



IDF DAIRY SUSTAINABILITY OUTLOOK

Research progress | Global insights | Expert opinion





PREFACE

MESSAGE FROM THE IDF DIRECTOR GENERAL

Sustainable development is a collective effort that depends on collaboration between governments, international organizations, and the private sectors, along with individuals. The International Dairy Federation (IDF) recognizes the challenges and opportunities and is committed to contributing relevant scientific information and good practice to the discussion. The contribution of milk and dairy products to production, processing, and consumption with the aim of achieving nutrition and socio-economic improvement goals is widely recognized.

The dairy sector has been acknowledged for its leading role in sustainable practices for several years. Finding new ways to reduce impact on environment, manage resources efficiently and increase benefits to biodiversity and bioeconomy is a crucial part of the commitment of the dairy sector for continuous improvement. This third edition of The IDF Dairy Sustainability Outlook aims to provide a viewpoint from our global experts on sustainable development within the dairy sector. It offers an opportunity for those involved in the field to share ongoing activities and new measures taking place to ensure sustainable dairy through agriculture, quality education and improved milk quality, involving their contributions to SDGs.

We would like to thank the authors, whose written contributions have helped to add value to this report through their insights and analysis.

Caroline Emond
IDF Director General

MESSAGE FROM THE SCIENTIFIC EDITORS

Dear Reader,

We are pleased to present the third edition of IDF Dairy Sustainability Outlook. In this issue, we present a wide range of national initiatives for sustainable dairying related to the development of rural areas through dairying, several successful international cooperation initiatives, climate commitment achievements as well as the support of the sector in times of COVID-19.

We wish all of you an interesting and informative read.

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NEWS FROM IDF MEMBER COUNTRIES

Australia: Creating a vibrant dairy industry that looks after its people, communities, and investors

THE AUSTRALIAN DAIRY INDUSTRY PROMISES TO PROVIDE NUTRITIOUS FOOD FOR A HEALTHIER WORLD, UNDERPINNED BY OUR COMMITMENTS TO THE COMMUNITY, OUR PEOPLE, THE ENVIRONMENT, AND OUR ANIMALS.

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ALIGNMENT WITH SDGS



Food industries like dairy are at the centre of many of the sustainability challenges facing the world today, with issues like land degradation, biodiversity loss, food security, climate change, population growth, water scarcity, animal welfare, public health, human rights and technological disruption challenging the way food is made. COVID-19 has introduced further challenges but also provided an opportunity for dairy to continue to provide nutritious food for a healthier world.

OUR DAIRY PROMISE

A key commitment that underpins our dairy promise to provide nutritious food is a commitment to our people. People are central to everything we do and we want to create a vibrant industry that rewards dairy workers and families, our communities, business and investors.

The Australian dairy industry is one of Australia's major rural industries. Dairy makes an enormous social and economic contribution to the eight regions it operates in within Australia. Approximately 46,000 people are directly employed on dairy farms and in dairy companies. Associated transport, distribution, farm services and R&D activities represent further employment associated with the dairy industry. Additionally, dairy processing often occurs close to farming areas, generating significant economic activity and employment in regional areas.

“People are central to everything we do and we want to create a vibrant industry that rewards dairy workers and families, our communities, business and investors.”

Helen Dornom

BUILDING STRONG RURAL AND REGIONAL ECONOMIES

Profitability of farm businesses is core to the success of the Australian dairy industry, enabling it to contribute strongly to rural and regional economies. To that end, the Australian dairy industry has set itself key goals and targets to achieve profitable and vibrant communities while looking after our people. These goals are:

1. Increase the competitiveness and profitability of the Australian dairy industry

Programs to support this include:

- **DairyBase:** a web-based tool that enables dairy farmers to measure and compare their farm business performance over time – identifying opportunities to drive profit and reduce risk
- **DairyFeedbase:** aims to improve pasture performance, animal nutrition and the cost competitiveness of the feedbase
- **DataGene:** aims to drive genetic gain and improve performance
- **DairyBio:** develops important breeding tools for pasture and animals

2. Increase the resilience and prosperity of dairy communities

Activities to support this include:

- **Foodbank:** Dairy companies donate dairy foods to Foodbank – a charitable organisation that provides food relief to vulnerable people
- **Sponsorship of Community events:** Most dairy companies support local sporting clubs to help keep them operating and continuing to service their communities – sporting clubs also encourage people to exercise and build community ties

3. Provide a safe work environment for all dairy workers

Keeping our people safe is a key priority – and the industry aims for zero fatalities with all dairy workers implementing good safety practices. Programs that support this are:

- **Farm Safety Starter Kit:** provides practical easy-to-use resources to assist dairy farmers to make sustainable improvements to the safety of farm owners, employees, families, contractors, service providers and visitors (see: <https://www.thepeopleindairy.org.au/farm-safety/dairyhomesafely>)

4. Provide a productive and rewarding work environment for all dairy workers

The industry has developed a number of support programs to help achieve this, including:

- **People in Dairy:** See <https://www.thepeopleindairy.org.au/> This includes information about employing people, developing farm transition plans, on-line learning.

The Industry recently adopted a Human Rights position, recognising that it is the responsibility of each part of the supply chain to ensure they are acting consistent with the UN Guiding Principles on Business and Human Rights

MOVING THE WHEEL

Our commitment to our people is just one of four commitments that underpin our dairy promise. The other three are commitments to: Improving the wellbeing of people through providing nutritious, safe, quality dairy food; providing best care for all our animals through striving for health, welfare and best care for all our animals throughout their lives; and reducing environmental impact through meeting the challenge of climate change and providing good stewardship of our natural resources.

The Australian dairy industry Sustainability Framework is the industry's guide to sustainable dairy production. The ambition of our Framework is aligned with the United Nation's Sustainable Development Goals (UN SDGs) – and we have reset our goals and targets to 2030 – the same as the SDGs – publicly reporting our progress annually against these goals and targets. For more information see www.sustainabledairyoz.com.au.

SEE OUR STORIES:



EVERYONE CAN BE A WINNER

Noel and Ann Campbell have employed staff for the past 22 years. They have learnt that everyone can win when employees stay for the long-term, making it well worth the effort involved in achieving a successful working relationship.

[Read more](#)

GET THE BIKE, GET THE HELMET

Providing a safe work environment is an extremely important component of the dairy business run by Chris and Charmaine Bagot of Jindivick in West Gippsland. The couple own a 350-cow farm with 1 full-time and 1 part-time employee and they take their safety obligations very seriously.

[Read more](#)



Belgium: 8% less added sugar in Belgian dairy products

NOT ONLY IS THE AMOUNT OF ADDED SUGAR IN EXISTING PRODUCTS STRONGLY REDUCED, NEW INNOVATIONS WITH FAR LESS OR NO ADDED SUGAR AT ALL WERE LAUNCHED ON THE BELGIAN MARKET.

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ALIGNMENT WITH SDGS



“The Belgian Food Based Dietary Guidelines, recommend 250-500 ml dairy products each day”

Jolien Willems

Numbers of overweight and obese people are rising worldwide. Causes of overweight and obesity are complex and need a multidisciplinary approach. In Belgium, the dairy industry engaged, as part of the food industry, to take its responsibility and part in this debate by providing dairy products with less added sugar to consumers. This was formalised in a collaboration between the food industry, retail, and the government, called “Covenant Balanced Diet”.

The dairy industry committed to reduce the added sugars in dairy products by 8% in 2020 (in comparison to 2012).

MOVING THE WHEEL

In collaboration with the dairy companies, a reduction target was set: 8% less added sugar in dairy products by 2020. Retail and dairy companies together worked hard to reach this goal. To allow consumers to get used to a less sweet taste, reformulation must be accomplished stepwise. For some products, we noticed that the achieved added sugar reduction was not acceptable for consumers. In such cases, dairy companies were forced to take a step back, and adjust their reduction scheme.

Every year, all products within this commitment are monitored to see their evolution and to estimate the overall added sugar reduction in dairy products, based

“Dairy products offered to the consumer differ on fat content as well as amounts of added sugars.”

Lien Callewaert

on their market shares. These results were discussed in detail to stimulate progress.

HISTORY OF SUCCESS

Our first milestone, 3% reduction in added sugar was met in 2016. Part 2 of our engagement is coming to its end with a reduction of another 5% to achieve a total reduction of 8 % in 2020. By monitoring the amount of added sugars in all dairy products within the commitment yearly, we were able to evaluate and discuss our progress and difficulties each year. Due to our long-term commitment, companies had a clear vision for new products. That is why this period saw a lot of new products brought on the market that were very low in added sugars or even had no added sugar at all.

The wide variety of dairy products in our stores give the consumer the opportunity to choose between old and nostalgic recipes or more innovative products. Not only are there dairy products with differing fat content, but also dairy products with differing amounts of added sugars. As such, the dairy sector provides the consumer a wide selection of

dairy products fit for every occasion and every individual customer, enabling each consumer to make their choices to live a healthier life.

FUTURE OPPORTUNITIES

Dairy products are nutrient rich, meaning they provide a lot of important nutrients like calcium, vitamins and high-quality protein compared to the amount of energy they contain. Nevertheless, 2020 is not the endpoint for our journey to further improve nutritional quality of dairy products. We will continue to work on existing products, introduce new improved products and launch innovative products. Together with retail and the government within our existing commitment, we will continue to help the Belgian consumer to move towards an even healthier lifestyle with dairy products in all forms and sizes. Our new recommendations, the Belgian Food Based Dietary Guidelines, recommend 250-500 ml dairy products each day, as they are an important part of our diet. And we as the dairy sector fully subscribe this.

Further information on the project can be found on [here](#) and [here](#).



