



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 second IDF Dairy Sustainability Outlook aims to provide a viewpoint on sustainable development of relevant importance for the dairy sector. It offers an opportunity for those involved in the field to share ongoing projects and new research on sustainability of importance for the dairy sector and contributions to the 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

We are pleased to present the 2nd edition of IDF Dairy Sustainability Outlook. In this issue, we present a wide range of national initiatives for sustainable dairying related to the commitment to national sustainability programmes, climate neutral development, biodiversity improvement, food waste reduction, women's empowerment through the dairy sector, the creation of a sustainable workplace, recycling and packaging, and the circular economy. There is also a general description of global sustainability initiatives, which includes the latest FAO LEAP methodologies and some research results on healthy diets, the impact of animal products on climate change and why methane should be treated in a different way from other GHGs.

We wish all of you an interesting and informative read.

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NEWS FROM IDF MEMBER COUNTRIES

THE AUSTRALIAN DAIRY INDUSTRY PROMISES TO PROVIDE NUTRITIOUS FOOD FOR A HEALTHIER WORLD

Australia: dairy industry reports progress against 2020 Goals and Targets and announces the new Goals and Targets for 2030

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ALIGNMENT WITH SDGS



The Australian dairy industry’s Sustainability Framework was agreed in 2012 – and the 2020 Goals and Targets set in 2013. Approaching 2020, and in collaboration with our external Consultative Forum, we agreed to continue our efforts, but align with the UNSDGs time horizon of 2030.

Our dairy promise is underpinned by 4 commitments:

1. Enhancing economic viability and livelihoods – creating a vibrant industry that rewards dairy workers and families, their related communities, business and investors
2. Improving the wellbeing of people – providing nutritious, safe, quality dairy food
3. Providing best care for all our animals – striving for health, welfare and best care for all our animals throughout their lives
4. Reducing environmental impact – meeting the challenge of climate change and providing good stewardship of our natural resources

The Framework was originally informed by a Materiality Review in 2011. Further reviews were undertaken in 2014 and 2016, with a more comprehensive review planned for later in the 2019 calendar year. Action plans to address the Goals and Targets of the Framework are being undertaken – and key metrics are reported to show our commitments – where we have progressed, and where we need to do more.

“The new 2030 Goals and Targets have identified four new areas to report progress: Nutritionally sustainable diets, Taking an industry position on Human Rights, Antimicrobial Stewardship and Halving food waste by 2030.”

Helen Dornom

HISTORY OF SUCCESS

The Australian dairy industry Sustainability Framework is informed by an external Consultative Forum – this Forum has met 13 times (twice yearly since 2013, with the most recent meeting held 9th May 2019). Around the 100 members of this forum provide both context for global and national developments in key sustainability issues and feedback on the dairy industry’s actions and progress.

The Australian dairy industry Framework provides a roadmap for how the industry needs to address key issues – the Framework is about whole of industry change and provides credible and robust evidence to support our efforts. Individual Australian companies align with the Framework – but may prioritise particular actions to meet specific market demands.

NEW OPPORTUNITIES

The new 2030 Goals and Targets have identified 4 new areas that the Framework is addressing, and progress will be reported in the 2019 Sustainability Report. These issues are:

1. Nutritionally sustainable diets – ensuring the nutritional benefits of dairy are recognised and continue to have a role in providing nutritious food for a healthier world
2. Taking an industry position on Human Rights
3. Antimicrobial Stewardship – the dairy industry is committed to using antibiotics responsibly – as little as possible, as much as necessary – to protect the health and welfare of our animals and maintain access for human health
4. Halving food waste by 2030 – actions also focus on reducing waste and using recyclable, compostable or degradable packaging

As well, the Australian dairy industry is considering a Carbon Neutral target for 2030 – currently the GHG emissions intensity target is a 30% reduction on 2015 levels by 2030.

More information about the full 2018 Sustainability Report and our 2018 Report Card can be found for information [here](#).

ENVIRONMENTAL LCA OF CANADIAN MILK PRODUCTION: COMPARISON 2011 - 2016

Canada: study results reveal reduced environmental impact and efficiency of Canadian milk production

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Dairy Farmers of Canada (DFC) published its first life cycle assessment (LCA) in 2012 in order to set a baseline of environmental performance for Canadian milk production. The industry has also invested heavily in research in sustainable production over many years – in, for example, animal care, genetics, forages, and greenhouse gas mitigation. In 2018, DFC undertook an update of the LCA, in part to be able to assess the level of implementation of beneficial management practices and to identify areas for continued research. This study characterizes the environmental performance of Canadian milk production in 2016 and compares it to performance in 2011. It assesses several environmental issues, including carbon footprint, water consumption, and land use.

The study highlighted areas where improvements were made, as well as areas for continued efforts.

This study follows the IDF guidelines on [A common carbon footprint approach for the dairy sector](#), revised in 2015, as well as the [IDF Guide to Water Footprint Methodology for the Dairy Sector](#). In order to compare to the first LCA completed in 2011, data sources from both 2011 and 2016 were modelled using the most recent methodologies. The system boundaries consider a cradle-to-farm gate approach, including transportation of raw milk to the processor's gate, but excluding processing, distribution and consumption.

