

Agriculture Matters

at Greenmount Campus

Issue 02



DAERA

Department of Agriculture,
Environment and Rural Affairs
www.daera-ni.gov.uk

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Welcome to CAFRE where Agriculture Matters

The College of Agriculture, Food and Rural Enterprise (CAFRE) is an integral part of the Northern Ireland Department of Agriculture, Environment and Rural Affairs.

The College supports the agri-food sector through:

- Industry training
- Knowledge and Technology Transfer
- Benchmarking
- Business development planning
- Delivery of Further and Higher Education courses.

CAFRE has three campuses:

- Greenmount Campus (Antrim) focuses on agriculture and horticulture,
- Enniskillen Campus focuses on equine,
- Loughry Campus (Cookstown) focuses on food.

Greenmount Campus has been delivering education training, knowledge and technology transfer to the Northern Ireland agri-food industry for over 100 years.

This legacy continues through CAFRE's Education Service and Knowledge Advisory Service's wide ranging agriculture provision.

Agriculture Matters gives an insight into our work:

- Delivering a wide range of educational programmes
- Demonstrating new technologies and environmental sustainability
- Engaging with agricultural businesses, transferring knowledge and advice

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CAFRE Heads of Branch -

College Director
Martin McKendry



**Head of Education
Service**
James O'Boyle



College Services
Jason McFerran



**Head of Knowledge
Advisory Service**
Eric Long



Agriculture Education
George Moffett



**Dairy, Pigs, Poultry
& Crops**
Don Morrow



Horticulture
Paul Mooney



Beef and Sheep
Paul McHenry



Food Education
Shane McKinney



**Sustainability/Land
Management**
Alan Galbraith



Equine
Seamus McAlinney



Food Technology
Peter Simpson



**Knowledge &
Technology Transfer
Operational Policy**
Ian McCluggage



Agri-Business
Fiona Dickson





High quality education for Agriculture

Successful farmers need to be technically and practically competent and able to make good business decisions. Given the pace of change, pressure on margins and the high capital investment required to operate an agricultural business, we believe it is essential that everyone considering a career in this sector should complete an agriculture course.

Agriculture courses

CAFRE agriculture courses are highly practical and business focused and aim to develop students' skills to enable them to work and develop their home farm or to pursue a career in the agriculture support sector. Students can enter the industry at different levels depending on their qualifications and experience.

CAFRE currently offers a range of Agriculture courses from Level 2 to Level 6 including:

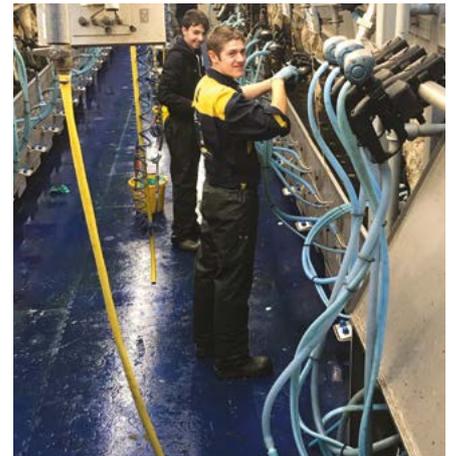
- BSc (Hons) Degree in Agricultural Technology, delivered in conjunction with Queen's University, Belfast
- FdSc Foundation Degree in Agriculture and Technology, validated by Ulster University
- City & Guilds Level 3 Advanced Technical Extended Diploma in Agriculture
- City & Guilds Level 3 Advanced Technical Extended Diploma in Land-based Engineering
- City & Guilds Level 2 Technical Certificate in Agriculture
- City & Guilds Level 2 and Level 3 Diploma in Work-based Agriculture
- Level 2 Multi-skilling programme in agriculture and chosen trades
- Level 2 and Level 3 Agriculture Apprenticeships



Study tours form an important part of the course curriculum



Level 3 Land-based Engineering students discussing product design during a visit to Krone Manufacturing



Students undertaking routine milking practical in the Dairy Centre, Greenmount Campus

High quality education

Agriculture Awards Day 2019

The hottest day of June 2019 was the backdrop to the annual Agriculture Awards Day at Greenmount Campus where student success was rewarded and shared with family, friends and representatives from the agriculture industry.



The Platform Party at Greenmount Campus Agriculture Awards Ceremony. Mr George Moffett, Head of Agriculture Education Branch, Guest Speaker - Mr Ivor Ferguson, President Ulster Farmers' Union, Dr Stephen Graham, Senior Lecturer, Professor David Hassan, Associate Dean, Global Engagement, Ulster University, Mrs Irene Downey, Senior Lecturer, Professor Nigel Scollan, Director of Institute for Global Food Security, Queen's University, Belfast, Mr Norman Fulton, Deputy Secretary, DAERA and Mr Martin McKendry, CAFRE Director.

260 students graduated with qualifications in agriculture from Level 2 to Honours Degree. Following graduation many of the students enter employment and a number progress onto higher level education courses.

The guest speaker for the occasion was Mr. Ivor Ferguson, President of the Ulster Farmers' Union. In his speech, Ivor congratulated all the students on their success and encouraged them to take every opportunity presented to them and to continue to learn and develop their knowledge and experience as they progress their careers.



Honours Degree in Agricultural Technology graduates, Robert Gamble (Bangor), Josh Thompson (Broughshane), Anna Truesdale (Newcastle) and Jack Wilson (Fivemiletown) pictured with Dr Kate Semple, Senior Lecturer, CAFRE and Professor Nigel Scollan, QUB.



Level 3 Extended Diploma in Agriculture graduates Conor Creith (Armoy), Hazel Nicholson (Monkstown), Sarah Davidson (Kells), and Matthew Adams (Glarryford), all completed one year work placements in New Zealand with their work placement manager, Joe Mulholland.

High quality education

Bursary Programme



CAFRE Director, Martin McKendry launches the 2019 Bursary programme along with first year Higher Education students.

Industry support for agriculture education

First year Higher Education agriculture students have the opportunity to network and engage with industry

representatives from the first week of their course through the CAFRE Bursary Programme.

Agricultural companies and organisations throughout Northern Ireland directly



Emma Nelson, Dunbia, presented the 2018 Dunbia bursary to BSc (Hons) Agricultural Technology student, Thomas Hoy.

support students through the provision of bursaries worth £1,000 each. In addition a number of the companies provide paid work placements to the bursary recipient.

The bursary programme is launched at the end of student induction week with a highly interactive 'speed dating' style session. Bursary providers promote their organisations and discuss the topic they have selected for students to write a report on. Groups of students rotate around all of the bursary providers learning about the organisations and the bursary topics. This gives students an opportunity to meet all of the bursary providers and learn about their role in the Northern Ireland agricultural industry as well as any potential work placement and employment opportunities.

Students then compete for the highly coveted awards by completing a report on a topical subject and going through an



David Brown, UFU Deputy President, presented the 2018 UFU Bursary to Foundation Degree student Courtney McMullan.

interview. In 2018 our twenty bursary providers offered bursaries with a total value of £22,500.

CAFRE is delighted and encouraged by the support

shown by bursary sponsors for the Higher Education courses in agriculture which helps to encourage the development of young people entering the agri-food industry.

