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EU Sustainable **Dairy**

Energy Efficiencies and Innovations

Northern Ireland 2021

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Foreword

This year I again had the pleasure of addressing the fourth Northern Ireland Sustainability Symposium organised by the Dairy Council Northern Ireland. At the outset I would like to recognise the valuable role the Dairy Council Northern Ireland plays in educating people about the dairy products they consume and the important achievements and positive progress made by the NI dairy sector in meeting evolving environmental challenges.

The dairy sector is one of the most important agricultural industries in Northern Ireland, however, it still faces a number of important challenges, including global trading markets and limitations to factors of production such as land and labour. Our whole agri-food sector is vitally important, not just to the farming community, but to everyone in Northern Ireland. As DAERA Minister, it is my focus to ensure that we have a sustainable agri-food sector; which will contribute to a clean, healthy environment that benefits people, nature and the economy.

Having left the EU, Northern Ireland now has a unique opportunity to redefine its agricultural policies and support schemes for the first time in almost 50 years. In August I published the Future Agricultural Policy Framework Portfolio for Northern Ireland, setting out my vision for the future direction of farming support. In that I stated that business as usual for many farms will not be an option.

The objective of my new agricultural support regime is to enable farmers to become more efficient, recognising the need to meet current and future demand for agricultural products, while maintaining and improving the natural environment on individual farms and at landscape level, for the benefit of all.

The actions of many generations of farmers and growers have shaped our natural environment and the biodiversity that it supports. The health of this environment that is passed to future generations will be critically influenced by the choices that we make now. We have already seen the positive work that the agri-industry are doing, many have already invested in green technology and embraced environmentally-friendly farming practices, however more needs to be done.

Moving forward, the focus of future agricultural policy is primarily upon the factors that fall within the control of individual producers, where substantial gains can be achieved, rather than external influences over which no control can be exerted. As we build out that future portfolio, I want to ensure that farmers are supported and equipped with the right tools to continue producing high quality, nutritious food whilst importantly, also reducing their environmental impact. My ambition is for Northern Ireland to be a world-class food region, recognised for its sustainability, quality, safety, authenticity and knowledge based approach.

By working together, we can transform our food system, including the dairy sector, into one that protects natural resources for future generations, is economically and environmentally sustainable and provides safe, nourishing, accessible food to people, who make informed healthy choices.

The next decade must be one of urgent action, there is still time to make a difference, but we must act now and we must do it together.

Minister Edwin Poots MLA
Agriculture, Environment, and Rural Affairs

Introduction

Following on from the previous three-year programme to promote the sustainability practices within the dairy sector, our 2021 EU Sustainability Fact Book encapsulates the activities of the first year of our new three-year programme and builds on the success of the previous publications.

Previously we have focussed on innovations being developed and deployed across Northern Ireland to improve productivity on dairy farms and reduce their impact on the environment, together with a statistical evidence base from AFBI, CAFRE and DAERA. This year's publication focuses on ways in which Northern Ireland dairy processing businesses are investing to continue to improve efficiency and their sustainability credentials, including reductions in their reliance on fossil fuels.

We also outline how reducing waste throughout the entire dairy supply chain, and repurposing suitable waste as a feedstock for anaerobic digestion, is helping decarbonise the dairy sector further, with the energy output making a positive contribution to other sectors through the provision of sustainable heat, power and transport fuel. The AD chapter provides examples of three AD plants within the dairy supply chain - on a farm, at a dairy processing site and at a third party service provider - and outlines the role it is playing in decarbonising the dairy sector, with the future potential to decarbonise the Northern Ireland gas network.

The Northern Ireland dairy supply chain is playing its part in operating a circular economy model and ensuring that it minimises waste and makes the best use of the resources available. Other products from the AD process such as organic fertiliser and CO_2 can be sold on as sustainable products – helping to create other commercial opportunities in rural communities.

With significant attention focussed on the future energy strategy for Northern Ireland, we thought it important to show the role that the dairy supply chain is playing in producing sustainable products and renewable energy to decarbonise both the dairy supply chain and other sectors throughout Northern Ireland.

Whilst all of the investments and actions within the dairy supply have been effective in reducing emissions, it is essential that we continue our journey towards the ultimate goal of net zero, and, therefore, we need to continue to be mindful of the UN's four pillars of sustainability - climate, nutrition, economy and culture. Without sustainable local dairy farm enterprises, we cannot achieve the ambition of a sustainable future.

Nutrition is a vital component of a sustainable diet, and Northern Ireland dairy products form a valuable part of a sustainable diet in the local and export markets. In Northern Ireland, they are the main providers of calcium, and dairy also supplies significant amounts of many other nutrients. The nutrients we receive from dairy products are hard to replace and this should always be taken into account when planning a healthy, sustainable diet. There is already concern that some in Northern Ireland are missing out on vital nutrients and this is particularly true for teenage girls, as discussed in the final chapter on nutrition.

Our local climate and topography mean Northern Ireland is really well suited to producing high quality, nutritious dairy products from forage. DAERA research shows the sector has already made great progress in improving efficiencies to reduce the carbon intensity of a litre (excluding sequestration) of milk by almost 36% since 1990. During that same period the dairy sector has increased production by an impressive 81%, making the dairy sector a shining light in the Northern Ireland economy[1].