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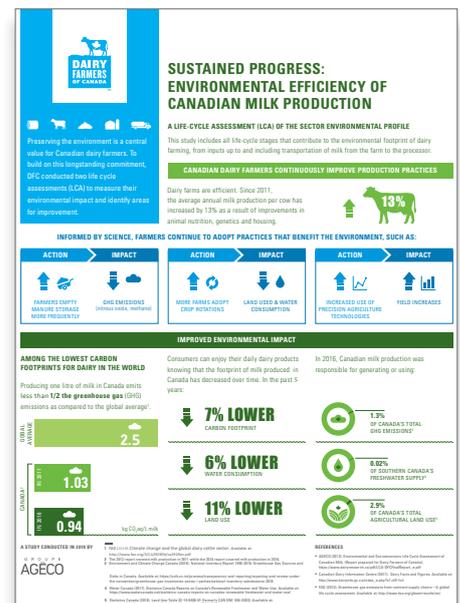


HISTORY OF SUCCESS

Results indicate that environmentally friendly farm practices, including more diversified crop rotations, higher quality feed, reduced tillage and precision agriculture techniques, as well as increased milk production per cow drove improvements in environmental profiles. Notably:

- The carbon footprint of Canadian milk production was 0.95 kg CO₂e/L milk in 2016, a 7% reduction per litre from 2011.
- Average water consumption was 26.6 L/L milk, a 6% reduction per litre between 2011 and 2016.
- The amount of land required to produce the average litre of milk was 1.75m², an 11% reduction over the 5-year period.

The study has shown that the Canadian dairy sector has a limited impact on the country's natural resources. Dairy farming uses 2.9% of total agricultural land and only 0.02% of what is defined as 'southern Canada's freshwater supply' (i.e. where 98% of Canadians live). It also contributes only 1.3% of Canada total GHG emissions. Further, the study showed significant adoption of beneficial management practices among dairy farmers across the country – improving efficiency in crop production, feeding practices and genetics.



Further information on the project can be found on the DFC website [here](#). An infographic can be found [here](#).

“The Canadian dairy sector has a limited impact on the country's natural resources. Dairy farming uses 2.9% of total agricultural land and only 0.02% of what is defined as ‘southern Canada's freshwater supply.’”

Karen Clark

AFTER TWO YEARS OF INTENSE PARTICIPATORY WORK, THE CHILEAN DAIRY SECTOR DEFINED ITS PRIORITIES IN ITS “DAIRY SUSTAINABILITY AGENDA BY 2021”

Chile: sustainability as the engine of the Chilean dairy sector

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The Consorcio Lechero is aware of the challenges that currently faces the national dairy industry in matters of economic, social and environmental sustainability. Thus, it decided to draw a way of work through a collaborative project that has designed, convened and facilitated the development of the first Dairy Sustainability Agenda.

This document seeks to deliver an integral and strategic approach to face the challenges and opportunities of the national dairy sector, identifying its priorities according to the three pillars of sustainability. In addition, it compiles the actions that the national dairy sector has carried out in matters of sustainability, systematizes the lifting of priorities, and exposes the process of participatory work that has meant the construction of this document.

MOVING THE WHEEL

In the process of designing this Agenda, we use the methodology proposed by the Dairy Sustainability Framework (DSF). We chose this framework, because it accommodates regional particularities and adapts to the reality of each country. Therefore, it respects the prioritization of problems related to sustainability, in such a way that organizations can adapt the methodology to their own agendas promoting the participation of all stakeholders.

The initiative involved the participation of more than 380 people representing the different links of the chain, which allowed understanding and defining the sustainability priorities of the sector, its opportunities, objectives and actions to be carried out.

HISTORY OF SUCCESS

The Chilean Dairy Sustainability Agenda represents concrete proposals and clear

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“The Chilean Dairy Sustainability Agenda is presented with concrete proposals and clear challenges, looking at sustainability in an integral way and became the instance that allows coordinating the actions that different companies are already developing”

Natalie Jones

challenges. It looks at sustainability in a holistic way and enables coordination of actions that different companies are currently developing. Some of the work priorities included in this agenda are:

- In the economic sphere, work will be done to improve the level of knowledge about the functioning of the dairy market in the dairy industry, generate greater market development and improve the assessment of the sector's impact on the rural economy.
- In the social pillar of the agenda, the sector will seek to attract new generations and make the dairy sector a more attractive career option, promote greater recognition of animal welfare in our dairies, and continue to guarantee safety and food safety in the different sizes of industries, contributing to the evaluation of dairy products in consumers.
- In the environmental pillar, the sector will gain in the use and care of water, the treatment of waste and the management of greenhouse gases.

FUTURE OPPORTUNITIES

This work has allowed us to review the current situation of our industry, revealing



the need to generate baselines that show us the horizon of our gaps and allow us to measure our progress and the effectiveness of the actions we propose for a sustainable development.

Currently, we have two national projects underway that seek to know where our processors and farmers are with respect of our priorities. At processors' level, 12 companies with 21 processing plants throughout the country - which represent about 90% of processed milk in Chile - took on the challenge of participating in the process of building a Clean Production Agreement. This project will be the vehicle that will allow dairy companies to raise their baselines and gaps, agree actions and build indicators to report their progress.

On the farmer's side, the Chilean dairy sector will be one of the three pilots that will initiate the “Sustainability Program for the Chilean Agri-food Sector” led by the Ministry of Agriculture. This program seeks to value the sustainability attributes of our dairy farmers in both the internal and external markets through standards developed by the sector together with the government and the academy as well as seeking to facilitate the articulation of public funds that support progress relevant areas.

would allow us to articulate the necessary resources to promote the implementation of more sustainable practices on dairy farms and valued its sustainability attributes in both national and international markets.