High quality education

Agriculture Apprenticeships

CAFRE currently has DfE approval to offer Level 2 and Level 3 Apprenticeships in Agriculture. These are work based training programmes which provide students with the opportunity to ‘earn while they learn’.

To be eligible, students must be employed on a farm. They attend college one day per week where they develop their agricultural skills and knowledge through completion of a Diploma in Work-based Agriculture (Livestock Production) at either Level 2 or Level 3. Classes are taught through a mix of practical skills on farm and classroom based learning.

The Level 2 Apprenticeship in Agriculture is currently delivered at four centres; Greenmount Campus, Enniskillen Campus, Tobermore and Banbridge.



Level 3 Apprenticeship and Work-based diploma students on study tour to Kildalton College, Piltown, Co. Kilkenny.



Level 2 student, Tim Bruce, completing grass skills as part of his CAFRE Apprenticeship.

Key topics covered at Level 2 include:

- Animal health and welfare
- Animal selection and breeding
- Feeding livestock
- Keeping farm records
- Routine treatments, for example, dosing and injecting

On completion of the Level 2 Apprenticeship in Agriculture students can progress to a Level 3 Apprenticeship where they develop their supervisory and management knowledge and skills.



Sam Megarity (Armagh) received the DAERA Prize for the top student on the Level 2 Apprenticeship in Agriculture. Sam was congratulated by Mr Norman Fulton, Deputy Secretary, DAERA and Lorna Christie, Senior Lecturer, CAFRE at the Greenmount Campus Awards Ceremony.

The Level 3 Apprenticeship is delivered at Greenmount and Enniskillen Campus, with students having the opportunity to study either Dairying or Beef and Sheep Production. Students cover areas such as nutrition, grassland management, housing, records, animal health, selecting stock and if applicable, milking.

The Apprenticeship pathway offers students an alternative to full-time study whilst still developing their skills, knowledge and experience through the completion of nationally recognised qualifications.

High quality education

Small animal course provision

Anyone interested in a career as a Registered Veterinary Nurse (RVN) or an Animal Nursing Assistant (ANA) can undertake their studies at CAFRE, Greenmount Campus.



Level 3 student RVN Vicki McAllister carrying out an ear swab as part of a practical demonstration.

Each year 25 students enrol to commence the three year City & Guilds Level 3 Diploma in Veterinary Nursing course. CAFRE is the only Royal College of Veterinary Surgeons (RCVS) approved provider of this course in Northern Ireland. The student nurses must have already gained employment in one of the approved training veterinary practices before applying for the course. Students attend the college one day per week and work full-time in practice mastering the clinical skills needed. The course supports students who wish to work

in small animal nursing and covers topics such as diagnostic imaging, laboratory diagnostics, anaesthesia, emergency nursing, ethics and pharmacy. Once students successfully complete the course they can join the RCVS register for Registered Veterinary Nurses (RVN).

Students commence the one year ABC Level 2 Animal Nursing Assistant each September. This course provides the initial training for those working in a veterinary practice to support the role of the RVN and Veterinary



Level 2 ANA student Krystal Ward examining a slide under the microscope in practice.

Surgeon. The students attend the college one day each week and work or volunteer in a veterinary practice 21 hours per week. They are involved in key tasks that support the



Level 3 student RVN Danielle Wilson setting the fluid rate on a drip stand.

day to day running of the veterinary practice such as infection control, patient restraint, maintaining patient accommodation, stock control and reception duties.



Celebrating achievements at the autumn Awards Evening

The entry requirements for both qualifications can be found on the CAFRE website, www.cafre.ac.uk

CAFRE Alumni

CAFRE was formed in 2004, uniting Greenmount, Loughry and Enniskillen Colleges under one management structure.



CAFRE Alumni was launched at Balmoral Show 2018, with Joy Alexander, CAFRE, William Chesney, Barclay Bell, Martin McKendry, CAFRE Director, Cecil Sloan and Ashley Neely.

The CAFRE Alumni aims to connect our past students and staff and help shape the CAFRE of the future. Whether you graduated within the last year or fifty years ago, you too are a member of the CAFRE family.

Why form a CAFRE alumni?

Across the three campuses there is a combined history in excess of 250 years of education and thousands of graduates, many who have gone on to lead our industry either locally or internationally. The key is to build an alumni which will link CAFRE students past and present.

We all have cherished memories of student days - the stories never to be told in a formal history book but which make us smile, laugh and never get any smaller in the telling. There will opportunities for reunions, CAFRE updates and much more, including ways to

give back through placements, guest lectures, visits etc. We believe there is an untapped wealth of experience within our alumni who could help us shape the CAFRE of the future.

Would you like to become involved?

We are very keen to hear from students, past and present and take their views in how to further develop the CAFRE alumni.

For more information please contact George Moffett

Tel: 028 9442 6633 or

Email:

George.Moffett@daera-ni.gov.uk

Knowledge Advisory Service

The Knowledge Advisory Service integrates agri-environment advisory functions formerly provided by DAERA's Countryside Management Unit (CMU) with existing advisory and technology functions provided by CAFRE.

The primary role of the Knowledge Advisory Service is the holistic development of farm and food businesses, ensuring that the productivity, environmental sustainability and resilience agendas are all addressed.

This service has technical staff based across the country that are able to support farmers and agri-businesses in farm enterprises including dairy, beef, sheep, pigs, poultry, arable and food technology.

These staff are supported by technical specialists in each of the areas as well as agri-business and sustainable land management (covering air quality, water quality and biodiversity).

Rural Development Programme delivery through CAFRE

The Farm Business Improvement Scheme which is funded under the Northern Ireland Rural Development Programme 2014 - 2020 contains a number of key measures focusing on knowledge transfer with CAFRE leading the delivery of:

- Business Development Groups Scheme
- Farm Family Key Skills Scheme
- Technology Demonstration Farms

- Farm Innovation Visits
- European Innovation Partnership Scheme

These are managed and delivered by the Knowledge Advisory Service within CAFRE and directly contribute to DAERA's objective of a 'living, working, active landscape valued by everyone'.

For more information please contact Knowledge Transfer Administration

Tel: 028 9442 6790 or

**Email:
kt.admin@daera-ni.gov.uk**

Farm Centres

Dairy Centre

The CAFRE Farm Centres are a critically important part of DAERA's statutory authority to provide education and training to the Agri-food industry across Northern Ireland. The farms perform a central role with students who attend land-based courses at Greenmount Campus and also the wide range of Knowledge and Technology Transfer projects demonstrated to farmers and industry.

Within the Greenmount Campus estate there are three farm centres:

- The Dairy Centre
- The Beef and Sheep Centre
- Hill Farm Centre



The 200 cow dairy herd at Greenmount Campus aims to demonstrate an efficient dairy production system with a focus on environmental sustainability. The herd performs to a very high level with rolling average performance figures of 9489 litres/cow at 4.16% butterfat and 3.39% protein with a feed rate of 0.32 kg of feed/litre.



The Enterprise Management Team work to achieve targets which challenge us to improve efficiency in an

environmentally sustainable way, for example milk yield from forage continues to be a key priority. Linked to this are

Knowledge Transfer projects on grazing management of high yielding cows, production of high quality silage, reduction in antibiotic usage and lifetime performance.