[1] *https://www.daera-ni.gov.uk/news/carbon-intensity-indicators-published-1*

This fact book has been produced in conjunction with the European Milk Forum (EMF) and with financial assistance from the European Union. The EMF 'Sustainable Dairy' initiative is co-ordinating a new and informed dialogue with key stakeholders on the environmental actions being taken in five European countries. We are grateful to the EMF and EU for their support as we highlight the positive contribution that the dairy sector is making towards the environmental sustainability agenda in Northern Ireland.

Mike Johnston

Dr Mike Johnston MBE, PhD
Chief Executive

Energy **efficiency** in **processing**

Dairy processors

Case study 1: **Glanbia Cheese** – Magheralin

Glanbia Cheese is the leading mozzarella manufacturer in Europe, providing custom cheese making solutions to companies in over 30 countries around the world. Glanbia Cheese has two state-of-the art mozzarella manufacturing facilities: one in Llangefni, North West Wales and one in Magheralin, Northern Ireland.

The Magheralin site employs 180 people and has been producing mozzarella cheese, primarily for the pizza industry, for almost 40 years. Milk is sourced from local farmers within the surrounding counties, producing approximately 50,000 tonnes of cheese annually for the local and European markets.

One of the main objectives at Glanbia Cheese is to manufacture cheese in a manner that reduces environmental impact, particularly in the areas of energy, water and waste. It is continually making upgrades and improvements to make processes more efficient in order to reduce carbon generation.

Incremental investment

In the past 10 years Glanbia has invested £12.5 million on 10 projects that have improved sustainability and efficiency measures at the Magheralin site.

Over the last 5 years milk processing on site has increased, while total electricity and gas usage has decreased with an efficiency improvement of 30%.

In 2008, the site upgraded its boiler and heating systems to natural gas to reduce carbon to air emissions, keeping heavy oil as a backup fuel in the event of an emergency, and in 2018 the decision was taken to remove all heavy fuel combustion sources from site.

Investment has been made in a new boiler, which is in the process of being installed on the site, this will initially be fired using natural gas but has the capability to be fuelled with biogas or hydrogen for future carbon reduction plans in moving towards a net zero future.

In 2020, Glanbia launched Project Milestone, a five year multi-million-pound project to install state of the art equipment to ensure that cheese is manufactured in the most efficient manner.

The Boiler Hot-well Tank is a fully insulated heat recovery vessel which enables the recovery and collection of condensate from around the site's processing equipment. This heat recovery system, in turn, reduces the amount of energy required onsite to produce steam.

New whey membrane plant technology has also changed the manner in which this by-product of cheese is processed, with the technology being more energy efficient than previous methods used on site, which greatly reduces energy use and emissions.

Glanbia Cheese seeks to utilise new technology and software that improves efficiency and control, with its technical department in the United States continuously developing technology with this in mind.

Support for Farmers

A dedicated Farm Liaison manager advises suppliers on sustainable farming practices and all Glanbia Cheese farmers are accredited to Red Tractor Standards. This ensures milk has been produced in accordance with the highest animal care standards whilst reducing the farm's environmental impact. All Glanbia Cheese milk comes directly from farm to factory reducing the requirement for secondary haulage.

Case study 2: Dale Farm

Dale Farm is a dairy co-operative based in Northern Ireland, owned and supplied by 1,300 local farmers both in Northern Ireland and Great Britain and employing 1,200 staff across the Group.

At Dale Farm there is a focus on environmental compliance and reducing the environmental impact of the business. In relation to sustainability, the business is particularly focussed on addressing:

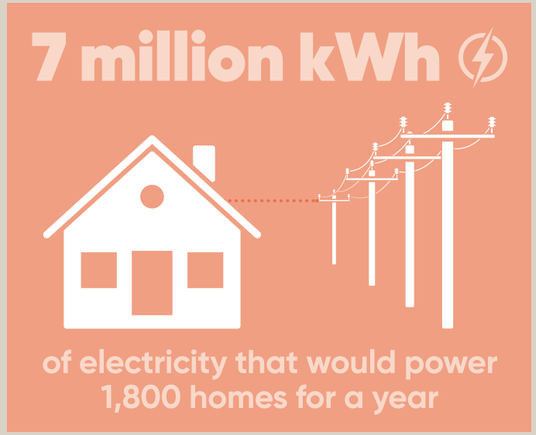
- water management
- energy conservation
- waste management

Achievements since 2017:

- 30% reduction in kWh per tonne of product produced in group
- 40% reduction in water consumption per tonne of product produced in group
- 25% reduction in CO_2 emissions per tonne of product produced in group

Dunmanbridge Solar Farm

The flagship Dale Farm sustainability project is the solar farm installation at the Dunmanbridge site near Cookstown. Completed in 2017, it's one of the largest solar farms of its kind in the industry in Europe. The 37-acre solar farm has 15,000 solar panels connected directly to the site and is also connected to the local electricity network to facilitate exporting excess generation to the main electricity grid in Northern Ireland. It supplies 25% of annual site demand, and over the past year it has supplied 7 million kWh of electricity that would power 1,800 homes for a year. During the summer months in particular, there are periods when the site is running off grid completely. The project was recognised at the Sustainable Ireland Awards in 2018 and was awarded the winner of the 'Best Use of Renewable Energy Sources'.