Further information on the project can be found on the [Consorcio Lechero](#) website and on the “[Chilean Dairy Sustainability Agenda by 2021](#)”

GREEN AMBITION 2050

Denmark: milk production carbon net zero by 2050

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An increasing number of consumers are concerned about the climate effect of milk production and we need to make sure that our consumers maintain their confidence in milk as source of healthy, nutritious and sustainable food.

An important part of the strategy is to cooperate with farmers to measure and to increase the amount of CO₂ to be sequestered. Since 2013 almost 700 on-farm meetings have been held to inform about possible actions and more than 5000 climate checks have been carried out on farms in order to make instant improvements and to plan for further improvements. A database has been established in order to measure and benchmark production.

HISTORY OF SUCCESS

Since 1990 Arla farmers have reduced their emission per kilo of milk by 24%. Emission from the dairy activities such as packaging and transport has been reduced by 22% since 2005 notwithstanding the fact that production in the same period has increased by 40%.

According to FAO the global emission average is 2.5kg CO₂ per kilo of milk. Arlafoods' farmers have already achieved an average emission of 1.15 kg CO₂ per kilo of milk.

The main beneficiaries are the consumers who will get milk with less emissions, but the farmers themselves will also benefit to a certain extent since CO₂-reduction is often cost reducing.

MOVING THE WHEEL

Next step is to establish parameters to indicate the farms imprint on environment and climate in order to best determine in which areas the largest potential for improvement lies and to identify farms with the best practice.

More information can be found on the [Arla climate ambition](#) website.

“Arlafoods ambition for the 10,300 farmer owners is to reduce emissions from milk production by 30% per kilo of milk within the next ten years and to work towards net zero emissions in 2050.”

Kirsten Holm Svendsen



FROM CONSUMER EXPECTATIONS TO OPPORTUNITIES FOR THE DAIRY SECTOR, THE BIODIVERSITY ISSUE IS A GROWING CHALLENGE FOR FARMERS, BUT THE QUESTION REMAINS, HOW TO DEAL WITH IT?

France: maintaining and enhancing biodiversity on dairy farms – the eurodairy project

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The EuroDairy programme aimed to develop a network of farmers, advisers and stakeholders to improve the viability and sustainability of milk production in Europe. The biodiversity issue is crucial for dairy farmers as they have a particular role to maintain habitats and food to ordinary biodiversity through grasslands and agroecological infrastructures (hedges, ponds, ...). Moreover, this issue is both important for consumers whose interest is growing, and for farmers that rely on biodiversity development, through ecosystems benefits for production for example. To support its network, EuroDairy aimed to identify current practices and opportunities to favour ordinary biodiversity development on their territory.

The objective of EuroDairy was to develop a common method to assess biodiversity on dairy farms to highlight the positive impact of the farm on its territory and to develop virtuous practices. Based on this biodiversity assessment tool (BIOTEX developed by the French Livestock Institute IDELE), it was then possible to disseminate these results in Europe.

First, an agreement between the EuroDairy members was made on a common method and definition of biodiversity (a focus on ordinary biodiversity, choice of indirect indicators, analysis of the territory, farm and plot scale). Then, 52 BIOTEX biodiversity assessments were done in 10 European countries. Each farm received an individual report of its impact and its potential improvement levers. Moreover, 12 case studies were prepared to present different approaches and opportunities for European farmers. All these results and analyses (reports, research and policy recommendations, case studies...) were disseminated with presentations,

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“The EuroDairy program is a solid working frame that helps dairy farmers progress their biodiversity impacts.”

Ronan Lasbleiz

discussions, workshops, videos and webinars through Europe.

HISTORY OF SUCCESS

This programme helped to develop and to test through Europe a strong biodiversity assessment method which is science based, easy to use, understandable by farmers and based on indirect indicators with a link between the farm and its area. Training materials on the method were prepared, and the first results showed that it was an effective method to address the biodiversity issue with farmers to discuss the different levers and opportunities. The workshops and the exchanges with farmers also highlighted that biodiversity is a growing issue for the whole dairy sector. Therefore, there is a significant need for usable and understandable methods and tools to progress together.

Thanks to the EuroDairy program, the dairy sector was able to develop a strong method and a tool that support the action of dairy farmers to make progresses regarding the biodiversity issue. Based on this experience, it is now more feasible to disseminate a biodiversity program for farmers. Thus, the main beneficiaries are first the farmers but also, more globally, the organisations that want to rely on a solid working frame to improve its impact on biodiversity and to value the efforts. Consequently, the long-term objective was to support the appropriation of the biodiversity issue by dairy farmers.

52 BIOTEX audits

in 10 countries through Europe

72%

of the farms audited had a neutral or positive impact on the contribution of their farms to the heterogeneity of their UAA (as they preserve habitats and food with grassland, hedges, pond...)

And a wide range of

**opportunities
for farmers!**

MOVING THE WHEEL

Through this programme, we saw that this work on a method, a tool and the analysis of the best practices meets the citizen expectations and the farmers' daily work. Now, to move towards a general appropriation of the biodiversity issue, it is important to support the dairy sector organisations (farmers associations, companies, cooperatives...) when they plan to work on biodiversity improvement. Moreover, to strengthen this deployment, the inclusion of non-dairy organisations is also necessary, like local authorities, environmental associations or local communities around territory project. Supported by these stakeholders, the consistency of the projects will be stronger.

Further information can be found on the [EuroDairy biodiversity](#) page and on the [BIOTEX tool](#).