Brazil: Biogas promotes agricultural sustainability

THE PRODUCTION OF BIOGAS FROM AGRICULTURAL AND LIVESTOCK WASTE AND AGRICULTURAL INDUSTRIES ENABLES THE GENERATION OF CLEAN AND SUSTAINABLE ENERGY.

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ALIGNMENT WITH SDGS



The biggest challenge for agriculture is the sustainable use of natural resources. Intensive production systems concentrate residues production need adequate management and treatment. Brazil has the world's second biggest bovine population, therefore requiring sustainable technologies and solutions for the sector. Manure may pass through processes that will end up into clean energy plus the disposal of less harmful residue. The Brazilian Agricultural Research Corporation has aligned its work towards UN's Sustainable Development Goals (SDG) aiming at a more sustainable agriculture. SDG 7, that is to increase access to energy is achieved, for instance as several Embrapa's technologies help improve the [management of agricultural residues](#). The [Energy Research Enterprise](#) estimates that by 2030, biogas may produce the same amount of distributed energy as photovoltaic solar energy, the agricultural sector sharing a significant part on it.

Co-digestion research aims to improve livestock residues anaerobic bio-digestion process, reducing soil and water contamination, in addition to using effluents as biofertilizers. Results from organic residues co-digestion are quite promising.

MOVING THE WHEEL

Embrapa Dairy Cattle operates a full-size bio-digestor on its experimental farm to demonstrate the technology, to evaluate biogas production from a milk production system as well as to work in partnership with other institutions to develop this technology. In addition, 12 bench scale bio-digestors were used, for as long as 120 days to evaluate co-digestion of residues from ricotta cheese or brewery's sewage sludge. We used levels from 20 up to 80% of either residue co-digested along with

bovine manure. We evaluated the organic load, biodegradability, and the efficiency of the bio-digestion process either from influents and effluents, biogas composition and the microbial dynamics.

HISTORY OF SUCCESS

Biogas usage has shown significant increase. Embrapa works on biomass production and alternative energy sources for over thirty years. Since 2011, research has focused on bio digestion and residues management to increase efficiency and removal of the organic load through biogas production to generate energy and reduce milk production costs. Research has been done by a multidisciplinary team from universities and Embrapa using its facilities. Our results demonstrate that anaerobic co-digestion is a sustainable process that yields biogas and biofertilizers.

Milk producers and the environment benefit directly, as biogas produced from agricultural residues may promote energy autonomy. Farmers not only win because of biogas, but also because of re-utilization of the slurry for several flushes to clean up barns and the production of biofertilizer. Results showed that bio digestors produced the same amount of biogas, either fed with manure alone or up to 80% in volume of ricotta cheese whey. On the other hand,



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“Anaerobic co-digestion is a sustainable process that yields biogas and biofertilizers”

Marcelo Henrique Otenio

for the brewery's sludge residue only the 20% mixture yielded biogas, whilst the 40% level caused bio digestion to fail after 90 days. Such results support co-digestion as a sustainable management alternative to breweries and dairy plants residues.

FUTURE OPPORTUNITIES

Embrapa's team along with its partners are going to work from 2020 on, on a new research project keeping up with the current research line. We are going to check for the viability of co-digesting manure, elephant grass silage slurry and sugar plant slurry, or vinasse altogether, as we move into new biomass products. Therefore, we keep up with the sustainable development goals, at the same time improving biomass use as part of the green, or bioeconomy, integrating agricultural production chains.



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China: The important role of quality education in the sustainable development of dairy in China

QUALITY EDUCATION IS FUNDAMENTAL TO ENSURE HIGHLY PROFESSIONAL PEOPLE THROUGHOUT THE DAIRY VALUE CHAIN, AND GUARANTEE THE SUSTAINABLE DEVELOPMENT OF THE DAIRY SECTOR IN CHINA.

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ALIGNMENT WITH SDGS



In recent years, the dairy sector in China has made great progress, thanks to high-quality dairy products and growing market demand. However, per capita consumption of dairy products is still quite low. In addition, it has been identified that there are opportunities for the dairy processing sector to further reduce its environmental impact.

Research indicates that providing quality education on i) nutritional value of dairy products, and ii) the range of measures that can be taken to reduce environmental impact in dairy production is essential to ensuring the long-term sustainable development of the sector in China.

The aim is to address unhealthy consumption and production concepts and transform them into responsible and sustainable production concepts. There are multiple advantages to this approach. Firstly, quality education provides employees with professional technical knowledge, increasing their knowledge of environmental protection measures and product quality and safety. Quality education can also serve as a guide to consumers and farmers of the health benefits of dairy.

The aim of this initiative is to carry out systematic and whole-industry quality education for farmers and employees in

“Quality education can also serve as a guide to consumers and farmers of the health benefits of dairy.”

Ms. Meiju Liu

all aspects from raw materials, processing to sales, thereby promoting the healthy, stable and sustainable development of Chinese dairy sector.

HISTORY OF SUCCESS

In the past 10 years, the China Dairy Industry Association held 50 training sessions and 10 annual conferences, benefiting 15,000 people and training more than 5,000 dairy professionals. In terms of universities, such as China Agricultural University, over the past decade, more than 7000 students studying dairy have been trained, involving more than ten dairy-related majors (such as animal science, food science and technology, food safety, etc.), more than 3,000 agricultural MBA students were sent to enterprises. With the talents cultivated by quality education in the past 10 years serving all links within the dairy value chain, the dairy sector has developed rapidly. For example, the national dairy product output was 24.65 million tons in 2019, a year-on-year growth of 6.1%, the qualified rate of national supervision and random inspection increased from 98.3% in 2014 to 99.9% in 2018.

THE VALUE OF THE INITIATIVE

The whole dairy value chain (from raw milk farmers, industries, and sellers) will benefit.

- **Raw milk farmers:** Through education on scientific and safety concepts, farmers can produce raw milk of high quality.
- **Industries and sellers:** Training of senior employees in dairy processing plants can result in superior quality products and more effective company management, thereby increasing company benefits.

- **Consumers:** By increasing knowledge on the nutritional value of dairy products, consumers can benefit more from the health benefits of dairy products.
- **Society and whole country:** Increasing awareness of environmental protection will build a more sustainable developed country. Quality education cultivates professionals with the concepts of sustainable development; they apply the concept to production and whole dairy chain, building a more sustainable society.

MOVING THE WHEEL

China Dairy Industry Association has conducted training of product quality and safety for dairy quality inspectors and farmers, establishes international cooperation and training courses to cultivate management talents for dairy industries. The association also cooperates with many Chinese universities and research institutions. For example, China Agricultural University has established the major in dairy science, training undergraduates and jointly training professional masters with Inner Mongolia MengNiu Dairy Group cooperation in the field of dairy sector. The University offers advanced students training projects (i.e., MBA in agriculture), graduates can provide management service for the dairy companies. In addition, projects like “Bull Elite” and “Science and Technology Institute in Farmland”, provide students and professionals with the opportunity to practice on-site in the factory, combine the theoretical knowledge with practise.

NEW OPPORTUNITIES

- 1) Carry out systematic, whole dairy industry chain education including animal breeding to milk collection, processing, and sales, including basic education, vocational education, graduate education, enterprise training, and farmer training, executive training, industrial training for university professors.
- 2) Pay special attention to environmental protection education, such as low-carbon production, wastewater discharge, and the establishment of a comprehensive environmental awareness
- 3) Develop a more practice-oriented education for training professional technicians rather than university-based education.
- 4) Focus on popular science education, such as people's nutrition and consumer education, and popularize people's knowledge on dairy nutrition by using Internet, TV, media, etc.
- 5) Pay attention to the continued professional development of enterprise personnel especially on eco-friendly practise.
- 6) Cultivating safe operation education for farmers and local enterprises.
- 7) Set a milk day, based on the "2030 Healthy China Plan" policy to promote people's understanding of the dairy industry, and improve the content of the "Food Safety Law".

More information can be found on ["Transforming our World: The 2030 Agenda for Sustainable Development"](#).



Denmark: Arla Foods extends cooperation to dairy farming in China

BETTER MILK QUALITY, MORE EFFICIENT USE OF RESOURCES, HIGHER YIELD PER COWS AND IMPROVED EMPLOYEE AND ANIMAL WELFARE IS THE POSITIVE COOPERATION RESULT BETWEEN ARLA FOODS WITH MENGNIU.

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ALIGNMENT WITH SDGS



The China-Denmark Milk Technology Cooperation Centre (CDMTCC) was founded in 2012 by Inner Mongolia Mengniu Dairy and Arla Foods. The centre promotes cooperation between the Chinese and Danish dairy industries in order to lift the quality and quantity of Chinese milk production to European standards with the purpose of strengthening food safety and local supply. The centre also acts as a platform for collaboration and knowledge sharing between companies, authorities, organisations, and scientific institutions on dairy related issues. Since its inception, the centre has initiated over 40 different projects and activities to support the improvement of milk quality, production and animal welfare. In doing so the centre is helping dairy farmers to increase their income while, at the same time, increasing the local sourcing of feed, which is beneficial for the environment.

As Snorri Sigurdsson, Head of China-Denmark Milk Technology Cooperation Centre, sums up: “Sharing knowledge among the dairy sector can help improve milk quality, biosecurity and animal health, as well as lower antibiotic use, and decrease the CO₂ footprint.”

MOVING THE WHEEL

The main focus has been training sessions in which experts from Denmark have supported, taught and trained Chinese dairy farmers in topics including standard operating practices, feeding, animal welfare, hoof trimming, milking, milk quality, resource efficiency, and medicine use. Specialized seminars for farmers, farm workers and service employees have also been hosted, in addition to expert meetings with attendees from both Denmark and China. Furthermore, the centre publishes different educational

“Sharing knowledge among the dairy sector can help improve milk quality, biosecurity and animal health, as well as lower antibiotic use, and decrease the CO₂ footprint.”