Energy Efficiency Innovations

Boiler Optimisation: To ensure the most efficient technology is in place, the boilers were replaced in all sites across the Group and the boiler hot-well tanks were updated to minimise energy loss and optimise condensate recovery, which overlaps with water efficiency and reduction in waste. The installation of reverse osmosis treatment of the boiler feed water has led to reductions in chemical use and frequency of boiler blow down.

Gas conversion: In 2019, all sites converted from heavy fuel oil to gas which led to significant improvements in relation to air quality, and, as a consequence, carbon dioxide emissions have been reduced by 2,500 tonnes. In addition to environmental improvements, there have been cost savings due to using cleaner and more efficient and cheaper energy sources.

Other energy efficiency measures:

- In 2020 all light fittings were replaced with low wattage LED which has led to a 50% reduction in electricity use across all sites
- An Economiser was installed on gas boilers which has resulted in a 5% efficiency improvement over the past 3 years
- Replacement of fixed speed air compressors with fixed and variable speed high efficiency units
- Installation of roof mounted solar panels at 3 sites generating 200,000 kWh of electricity.

Waste to Energy

At the Dunmanbridge site, lactose permeate, a by-product from whey processing, is used to feed over 20 local AD plants, generating clean renewable energy. Over 20,000 tonnes of solids per annum are supplied to these plants all year round. Going forward, Dale Farm intends to use this bio-gas to create a closed loop system to recover and reuse some of the energy that these plants are generating, in processing facilities and in their transport fleet.

Processes

Water Management

Water is essential throughout the entire processing system, for example for cleaning equipment, and a number of initiatives have been introduced over the past four years to reduce overall consumption:

- Installation of additional boreholes at processing facilities and water treatment plants with the aim of reducing the amount of mains water usage
- Move from water to air purging in some applications
- Redesign of water systems to recover and reuse.

These measures have led to a 40% reduction in water usage across the Group's manufacturing facilities.

Waste

Significant reductions in packaging have been made through the LEAN programme, which has led to a 79% reduction in packaging waste on the Block Cheese line and a 70% reduction in product waste in the Sliced Cheese line. The LEAN programme has focussed on reducing the thickness of packaging, reducing the packaging around the product, and reducing waste through line reorganisation.

Type	Product Waste	Packaging Waste
Block Cheese	33%	79%
Sliced Cheese	70%	70%

Future targets:

Whilst all these achievements are commendable there is still more work to be done. Dale Farm has set itself the following targets to work towards:

- **20% reduction in carbon footprint of Dale Farm products**
- **15% decrease in energy consumption**
- **15% increase in the use of renewable energy**
- **20% reduction in water consumption from process operations**

Energy **efficiency** in **processing**

Case study 3: Lakeland Dairies

Lakeland Dairies is a farmer owned co-operative dairy processing company of 3,200 dairy farmers, from 19 catchment areas across the top half of the Island of Ireland. The Group processes 1.8 billion litres of quality milk annually into a range of value added dairy foodservice products and functional dairy food ingredients.

"Sustainability and the preservation of our environment are a priority for our business, and we know that our stewardship of the natural world is central to this aim."

Michael Hanley, CEO Lakeland Dairies

There are five key pillars of the Lakeland factory sustainability model, guided by the principles of "making more from less", reducing Carbon emissions, and aiming to be a Carbon Neutral company by 2050 or earlier:

- Manufacturing efficiency: improving water, sterile and quality air, and energy
- Packaging: reduce, recycle, reuse and ensuring a percentage of recycled materials in all packaging
- Transport and distribution
- Customer collaboration
- Responsible sourcing: ensuring all raw materials are procured ethically

Energy **efficiency** in **processing**

All manufacturing plants operate Environmental Management Systems to ISO 14001:2015 certification, and Lakeland is a signatory to the UK Plastics Pact, which is about reducing the amount of plastic used in packaging.

Projects at Lakeland

At its Automated Global Logistics Centre in Newtownards there is an automated process from end of the production line, through the warehouse, until the product goes on to the truck. Between sites the Global Logistics Centre is where deliveries are consolidated, and efficiencies are maximised across the supply chain.

Waste

Efforts have been made in reducing food waste right through the process, and when waste is found, it is then used in a biodigester to generate renewable energy.

Lakeland Dairies' sites are zero waste to landfill facilities, and this has been the case since 2015. There has been significant investment in facilities to allow packaging to be sorted and segregated so it can be utilised to avoid sending to landfill.

There are initiatives to reduce packaging and increase recycled content in packaging as well as making sure Forestry Standards Commission Certification is available on all paper and cardboard packaging.