EMPOWERING WOMEN IN DAIRY COOPERATIVES - FUTURE WOMEN MANAGERS

India: enhancing participation of women dairy farmers in governance and management of dairy cooperatives

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Women account for around two-thirds of total time spent on dairying by all the household members. While women spend more time on activities that can be done at home, men spend more time on activities that are performed outside home. The contribution of women members to dairying in the country does not receive due recognition. Such imbalanced labour participation and management of resources/returns hampers growth/progress of dairying at household level because of differences in priorities.

Women, if they start controlling the resources beyond providing labour, can certainly ensure enhanced reinvestment in dairying and also ensure better standard of living for the family.

Dairy cooperatives being farmer owned organisations must initiate enhancing participation of women in various domains of governance, management and active ownership for greater sustainability. In India about 17 million farmers are involved in cooperative dairying, of which 30% are women. This representation appears to be skewed in comparison to their contribution.

The National Dairy Development Board's (NDDB) envisions to enhance participation of women in dairy cooperatives to 50%. NDDB also envisages to ensure every new member of cooperative to be a women and new village dairy cooperative society (DCS) formed to be a women's DCS. It is also envisaged to enhance participation of women in Governance and Management of dairy cooperatives through systematic legal and democratic reforms, training and capacity building of women dairy farmers.

Bringing women to the forefront of co-operative governance was considered important and different measures were taken to achieve the same. The Government of India has mandated two female members

on the governing board of cooperatives through a constitutional amendment and many dairy cooperatives have amended their bylaws to increase numbers of female members and their participation on boards. On the policy and scheme support, The Government of India's schemes now mandate at least 30% of the new members added must be women, while NDDB is targeting more than 50% female participation in these schemes. This is helping women in becoming a part of the mainstream dairy economic activity and also to play an active role in dairy institutional structures.

To further achieve this goal initiative, dairy co-operatives have received support to appoint an 'extension officer' dedicated to increasing the number of female members and their participation in Governance. Workshops, exposure visits and cross learning workshops are undertaken for women to raise awareness and capacity building of women.

Another significant initiative taken by NDDB is to help in establishing and governing all women dairy cooperatives in different parts of the country (Shreeja Milk producer company, Icchamati Cooperative Milk Union, Mulukanoor Women's Mutually Aided Milk Producers Cooperative Union). These institutions are helping women in not only economically empowerment but also in gaining social recognition.

This will lead to faster socio-economic development of rural people as has been observed that women are more prudent in utilising scarce resources for betterment of their families.

HISTORY OF SUCCESS

The beneficiaries of the initiative are the women dairy farmers in the country. The enhanced participation of women will not only improve their wellbeing but also that



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“Women’s participation will help in sustainable growth of dairying in India and secure livelihood for millions of families.”

Dilip Rath

of their families. Women’s participation will help in sustainable growth of dairying in India and secure Livelihoods for millions of families.

- Until March 2018, all women dairy co-operatives number 33242 with a membership of 5 million.
- National Dairy Plan - A central sector scheme supported by World Bank has enrolled 670,000 women members against the targeted 500,000.
- About 110 female extension officers have been appointed across the country to enhance and promote female participation
- 5863: Number of female local resource persons in the country assisting dairy farmers
- 300: Number of women dairy farmers have been elected to various positions of Governance in the cooperatives
- 23: Number of women bearing the responsibility of Chairperson of State Milk Federations and Dairy Cooperatives

OUR NEXT STEPS

In India, there is a plan to take up target-based extension/training/capacity building programs for enhancing the participation of women. The incentivising of women farmers and women’s collectives is key to encouraging greater participation. The next step is the enforcement of legislation, policies and mandates under the scheme to ensure induction and sustained participation of women in dairying.

Further information is available on the [NDDB website](#) and EPM clippings.

THE DUTCH SUSTAINABLE DAIRY CHAIN INITIATIVE

The Netherlands: dairy chain jointly strives for a future proof and responsible dairy sector

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ALIGNMENT WITH SDGS



Through the Sustainable Dairy Chain, an initiative drafted in 2010, dairy organizations (NZO) and dairy farmers (LTO) in the Netherlands work together towards a dairy sector that is future-proof and responsible. In the dairy chain, we want our work to be safe and satisfying; we want to earn a good income, produce high-quality food, respect animals and the environment, and be appreciated by Dutch society.

The Sustainable Dairy Chain has formulated four main objectives to work on: 1) climate-neutral development 2) continuous improvements in livestock health and welfare 3) preservation of grazing 4) protecting biodiversity and the environment. The Sustainable Dairy Chain initiative requires annual updates on the progress towards these objectives, so they can be evaluated, both with partners involved and with societal organizations. The reporting must be based on the best available quantitative information. The sector report, drawn up by Wageningen Economic Research, describes the objectives as pursued by the Sustainable Dairy Chain, the indicators that were chosen to monitor the progress of these objectives, and the performance related to these objectives in 2017. Through the Sustainable Dairy Chain, Dutch dairy companies and dairy farms joined forces to contribute to goals set on the themes climate-neutral development, continuous improvements in livestock health and welfare, preservation of grazing and protection of biodiversity and the environment.

The Sustainable Dairy Chain is a member of the Dairy Sustainability Framework.