The Dairy Centre continues to be an exemplar of best practice in relation to slurry management with a range of ammonia emission reduction technologies applied including flooring systems in all of the livestock buildings, covered slurry stores and the use of low emission slurry spreading equipment.

Farm Centres

Beef and Sheep Centre

The key aim of the Beef and Sheep Centre is to demonstrate efficient and sustainable production of beef and lamb with a particular focus on grassland management.



The unit consists of 125 hectares of grassland with 90 suckler cows, 160 finishing cattle, 210 breeding ewes and 5 hectares of cereals.

A target for the unit is to maximise output per ha as land

is one of the biggest limiting factors for most lowland beef and sheep farms. To try to achieve this, one of the main efficiency drivers is to grow and utilise as much grass as possible. Over the past two years over 12 tonnes of grass dry matter per hectare has

been grown annually. This high level of performance has been achieved as a result of careful management of soil fertility, sward management, reseeding and the efficient utilisation of the grass that is grown.

As part of the Knowledge Transfer projects a number of different grazing systems are demonstrated from set stocked to rotational and paddock grazing systems. These projects have shown that even in years with difficult weather, high levels of stock performance can be achieved with beef cattle achieving average growth rates of 1.11kg of liveweight per head per day.

Farm Centres

Hill Farm Centre

The Hill Farm Centre is located at Glenwherry in the Antrim Hills between Ballymena and Larne and is partially situated within the Antrim Hills Special Protection Area (SPA) for hen harrier and merlin.

The three enterprises are suckler cows, breeding ewes and the environment. It extends to almost 1,000 hectares with 100 suckler cows and 1100 breeding ewes.

The enterprises at the Hill Farm Centre are used to demonstrate effective management practices of hill land with a focus on the integration of livestock and environmental management. The farm is a key stakeholder within the Glenwherry Hill Regeneration Partnership and improvements in environmental management have been driven by our participation in this ground



breaking project. Using cattle and sheep to manage the extensive farmland has led to significant increases in the number of breeding waders. For the first time in almost 20 years curlew have returned and fledged chicks at the Hill Farm Centre for three years in a row.

The Hill Farm Centre also demonstrates a wide range of 'state of the art' technologies to students and farmers,

including the effective use Electronic Identification (EID) sheep handling equipment to efficiently monitor growth rates and performance throughout the year and also the latest labour saving technologies.

Summary

The CAFRE Farm Centres are in integral part of DAERA's education and training provision. The Farm Centres are uniquely placed to demonstrate to students and farmers environmental, animal and crop production systems, incorporating the latest developments and innovative technologies.

Business Development Groups (BDGs)

Almost 3,000 farmers are members of Business Development Groups (BDGs) and meet regularly at BDG training events held on members' farms.



Gary Haslem, CAFRE Dairy Development Adviser, leading a discussion on feed efficiency

There are 145 groups and all the main farming sectors are represented with beef, sheep and dairy BDGs making up over three-quarters of the groups.

CAFRE began to facilitate on-farm BDG training events in May 2016 and by the end of March 2019, 3,661 events had taken place. Topics are wide ranging, determined by the needs and interests of the groups. The focus is on actions members could take to improve the efficiency of their farm businesses, for example, improved animal and crop health and performance, better

grassland and soil management with greater emphasis on business planning.

The CAFRE financial benchmarking service is available to BDG members. It supports the development of participating farm businesses by helping farmers to identify business strengths and weaknesses and where improvement efforts should be focused. It also provides farms hosting BDG events with performance figures to support the business development ideas being discussed by group members.

Since the BDG scheme was launched many farmers have reported that participation in the groups has already helped them in developing



their businesses and they have also valued getting out and meeting with other farmers and sharing their knowledge and experiences.

A high level of CAFRE support is provided to farmers

participating in the BDG scheme and this has been matched by a high level of commitment from participating farmers.

Business Development Groups (BDGs)

Financial Benchmarking

CAFRE encourages farm businesses to monitor their performance on an on-going basis, using up-to-date data.

Financial benchmarking is a management tool that farmers and growers can use to improve business performance. CAFRE provides this service to participants in the Business Development Groups (BDGs) to help them record physical and financial data in order to conduct their annual benchmark and monitor farm business performance. Over the 2018/19 year, CAFRE Development Advisers delivered and discussed more than 1,100 individual benchmarking reports on farm.

Individual farm data is presented in each

benchmarking report, allowing management decisions to be made based on the farm's results. It is therefore vital that the key performance indicators are easy to interpret. Showing the current year's results against previous years' data also allows individual producers to map performance trends over time.

The benchmarking system caters for many farm sectors, each of which has an individual benchmarking report, tailor-made to focus on the most important performance measures. For example, one of the most important performance

parameters provided in the Pig benchmarking report is 'kg of pig meat produced per sow per year'. This encompasses many of the other physical parameters including litter size, pre and post weaning mortality and carcass weight, but makes it easy to interpret.

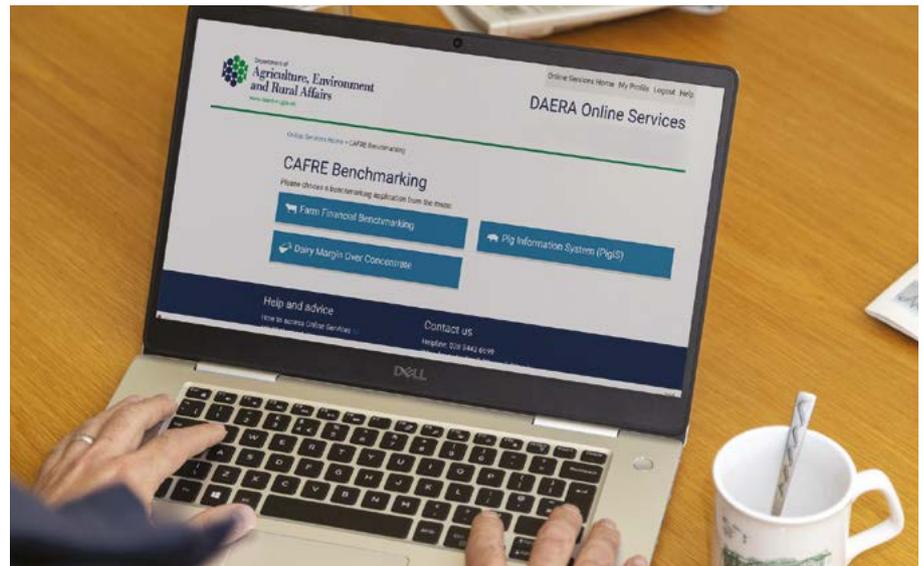
Businesses should, however, be monitoring performance on an on-going basis, using their most up-to-date data where possible. This allows for timely management decisions to be made throughout the year.

With this in mind, CAFRE has developed an additional online

tool that lets dairy farmers assess their herd performance on a monthly basis. Margin Over Concentrate (MOC) is a simple, useful measurement tool, looking at the income from milk sales and the cost of concentrate feed for the dairy herd during a month.