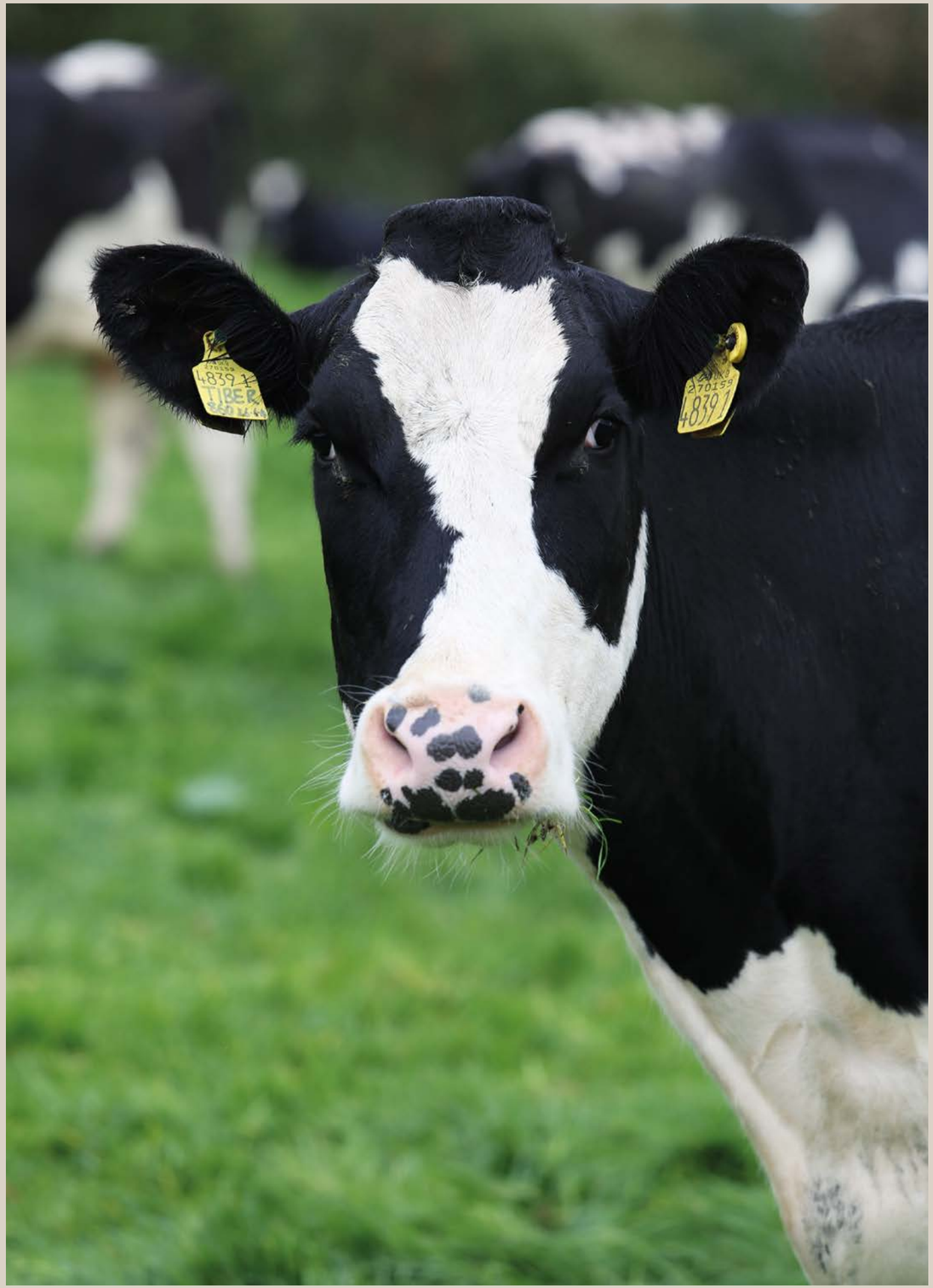
As a signatory to the All-Ireland Pollinator Plan, land at Lakeland facilities is managed to promote biodiversity, this includes undertaking wildflower planting projects.

Distribution - Optimisation

Sustainability is a key consideration right through the distribution process: for example, there is new automated warehousing, designed with efficiency in mind. Sea freight is utilised rather than air, with all shipping routes optimised, and road haulage trips mapped and optimised. Deliveries are consolidated within and between sites and container fill is measured and maximised. There are plans to use biogas lorries and the company is currently investigating alternative fuels.

Energy

In the area of energy efficiency, processing sites have moved away from heavy fuel oil to natural gas and on each site CHP Units are used to generate electricity and harness any waste heat. Lakeland Dairies utilises biogas from Anaerobic Digestion, and a case study is included in the following chapter on Anaerobic Digestion.



Anaerobic digestion

Reducing **waste** from the **dairy** supply **chain**

Reducing waste from the **dairy supply** chain

As Northern Ireland considers how it can contribute to global, national, and local climate targets the Northern Ireland dairy sector is already using Anaerobic Digestion to remove unnecessary waste in all stages of the dairy supply chain and transition away from a reliance on fossil fuels.

The Utility Regulator for Northern Ireland is currently developing a regulatory framework for renewable gases to be injected into the existing natural gas network. Introducing natural gas into homes and businesses will have an instantaneous carbon saving and the relatively fixed operational costs could mean more certainty for consumers.