Snorri Sigurdsson

guidelines, handbooks and training materials, making broader literature about dairy farming available in China.

HISTORY OF SUCCESS

Since 2012 the Chinese dairy farming industry has gone through tremendous changes from small scale farming to modernized dairy production. Today, some farms even achieve 40 kg/cow/day while reducing their production costs. Last year, annual milk production in China increased to its level ever and was achieved with less or the same CO₂ emissions as in previous years.

Since 2012, the CDMTCC has worked with over 700 Chinese dairy farmers, who have a combined milk pool of 4.5 billion kg, to support them to produce milk more efficiently and at a higher quality. A direct consequence of this work is that it helps to improve the Chinese consumers' perception of milk as a good and safe source of nutrition.

LOOKING AHEAD

“The unique cooperation between Arla Foods and Mengniu is showing that greater professionalism and better education is influencing the dairy farming industry



in the right way and demonstrating that dairy farming not only has a strong future, but also contributes to increased living standards in China,” explains Snorri.

As well as the continued quest for quality, lowering the environmental impact of Chinese milk production and improving animal welfare, the coming years will see a focus on efficiencies. As Snorri explains: “Milk production in China is one of the most costly in the world so we'll be working with farmers on techniques to reduce costs, drawing on concentrate experiences from our European farmer owners.”

Further information about the last 2 years activities can be found on the [China - Denmark milk technology cooperation centre](#)

France: Support for dairy activity during the COVID-19 period

SOCIAL RESPONSIBILITY AND SOLIDARITY WITHIN THE DAIRY SECTOR WERE PUT TO THE TEST DURING THE COVID-19 PANDEMIC

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The French dairy sector like most dairy countries was strongly impacted by COVID-19 and the containment of the population - with a triple challenge:

- loss of outlets with the closure of restaurants, collective catering (-60%) and numerous players in take-out catering; and sharp slowdown in the agri-food industries
- change in household consumption patterns to the detriment of “pleasure” products: traditional cheeses were particularly in difficulty (60% drop in orders for PDOs). Cheese consumption was plummeting, and a significant number of producers and SMEs were seeing their situation deteriorate.
- social and health issues for all stakeholders in the dairy chain (absenteeism rate, withdrawal rights, etc.) and logistical difficulties (changes in production lines, delayed deliveries, etc.)

In addition to this is seasonal milk production, which reached its annual peak (usually in April in France) and saturated already struggling production tools.

The dairy interbranch association, CNIEL, has decided to act in a responsible, collective and united way by maintaining the activity of the sector in all its diversity by avoiding the shortage on the shelves, by reorganizing the market and limiting the economic impact of the crisis on the members of the sector. The aim was also to inform consumers of the actions put in place.

“The initiative limited the economic impact of the crisis, valorised the dairy sector and approached consumer to agriculture”

Thierry Geslain

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MOVING THE WHEEL

Three main actions were carried out:

- Establishment in April of an exceptional solidarity fund of 10 million euros (payable by CNIEL) to compensate any dairy farmer trying to limit production (for a drop of 2 to 5% - based on production April 2019). Cniel asked the EU authorities to validate this temporary production planning measure under the exceptional measures provided for by the Common Market Organization. The committee responded favourably on April 22.
- Request for emergency release at European level of aid for the private storage of cheeses, butters, and powders.
- Launch of a campaign to encourage the consumption of traditional cheeses very impacted by the crisis: #FROMAGISSONS

HISTORY OF SUCCESS

A weekly economic outlook note was distributed from April 3, 2020 to members of the dairy industry to monitor the effects of the crisis and of the measures implemented.

An evaluation of the « Thank you » campaign (see illustration) was carried out: 45% of French people have seen it and it is acclaimed. Similarly, an evaluation of

the #Fromagissons campaign is planned.

Already, in September 2019, Cniel had intervened in a similar and successful way to help 400 dairy farmers affected by the fire of a chemical factory by setting up an advance device for the payment of uncollected milk (3 million euros).

A VALUABLE INITIATIVE

This initiative was faithful to the approach of social responsibility “France Terre de Lait” (France land of milk)

The value of the initiative is triple:

- Limitation of the economic impact of the crisis
- Valorization of the dairy sector’s mobilization during the crisis, from farmers to retailers
- Communication to consumer, with the idea that they are actors in this situation and are closer to agriculture than they may think. This helps maintain a good perception of dairy products.

NEW OPPORTUNITIES

When the crisis is over and things are back to normal, it will be useful to evaluate the impact it had on the dairy sector, not only from an economic point of view, but also on other aspects such as crisis management, collaborations put in place, impact of collective actions, consumers attitude and perception of the dairy sector and dairy products.

The impact of the campaign will have to be assessed, and this campaign will be used as a basis for future communication of the French dairy sector.

More information can be found on [CNIEL website](#) and [YouTube channel](#) and Twitter: @cniel and #fromagissons



India: A robust manure value chain – strengthening livelihood security of small holder dairy farming systems

FORTUNE AT THE BOTTOM OF GOBAR (MANURE) PYRAMID

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ALIGNMENT WITH SDGS



For some time, cattle have been part of Indian society, providing nutrition to its people, draught power, fertilisers, and transport to name but a few.

Dairying is practised by small holder farmers in India, with between 1 to 5 animals. While a lot of time and energy go into managing the milk economy, little is done to manage the country's manure (Gobar) economy. It is high time we ensure fair returns to farmers through efficient manure management.

According to the 20th livestock census in India, cattle and buffalo population is 302.79 million, owned by small and marginal dairy farmers, which generates around 1630 million tons of manure per annum. Scientific use of this manure, rich in organic matter, gases and nutrients can help country in saving enormous national resources.

The National Dairy Development Board (NDDB) of India, being the premier organisation to promote India's dairy sector and having successfully helped establish milk value chain through network of cooperatives across India, can contribute immensely to establishing a sustainable manure value chain for small holder dairy farmers across the country.

To establish an efficient manure value chain fulfilling the cooking fuel needs of dairy farmers and providing them a source of stable income through sale of bio slurry while helping in mitigating adverse climate impact of dairying. The initiative had the further aim of manufacturing of slurry-based bio fertilisers and selling them to farmers at reasonable costs.

MOVING THE WHEEL

2302 domestic biogas plants were provided to small holder dairy farmers, all of them women, across the country for demonstration and to understand farmer response.

In a cluster-based pilot, all 368 dairy farmers in a village associated with existing dairy cooperative were provided with 2 cubic meter capacity biogas plants wherein an end to end manure value chain is established.

Surplus slurry, offered by these dairy farmers, is aggregated through local women's dairy cooperative based on defined quality parameters and payments are made digitally.

Aggregated slurry is processed to manufacture fortified solid (e.g. phosphate rich organic manure) and liquid (different grade micronutrient, growth enhancers etc.) based bio fertilisers and sold to farmers.

HISTORY OF SUCCESS

The initiative helped in savings on fuel expenses, reducing drudgery of solid fuel arrangement & health hazards and providing an additional source of income to the women dairy farmers. Usage of [biogas](#) as cooking fuel, mitigated the adverse impact on environment. The biogas also replaced traditional solid fuel (wood) burning which had environmental hazards.

Enriching of bio slurry with required nutrients/micronutrients and manufacturing of various bio fertilisers (agricultural inputs) could considerably assist [plant growth](#).

“The initiative helped in savings on fuel expenses, reducing drudgery of solid fuel arrangement & health hazards and providing an additional source of income to the women dairy farmers.”

Shri. Dilip Rath

Village baseline and impact surveys were conducted to get farmers' impression on usage of biogas plants, financial and social implications. Pilot flow meters (indicators) were used to understand biogas usage.

Demonstration and scientific study of slurry-based products were carried out on different crops to understand the impact of slurry-based products.

A VALUABLE INITIATIVE

The main beneficiaries of the initiative were female dairy farmers who could save on cooking fuel requirement to the tune of Rs.25,000/- in 1.5 years equivalent to the cost of biogas plants.

Usage of bio slurry in their own field is reducing requirement of chemical fertiliser and related expenses, showing positive results on productivity. The sale of slurry at around INR.2/litre has provided them an additional income of Rs.100/day

Scaling up of this initiative at the national level can help India generate cooking gas to the tune 50% of present [LPG](#) consumption and bio slurry to the tune of 44% of present NPK requirement.



Cooperative network in India has 17 million households associated with it. The robust manure value chain can suffice their cooking fuel requirement generating biogas equivalent to 12% of LPG presently consumed in the country and can ensure an additional income to the tune of INR.530 billion*. The initiative can also help create around 2.2 million new jobs resulting in additional pay-outs of INR.483 billion. Manufacturing of slurry based solid and liquid products have business potential to the tune of INR.3,000 billion and will also meet approximately 12% of NPK requirement of the country.

OUR NEXT STEPS

NDDB is the process of leveraging, the established dairy cooperatives in the country to scale up the manure value chain. For dairy cooperatives, it would be a complimentary strategy as their members will be able to generate additional income at the same time the well-established dairy value chain can be used for procurement, processing and sell of bio slurry and slurry based products

By the end of the year, [NDDB](#), with support of Government of India, proposes

to create clusters of manure value chain in major dairy potential states on India. NDDB has collaborated with Agriculture Universities and research organisations for testing, validation, and propagation of slurry-based bio fertilisers.