Concentrate feed accounts on average, for about a third of the overall cost of production for a Northern Ireland dairy herd. This of course depends on the system of production, with some systems spending a significantly higher proportion. If concentrate intake can be managed efficiently this in turn impacts on profit.

The system has been kept simple with only three sets of figures required: cow numbers,



milk details and concentrate details, which take only a few minutes to enter. The results that are calculated from the input data, provide up-to-date indicators of the herd performance. This information can be used to set production targets for the current month.

It is hoped that similar systems can be developed for other enterprises in the near future.

Business Development Groups (BDGs) are funded through the 2014-2020 Rural Development Programme for Northern Ireland.

Farm Family Key Skills (FFKS) - helping on-farm decision making

The Farm Family Key Skills (FFKS) scheme provides short, specific training courses aimed at creating awareness and knowledge of topical issues impacting on farm businesses that can help with on-farm business decision making.

It is one of a number of Knowledge Transfer programmes delivered by CAFRE and the Northern Ireland Rural Development Programme which is part funded by the European Agricultural Fund for Rural Development. 2014-2020.

The Scheme aims to deliver training in a range of topics to 15,500 people by March 2021, with at least 85% reporting an improvement in knowledge post-training.

The training needs are identified through collaboration with a wide range of CAFRE partners and stakeholders.

Feedback has been very positive with regard to the quality of learning and on average 98% participants have reported an improvement in awareness. In some cases a change in farm practices has also been identified including:

- changes in fertiliser policy following soil analysis and nutrient management training

- new biosecurity and visitor policies adopted by pig farmers
- reduced use of antibiotics on dairy farms.

AMR training will continue across dairy, pig and red meat sectors with already 2,100 red meat producers trained.

Progress to date

Course topics	Trainees
Business Planning	3,500
Health and Safety including First Aid	3,500
Nutrient and Soil Management	1,500
Animal Health (Dairy, Pigs, Beef and Lamb)	4,800

Addressing customer need is a key criterion as shown by the demand for some of the courses. With the requirement of VAT registered businesses to submit their returns digitally from April 2019, over 2,700 people attended the series of Making Tax Digital seminars.

First aid courses have also proved to be a real winner with the wider farm family. Around 1,600 people have attended courses so far and an interesting



First Aid Awareness training with East Antrim Ladies Farming Forum

feature is that 40% of attendees are female (Only an estimated 10% of farmers are female).

Antimicrobial Resistance (AMR) is a growing major threat to human and livestock health. FFKS courses on antimicrobial resistance were developed in the past year for the pig and dairy sectors and these were attended by around 700 producers during the winter. This AMR training is now an integral part of the recently launched 'One Health' action plan - a local and EU wide strategy to tackle antimicrobial resistance. AMR training will continue for the dairy sector and will be rolled out to red meat producers from winter 2019.

FFKS courses are tailored to match the training needs and



Antimicrobial Resistance workshop for Dairy Farmers at Hillsborough

availability of people working in particular sectors, for example courses for the dairy industry can be structured to avoid milking times.

FFKS courses are available to farmers, growers, farm family members and employees and are held in local venues.

Details of courses can be found on the CAFRE website:

www.cafre.ac.uk/industry-support/farm-family-key-skills/

Technology Demonstration Farms - showcasing proven innovations on-farm

Technology Demonstration Farms (TDFs) are part of the new Innovation Technology Evaluation Demonstration Scheme (ITEDS). The scheme recognises that early adopters of innovations and technologies play an important role in convincing their peers to take more innovative approaches to traditional systems.

The scheme will encourage farmers to offer visits to their farm to showcase the use of innovative technologies. During a visit to a TDF, other farmers will be encouraged to adopt innovations and technologies to enhance their traditional systems.

The ITED Scheme is funded by the Department of Agriculture, Environment and Rural Affairs (DAERA) and the European Union under the Rural Development Programme (RDP).

To date, CAFRE has recruited four dairy farmers to demonstrate technologies, within two themes namely feed efficiency and cow mobility improvement, two farms for each theme.

These farms were recruited using a competitive process and were appointed in July 2019. Within each theme there is a list of proven technologies which must be currently used and demonstrated on the farm. The first visits to these farms are planned for autumn 2019.

Throughout the term of the RDP, CAFRE plans to invite applications from all of Northern Ireland's agricultural sectors. The next stage, is to recruit ten beef farms to demonstrate fertility and grassland management as well as two sheep farms and one pig farm. Further recruitment of TDFs will take place in 2020.

More details and specific application dates will be available on the CAFRE website and other social media platforms such as the Discover

CAFRE Facebook page and Twitter account.

What is expected of a TDF host?

A TDF host is expected to hold at least eight farm visits per year. Group sizes are limited to 25 people to allow effective discussion and peer to peer learning while on the visit. In return each host farmer will receive a payment of £600 per farm visit. In addition, CAFRE will support TDFs by analysing the performance of their technology, providing appropriate diagnostic testing and arranging, where appropriate, for specialists to visit and speak on their farm.

If you are interested in becoming a Technology Demonstration Farm you can submit an expression of interest and



Watch out for our Dairy Technology Demonstration Farms

receive updates about the scheme through the CAFRE website <https://www.cafre.ac.uk/industry-support/technology-demonstration-farms/>.

If you are interested in attending a farm visit, you should note that these will only be available for group bookings and not individuals, although this may change. Please check the CAFRE website for further information and details of how



Interested in visiting a Beef Technology Demonstration Farm?

to book a visit to a Technology Demonstration Farm.

Farm Innovation Visits (FIVs) – experience innovative approaches on leading European farms

What is a Farm Innovation Visit?

A Farm Innovation Visit is a study tour by a group of farmers or growers to a location outside Northern Ireland. The size of the group is usually between 15 and 20 people. The group aims to study a particular innovation in farming that is being used in other countries but not yet here. The groups are led by CAFRE staff who have expertise in the subject area.

Who is eligible to go on a Farm Innovation Visit?

To be eligible for a FIV study tour you need to be over 18 years of age, own or work in a farm business and not be in full-time education. In addition,



Calf Rearing FIV members discussing the nutrition of dairy replacements

applicants must be a member of a group which includes farmers and/or growers. Depending on the focus of the visit you may need to meet additional criteria, for example, you may need to have had your farm financially benchmarked

or have a minimum size of enterprise.

The aim is for each FIV member to learn about the innovation for themselves and then pass that knowledge on to members of their group back home.

How long does a Farm Innovation Visit last?

The tours which have taken place already have lasted two or three days, however longer trips are possible. Typically the group visits a number of farms and perhaps research centres where the innovation of interest has been implemented. In addition there is often input from people who have world class specialist knowledge of the subject area.

Towards the end of the study tour there is a wrap-up session. This helps the members to draw all the learning together and reach a conclusion about how the new innovation could be workable on the home farm.

Which countries can be visited?

Visits are supported to any country in the Europe Union including Great Britain.

To date, eight visits have taken place to locations including: Scotland, England, Denmark, Germany, Belgium and the Netherlands.



Danish FIV members in the laboratory studying disease prevention measures

What are the financial arrangements for a Farm Innovation Visit?