What is Anaerobic Digestion?

Anaerobic digestion is the process by which fuel rich organic matter such as dairy processing waste, consumer leftovers, energy crops and manure is broken down to produce biogas and organic fertiliser.

This process happens in the absence of oxygen in a sealed, oxygen-free tank called an anaerobic digester.

The biogas can then be used to generate renewable electricity and heat or the gas can be cleaned and turned into biomethane which is a lower carbon alternative to natural gas and can be used in commercial and domestic settings for heat, hot water and cooking appliances, or used to fuel gas-powered vehicles.

The renewable gas from Anaerobic Digestion is also being used to fuel compressed natural gas (CNG) vehicles, including HGVs, aiding the transition away from diesel engines.

Northern Ireland will soon be able to accept biomethane injection into the local natural gas network allowing homes and businesses to use a renewable, lower carbon gas alternative and it can also reduce emissions for transport by up to 81%[1].

According to the Anaerobic Digestion and Bioresources Association (ADBA) Northern Ireland currently has 77 operational anaerobic digestion plants, 75 of which are powering combined heat and power (CHP) engines to produce electricity and harvest the heat from the generation process. Two further plants upgrade the biogas to biomethane.

The current anaerobic digestors have enough capacity (135 megawatts) to power 110,000 homes and heat a further 40,000. The anaerobic digestion process also produces 1.2m tonnes of digestate which is enough to fertilise 44,000ha of land – the equivalent of 4% of all agricultural land in Northern Ireland.

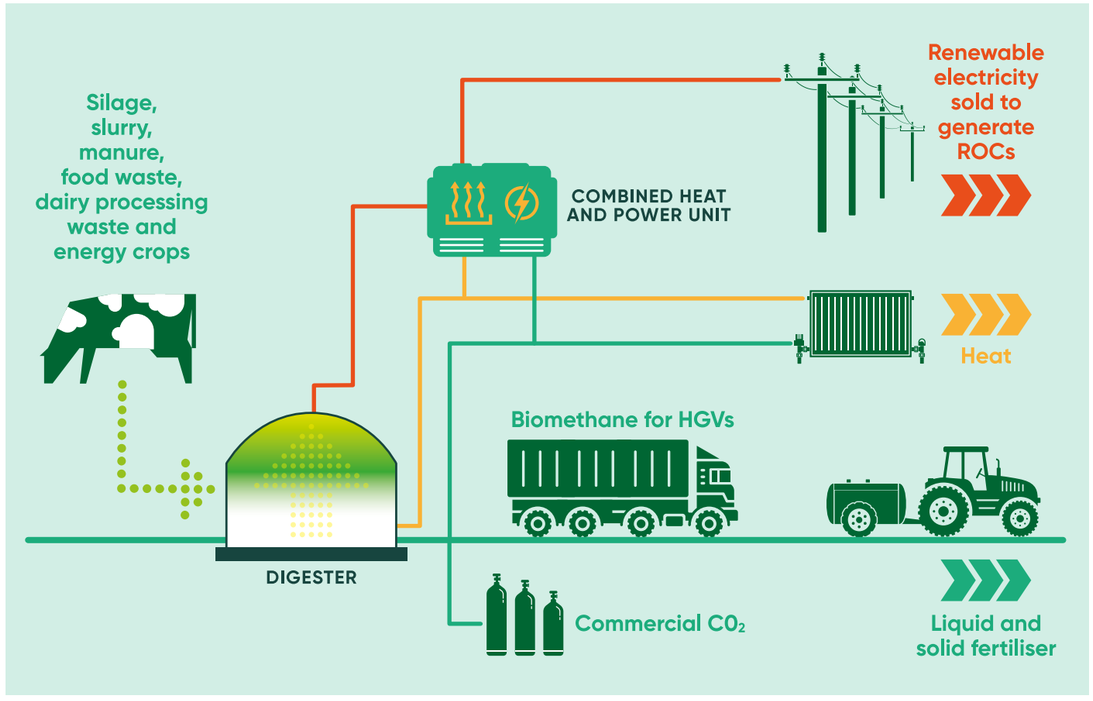


Figure 1. Simplified anaerobic digestion plant schematic

[1] *Biomethane: the pathway to 2030, Anaerobic Digestion and Bioresources Association (ADBA), 2020.*

Anaerobic digestion

On Farm Anaerobic Digestion

Alastair Taylor farms with his wife and parents in Finvoy just outside Ballymoney. They have a 250 cow dairy herd and also raise poultry.

For the past seven years they have been running an on farm 150kW anaerobic digestor which provides 100% of the farm's heat and electricity needs with 70% of the electricity from the combined heat and power plant exported onto the electricity grid as a renewable source of electricity.

The digestor is fed a range of on-farm waste such as poultry litter and waste silage. Slurry is also pumped automatically from the tanks below the cow sheds.

The Taylors soil sample all their fields on a regular basis. Separating the resulting digestate into liquid and solid portions allows them to target the fields which need more phosphorous with the solid portion and the liquid fertiliser can be applied to areas in need of more nitrogen.