WORKING TOWARDS A FUTURE PROOF AND SUSTAINABLE DAIRY SECTOR IN A STRUCTURAL MANNER

All the dairy companies in the Netherlands have designed their own sustainability program in order to achieve the goals set in the Sustainable Dairy Chain. In these sustainability programs the farmers share their new knowledge on reducing their impact and they can compare their efforts and results with each other. Furthermore, they can qualify for extra financial means if they make progress to achieve their own sustainability goals. Measures will be taken if the farmer does not take the responsibility to move ahead.

HISTORY OF SUCCESS

Over the years progress has been made in many of the themes. Looking at the latest report, we see progress when comparing 2017 to 2016. Objectives have been achieved for responsible use of antibiotics, energy efficiency, and sustainable soy. The results have only declined for lifespan. Although a downward trend was visible in the greenhouse gas emissions by the dairy chain for the first time, a trend also visible for the ammonia emissions, still the achievement of the objective is very challenging. There is an upward trend for grazing, and the targeted level of 81.2% of

THE SUSTAINABLE DAIRY CHAIN GOALS SET FOR 2020 ARE:

1. Climate-neutral development, related to dairy farming as well as the dairy producer and transport:

- 20% reduction of greenhouse gasses by 2020 relative to 1990 and climate neutral development
- 16% production of sustainable energy by 2020
- 2% improvement energy-efficiency per year in the period 2005-2020

2. Continuous improvements in livestock health and welfare (related to dairy farming)

- Responsible use of antibiotics, to the standards of the Autoriteit Diergeneesmiddelen (SDa)
- A six-month increase in the average lifespan of cows
- Improvements in the animal welfare score

3. Preservation of grazing (related to dairy farming)

- Grazing kept at least at its 2012 level: 81.2%

4. Protecting biodiversity and the environment (related to dairy farming)

- 100% [responsible soy](#) (RTRS)
- Phosphate and ammonia levels remain within the environmental boundaries
- No net biodiversity loss



“The Sustainable Dairy Chain and the ANCA are an excellent tool to stimulate individual dairy farmers to a sustainable way of producing milk.”

Tjitske Bolt

farms with grazing is within reach. On the themes Animal welfare and biodiversity progress was made by the development of the monitoring system.

Besides the monitoring of the Sustainable Dairy Chain, the model Annual Nutrient Cycle Assessment (ANCA) was developed and introduced to the dairy farmers. ANCA is constructed to provide indicator values for the utilisation of feeds and fertilisers, including manures, and for losses of harmful products. Reference and normative values are presented as comparisons. With the farm specific values of the performance indicators, dairy farmers can justify their farm management towards authorities and the milk processing industry.

ALL THE STAKEHOLDERS IN THE DAIRY CHAIN ARE COMMITTED TO THE SUSTAINABLE DAIRY CHAIN

The Sustainable Dairy Chain consists of a steering group, contact group, program teams and a Sustainable Dairy Chain's advisory board. Due to cooperative effort between dairy farmers, retailers, advisors, politicians, social organizations, science and education, steps forward have been made.

MOVING THE WHEEL

In their 2017 monitoring report, Wageningen Economic Research is positive about the initiative: “it gives a concrete picture of performance at a company level, it develops concrete action perspectives for dairy farmers and organizes incentives in a way that the change is actually implemented.” Wageningen Economic Research underlines that it is important to view and develop the Sustainable Dairy Chain integrally and recommended to look ahead and think about the vision and targets after 2020 as well as to execute a materiality analyse. Wageningen Economic Research also recommends an evaluation of the approach and management of the initiative and, based on the results, improve approach and management.

“Through the Sustainable Dairy Chain, Dutch dairy companies and dairy farms joined forces to contribute to goals set on the themes climate-neutral development, continuous improvements in livestock health and welfare, preservation of grazing and protection of biodiversity and the environment.”

Bregje van Erve

Further information on the Sustainable Dairy Chain on the [website](#).

PUTTING PEOPLE AT THE CENTRE OF SUSTAINABILITY

New Zealand: workplace action plan for sustainable dairying

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ALIGNMENT WITH SDGS



Employment practices on dairy farms are critical to a successful industry. The Sustainable Dairying: Workplace Action Plan emerged from the desire of the NZ dairy sector to front foot the issue and show the public that our sector wants to be recognised as a quality employer. To do this we developed and provided guidance, resources and tools, along with leadership to enable farmers to work towards improvements in their businesses that will attract and retain people. The Action Plan supports the dairy sector's strategy Dairy Tomorrow which describes a broad-based approach to sustainability and describes how we are committed to building great workplaces for [New Zealand's most talented workforce](#).

The action plan was developed by farmers (Federated Farmers) and industry body DairyNZ to assist the 12,000 diverse businesses in the dairy sector to adopt good workplace management practices. It sets out a firm destination and direction for the sector. We are clear that people, are fundamental to driving sustainable, high quality milk production which minimises environmental and social costs.

The quality of the work environment is central to attracting and retaining good people. The benefit people will bring to dairy businesses and to the wider community is the reason why DairyNZ and Federated Farmers want to proactively improve farm workplaces.

MOVING THE WHEEL

We worked with farmers, government organisations and those who supported the intentions of the Workplace Action Plan to develop guidelines under five pillars of good people management: balanced and Productive worktime, fair remuneration, wellness, wellbeing, health and safety,

“The quality of the work environment is central to attracting and retaining good people. The benefit people will bring to dairy businesses and to the wider community is the reason why DairyNZ and Federated Farmers want to proactively improve farm workplaces.”