The main costs of the FIV are met through the Northern Ireland Rural Development Programme which is part funded by the European

Agricultural Fund for Rural Development. The cost of all travel outside Northern Ireland is covered, as is accommodation and meals. The scheme will also cover the cost of technical experts and translators in the country being visited.

The participants are expected to cover the cost of any farm relief while they are away, their travel within Northern Ireland and also their travel insurance.

What is expected from the group members when they return?

Within six months of returning home participants are expected to share what they have learnt with a group of their peers; often this will be the members of their Business Development Group.

What has been the experience so far?

The first FIV was a group of pig producers who went to Denmark to study the prevention and control of a pig disease, Porcine Reproductive and Respiratory Syndrome (PRRS). Feedback from the

group was very positive with one member commenting **‘The best trip I have been on, lots of great information about PRRS and livestock husbandry’**

A second FIV was ‘Innovations in suckler beef finishing systems’ when a group went to Yorkshire to study how cattle were finished and marketed on a large feedlot with the suckler producers retaining ownership. One member commented that “The trip was first class and very informative.”

Are there any FIVs planned for the next few months?

Over the life of the Scheme around 100 visits will take place. These will include all the sectors in the local industry including dairying, beef and sheep production,

arable farming, production horticulture, pigs and poultry production as well as environmental issues that impact farming.

Upcoming visits include -

- Innovations in beef breeding
- Innovations in robotic milking
- Innovations in soil phosphate reduction
- Innovative approaches to managing the uplands with livestock

Other subjects will be added over the next two years across all sectors of the agri-food industry.

Recent Farm Innovation Visits



Knowledge and Technology Transfer

Dairy Technology Transfer

Colostrum Management introduction

Research has shown that feeding high quality colostrum at the correct time and quantity is a key determinant of a calf's early health and survival for example, increased DLWG, feed efficiency, reduced age at first calving and increased milk production.

Achieving success in colostrum feeding

The technology transfer process to both students and farmers by CAFRE requires the implementation of applied science along with practical considerations relating to colostrum feeding. It is well

established through research that to achieve successful passive transfer in calves' three key areas need to be addressed, namely, the three Qs: quantity, quickly and quality. For example, in relation to quantity, research from AFBI found that calves fed 5% of body weight in colostrum compared to 10% had increased cases and treatments for enteric infections i.e. scour, along with significantly lower serum IgG levels.

However, in order to achieve the three Qs, consideration must be given to the infrastructure within the calving area. As



Cow being safely restrained for colostrum milking extraction

part of a dairy technology transfer open day at CAFRE these practical aspects were discussed with over 1,000 farmers. Management practices such as, extracting colostrum from post calving cows both quickly and safely were demonstrated through the

use of a specialist calving gate and also the use of a portable milking machine.

Minimising the contamination of colostrum by bacteria is essential, so key aspects discussed were hygiene of the udder i.e. a well bedded calving pen, clean hands/gloves and the sanitising of all utensils associated with the collection and transfer of colostrum.

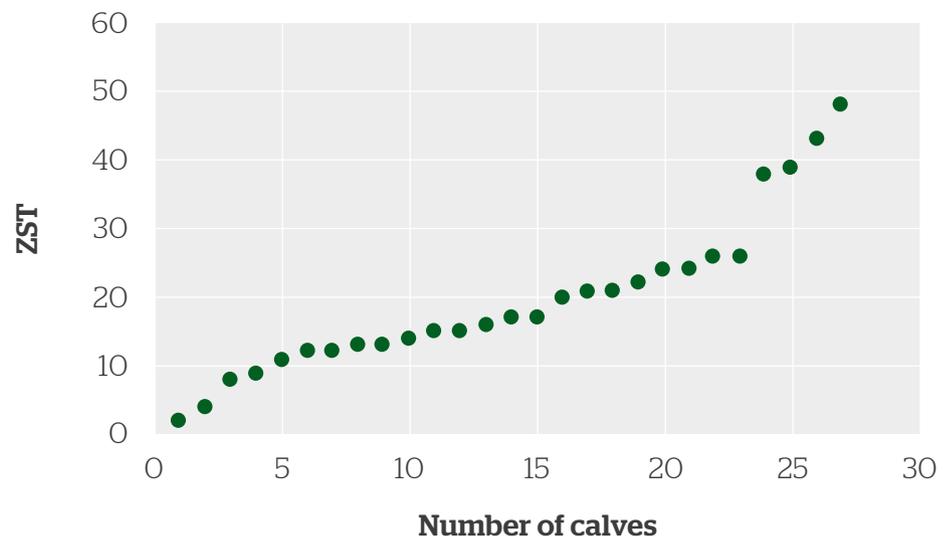
Measuring success

The blood testing of calves (within one week of birth) is a definitive measure in determining the effectiveness of colostrum management. Some farmers participating in CAFRE's Dairy Business Development Groups (BDGs) blood sampled a number of calves and zinc sulphate turbidity test (ZST)

was carried out. A ZST level of above 20 indicates adequate colostrum intake. The graph below suggests that almost 60% of calves sampled had not received adequate colostrum.

Making an impact

Through Dairy Business Development Groups, technology transfer events



ZST results of Dairy BDG members' calves



Portable milking machine for colostrum extraction

such as the Dairy Open Day and student training, CAFRE have communicated the value and benefits of the three Qs and the practical aspects at farm level must be in place to over 2,000 dairy farm businesses. From

September 2019, we have been rearing calves in our new Calf Unit at Greenmount Campus for the first time and this will give us further opportunities to develop and demonstrate new technologies.



**New calf house at
Greenmount Campus**



**Calves are offered a choice of
environment to lie in**

Knowledge and Technology Transfer

Crops Technology Transfer

The Crops team provides business development support to the combinable crops and potato sectors through eleven Business Development Groups.



The audience at the 2019 CAFRE UFU UAS Arable Conference

This involves discussion group meetings and on farm support through development plans and financial and physical benchmarking of the business to identify areas for improvement.

The team are also involved in technology transfer in various areas including:

- min-till
- direct drilling
- minimising diffuse pollution from pesticide use



Direct drilling of cereals being carried out on the CAFRE College Farm

- protein break crops
- minimising soil compaction.

Crops development advisers also supported a pilot Farm Innovation Visit arranged for potato growers to Scotland to

see new positive ventilation technology in potato stores facilitated by storage specialists from SRUC.

Knowledge and Technology transfer events are also

organised for the wider industry throughout the year in collaboration with other partners such as the UFU, AHDB, AFBI and UAS.

The main event is the annual Arable Conference which attracts around 200 delegates from across the arable industry.

Crops development advisers have also been involved in facilitating group visits to KTT events in the UK and Europe such as British Potato, Potato Europe and Cereals exhibitions.

Knowledge and Technology Transfer

Pig and Poultry Technology Transfer

CAFRE technology within the pig and poultry sectors is currently focused on technologies related to biosecurity and environmental protection.

Biosecurity - McRebel rules

Optimal biosecurity not only results in healthier livestock but also in reduced antibiotic usage, which is paramount to the protection of human health.