Soil sampling, locally produced fertiliser and low emissions spreading by trailing shoe helps reduce the need to import manufactured fertiliser, helps reduce on-farm waste and ensures vital nutrients are reintroduced into the soil in a targeted and informed way.

Co-location of the CHP plant on the farm allows the renewable heat generated by the combustion process to be used to heat the poultry sheds and maintain the heat in the AD system. This means the farm is carbon negative and the AD process saves the environment 780 tonnes of carbon per annum.

Lakeland Dairies

Lakeland Dairies has also been investing in on-site anaerobic digestion to harvest energy from its dairy processing business at Ballyrashane near Coleraine. Repurposing the dairy processing waste has made a significant contribution to removing waste from its supply chain, and has made a significant contribution to displacing fossil fuels, as well as providing renewable electricity for its production processes.

They also use the electricity generated on site to recharge customers' electrically refrigerated trailers, helping to decarbonise the supply chain further.

Similar to the Taylor farm, the nutrient rich digestate which is produced as part of the AD process is applied as an organic fertiliser on neighbouring fields using a trailing shoe.

The AD process offsets 40% of the factory's electricity requirements which would otherwise have come from fossil fuels. Any additional electricity requirements are met by buying certified renewable electricity from the grid.

Granville Eco Park

Dungannon-based Granville Eco Park owns and operates the largest anaerobic digestion plant in Northern Ireland which can treat up to 90,000 tonnes of waste material per annum, which it accepts from hospitality businesses, agriculture and food processing businesses (including dairy) and uses to generate renewable biogas.

Digestate is also applied on local farms as an organic fertiliser – further reducing the need for manufactured fertiliser.

Granville Eco Park is one of two AD sites in Northern Ireland that remove the carbon dioxide from the biogas to create biomethane which is then sold back to commercial customers as a cleaner alternative to fossil fuels.

Until biomethane can be introduced into the local natural gas network, the compressed biomethane has to be transported by road. Granville also runs its own zero emissions CNG lorries to transport the biomethane on a 'virtual pipeline' and has installed a refuelling station on site which provides a sustainable transport solution for retail, haulage and logistics customers. This is becoming an increasingly attractive option for haulage companies travelling throughout Europe and for local retailers wanting to transition away from diesel HGVs.

Using biomethane to fuel HGVs can reduce well-to-wheel (WtW) emissions by up to 81%, compared to diesel[2].

