsequent pest populations and their effects on grass yield and persistence will be investigated. The results of the study will also be used to assess the feasibility of a leatherjacket prediction service by validating a weather-based model originally published 30 years ago. If successful, the predictions will enable pre-emptive mitigations strategies to be implemented on farm in the summer/autumn to prevent an infestation problem in the spring. Throughout the project results will be regularly disseminated.

Co-funded Studentship Commences at AFBI Hillsborough

PhD student Francesca Johnasen has recently commenced a new project in collaboration with AFBI, QUB and AgriSearch, aiming to gain an understanding of dairy cow behaviour to improve production and welfare in robotic milking systems.

Francesca brings relevant experience to this project having completed a Masters of Research at Bristol University while studying social behaviour in cattle.

The aim of this project is to improve cow welfare and productivity in robotic milking systems by optimising the visit frequency to the robot.

While approximately 10% of the national herd is milked by robots, there is little information regarding the management of such systems. In particular, there is a lack of knowledge regarding cow behaviour and milking frequency with robotic milking, with some cows not transitioning well to these systems and therefore requiring prolonged training.
Success of robotic milking depends on cows' voluntary behaviour, which remains to be fully understood. Francesca aims to adress these knowledge gaps during her PhD.

The Department for the Economy is the main funder of this project as part of the CAST scholarship.

We wish Francesca all the best with her project and look forward to hearing the results.

Hill and Upland Beef & Sheep Production (HUBS) project proceeds

The hills and upland areas of NI hold a potential to be an invaluable resource in our natural environemnt if properly managed, additionally providing many important ecosystem services. While a large proportion of our hill and uplands are covered by grazing livestock, however there is limited unofrmation surrounding the pottential impact that grazing animals have on soils and their abilities to perform key ecosystem functions.

AgriSearch are supporting a project which is set to investigate the synergies and trade-offs that exist between ruminant production and other ecosystem services in beef and sheep farming systems in the hill and upland areas of Northern Ireland, known as HUBS.

This project will combine expertise in livestock and environmental research in order to take a holistic approach to this inestigation.

The objectives of the first year of this project involve a review of current literature to determine where there are gaps in research in order to make recommendations for the second experimental phase of this projec, which is due to commence in the New Year.

Additionally, a stakeholder group has been formed from those involved within the ruminant livestock industry with the purpose of disseminating updates and gaining feedback from the expert working group to aid the development and forward planning of this next stage, which will inform future agri-environment policies.

New project officer appointed at AgriSearch

Sarah Brown has been appointed to the role of Super-G project officer at AgriSearch. Sarah, from a farming family in Co. Down, is a recent graduate of the BSc (Hons) Agriculture programme at CAFRE/QUB and previously undertook a sandwich year placement at Fane Valley. At AgriSearch Sarah will lead on Super-G project deliverables including management of the EcoSward project.

The SUPER-G project (SUstainable PERmanent Grassland) is a fully funded 5 year European project, delivered by a consortium consisting of partners from 14 countries of which AgriSearch is one. The overall objective of the SUPER-G project is to co-develop sustainable permanent grassland systems and policies with farmers and policy makers that will be effective in optimising productivity, whilst supporting biodiversity and delivering a number of other Ecosystem Services. The project has a number of work packages and across the regions taking part, a wide array of research projects are taking place.

In Northern Ireland, AgriSearch in conjunction with AFBI commenced a project entitled Ecosward in Spring 2020. The Ecosward project aims to examine the potential role of multi-species swards in enhancing production and delivery of ecosystem services, including biodiversity and carbon sequestration, on 8 commercial dairy, beef and sheep farms.

The project will be carried out over 3 years, with the farms already having established a herbal ley in year one. The farmers sowed two seed mixes; the first mix contained perennial ryegrass and clover (a control), and the second mix contained perennial ryegrass, white clover, plantain and chicory.

The participating farmers will provide information on the establishment method they used, as well as weekly records of yield, weather, organic and inorganic fertiliser applications, plant protection products used and animal grazing behaviour. In addition, AgriSearch will collect data on soil carbon levels, species persistency and sward nutrient quality. Since establishment Sarah has been out on farm collecting this data which will later be compared with data collected at the end of the project.

SUPER-G
SUSTAINABLE PERMANENT GRASSLAND

AgriSearch welcomes new project manager

Jillian Hoy has been appointed Research Manager with the farmer-funded research body, AgriSearch. Jillian, who is from a Co. Antrim farming family, has a Masters of Science in Forest Eco-System Management and a first class Honours Degree in Ecological Science. She was previously employed with the Scottish Wildlife Trust where she was responsible for project managing the development of the Peatland Code, a voluntary certification scheme to encourage peatland restoration. Prior to that she was Contract Manager for Acoura Ltd, a certification body specialising in food, farming and environment.

At AgriSearch she oversees a number of projects including GrassCheck and the Dairy Robotic Milking Systems project. She also co-ordinates four Operational Groups who have recently begun proceedings for projects accepted for the European Innovation Partnership funding. She has a particular interest in land use within a social and environmental context. She will be assisting AgriSearch as a knowledge exchange catalyst to help Northern Ireland farming remain relevant and resilient in changing times.

Treating cattle for parasites this winter

This winter, the Control of Worms Sustainably (COWS) steering group are urging farmers to consider the effect treatments they give for internal parasites at housing may also be having on skin parasites.

Robert Smith, director at Farm First Vets and COWS member says, “Most cattle producers apply a pour-on macrocyclic lactone (ML) anthelmintic at, or just after housing, to control gut worms and lungworm. These products also kill lice and mites,” says Mr Smith.

“But what if the treated cattle do not have a skin parasite problem, or only have them at levels low enough to have no ill effects? Using broad-spectrum products in this situation could be wasteful and encourage the development of resistance by any lice and mites that are treated.

“An alternative approach would be to give cattle a different class of wormer such as a white drench, which generally has good activity against gut and lung worms. Then only treat lice and mites if they are causing problems later on, with a product specific to them, for example a permethrin pour-on.

“Pour-on MLs are used by many farmers throughout the grazing season to control gut and lungworms, so using a different class of wormer at housing will help slow the development of resistance to MLs on the unit.”

“The COWS grop aims to prevent a rise in anthelmintic resistance by encouraging farmers to treat only the parasites that are present, with the right product at the right time. Using a white drench may mean that more farmers see some lice and mite activity in cattle over the winter months, but this could be at tolerable levels.

Farmers should speak to their vet or RAMA/ SQP for advice on alternative products to use at housing, taking into account the parasites present on their farm.”

COWS
Control Of Worms Sustainably