A recent Farm Innovation Visit by a group of pig farmers from the Cookstown area explored this topic in Denmark in more depth. While many disease control measures are already adopted in Northern Ireland, such as effective cleaning and disinfection along with strategic 'pig flow', others need to be considered. During the visit the



Mark Hawe discusses management techniques that can reduce disease challenge in pigs with James Millar, Cookstown.

group observed how Danish farmers have adopted a proven set of management measures known as the McRebel rules. The rules include the handling of sick pigs, guidelines on fostering and adopting an all-

in/all-out system in farrowing rooms. Control and elimination of some of the most infective pig diseases have been achieved in Danish herds using these ten 'golden rules'. On their return to NI, the farmers shared the take home messages with many of their peers to assist with the adoption of some, or all of the rules, over time, within our local industry.

Water quality

Water quality is another important aspect of a farm's biosecurity policy but is often taken for granted. Although the water may be clean at



source, contamination can take place as it flows through storage or header tanks and supply pipes. Several tests are available for determining the quality of water. Total Viable Count (TVC) is the basic test and provides a general indication of overall quality while the presence of total Coliforms, E Coli, Enterococci and Clostridia indicate the presence of faecal contamination.

The quality of water on some pig farms is an issue. CAFRE, through Business Development Groups, is involved in sampling water for members. To date 60 samples have been analysed. Although many results are satisfactory some samples have shown high levels of Coliforms and E Coli leading to health challenges for the pigs. Where Coliforms and E Coli have been excessive, CAFRE Advisers have recommended farmers to adopt water treatment technologies.

Environment - tree shelter belts

Work is on-going at CAFRE to evaluate ammonia mitigation strategies to address the excessive levels of ammonia being generated by agriculture in NI.

Within the free range egg and meat sectors of the poultry industry, the planting of trees could offer a valuable long term tool to recapture ammonia near units. Land is already available

to comply with marketing requirements and tree plantations can also encourage more extensive use of the range by birds.

The Centre of Ecology and Hydrology has developed a tool which helps farmers design tree planting schemes that optimise ammonia recapture. Recapture levels of 30% can be achieved ten years post-planting but even after five years significant reduction levels can be achieved. While the tool is available in Great Britain, work has been commissioned by CAFRE to make it appropriate for use in Northern Ireland. Once produced and validated, the tool will be promoted to poultry farmers and the wider farming community.

Knowledge and Technology Transfer

Beef and Sheep Technology Transfer

Ovine Pulmonary Adenocarcinoma (OPA)

OPA is a disease not widely known amongst sheep farmers across Northern Ireland. This disease, also called 'Jaagsiekte', affects the lungs of sheep causing tumour growth, with symptoms including coughing, loss of condition and sometimes sudden death due to secondary *Pasteuralla pneumonia*. Infected sheep can pine away and have clear discharges from the nose. The disease eventually causes death. The nasal fluid contains the infective virus that will spread the infection to other sheep in the flock.

This disease can best be diagnosed by ultrasound

examination of the lungs which can detect early stage cases. Routine post mortem examination of some thin cull ewes might also detect the presence of the disease in a flock. Farmers should consider scanning sheep to take out carriers or infected animals. The so called 'wheelbarrow

test' will only detect late stage cases. It is important to note that sheep can show symptoms from around six months of age onwards.

CAFRE in conjunction with the Ulster Farmers' Union held an OPA Awareness Event at the Hill Farm Centre, Glenwherry



OPA Awareness Event



Stephen Clyde, Assistant Farm Manager, CAFRE, Graeme Campbell, Senior Beef and Sheep Technologist, CAFRE and David Brown, UFU Deputy President discussing the impact of OPA on the CAFRE flocks.

in June 2019. Over 100 NI sheep farmers and industry attended the OPA awareness event.

On the day, Jason Barley, AFBI Veterinary Sciences Division, provided a background to OPA

and covered detection and control methods. CAFRE staff updated everyone on how OPA has affected the CAFRE sheep flocks and what control methods have been put in place to help control the disease.

Patrick Grant, having recently set up independently as 'The Sheep Vet', has been involved in OPA scanning for a number of years and provided an overview of the findings to date. Patrick also provided an insight into the scanning process. There was a live scanning demonstration at the event which was co-ordinated by the CAFRE IT team. Feedback from everyone in relation to the live scanning demonstration was very positive.

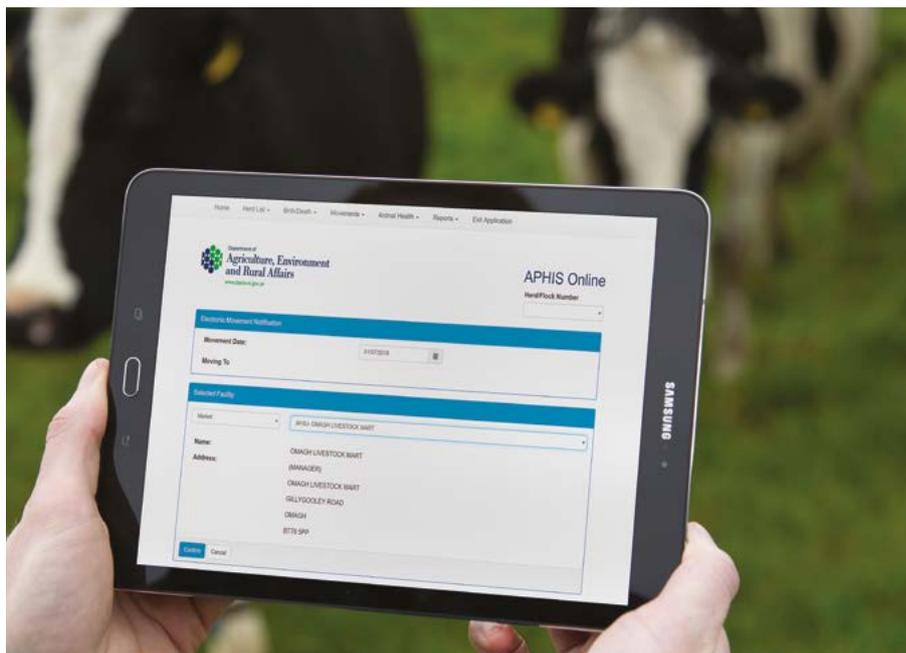
Recent events run by the Beef and Sheep Technology team, which include OPA awareness, management of the ewe post tupping and a beef finishing awareness event have been widely supported by industry.

Online Services for agriculture

APHIS Online- paperless cattle movement notifications

Due to a recent clarification in legislation, herd keepers who use APHIS online, do not need to print and complete a paper copy of the MC2 document. They now have the option to complete an online movement notification provided both keepers have access to APHIS Online.

Cattle farmers are aware that they must record the identity and movement of all their animals to comply with DAERA's Identification, Registration and Movement (IRM) legislation. Almost 370,000 (>70%) calves are being registered using APHIS online every year. Online herd keepers are benefiting from using the 24/7 service which helps them check for errors and



provides feedback to confirm when birth registrations have been successfully completed, all without the need to complete any paperwork.

Up until recently all cattle movements also required a

paper movement document (MC2), either printed from APHIS online or from the keepers MC2 document book.

Herd keepers who use APHIS online now have the option to complete an online movement

notification without printing a paper MC2 document. Herd keepers can use this option if they are moving animals from their holding to a holding which uses APHIS online to confirm the receipt of the animals. This includes markets and abattoirs, and other APHIS online herd keepers.