Ireland: Harnessing practical measures within dairy agroecosystems to address climate change and biodiversity

PRACTICAL MEASURES FOR SUSTAINABLE DAIRY PRODUCTION

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ALIGNMENT WITH SDGS



Ireland is one of the 197 countries that have signed up to the Paris Agreement, which aims to limit the rise in global temperature this century to below 2°C above pre-industrial levels. The EU has set a target to reduce emissions in the non-ETS sector, as an example, for Ireland, of 20% reduction in emissions to 2020 and 30% to 2030, compared to 2005. This, all while dairy production is expanding due to removal of EU quotas for milk in 2015. Thus, sustainable production is key, and the Irish Department of Communications, Climate Action and Environment (DCCAE) has published a roadmap for reducing emissions, i.e., the Climate Action Plan. The plan reflects research conducted by, Teagasc, Ireland's Agriculture and Food Development Authority. It performed an analysis of abatement potential for greenhouse gas emissions for the period 2021-2030, leading to the generation of the Marginal Abatement Cost Curve (MACC) that identifies the most cost-effective opportunities to reduce sectoral emissions. The MACC outlines the cost and effectiveness of implementing a range of practical measures on GHG emissions and is thus a critical tool for improving farm efficiency and climate change mitigation.

Altogether, the MACC provides a roadmap of practical to provide a roadmap of practical solutions for the sector to meet the environmental challenges of reducing greenhouse gas and ammonia emissions, increasing carbon capture, improving water quality, while protecting and improving biodiversity.

“The completion of carbon footprint assessments at national level by Bord Bia was a world first and was coupled with a reduction in the average carbon footprint of both beef and dairy farms.”

Lilian O Sullivan

MOVING THE WHEEL

Success of the Irish Dairy Sector requires implementation of sustainability measures on the ground; here are seven identified practical ways to improve farm sustainability:

- A joint public / private agricultural sustainability support and advisory programme (ASSAP) established to give direct advice to farmers, particularly in the area of water quality
- Improving carbon capture by forestry, including hedgerows and rewetting peat soils
- Improved energy efficiency and renewable energy
- Reducing losses from animal manures such as slurry
- Use of protected urea
- Improving nitrogen use efficiency and substituting clover for chemical fertiliser
- Improved Economic breeding index (EBI, dairy cow breeding index in Ireland) and extending the grazing season

Importantly, the MACC represents a plan to achieve an objective, however farmers will need support to implement these measures at farm scale. A whole of sector approach is crucial, such as the ASSAP initiative for water quality, with advisory and knowledge transfer services playing a critical role as opportunities for climate-smart agriculture emerge. The new Teagasc Sign Post farms initiative will demonstrate the practical implementation of the MACC across a wide range of Irish farming systems.

HISTORY OF SUCCESS

The continuing reduction in the already low emissions intensity of dairy production in Ireland is a measurable achievement, but now the challenge is to reduce absolute emissions. Clear plans have been put in place to reduce greenhouse gas and ammonia emissions, increase carbon capture, improve water quality and protect / improve biodiversity. A carbon navigator tool is used to measure the impact of the adopted practice implemented using the MACC guidelines, facilitate knowledge transfer and allow comparison to neighbouring farms and participate in quality assurance schemes through Ireland's Bord Bia agency. The completion of carbon footprint assessments at national level by Bord Bia was a world first and coincided with with a reduction in the average carbon footprint of both beef and dairy farms.

The MACC curve provides Irish agriculture with a practical roadmap to reduce



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sectoral emissions. Supported by the carbon navigator, demonstration farms (e.g., signpost farms) and outreach through advisory services, the Irish agricultural sector and supporting government agencies can assure the global marketplace of the sustainable production of its Dairy produce. The initiatives used provide part of the solution to feed the world's population, while not degrading natural resources. Farmers can improve income and the environmental sustainability of their farms through adopting realistic and measurable practices. Equally, consumers can be confident of the green credentials of Irish agricultural production.

NEW OPPORTUNITIES

New opportunities can be realised through farm efficiency, i.e., the ability to produce food with fewer inputs, reducing emissions and cost to the farmer. Strategies to achieve this include changes to dairy economic breeding indexes (EBI), genomics, improved animal health, extended grazing, and sexed semen.

“The continuing reduction in the already low emissions intensity of dairy production in Ireland is a measurable achievement.”

Trevor Donnellan

By delivering on these efficiencies, the carbon footprint of dairy (and beef) can be reduced. Improved nutrient management planning, that accounts for soil type and environmental factors will enhance production while reducing environmental losses. Multi-species swards that combine diverse forage species with different characteristics can support steady growth at reduced fertiliser application, importantly in summer when it is critical for greenhouse gas emissions. Enhancing the carbon sequestration of the land in combination with bio-energy and energy saving can also play a substantial role in reducing Ireland's dependence on fossil fuels. A signpost farm advisory programme is being put in place by Teagasc to implement the MACC.

FURTHER INFORMATION ON

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Israel: Application of the principles of the Israeli model for sustainable dairy production in the tropical region of Colombia

CONSTANT INNOVATION HAS TRANSFORMED THE ISRAELI DAIRY SECTOR INTO A MODEL FOR COUNTRIES THAT ARE IN THE PROCESSES OF EVALUATING OF METHODS FOR THE INTENSIFICATION OF PRODUCTION. WITHIN THE FRAMEWORK OF THE ISRAELI INTERNATIONAL COOPERATION PROGRAM, DAIRY EXPERTS PROPOSED PATHS FORWARD FOR THE TRANSFORMATION OF THE DAIRY SECTOR IN THE ATLÁNTICO DEPARTMENTAL REGION IN COLOMBIA, BASED IN THE PROCESS OF SUSTAINABLE INTENSIFICATION.

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ALIGNMENT WITH SDGS



The Israeli dairy sector is characterized by their intensive production system. The intensity of Israel's productivity is a direct result of the need to overcome a shortage of natural resources. The challenges of continuously adapting technology and management while operating with less investment per cow, and improving efficiency are all, parts of the process to achieve self-sustainability.

The dairy sector in the Departmental Atlántico region, Colombia, characterized by low values in their economical and professional indicators that rendered the dairy business unsustainable. Small and medium-sized milk producers, based on extensive models with dual-purpose cattle, with average production levels lower than 3.0 litres per cow, conveyed low yield and low-quality milk production. The challenges of transformation of the sector into an economically sustainable industry had to be based in the administration of semi-intensification, adoption of low investment technologies and, making use of the existing natural resources. Under these principles and the Israeli experience in management, technologies transfer and innovation a milk development program (Megaleche) was created.

Megaleche proposed to transform the dairy sector in the region, represented mostly by small and medium dairy producers, from a non-sustainable business to a modern sector capable of achieving economic sustainability. This transformation will increase the competitiveness of the sector based in a productive model adjusted to the local conditions.

MOVING THE WHEEL

Local and Israeli professionals conducted a feasibility plan, and then led the work plan. There were 13 visits of Israeli experts in Columbia, as well as 5 visits of Columbian experts mainly in heat stress management. The program took a holistic approach in which the planned activities included primarily capacity building and training programs, as well as the dispatch of experts and consultants, technology and knowledge transfer, and any other relevant professional support needed such as: animal nutrition, fertility, milk quality, calf rearing, etc. The second stage included the assembly of a demonstration farm and demonstration plots under irrigation for the cultivation of cutting grass, hay, and silo forage. Furthermore, advice was offered on issues related to business plans and their feasibility.

Financing the project was the objective of the Israeli Ministry of Agriculture, Ministry of foreign affairs, Colombian farmers, local administrations, and Educational organization (SENA).

HISTORY OF SUCCESS

Analysis of surveys and recorded data were collected between 2014-19. The number of producers involved in the project increased from 100 to 900, 70% of which had herds of up to 50 cows and 30% of which had between 51 and 250 cows. Milk production among smallholders increased from 3 to 6 litres, and from 4.5 to 8.5 in medium ones. 85% of smallholders are spread among 15 producers' associations that linked the local industry with the formal global supply chain and achieved a reduction in the informal sale of milk. Eleven associations are part of Associative Forage Banks to ensure forage supply in the dry period. The local Ministry of Agriculture installed 75 mechanical milking parlours. Net income increased among smallholders between 20-30%.

PEOPLE WHO WORK ON DAIRY FARMS: THE MAIN BENEFICIARIES

This dairy development project allowed



“Net income increased among smallholders between 20-30%”

Daniel Werner

the consolidation of a specialized nucleus of medium and small milk producers with high standards, volume, quality, and efficiency of milk production. The 900 dairy farmers from 16 of the 23 municipalities that make up the Atlantic Department are the true beneficiaries of the Project. The supply of simple technologies and management techniques were key factors that contributed to the transformation of the milk business into a sustainable industry. It should also be mentioned that 85% of the producers are grouped into producer associations to commercialize the milk, and 11 of them have initiatives related to forage production and storage.

NEW OPPORTUNITIES

Producers should continue to be incorporated into the formal milk production chain. It will be necessary to deepen the coordination among the different local institutions to avoid the

duplication of efforts and loss of funding sources. Next steps will also include the continued offer of services to the dairy farmers, such as: Feeding centres that will be able to provide rations or premixes with high additional value for producers and Artificial Insemination for genetic improvement. This will make it possible to strengthen the dairy production capacity of herds that specialize in dairy. Additionally, the possibility of replicating the project in other Colombian departments is being explored.

Further information can be found on the page of the [Agenda Presidencial de Cooperación Internacional](#), the page of [Consultores y Operadores Agroindustriales](#), and the page of [Gobernación del Atlántico](#).