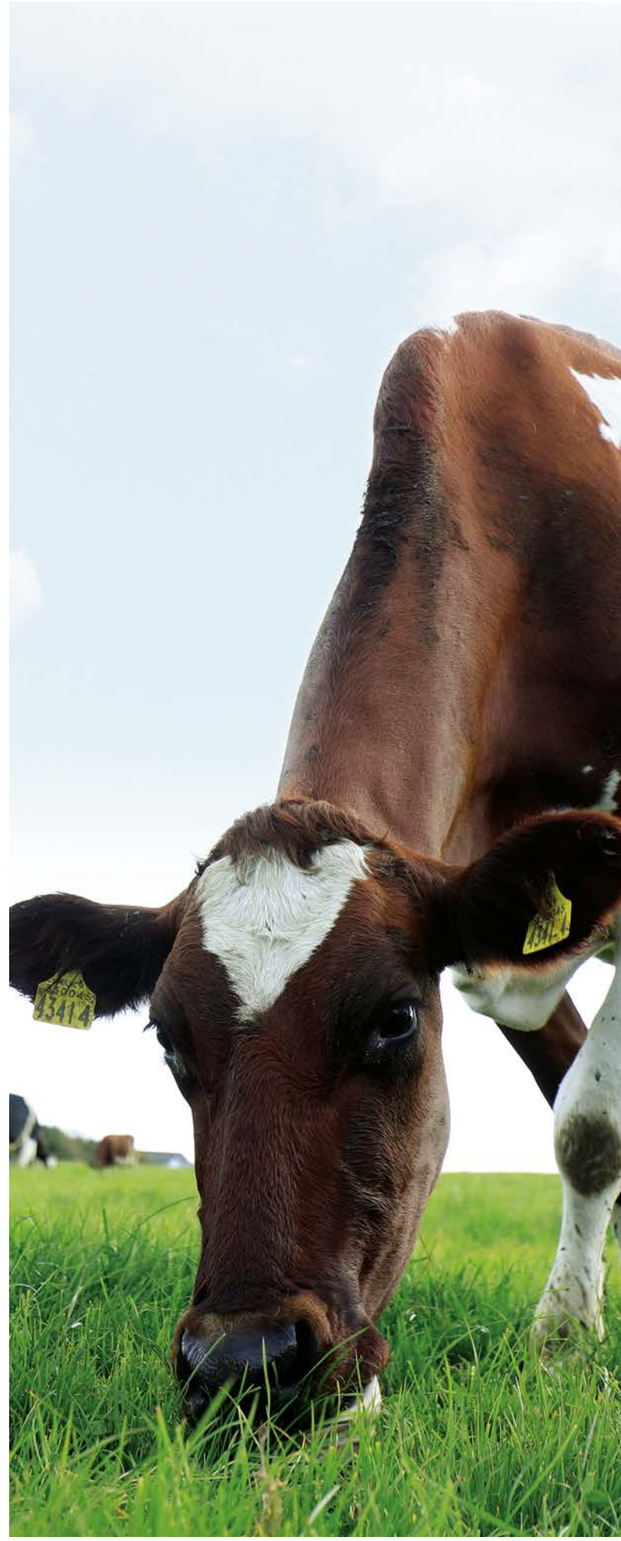
The AD Waste Reduction Cycle

Granville's smart loop model can be used to help illustrate the circular nature of anaerobic digestion in reducing waste and replacing fossil fuels in the dairy supply chain. Lakeland dairies moves organic waste off site from its plant at Newtownards for anaerobic digestion with biomethane coming back to the plant to supply up to 40% of the onsite energy needs by using on site power generators to produce renewable electricity. In addition, Lakeland Dairies' Newtownards site is connected to the Greater Belfast natural gas network, so it will be able to accept piped renewable biomethane when it is available in this way in the future.

Anaerobic digestion

Conclusion

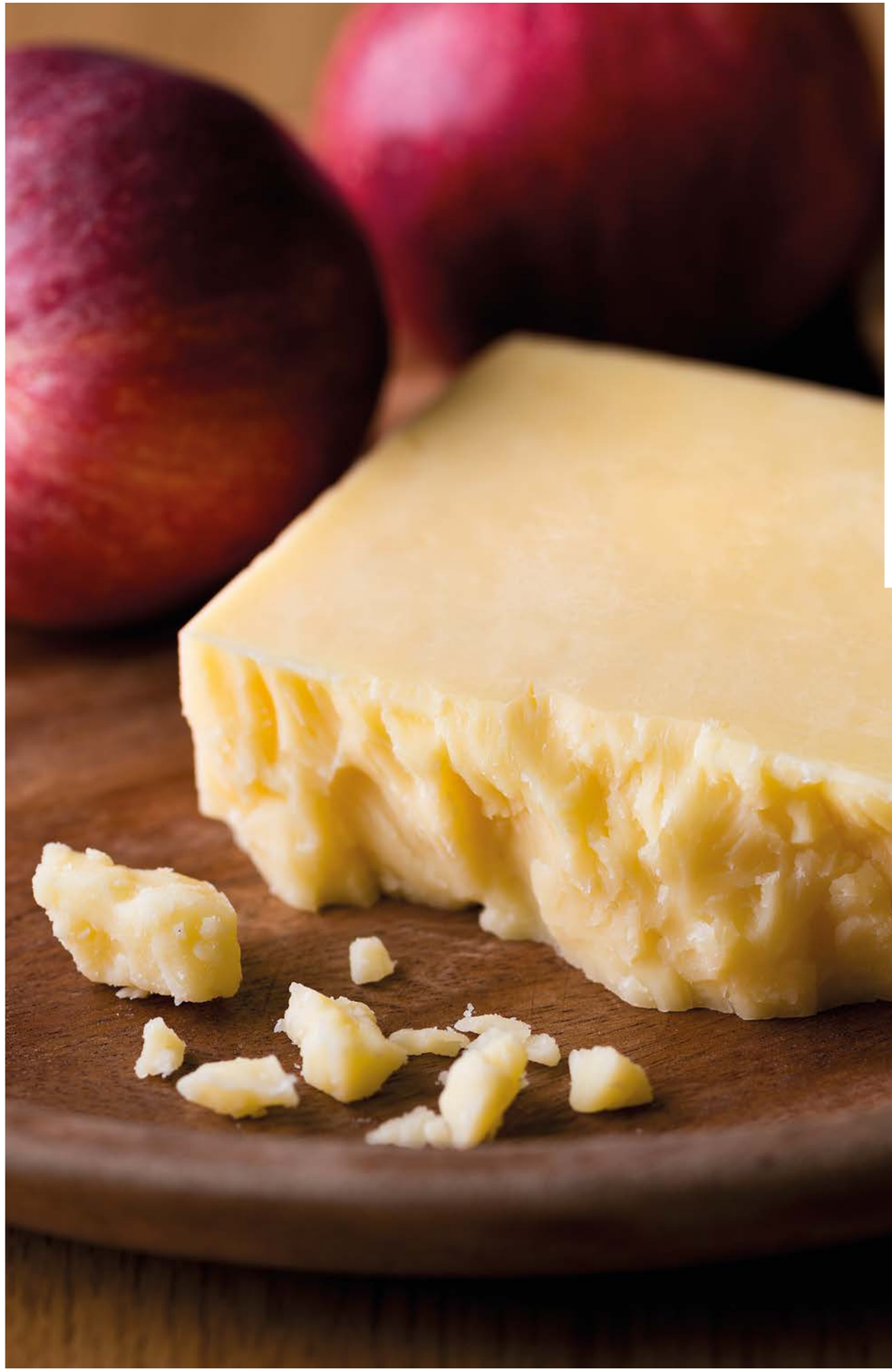
As outlined above, anaerobic digestion has been utilised effectively by the local dairy sector, to improve its environmental footprint by repurposing waste and producing sustainable heat, power, fuel, and fertiliser. Connecting more homes and businesses to the network, fuelling CNG vehicles with biomethane, and allowing biomethane injection into the gas network have the potential to bring carbon savings across Northern Ireland and not just for the dairy sector alone.