Jenny Jago

effective team culture and rewarding careers. These guidelines described the features of a quality work environment. We worked with partner organisations to promote adoption of the guidelines setting up initiatives such as ‘friends of the workplace action plan’ to which 1,250 farmers signed up and receive on-going on-line support. We developed tools (e.g. roster builder, contract templates), resources and workshops (e.g. Safety Sorted) to support farmers achieve their goals of providing a quality workplace. Well-known farming leaders came on-board and shared their stories of implementing the guidelines on their own farms. We developed a scorecard to measure progress towards the goals.

HISTORY OF SUCCESS

New Zealand dairy farming is built on a history of innovation, of highly efficient farming systems with a focus on profitability. Embedded in this history is a culture of hard work and long hours to achieve personal goals. As the sector has grown, so too has the diversity of business structures and people who make up the dairy workforce.

The workplace action plan has helped to change the culture of farming. Dairy farmers are aware of the need to provide the work conditions to enable people to thrive within their businesses and are taking steps to deliver this. The use of rosters has increased with ‘5 on 2 off’ off now common place. Awareness and actions that support wellbeing are now also regular features in workplaces. Farming systems that support the use of technology and flexible milking strategies that lead to reduced work hours are being adopted.

PEOPLE WHO WORK ON DAIRY FARMS: THE MAIN BENEFICIARIES

Farm businesses have benefited through a stronger focus on people and the productivity they bring, and the dairy sector as a whole has benefitted through a emergence of a cultural change that recognises the importance of people along with animals and the environment to support competitive and resilient farm businesses.

OPPORTUNITIES TO GROW

Despite the progress made following the launch of the workplace action plan there is still much work to be done. As the demands on dairy farming to demonstrate sustainable practices increase the importance that people play in achieving this also increases.

This year we are refreshing the Workplace Action Plan to ensure the goals are in line with international standards and expectations of customers our farmers supply. We are working closely with dairy processors to achieve this. We have widened the group of organisations that are supporting implementation to include Dairy Women's Network and New Zealand Young Farmers.

Further information can be found on [WAP](#) and [Dairy Tomorrow](#).



EXTENDED PRODUCER RESPONSIBILITY AND CONTRIBUTING TO THE CIRCULAR ECONOMY – IT IS ONLY A MILK BOTTLE BUT A SMALL CHANGE CAN MAKE A BIG DIFFERENCE!

South Africa: dairy changes its milk bottle to support the local recycling market

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ALIGNMENT WITH SDGS



Supporting the circular economy paradigm can be achieved by manufacturers simply by understanding the pathway of their products and packaging through the consumer chain. A recent example in the Western Cape Province of South Africa relates specifically to post consumer recyclability of plastic PET milk bottles. Polyethylene terephthalate (PET) is a type of plastic used to manufacture bottles which are typically used for water, juices and carbonated soft drinks. PET is recognised as a recyclable material and can be produced in a variety of colours and forms.

Due to the surplus availability of colour (pigmented) PET in the local recycling market, recyclers were opting to rather accept clear (non-colour) PET. This meant that colour PET was being diverted to landfill sites. The issue was reported to the dairy manufacturer, Fair Cape Dairies, by its consumers. Consumers had experienced a reluctance by various recyclers to accept Fair Cape PET milk bottles which were uniquely pigmented white in colour.

Fair Cape Dairies has packaged its fresh milk into PET bottles since 2007, with the white colour bottle being iconically linked to the Brand. There had never been any previous issues around the recyclability of the bottle with PET widely accepted as a sustainable packaging solution.

The aim was to change the fresh milk packaging from opaque PET to clear PET so as to assist the local PET recycling

market in the Western Cape Province of South Africa and minimize the opportunity for PET packaging to be diverted to landfill sites.

MOVING THE WHEEL

Discussion with recyclers and waste management organizations in the local industry to find out the extent of the issue around the conversion of opaque PET and the reasons why clear PET was preferred. It was through this engagement with the wider recycling industry that Fair Cape Dairies discovered that the PET market in the Western Cape Province had become saturated with colour PET.

Recyclers further indicated the technical complexities associated with converting colour/opaque PET into recycled material. This information suggested that clear PET was more readily recyclable and therefore preferred by local recyclers above the same material which had been pigmented.

Fair Cape Dairies then performed internal studies to assess the impact of changing from their white-colour PET bottle to a clear PET bottle. These studies included shelf-life and milk quality assessments.

HISTORY OF SUCCESS

The PET industry in South Africa has become significant in size with figures indicating total recycling of 2.15 billion PET plastic bottles in 2017 with a post-consumer recycling rate of about 65%. Fair Cape Dairies packages its fresh milk in PET bottles and therefore recognized its responsibility towards ensuring that consumers are readily able to recycle their packaging.

“The initiative demonstrates that by making even the most subtle changes, producers have the ability to stimulate post-consumer recovery and recycling of their packaging materials.”

Dr Colin Ohlhoff

The organization takes extended producer responsibility very seriously and acted accordingly to support the PET recycling industry. Since the change was implemented, positive feedback has been received from both recyclers and consumers.

The initiative benefits the greater PET recycling industry in South Africa and contributes towards the circular economy and waste reduction goals set out by local Government. Furthermore, the opportunity for producers to engage with waste management organizations and recyclers to improve their understanding of the flow of packaging materials, is recognised.

The initiative demonstrates that by making even the most subtle changes, producers have the ability to stimulate post-consumer recovery and recycling of their packaging materials.

NEW OPPORTUNITIES

The transition to a clear PET bottle, enabled the bottle manufacturer to incorporate recycled PET (rPET) into the final milk bottle composition. The new Fair Cape milk bottle is fully recyclable and is made using 50% recycled PET (rPET).