It should be noted however, if the animals are moving to a holding which is not registered to use APHIS online, a paper MC2 printed from APHIS Online will be required by the receiver of the animals to facilitate the paper buyer confirmation process using a buyer confirmation 'sticker'.

For more information about the online cattle movement

process, please contact your local DAERA Direct Office.

You can also access a wide range of short APHIS Online training videos via the APHIS Online support page at <https://www.daera-ni.gov.uk/aphis-online-support>

Topics include:

- Bovine birth notification
- Bovine death notification
- Notify an intention to move off your herd to an abattoir/market
- Update an intention to move document
- Buyer confirmation
- Request and view your Point In Time Herd List

- View post and ante mortem information
- View the Nitrates Stock Count report
- View the animal movement report.

Industry training

CAFRE offers a range of agricultural short courses with the aim of developing people in the land-based and rural sectors. These courses are suitable for farmers/growers, farm family members, people over 16 years old, and those working in or running agri-food and rural businesses.

Short courses normally range in duration from one to ten days. Most lead to validated qualifications or recognised Certificates of Competence.

The courses are delivered at Enniskillen, Greenmount or Loughry Campuses and where appropriate at other local centres.

Pesticide training

All professional users of pesticides must have a Certificate of Competence. CAFRE offers a range of City & Guilds approved pesticide/spraying courses.

Different types of pesticide application equipment need a different Certificate of Competence and all students are required to initially take and pass a PA1 theory module before they can complete the practical unit.



CAFRE instructor Marty McAleer demonstrating how to spray competently

Once the PA1 theory unit has successfully been completed students can add the following practical units as required:

- PA2A - Tractor boom sprayer
- PA2F - Weed-wiper
- PA3A - Orchard sprayer
- PA4S - Slug pellet applicator
- PA6A - Knapsack sprayer
- PA6AW - Knapsack sprayer in or near water

LANTRA courses

CAFRE offers a range of LANTRA approved short courses including:

- ATVs - Quads
- Rodenticides
- Telehandler
- Tractor Driving including courses for 13-15 year olds



Jack McNeilly, Toomebridge, completing the 13-15 year old tractor driving course at Greenmount Campus.

Beekeeping courses

Preliminary and Intermediate Beekeeping Courses are also organised by CAFRE and delivered by local Beekeeping Associations affiliated to the Ulster Beekeepers' Association (UBKA) at a range of venues around Northern Ireland.



A participant completing an assessment as part of a Telehandler training course.

Other courses

CAFRE offers training in the following additional topics

- AMTRA and becoming a Suitably Qualified Person (SQP)
- BASIS courses - Certificate in Crop Protection, Nominated Store Keepers Award and Fertiliser Advisers Training and Certification Scheme [FACTS];
- Safe use of sheep dips
- Integrated Pollution and Prevention Control (IPPC)
- Short journey - livestock transportation

All courses are delivered by experienced instructors who guide and assist participants through the training and assessment process.

Sustainable Land Management

Increasing concerns about ammonia emissions from NI farming.

There are major concerns about the impact that livestock farming has on air quality and in particular increased levels of ammonia and it has been established that 94% of ammonia in Northern Ireland (NI) comes from agriculture. Ammonia levels are also increasing by approximately 4% per year in recent years.

Increased levels of ammonia are a problem because:

- High levels of ammonia in the air leads to increased nitrogen deposition on sensitive designated sites and this leads to damage and loss of sensitive plant species and the growth of nitrogen



Low emission slurry spreading can significantly reduce ammonia emissions.

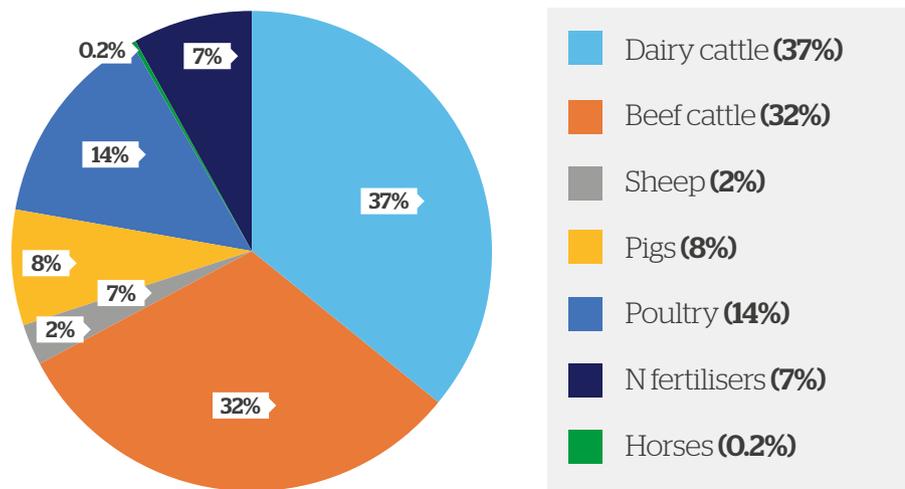
tolerant species such as nettles and grass.

- Ammonia can combine with other air pollutants to form fine particulate matter called PM2.5. These are fine particles with a diameter 2.5 microns or less which are 30 times smaller than the diameter of a human hair. Medical evidence associates some respiratory and

cardiovascular problems with exposure to PM2.5.

- The UK is legally required to meet targets for ammonia reduction under the UNECE Gothenburg Protocol and the National Emissions Ceiling Directive, which are an 8% reduction in ammonia emissions by 2020 from 2005 levels and 16% reduction by 2030.
- Good management of a farm business includes the efficient use of expensive inputs such as feed and fertiliser and it makes good business sense to ensure that nutrients such as nitrogen and phosphorus are effectively recycled to grow crops and grass and not lost to air and water.

Northern Ireland Ammonia Emissions by Species (2016)