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The Netherlands: Action plan for a climate resilient dairy sector

MOBILIZING THE DUTCH DAIRY SECTOR TO BECOME CLIMATE RESILIENT BY TRANSLATING A COLLECTIVE NATIONAL LONG-TERM GOAL INTO SHORT TERM INDIVIDUAL ACTIONS AND RESPONSIBILITIES.

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Following the Paris Agreement, the Dutch Government approved a Climate Act in which the Netherlands' climate goals are set. In the National Climate Agreement, a nationwide agreement between governments, NGO's and private sector parties, the dairy sector played an active role by submitting a detailed and tailor-made action plan. The dairy sector committed to reduce the emission of greenhouse gasses significantly towards 2030. The goal of the dairy sector is to take necessary steps across the total production chain to be as effective as possible to reduce the emission and to avoid unwanted transfer of issues to other important topics.

Becoming more climate resilient is a license to operate for any economic sector and especially for the Dutch dairy sector.

The aim of the dairy action plan is to reduce the emission of greenhouse gasses in the dairy chain by initiating collective actions of dairy processors and farmers' organizations and to accomplish a joint and structural dedication to this important goal. Long-term commitment and responsibility at individual farm level are main drivers as well as supporting the farmers and other stakeholders in the dairy chain (feed industry, genetics etc.) by taking mitigating actions.

MOVING THE WHEEL

The dairy action plan describes clearly how the dairy sector can develop towards an energy-neutral farming sector in 2030. The action plan, amongst others, provides and

“The dairy action plan is very concrete about the measures, the contribution of stakeholders (not only dairy farmers but also governments) and its ambition for reduction of greenhouse gasses by setting a target for 2030.”

Bregje van Erve

describes the measures for reduction that can be taken in the areas of: 1. Animal and feed; 2. Manure storage and manuring; 3. Soil and crop 4. Energy saving and generation of sustainable energy.

Creating awareness amongst farmers on their individual carbon footprint at farm level as a first step is key. Next step is to support the farmers with tools to reduce the individual footprint at the lowest cost possible and to create an environment where the application of tools is supported. A third step is to introduce monitoring and benchmarking.

HISTORY OF SUCCESS

The dairy action plan is developed with the key stakeholders in the dairy chain (all main dairy processors, farmers organisations and other stakeholders) and the plan can count on the commitment of governments and NGO's. The objectives are in line with the existing goals of the Dutch Sustainable Dairy Chain Program (an initiative of the Dutch Dairy Association, the Dutch

Federation of Agriculture and Horticulture, the Dutch Dairy Farmers Union, and the Dutch Young Farmers Association). The governance structure of the Dutch Sustainable Dairy Chain enables the most efficient approach to reduce greenhouse gasses. Furthermore, the dairy action plan can only succeed if policies and conditions support the actions. They are described in the plan as well.

The dairy action plan is very concrete about the measures, the contribution of stakeholders (not only dairy farmers but also governments) and its ambition for reduction of greenhouse gasses by setting a target for 2030. All parties committed to the dairy action plan and they all contribute to the reduction targets set. A dairy sector wide approach where dairy farmers have the flexibility to implement the measures that fits them best, is very important for its position in the society as well beneficial for its market position.

Furthermore, the initiative enables the dairy sector to have a strong platform in communication with all stakeholders.

NEW OPPORTUNITIES

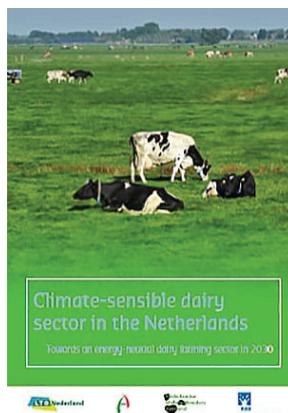
The approach sparks innovation at all levels and in all disciplines. It is necessary to set up a long-term knowledge and innovation agenda in cooperation with the government to map out the possibilities for reducing the greenhouse gasses also for the longer term.

In the years to come, the dairy sector will keep investing in communication and

knowledge-sharing programs as well as in the development of various tools for dairy farmers to reduce the greenhouse gases.

In addition, it is a framework to ‘tackle’ other important issues such as preventing the loss of biodiversity, safeguarding animal health and welfare and reduction of other emissions.

More information can be found on the report [Climate-sensitive dairy sector in the Netherlands](#) and the [Sustainable Dairy Chain Program \(DZK\)](#).



New Zealand: Climate change joint action plan on primary sector emissions (He Waka Eke Noa)

WORLD-FIRST COLLABORATION BETWEEN THE PRIMARY SECTOR, THE NEW ZEALAND GOVERNMENT, AND IWI/ MĀORI (NEW ZEALAND'S INDIGENOUS PEOPLE), TO MANAGE AND REDUCE NEW ZEALAND'S GREENHOUSE GAS EMISSIONS FROM AGRICULTURE.

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ALIGNMENT WITH SDGS



In New Zealand, agriculture accounts for 49 percent of total greenhouse gas emissions, with dairy almost half of that. As a food exporting nation, agriculture (and dairy) make up a significant portion of New Zealand's total emissions. As such, the New Zealand dairy sector has been actively involved for many years in assessing agricultural greenhouse gas emissions from a farm-systems perspective.

In October 2019, the New Zealand Government adopted He Waka Eke Noa (Our future in our hands), a joint action plan to reduce primary sector emissions, which was proposed by agri-food and fibre groups (who collectively represent all farmers and grower interests within New Zealand) and an indigenous Māori landowners organisation.

OUR PROMISE

The Joint Action Plan on Primary Sector Emissions is leading the way with an innovative partnership that will equip farmers and growers with the knowledge, tools and support they need to manage and reduce emissions, and to adapt to a changing climate.

MOVING THE WHEEL

The Joint Action Plan was developed on the basis that a simple approach of charging farmers for greenhouse gas emissions, based on how much milk they produce, would not be a fair system nor drive the behaviour change needed to reduce emissions. Greenhouse gas emissions needed to be measured at

the individual farm level, recognising that there are both emissions intensity and absolute emissions factors to be addressed. The Joint Action Plan seeks to solve the problem in a way that is good for the environment, the economy, and communities. It aims to equip farmers and growers with the knowledge, tools and support they need to manage and reduce emissions, and to adapt to a changing climate.

The Joint Action Plan sets out a work programme, by 2025, to:

- co-develop a mechanism to price agricultural greenhouse gas emissions at the farm level
- progressively implement farm level greenhouse gas reporting
- provide all farms with a plan to manage and reduce greenhouse gas emissions
- ensure all farms have access to region specific adaptation information
- develop programmes to support farm tree planting and measure on-farm sequestration
- support Māori agribusiness and integrate an approach that recognises the principles of kaitiakitanga (guardianship) and tikanga (Māori practices and behaviours)
- support the research, development and commercialisation of tools and technologies.

New Zealand has recently set a 'split-gas' 2050 greenhouse gas emissions target required to align New Zealand's domestic targets with the goals of the Paris Agreement. This target recognises that,

“This target recognises that, compared to carbon dioxide and nitrous oxide, agricultural methane is a short-lived gas that does not need to reduce to net-zero to stabilise the sector's impact on global warming.”

Bruce Thorrold

compared to carbon dioxide and nitrous oxide, agricultural methane is a short-lived gas that does not need to reduce to net-zero to stabilise the sector's impact on global warming. The Joint Action Plan on Primary Sector Emissions will implement mechanisms that recognise this split gas approach.

The following milestones are included in the Joint Action Plan.

- All farmers will have farm plans by 2025 to show how they will measure and manage their on-farm agricultural greenhouse gases.
- All farmers will have a system for farm level accounting and reporting of their emissions by 2025.

HISTORY OF SUCCESS

Through investment in research, development and commercialisation there will be greater availability and use of tools and technologies to help farmers reduce emissions which will also grow climate change mitigation knowledge and practice amongst farmers, growers, and rural professionals, in extension and engagement programmes.

The Government will check progress in 2022 to ensure enough progress is being made on commitments.

A VALUABLE INITIATIVE

Achieving the commitments of the Joint Action Plan will drive long-term, sustainable change for New Zealand and deliver its climate goals while continuing to be a leader in sustainable food production.

Farmers and growers will be empowered to make change as the alternative pricing mechanism for livestock and fertiliser emissions will be designed in a practical and cost-effective manner. Furthermore, farmers and growers will be supported to future-proof their farm to the impacts of adverse weather.

This Joint Action Plan brings together agricultural experts across New Zealand

and builds on work already done by each sector partner including the development of tools, resources, and research.

The Joint Action Plan will help the primary sector pool its resources, including research, to achieve the commitments.

Further information can be found here on [Dairy New Zealand](#) and [New Zealand Ministry of Environment](#).



Nigeria: Milky way to development – Arla’s commitment to sustainable dairy development

WORKING FOR A SUSTAINABLE DAIRY IN NIGERIA

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ALIGNMENT WITH SDGS



Nigeria’s population – set to reach close to 400 million people by 2050 – is among the fastest-growing of any nation in the world, and there is a growing demand for nutritious dairy products. The local dairy industry is currently able to supply less than 10 per cent of this demand as most Nigerian dairy farmers are small scale and most milk collection consists of milking the cows by hand into small open bowls or buckets. If the milk is not consumed in the farmer’s own household, it usually does not travel further than to the nearest town market.

It is against this background, Arla’s ambitious growth targets for its Sub Sahara African business plus its firm commitment to leading the way on delivering on the UN’s sustainable development goals, that the Milky Way Partnership Nigeria was conceived in 2016. Supported by Danida, the collaboration included the Nigerian Government, the NGO Care, the Danish Agricultural and Food Council, the local cooperative MILCOPAL, the Nigerian pastoralist organisation Coret and Propcom, a rural and agricultural markets development programme. Its remit is to develop a socially, environmentally and economically sustainable dairy value chain.