[2] *Biomethane: the pathway to 2030, Anaerobic Digestion and Bioresources Association (ADBA), 2020.*

Nutrition

In a **healthy**, **sustainable** diet the **nutritional benefits** of **dairy foods** are **hard** to **replace**



Dairy as Part of a Sustainable Diet

The United Nations has defined the four pillars that make up a sustainable diet as: Health, Economics, Society and Environment with all four playing their part in ensuring the diet is nutritious, affordable, environmentally sustainable, and culturally appropriate.

As Northern Ireland moves towards a carbon neutral society to meet future climate change commitments, consumers are becoming more aware of the impact their purchasing decisions are having on the environment. Environment is only one of the dimensions to look at when trying to achieve a sustainable diet. The nutritional benefits of dairy products are hard to replicate through other food groups and removing them can lead to more expensive diets and poorer nutrient intake.

Dairy's Contribution to the Nutritional Quality of Northern Ireland Diets

Milk and dairy foods make an important contribution to the nutritional quality of the diet in Northern Ireland. They are the main providers of calcium, and dairy also supplies significant amounts of many other nutrients. As illustrated in table 1, the dairy food group is the largest contributor to intakes of calcium, iodine, vitamin B2 and vitamin B12, supplying around a third for adults and even more in children and teenagers. For example, around 55% of iodine intake for children aged 4-10 comes from dairy foods; 44% in 11 to 18 year-olds.

Table 1. Contribution (%) of dairy foods to nutrient intakes in NI[3]

Nutrients	4-10 years	11-18 years	19-64 years	65 years +
Protein	21	15	13	16
Calcium	45	37	37	43
Potassium	22	15	12	14
Iodine	55	44	35	39
Zinc	23	16	15	17
Vitamin A	24	18	17	15
Vitamin B2	43	32	29	36
Vitamin B12	54	40	35	-

The Risk of Missing Nutrients

Some of these nutrients cannot be easily replaced, and, worryingly, some are already in short supply – for example, a fifth of teenage girls don't get enough calcium and vitamin B2, and over a quarter have very low intakes of iodine.

Calcium is particularly important during the teenage years as bones grow rapidly in length and strength. It is estimated that almost 90% of a person's bone strength will have been achieved by the age of 18. Shortages of iodine in young women's diets are also a concern as iodine has several important roles in the body, including contributing to the production and function of thyroid hormones, which in turn are involved in normal growth and metabolism.

[3] *National Diet and Nutrition Survey. Results from Years 5-9 (combined) of the Rolling Programme (2012/13-2016/17): Northern Ireland.*

> *"...almost 90% of a person's bone strength will have been achieved by the age of 18."*

Table 2. Inadequate nutrition intakes for female consumers in Northern Ireland[4]

	% Inadequate nutrient intakes*	
	Girls 11 to 18 years	Women 19 to 64 years
Calcium	19	9
Iodine	29	14
Riboflavin (vitamin B2)	19	13

A new survey commissioned by the European Milk Forum (EMF) found more than half of respondents (52.5%) believe their health and wellbeing would be negatively affected if dairy products were suddenly no longer available.

It was also found that 63% of Northern Ireland consumers believe the dairy sector can help feed the world in a sustainable way and over half (56%) believe the sector plays an important role in creating a more sustainable future. This sustainability is evident in the local dairy sector which has reduced the carbon intensity of producing a litre of milk by over a third since 1990 and the sector is continuing to work to improve its environmental credentials further through efficiencies, applied research and adopting new technology at both the farm and processing stages.

[4] *National Diet and Nutrition Survey. Results from Years 5-9 (combined) of the Rolling Programme (2012/13-2016/17): Northern Ireland.*

"Dairy products such as milk, yogurt and cheese are rich in nutrients and make an important contribution to a healthy sustainable diet. A fine balance needs to be struck when tailoring a low carbon, environmentally friendly diet – we can't lose sight of the need for a diet which provides the necessary nutrients when considering sustainability. Dairy has an important role to play in a sustainable diet that is healthy, acceptable and affordable."

Dr Carole Lowis
Dairy Council NI Nutritionist

The survey also found that while many NI consumers place importance on the environmental credentials of their food, quality and taste are of higher importance. When respondents were asked what the most important factors are when purchasing food, 64% answered taste and only 22% said carbon footprint.

Table 3. Contribution of milk to nutrient requirements (%)

	A glass of semi-skimmed milk (200ml)		
	Man	Woman	7-10 year-old
Protein	13	16	25
Vitamin A	10	10	12
Thiamin	6	7	9
Riboflavin	38	44	48
Niacin	8	11	12
Folate	9	9	12
Vitamin B6	9	10	12
Vitamin B12	100+	100+	100+
Vitamin C	10	10	13
Calcium	34	34	45
Magnesium	7	8	11
Potassium	9	9	16
Phosphorus	34	34	42
Zinc	8	11	11
Iodine	44	44	56