Recycled PET can be used to make a variety of new products. The polyester fibre produced through the thermal extrusion process has applications in clothing, home textiles, automobile parts and roof insulation. Future opportunities include the development of a milk bottle comprised entirely (100%) of rPET.

More information on the PETCO awards can be watched [here](#).



AN ESTIMATED 20% OF GLOBAL DAIRY PRODUCTION CURRENTLY GOES TO WASTE – A CASE STUDY FROM THE UK ON HOW WE CAN MINIMISE WASTE AND DELIVER SUSTAINABLE DEVELOPMENT GOAL 12.3

The UK: dairy strategy on food loss and waste

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Globally, roughly one third of the food produced for human consumption – approximately 1.3 billion tonnes – is lost or wasted. The total financial cost of this waste is estimated to exceed \$1 trillion every year (FAO, 2019), and its impact on our climate and environment is equally costly. If food waste was a country it would be the third largest greenhouse gas emitting country in the world (FAO, 2011).

In the UK, an estimated 330,000 tonnes of milk are wasted each year from processing to home accounting for roughly 3.2% of the total food waste footprint. Whilst losses are reported all along the dairy supply chain the vast majority of this was (90%) comes from consumers (WRAP, 2019).

Recognising the social, economic and environmental burden of Food Loss and Waste, Dairy UK has made a series of commitments to encourage a step-change in the way the UK dairy sector considers waste.

Dairy UK is a signatory of the Courtauld Commitment 2025, a WRAP (Waste and Resources Action Programme) led initiative aiming for a 20% reduction in the carbon, water and waste associated with food and drink production by 2025. Dairy UK is also a signatory of the UK Food Waste Roadmap helping the UK to deliver its part in achieving Sustainable Development Goal 12.3.

The UK Dairy Roadmap aims to incorporate further commitments including the ambition of Sustainable Development Goal 12.3 to halve food waste by 2030.

The UK Dairy industry target to tackle food waste in the dairy supply chain are:

- By 2020 – 20% reduction in Chemical Oxygen Demand (COD) load in pre-primary treatment effluent
- By 2025 – 30% reduction in food waste generated on site (from 2015 baseline)
- By 2025 – Increase in product and packaging design features that help prevent consumer food waste.

MOVING THE WHEEL

Key to achieving these goals was establishing a clear and consistent framework to define, monitor and report food loss and waste within the dairy sector. Dairy UK supported the development of the world leading UK Food Waste Reduction Roadmap which defines a methodology for monitoring and reporting food waste. As of 2018 we have incorporated this into the Dairy UK's annual Environmental Benchmarking Survey. Through this, we have supported over 40 dairy processors representing in excess of two-thirds of all liquid milk processed in the UK to regularly monitor and report the waste generated on site.

In addition to this Dairy UK works closely with stakeholders to deliver actions and initiatives aimed at reducing food waste. Central to this is our collaboration with WRAP which has delivered the following:

- Development of an agreed standard for the monitoring and reporting of dairy waste;
- Development of on-pack labelling and packaging design guidance;
- Support in the creation of The Milk Report: outlining opportunities to reduce waste along the journey of milk, from dairy to home;

“Progress by 2018 confirms that across all dairy products only 2.8% of the produce entering dairies is lost from the human supply chain, meaning a staggering 97% is delivered to the end consumer.”

Henry Clifford

- Support in the development of a consumer campaign addressing the impact of fridge temperature on milk and other food waste;
- Support across a series of waste valorisation work items, aiming to find opportunities to use or repurpose previously discarded dairy by-products.

HISTORY OF SUCCESS

Whilst more time is needed to show the progress we have made against our food waste ambitions, data from 2018 confirmed that only 2.8% of the milk entering dairies is lost from the human food supply chain or wasted, and of this more than half already goes to other valuable uses such as animal feed or energy production (Dairy UK Environmental Benchmarking Report 2018).

NEW OPPORTUNITIES

The waste attributed to consumers – almost 90% of all milk waste – remains a key challenge, and the industry is currently exploring what changes it can make to product design, packaging and labelling, to influence change in this area.

The introduction of the dairy specific monitoring framework provides a vital tool to assess the sectors waste, however, a key goal moving forward will be to maximise uptake and reporting amongst the UK's dairy processors.

Further information about the [UK Dairy Roadmap](#), [WRAP Courtauld Commitment 2025](#), [UK Food Waste Reduction Roadmap](#), their [Milk Report](#) and their [Food Date Labelling Guidance](#).

THE UNITED STATES: THE DAIRY STEWARDSHIP COMMITMENT

The United States: demonstrating dairy's positive impact from farm to table

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The U.S. Dairy Stewardship Commitment (“Stewardship Commitment”) is U.S. dairy’s social responsibility pledge to consumers, customers and other stakeholders. Developed through the Innovation Center for U.S. Dairy (“Innovation Center”), the Stewardship Commitment is a voluntary, stakeholder-aligned initiative to advance sustainability leadership across the U.S. dairy community. It is grounded in strong programs and standards focused on continuous improvement against shared social, environmental and economic priorities. Dairy cooperatives and processors that adopt the U.S. Dairy Stewardship Commitment meet defined criteria for important areas like animal care, the environment and food safety and report in a transparent and meaningful way. They agree to work collaboratively with diverse stakeholders and follow a rigorous set of standards to demonstrate positive impact. On a broader scale, adopting companies support and contribute to U.S. dairy’s ability to track, aggregate and report on national progress.