GENERATING AN INCOME

With milk production traditionally being a by-product of cattle breeding, turning it into a business which can generate a steady income and changing the mindset from pastoralist to dairy business is a key strand of the project’s remit, as is ensuring that women also have a role. Working with a local partner, a series training programmes are being delivered to the dairy farmers out in the field, including dairy business, milk and hygiene, fodder, feeds and feeding, and

“Our goal is to build the local dairy sector to increase the income of every farmer and enable Nigeria to better feed its growing population by boosting local production.”

Amaka Kolawole

herd management. An Arla demonstration farm will showcase good farm management practices and function as a training hub for the next generation of dairy farmers. In addition, Arla’s European farm owners plan to visit Nigerian dairy farmers to exchange knowledge on good farming practices. Reciprocally, the cooperation will provide European farmers with knowledge about farming in emerging markets and under very different climate conditions.

INCREASING MILK PRODUCTION

Building the capacities of both the farmers and their animals are two of the three major objectives of the project. After initial establishment, milk production increased for almost all farmers – for some drastically and up three or four times more. Fodder for cows is now more consistently available, which significantly improves the quality of milk.

The third objective, which is to provide an off-take model for the farmers’ milk and market it locally, came to fruition last year. In Kaduna state, in north Nigeria, where the project is based, brand new, automated milk parlours, have been installed. It is revolutionising both the collection and distribution of milk, which is taken in chilled lorries to the Kaduna Dairy Plant for processing into locally



sold dairy products. This development is allowing the pastoralists to settle, which has proven to be positively received.

SCALING UP

Building on this success, in 2019, Arla committed to scaling up its commitment to develop a sustainable dairy sector in Nigeria, signing a new Memorandum of Understanding with Kaduna State and the Nigerian government. While the State and the Government will offer 1,000 nomadic dairy farmers permanent farmlands with access to water, Arla will be the commercial partner that will purchase, collect, process and bring the local milk to market.

Arla will also continue to contribute with experience from its pan-European supply chain and its cooperative farmer culture to deliver commercial success with the farmers in Nigeria through the development of a viable business model,

which includes take-off agreements with the farmers and a transparent payment system.

“Bringing local milk into our product portfolio is part of the way we believe that our business will be long-term successful in Nigeria. We will only succeed in growing local farmers’ incomes, Nigeria’s dairy sector and achieving Arla’s ambitions in West Africa if the project and its activities are commercially viable. This is a great example of business and development going hand in hand to ensure long-term sustainable solutions that are built to last,” says Tim Ørting Jørgensen, head of Arla’s international business.

For more information see our [press release](#) and the information on [Arla website](#).



Russian Federation: Dairy sector promotes rural development

HOW EKONIVA, THE LARGEST RAW MILK PRODUCER IN RUSSIA, IS MAKING RURAL AREAS A TRULY ATTRACTIVE PLACE TO LIVE, ENABLING YOUNG PEOPLE TO START FAMILIES HERE INSTEAD OF CHASING A BETTER LIFE IN BIGGER CITIES.

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ALIGNMENT WITH SDGS



Russia is facing a widely known challenge that is generally referred to as “rural exodus”. Many people move from remote villages to big cities as the living conditions seem to be better there. As a result, especially the elderly, are left behind in the countryside and sometimes those villages disappear completely.

EkoNiva, the largest raw milk producer in Russia, is represented by its companies in such rural regions. And we are absolutely convinced that agricultural companies are only successful if they cooperate with the rural population and contribute to the successful development of the villages. For us, this means that when looking for employees, we primarily focus on the local population, create good working conditions in dairy industry, pay above-average wages and invest in training and further education. For this, in 2018, the company established special agricultural classes at local schools to interest and prepare students for university studies of agricultural sciences. In addition, EkoNiva supports various social projects to maintain and expand the village infrastructure. These measures help to increase the attractiveness of rural life and offer our employees and their families a future in the countryside that is worth living.



The aim of the initiative is to offer existing employees an attractive rural living environment. At the same time, new, well-qualified employees are attracted. For this purpose, the working conditions should be favourable enough to be regarded as advantageous in comparison to other jobs in larger cities.

MOVING THE WHEEL

Different actions have been put in place:

- Participation in the federal program “Integrated rural development”: EkoNiva was one of the first companies to confirm its willingness to support the project, which is intended to help overcome the main challenges: Access to health care, social services, education, construction of houses and better conditions for the development of infrastructure in rural areas.
- Co-financing of family homes for employees together with municipalities
- Internship program for students of agricultural universities (3,233 interns since 2015)
- In-house training: internal and external seminars, teaching, trips abroad, etc.
- Investments into village infrastructure and healthcare facilities
- Own bus transfer for the dairy industry employees to their workplace
- Support for sports and creativity associations, schools, and kindergartens, veterans, and people with disabilities
- Construction of churches, restoration of historical and cultural heritage.

HISTORY OF SUCCESS

Our local commitment enables us to meet our demand for skilled dairy industry workers as well as manpower for the operating divisions at all the company’s locations through the local population. The internship programs as well as the training and further education measures have created a pool of motivated and well-qualified employees, which has enabled EkoNiva’s dynamic growth in recent years.

EkoNiva employees are well integrated into rural social life, found families, acquire residential property, and take on voluntary work in the village community. As a result, the population decline in some villages was halted or even reversed.

A VALUABLE INITIATIVE

In the last three years, EkoNiva has invested more than three million euros in charitable causes.

Among others, these funds have been used to finance the renovation of hospitals, the construction, renovation, and preservation of churches as well as historical monuments, support for local sport clubs, kindergartens and schools.

Furthermore, EkoNiva has financially supported the opening of a local history museum in the village of Schutche (Liskinski district).



In the Voronezh region the construction of 67 single-family homes for the employees of the subsidiary EkoNiva Agro has already begun and is expected to be completed by the end of the year.

NEW OPPORTUNITIES

In the regions of Ryazan, Orenburg, and Kaluga, EkoNiva will be active from 2020 within the federal program. In total, up to 480 single-family homes are to be built over the next few years, co-financed by EkoNiva, giving employees the opportunity to live close to the company's dairy cow facilities.

In the Novosibirsk region, the program will address a number of social issues: EkoNiva will purchase the necessary equipment for a local health center, co-finance the construction of a health and fitness center and renovate an outdated water supply system.

“I am very happy that we are participating in this support program, as it offers the opportunity to do even more for our employees and people in rural areas, so that these villages become a truly attractive place to live, enabling young people to start families here instead of leaving their homes for bigger cities in search of a better life.”

Stefan Dürr, President of EkoNiva

Further information can be found on:

- <https://www.ekosem-agrar.de/en/news/articles/making-life-in-rural-areas-more-attractive-6bovn-mxdyomy/> (English)
- <https://www.ekoniva-apk.ru/press/news/1919-sdelaem-selo-privlekatelny-mestom-dlya-zhizni> (Russian)
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- <https://www.ekoniva-apk.ru/press/news/1877-talantu-nu-zhno-pomogat> (Russian)
- <https://www.ekoniva-apk.ru/press/news/1849-olimpijsk-ie-nadezhdy> (Russian)



South Africa: A journey towards negative net carbon emissions on dairy farms by building carbon sinks

SEVEN FARMS DEMONSTRATED NEGATIVE NET CARBON EMISSIONS OVER THE STUDY PERIOD. THIS ACHIEVEMENT CONTRIBUTES TOWARDS CHANGING THE NARRATIVE OF THE NEGATIVE IMPACT OF DAIRY FARMING ON THE ENVIRONMENT.

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ALIGNMENT WITH SDGS



Dairy has been targeted as a source of greenhouse gas emissions. However, research has shown that grazing livestock on pasture-based dairy farms restore carbon to the soil, enhancing its biodiversity and countering climate change. This poses the question: If farms can have a positive impact, but are also a source of negative impact, what is the net effect? This is an important consideration when assessing the negative contribution that dairy farming makes to climate change. Trace & Save assesses both soil carbon and greenhouse-gas emissions yearly on pasture-based dairy farms in South Africa. This places us in the unique position of being able to assess the net carbon emissions on these farms. It is important for us to understand the potential positive impact that dairy farming can have.

The aim was to assess the relative impact of dairy farms on climate change by adding greenhouse gas emissions to soil carbon change. An increase in soil carbon is recorded as a negative emission, and therefore mitigates the impact of greenhouse gas emissions. The net emissions give a true indication of the impact of pasture-based dairy farms.

MOVING THE WHEEL

Soil carbon levels are assessed on farms annually, across the entire farm, by taking composite soil samples and analysing them for total carbon % (LECO). On these same farms, a carbon footprint assessment is carried out each year, which calculates the total greenhouse gas

“A assessment of 45 farms demonstrated an increase in soil carbon of 8.9 tons CO₂e per hectare and year.”

Craig Galloway

emissions resulting from the respective farming practices. These emissions are from practices both on-farm, and emissions caused by products bought by the farm. The measurement of both factors allows for the net carbon emissions assessment to be done. The assessment was completed on 45 farms, 44 across the Eastern Cape Province, and one in the Southern Cape of South Africa

HISTORY OF SUCCESS

The combined average trend of all 45 farms demonstrates an increase in soil carbon of 8.9 tons CO₂e/ha/year and greenhouse gas emissions of 27.5 tons CO₂e/ha/year. This indicates a net carbon emission of 18.6 tons CO₂e/ha/year. In real terms, these 45 pasture-based dairy farms have a net negative effect which is 68% of what is generally understood and discussed.