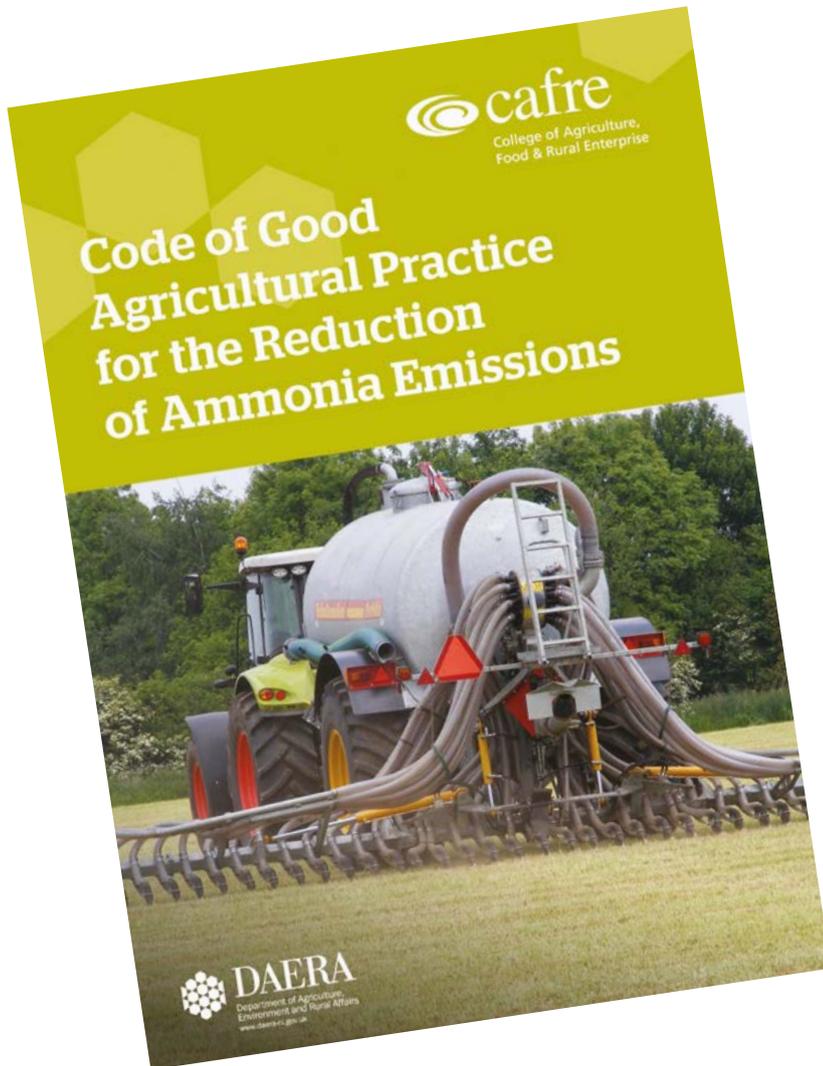
Ammonia is mainly a problem of livestock farming with a large proportion coming from the dairy and beef cattle sectors. It is also important to note that the majority of ammonia emissions are associated with livestock housing, manure storage and manure spreading.

A range of solutions have been identified to reduce ammonia emissions from agriculture these include:

1. Extend the grazing season
2. Use treated urea instead of straight urea

3. Apply slurry early in season and avoid warm windy days
4. Use low emission slurry spreading techniques
5. Keep yards clean of manures
6. Reduce crude protein levels in livestock diets
7. Genetic improvement of livestock for feed efficiency
8. Woodland creation around livestock areas
9. Cover slurry stores
10. Housing systems designed to reduce ammonia

All of these have been incorporated into CAFRE farms but the biggest reduction is achieved through low emission spreading techniques. All of these reduction measures



also are outlined in the Code of Good Agricultural Practice for Ammonia which was produced in collaboration with the farming industry. This Code provides helpful advice to farmers on how they can reduce ammonia in a way most suitable to their own farm and is available at www.daera-ni.gov.uk/publications/code-good-agricultural-practice-reduction-ammonia-emissions.

Ammonia emissions will undoubtedly be a major challenge for all livestock sectors in NI in the coming years. DAERA is engaging with Stakeholders, AFBI and researchers in other regions, to develop a policy to reduce ammonia emissions from NI agriculture.

New Nutrients Action Programme 2019-2022

The aim of the Nutrients Action Programme is to improve the use of nutrients on farms, and as a result improve water quality throughout Northern Ireland.

In particular it promotes better management of animal manures, chemical fertilisers and other nutrient containing materials spread onto land.

The Nutrients Action Programme 2019-2022 replaces the previous Nitrates Action Programme and Phosphorus Regulations, which have been in place since 2007. It incorporates both nitrates (N) and phosphates regulations within one action programme, the new measures are summarised in Table 1.

Table 1: New measures within the Nitrates Action Programme

Water protection

Increased buffer zones and reduced maximum slurry application rates for slurry spreading from 1st to 15th October and during the month of February.

New rules on siting of supplementary feeding sites and livestock drinking points where there could be a significant risk of pollution occurring.

Phosphorus reduction and efficiency

Chemical phosphorus fertiliser regulations will be included in Cross Compliance.

All grassland farms using chemical phosphorus (P) fertiliser, P rich manure and imported anaerobic digestate will require a soil analysis and fertiliser plan.

New maximum phosphate fertiliser application limits for extensively managed grassland.

Table 1. (continued)

Nitrogen efficiency
Phased introduction of the mandatory use of low emission slurry spreading equipment (LESSE) for larger farms, slurry spreading contractors and the spreading of digestate from AD plants.
Revisions to the N excretion rates for cattle and poultry.
Slurry and manure storage
New above ground slurry stores and lagoons constructed after 1st January 2020 must be covered and sited at least 50 m from any water way.
Controls on anaerobic digestate
Anaerobic digestate must be spread using low-emission slurry spreading equipment.
Farms applying digestate as fertiliser will require a:
<ul style="list-style-type: none">• nutrient content analysis• soil analysis and fertiliser plan.
New rules for anaerobic digestate fibre storage.

The new Nutrients Action Programme 2019-2022 Guidance Booklet and Workbooks are available both in hard copy and online.

Farmers can use the online CAFRE Nutrient Calculators available at:

[www.daera-ni.gov.uk/online services](http://www.daera-ni.gov.uk/online-services) to check how the changes will affect their farm businesses.

CAFRE will also be delivering a series of workshops to promote the revised Nutrient Action Programme, explain the revisions and help farmers to comply with the new regulations.

The Branch will also focus on the delivery of the key strategic outcomes of the DAERA



Knowledge and Technology Transfer Operational Policy Branch

Knowledge and Technology Transfer Operational Policy Branch, was formed in 2018. The aim of the Branch is to assist in the development of new policies providing the framework to allow the agri-food industry achieve key objectives in a new era post Brexit.

Knowledge Framework and the Future Agricultural Policy Framework.

As the Northern Ireland agri-food industry is entering a period of significant change it is important to establish the key policy instruments that can be used to secure a sustainable future for the sector.

Key outcomes of the Knowledge Framework include:

- i. By 2025, anyone taking over as head of a commercial farm or horticulture business should have at least a relevant Level 3 qualification;



ii. By 2025, working with other providers, all new manager level appointees in the food processing sector should have at least a Level 5 qualification in a relevant discipline;

iii. There is a general increase in educational attainment and uptake of lifelong learning opportunities for target groups.

The branch is headed up by Ian McCluggage who oversees the work of:

Fiona Ferguson - Senior Technical Policy Adviser (Food)

Caroline Mathers - Senior Technical Policy Adviser (Horticulture)

Norman Weatherup - Senior Technical Policy Adviser (Agriculture)

Claire Convery - Senior Policy Adviser

Work is currently ongoing in the following key areas:

- The development and implementation of an educational model which enables those entering (and those already employed in) the agri-food industry to achieve their maximum potential within an accessible and clearly defined educational pathway.
- The development and implementation of a Continuous Professional Development (CPD) model that will increase uptake of CPD across the agri-food sectors.

- The development and implementation of sector specific innovation and technology transfer models for the Agriculture, Food and Horticulture sectors.
- Identify the issues and barriers to generational renewal and seek to develop policy measures for the successful transition of farming and food businesses.
- The development of a Business Sustainability Programme addressing the three key areas of economic, environmental and social sustainability.

**For more
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