In total, there are seven farms which had negative net carbon emissions for the duration of this study. This should not detract from the emission impact of the other 38 farms, which remain a challenge. It should be noted that of these farms, only 15 of them are not making the positive contribution of increasing soil carbon.

These results are exciting for farmers, the dairy industry and for consumers. For farmers, it shows their commitment to becoming more sustainable. Increased soil carbon is also indicative of improved soil health, which is beneficial to farmers. It allows the dairy industry to redress the misrepresentation of dairy farmers only having negative environmental impacts. For consumers, it provides evidence of positive actions taken by farmers to safeguard the environment farmers that should be supported and celebrated.

NEW OPPORTUNITIES

Trace & Save will continue to measure soil carbon and carbon footprints on farms. Both form part of the broader yearly sustainability assessments that are carried out on the participating farms. Trace & Save assesses soil health, water use efficiency, greenhouse gas emissions, nutrient-use efficiency, biodiversity conservation, people well-being and animal welfare each year on the participating farms. These assessments assist farmers to identify the impact of changes in management practices to the sustainability of their farms, and to identify opportunities for further improvement.

More information about the carbon balance on dairy farms [here](#).

South Korea: Strengthening the criteria for managing wastewater on dairy farms

PRESERVING WATER RESOURCES AND IMPROVING CONSUMER PERCEPTION BY IMPROVING WATER QUALITY IN DAIRY AND LIVESTOCK WASTEWATER

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ALIGNMENT WITH SDGS



Due to the limited area of pastureland in Korea, the Korean dairy sector manages a dense dairy agriculture. Therefore, the management of wastewater after milking is very important to maintain an adequate environmental welfare. To achieve this, milk producers are working closely with the Korean Government to manage and treat livestock effluents in a special way that is adapted to the particularities of the Korean dairy sector.

Water used during milking, cleaning and disinfection of the milking parlour and water used for livestock care are considered critical sources of contamination for the rivers and the surrounding environment. Korean civil society and consumers, with the support of local governments and dairy-related organizations, have facilitated the introduction of a measure in 2012 to strengthen the quality of washing water to a level similar to that of industrial wastewater. Dairy farms must now have a nitrogen management programme in place to maintain nitrogen levels on 120mg/litre. Criteria in the following categories, such as biochemical oxygen demand (BOD), total organic carbon (TOC) content, suspended solid (SS) and total nitrogen (T-N) are also being considered.

The development of wash water disposal facilities established by the Korean government has proved successful and meets the convenience of milk producers. Most dairy farmers have already installed the facility or plan to install it by 2024, despite the high installation cost of \$30,000 to \$40,000.

MOVING THE WHEEL

Following the establishment of extensive countermeasures in advanced livestock manure management in 2012, the Government has been strengthening the level of effluent each year in stages. Continued advocacy and political support from the central and local governments in Korea, and the positive perception by dairy farmers of the quality of wastewater has resulted in a great improvement in water quality, which has motivated other farmers to install wastewater disposal facilities. By 2024, each farm will be equipped with sanitary facilities.

A VALUABLE INITIATIVE

This ongoing initiative aims to further improve the quality of livestock effluent. In addition, the semi-automatic sanitary facilities are convenient for the use of livestock farmers, which allows for labour savings in the treatment of effluents.

The initiative also aims to increase confidence in the Korean dairy sector by supporting job creation and the vitalisation of industries around the dairy sector. The Korean dairy sector believes that it could strengthen the self-sufficiency of domestic dairy products and contribute to improving food security and nutrition in Korea.

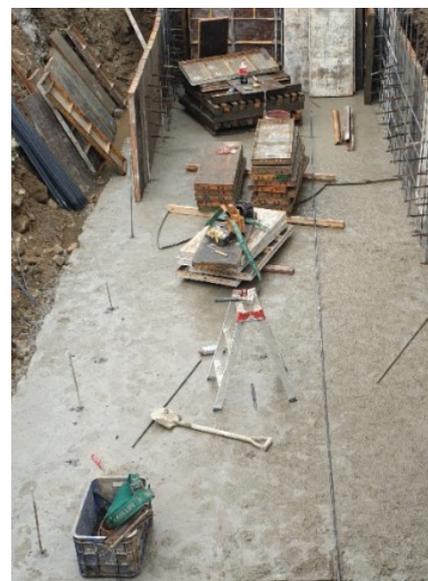
“By 2024, every farm will be equipped with the sanitation facilities.”

Byung Gab Son

NEW OPPORTUNITIES

The higher quality of domestic dairy products in Korea provides opportunities for domestic dairy processors to access markets and offer new products in the South-East Asia regions, such as China and Viet Nam.

More information on the Act on the Management and Use of Livestock Excreta [here](#).



Sweden: Focus on nutrient loss on dairy farms - Greppa Näringen

FOCUS ON NUTRIENTS (GREPPA NÄRINGEN) IS THE LARGEST SINGLE UNDERTAKING IN SWEDEN TO REDUCE LOSSES OF NUTRIENTS TO AIR AND WATER FROM LIVESTOCK AND CROP PRODUCTION BASED ON KNOWLEDGE TRANSFER AND VOLUNTARY PARTICIPATION BY THE FARMER.

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ALIGNMENT WITH SDGS



In 2001, The Swedish Board of Agriculture, The County Administration Boards, The Federation of Swedish Farmers and a number of companies in the farming sector started the project aimed at reducing nutrient loss on farms. The stakeholders, the Swedish farmers, saw a trend of nutrient management regulation in neighbouring countries and they were keen to avoid the administrative burden and threat of penalties and wanted to avoid mandatory reporting. They therefore adopted a voluntary knowledge transfer approach.

There were several reasons for increased pressure on the agricultural sector. The eutrophication of the Baltic sea was generally derived to nutrient loss from agriculture at the time. There was also increased focus on environmental measures in EU's Common agricultural policy and new national environmental targets had recently been taken.

THE PROMISE

Economically, environmentally, and socially sustainable food production in Sweden and its surrounding waters.

The purpose is:

- reduce emissions of greenhouse gases
- reduce losses of nitrate from farmland
- reduce ammonia emissions from manure
- reduce losses of phosphorus from farmland
- avoid losses of pesticides into surface and groundwater
- increase energy efficiency on farms

MOVING THE WHEEL

The project is a joint venture between the Swedish Board of Agriculture, County

“Nine out of ten farmers have implemented small and large environmental measures at their farms following a visit from an adviser. Most of them believe that these measures have also benefited farm profitability. Good for the environment and good for business!”

Victoria Thuillier

Administrative Boards and the Federation of Swedish farmers. Other key players are advisory firms in Sweden. The broad collaboration has offered a solid base and acceptance for the project by decision makers and farmers.

To make the project lasting and successful all four areas below had to be put in place:

- Design and implementation of a knowledge transfer program.
- Public relations strategy and marketing of the project to attract farmers and advisers to the initiative.
- Training of advisors.
- Secure long-term investment to further develop the program and increase the number of participants.

While nutrient management was the core of the project from day one, today almost 20 years later the project has evolved to a broader environmental and climatic sustainability focus.

HISTORY OF SUCCESS

Focus on Nutrients has been successful in achieving its initial goals and is still going almost 20 years later. More than 35 000

farm visits have been carried out since the beginning of the project. The on-farm visits are performed by more than 200 advisors that are employed by 45 different advisory firms across Sweden.

The farm visits that focused on dairy feeding ranked among the best in achieving actual change on farm in the member survey from 2017-2019. Most farmers were generally positive to the meeting with the advisor. In the same survey, 87% of the farmers answered they received concrete and relevant tips on changes they can make in their enterprise. In 2017-2019, 32% of the participants in the project Focus on Nutrients were dairy producers.

A VALUABLE INITIATIVE

Focus on Nutrients is based on positive drivers such as voluntary cooperation, knowledge, and resource management. This provides gains to the environment, entrepreneurs, and society. In our view, this is environmental work at its very best! It has been beneficial to farmers, advisors, and consumers.

NEW OPPORTUNITIES

Broadening the concept beyond sustainable nutrient use on farms has already been done to include more sustainability aspects such as climate, biodiversity, energy use, to name a few. There is also a potential to broaden the target group to smallholders, hobby farms and livestock generally not kept for agricultural purposes such as horses. Sweden has more horses than dairy cows for example. While resource efficiency and drivers of sustainable production generally is well known within the dairy sector in Sweden, this may not be the case within the equine sector.

Other potentials are improved data collection and data analysis depending less on farmer and adviser effort, which supports good and constructive discussions and strategies.

MORE INFORMATION

- [Focus on nutrients website - mainly in Swedish](#)
- [Focus on nutrients 10 year report from 2010](#)
- [Focus on nutrients - summary leaflet](#)



The UK: Turning the tide on plastic pollution

- Ambitions from the dairy sector

WITHOUT ACTION, IT IS ESTIMATED THAT BY 2050 BY WEIGHT THERE WILL BE MORE PLASTIC IN THE OCEAN THAN THERE IS FISH.

AUTHOR

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The environmental impact of plastic packaging, has solidified itself in public and political consciousness. The scale of this issue cannot be overstated, with one estimate suggesting that by 2050 by weight, there will be more plastic in the oceans than there are fish¹.

Plastics provide many benefits unparalleled by other materials and therefore play a vital role in ensuring high quality and safe packaging. However, it is also imperative to ensure the sustainable use and disposal of these products.

As the UK Government and its devolved administrations look to legislation including the introduction of deposit return schemes, producer responsibility reforms and plastic taxes, consumers are increasingly willing to signal their beliefs through purchasing decisions. Clearly now is the time for action, and the UK dairy sector is committed to addressing these challenges and assist in turning the tide of plastic pollution.

OUR PROMISE

As part of our ambition, Dairy UK has committed to a suite of wide-reaching targets to incentivise change and drive progress within the industry through the UK Dairy Roadmap. We have also become a signatory of the UK Plastics Pact² a world-leading pledge to address the threat of plastic pollution. Through both these initiatives Dairy UK aims to:

- Take action to eliminate problematic or unnecessary single-use packaging items through redesign, innovation or

ALIGNMENT WITH SDGS



alternative (reuse) delivery models.

- 100% of plastic packaging to be reusable, recyclable and compostable.
- 70% of plastic packaging effectively recycled or composted.
- 30% recycled content across all plastic packaging, with a target 50% recycled content HDPE milk bottles.

MOVING THE WHEEL

Key to delivering these ambitions is ensuring consistency across the industry and a policy framework which incentivises change. Through the Dairy UK Sustainability and Environment Committee, the industry continues to work with government and wider stakeholders on reforms to producer responsibility schemes, waste collections and financial incentives.

Although unified in our ambition, companies are taking their approaches to delivering change which supports the unique demands of their business. Innovation and alternative materials provide one option, others aim to promote reusable or recyclable packaging, whilst some seek to eliminate or reduce single-use, unnecessary or otherwise damaging packaging altogether.

HISTORY OF SUCCESS

To date, we have seen vast improvements captured in part by the Dairy UK's annual Environmental Benchmarking Survey. Particular success has been seen in bottled milk categories, where at present HDPE milk bottles are 100% recyclable, collected in 99% of local authority recycled collections, and achieve a recycling rate of up to 80%³⁴. Furthermore, data

“Through the Dairy UK Sustainability & Environment Committee, the industry continues to work with government and wider stakeholders on reforms to producer responsibility schemes, waste collections and financial incentives.”

Henry Clifford

sourced from the membership of Dairy UK indicates that the average recycled content for HDPE milk containers is between 20-25%⁵, however, individual companies have demonstrated levels over 40%⁶.

Other achievements include the gradual transition away from non-recyclable packaging including plastics straws and polystyrene yogurt pots to reusable or more readily collected and recycled alternatives, and recycled content of up to 90% within the PET trays used to packaging cheese products⁷.

NEW OPPORTUNITIES

While positive steps are being taken every day, a key challenge remains in flexible packaging and films. Dairy UK and its members continue to work closely with government and other industry stakeholders to develop appropriate and innovative solutions to improve the sustainability of these packaging items.

As a sector we are proud of the steps we've taken so far to address the issue of plastic, but as we look to the future, further and ambitious action will be needed to meet our goals. Public opinion on plastic has permanently shifted and not taking any action is not an option.

More information on [The Dairy Roadmap](#) and [The UK Plastics Pact](#).

¹ Ellen McArthur Foundation and the World Economic Forum – *The New Plastics Economy*

² WRAP, The UK Plastics Pact

³ WRAP, *HDPE Milk Bottles*

⁴ RECOUP, *2017 Household Plastic Collection Survey*

⁵ The UK Dairy Roadmap

⁶ Biffa Polymers

⁷ Dairy UK, Environmental Benchmarking Survey



The US: Dairy is working together to be an environmental solution

U.S. DAIRY HAS SET NEW 2050 ENVIRONMENTAL GOALS TO BE CARBON NEUTRAL OR BETTER, OPTIMIZE WATER USE, WHILE MAXIMIZING RECYCLING AND IMPROVE WATER QUALITY BY OPTIMIZING UTILIZATION OF MANURE AND NUTRIENTS.

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ALIGNMENT WITH SDGS



U.S. Dairy's 2050 environmental goals build on a decades-long commitment to producing nutritious dairy foods that can sustainably feed a growing population. In 2009, the U.S. Department of Agriculture and the Innovation Center for U.S. Dairy agreed to work jointly in support of the industry's first voluntary goal, to reduce GHG emissions for fluid milk by 25 percent by 2020. Years of research, investment in new technologies and improved on-farm practices have resulted in significant progress. Producing a gallon of milk in 2017 involved 30 percent less water, 21 percent less land and a 19 percent smaller carbon footprint than it did in 2007, according to a study published in the *Journal of Animal Science*¹. Earlier this year, U.S. dairy set new, voluntary environmental goals to align with SDGs 6, 12, and 13 and advance its ability to build a sustainable future. The goals include achieving neutral carbon emissions (or better), optimized water usage and improved water quality by 2050.

“Developing new 2050 environmental goals to help meet the SDGs demonstrates U.S. dairy’s long-standing values of responsible production, nourishing communities, and continuous improvement.”

Dr Jamie Jonker

1 Capper, J. L., & Cady, R. A. (2020). The effects of improved performance in the U.S. dairy cattle industry on environmental impacts between 2007 and 2017. *Journal of Animal Science*, 98(1). <https://doi.org/10.1093/jas/skz291>

The SDGs call for transformative change around the world to improve lives and foster environmental stewardship. U.S. dairy aspires to be an environmental solution and is contributing to this call to action by setting new environmental goals to be carbon neutral or better, optimize water use and improve water quality by 2050.

MOVING THE WHEEL

Through the Innovation Center for U.S. Dairy, farmers, cooperatives, processors and other stakeholders established the [U.S. Dairy Stewardship Commitment](#)². Stewardship Commitment reporting correlates with global dairy sustainability indicators and is recognized as meeting global reporting standards to demonstrate how U.S. dairy supports the SDGs.

As an aide to the Stewardship Commitment, the 2019 [Materiality Assessment and Guide](#)³ align along two dimensions: (1) significance of social, environmental and economic impacts and (2) importance to stakeholders. This provided a strong foundation for setting 2050 environmental goals for U.S. dairy. The Innovation Center's Environmental Stewardship Committee, through a year-long consultation process and with input from the multi-stakeholder Dairy Sustainability Alliance/E, developed the new goals, approved by the Innovation Center Board of Directors, that that articulate the collective U.S. dairy intention and direction to pursue dairy as an environmental solution.

2 Innovation Center for U.S. dairy (2020). Environmental Commitment, available at: http://commitment.usdairy.com/assets/pdf/commitment_book_final_3_in-line.pdf

3 Innovation for U.S. Dairy (2019). Materiality Assessment and Guide, available at: <http://commitment.usdairy.com/assets/pdf/Materiality%20Guide%20for%20U.S.%20Dairy%20Companies.pdf>

HISTORY OF SUCCESS

In 2008, the Innovation Center embarked upon a science-based approach to measure and improve the industry's environmental footprint. According to a comprehensive life cycle assessment (LCA) commissioned by the industry, the production of all dairy products in the U.S. accounts for around 2 percent of total U.S. GHG emissions⁴.

U.S. dairy used the research as the foundation for the creation of best practices and tools for producers, processors, and others throughout the dairy supply chain to make meaningful change in the field, on farm and in plant. The LCA also helped identify opportunities to further reduce GHG emissions while providing an important baseline for U.S. dairy.

THE VALUE OF THE INITIATIVE

Collaboration is at the heart of the U.S. dairy community. Through International Dairy Federation, Dairy Sustainability Framework, Food and Agriculture Organization of the United Nations and other global dairy networks, the U.S. dairy community is working to understand and tackle complex issues around sustainable food systems, taking an integrated approach to continuously improve the sustainability of dairy systems and contribute to the achievement of key SDGs such as protecting the environment and ending hunger.

4 Thoma, G. J., Popp, J., Nutter, D. W., Shonnard, D., Ulrich, R., Matlock, M., Adom, F. (2013). Greenhouse gas emissions from milk production and consumption in the United States: A cradle-to-grave life cycle assessment circa 2008. *International Dairy Journal*, 31, S3–S14. <https://doi.org/10.1016/j.idairyj.2012.08.013>

Developing new 2050 environmental goals to help meet the SDGs demonstrates U.S. dairy's long-standing values of responsible production, nourishing communities, and continuous improvement. The people that depend on nutritious dairy foods to support their health and well-being share these values.

NEW OPPORTUNITIES

U.S. Dairy will work collaboratively to accelerate progress toward the new environmental goals and increase access to affordable technologies and practices. Foundational work on environmental and economic research will inform decisions, update models and advance outcomes for dairy farmers. Expedited economic and environmental projects will create new revenue streams as a catalyst for solutions. And collaborative action will stimulate greater access to technical, financial, and educational support and motivate adoption of environmental practices across all dairy farms. To ensure continued momentum, progress toward these targets will be measured and reported in aggregate every 5 years, starting in 2025, through 2050 using meaningful markers of progress such as those found in the U.S. Dairy Stewardship Commitment.

UNDENIABLY DAIRY

**DID YOU KNOW,
PRODUCING A GALLON OF MILK
IS GETTING GREENER?**

America's dairy farmers are committed to feeding people while taking care of the planet.

19% less GHG emissions **CO2**

21% less land used

30% less water used

From 2007-2017

Judith L. Capper, Roger A. Cady,
The effects of improved performance
in the U.S. dairy cattle industry on
environmental impacts between
2007 and 2017,
Journal of Animal Science,
Volume 06, Issue 1, January 2020,
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GLOBAL DAIRY EXPERTISE SINCE 1903

HELPING NOURISH THE WORLD WITH SAFE AND SUSTAINABLE DAIRY

The IDF is the leading source of scientific and technical expertise for all stakeholders of the dairy chain. Since 1903, IDF has provided a mechanism for the dairy sector to reach global consensus on how to help feed the world with safe and sustainable dairy products.

A recognized international authority in the development of science-based standards for the dairy sector, IDF has an important role to play in ensuring the right policies, standards, practices and regulations are in place to ensure the world's dairy products are safe and sustainable.



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