MOVING THE WHEEL

The Innovation Center’s Dairy Sustainability Alliance® facilitates the collaborative, open and transparent process through which the U.S. Dairy Stewardship Commitment was developed and continues to evolve. Comprised of over 100-member organizations and more than 350 professionals, Dairy Sustainability Alliance members convene on a regular basis to share knowledge and engage on issues and opportunities to accelerate progress and contribute to the long-term viability of the industry. Dairy Sustainability Alliance members include dairy cooperatives, processors, retailers, government, industry suppliers, dairy checkoff and civil society. A materiality assessment conducted in

ALIGNMENT WITH SDGs



2018-19 confirmed priorities reflected in the Stewardship Commitment and will help guide evolution of that Commitment over time.

HISTORY OF SUCCESS

The Stewardship Commitment, formally launched in late 2018, makes progress through a variety of programs, including:

- **FARM Animal Care**, which in 2018 became the first livestock animal care program in the world to comply with International Organization for Standardization animal welfare requirements and guidance.
- The **Dairy Nourishes America initiative**, which in partnership with Feeding America, increased distribution of dairy products to 41 million clients of 200 food banks in over 60,000 agencies. From 2016 to 2018, 750 million pounds of dairy were distributed in the Feeding America network.
- The **U.S. Dairy Traceability Guidelines**, which has been voluntarily adopted by companies representing more than 80% of U.S. milk production.

Today, 24 dairy cooperatives and companies (2/3 of U.S. milk production) have adopted the Stewardship Commitment, which draws upon globally recognized best practices and guidance in sustainability standards and report development, including those of the International Organization for Standardization, the Global Reporting Initiative, the Greenhouse Gas Protocol, and CDP. Aligned with the Dairy Sustainability Framework Global Criteria, it contributes to the achievement of at least seven of the United Nations Sustainable Development Goals.



“The Stewardship Commitment gives confidence to dairy customers, stakeholders and consumers that the U.S. dairy community is committed to demonstrating dairy’s positive impact from farm to table in transparent, tangible ways.”

Jamie Jonker

THE FUTURE OF THE STEWARDSHIP COMMITMENT

The Stewardship Commitment metric development and revision process is based on ISEAL principles. These metrics will evolve based on emerging priorities to support the dairy community at large. Future work includes:

- A 2009 U.S. dairy voluntary goal to reduce GHG emissions intensity 25% by 2020 will be benchmarked by the end of 2019.
- FARM Workforce Development will provide dairies across U.S. with guidance and best management practices around human resources (hiring, training and supervising workers) and worker health and safety.
- A nutrient management plan metric recently strengthened to specify documentation, implementation and maintenance will be added to FARM Environmental Stewardship program in 2019.

Further information can be found for the [U.S. Dairy Stewardship Commitment](#), the [2018 U.S. Dairy Sustainability Report](#) and the [2019 National Dairy FARM Program Year in Review](#).



GLOBAL INITIATIVES

THE DSF RECOGNIZES THAT SUSTAINABILITY IS A JOURNEY AND NOT A DESTINATION!

Dairy Sustainability Framework: continuous improvement with the dairy sector

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The Dairy Sustainability Framework (DSF) was developed by the global dairy sector and launched in October 2013. The purpose of this pre-competitive and collaborative initiative is to quantify and publicly report the continuous sustainability performance of the dairy sector.

DSF membership, who have committed to actively implement sustainability programs and quantifying their progress, currently accounts for more than 30% of global milk production. Membership continues to grow from both developed and emerging dairy economies.

DSF aligns the global dairy sector under 11 key sustainability criteria, covering the three pillars of sustainability – environmental, social and economic. An integral part of alignment is the facilitation of member engagement. DSF encourages and establishes platforms for members to share their sustainability challenges, opportunities and successes with their fellow members. The result is that sustainability progress is accelerated.

IMPORTANCE OF REPORTING

The dairy sector recognizes that stakeholders have a keen interest in the sustainability credentials of the dairy sector. DSF has been developed as the reporting framework for the global dairy sector to share sustainability priorities and mitigation/improvement initiatives, and importantly, the quantified progress that is being achieved by these initiatives.

DSF MISSION

A vibrant sector committed to continuously improving its ability to provide safe and nutritious products from healthy cattle, while:

1. Preserving natural resources
2. Ensuring decent livelihoods across the industry

GOVERNANCE

DSF is led by the dairy sector. Both international and regional dairy associations provide Governance with geographic coverage to ensure appropriate decisions are made for all dairy regions. The World Farmers Organization is also represented in DSF Governance.

The DSF Governance body is Chaired by Global Dairy Platform, a not-for-profit industry association representing the global sector.

MULTI-STAKEHOLDER ADVISORY COUNCIL

DSF Governance has also established a multi-stakeholder Advisory Council, which includes:

- International Livestock Research Institute
- OXFAM
- Rabobank
- ASDA Stores
- American Humane
- FAO
- Solidaridad International
- World Bank
- Global Round Table for Sustainable Beef
- Global Forum on Agricultural Research

The role of the DSF Advisory Council is to advise and challenge DSF leadership regarding strategy and progress. The DSF Advisory Council were integral to the development of the DSF Indicator metrics.

To ensure a direct link to DSF Governance and the dairy sector's science-based organization, the DSF Advisory Council is chaired by the International Dairy Federation President, who is also a DSF Governor.

Dairy production is diverse. The range of material sustainability issues in different regions and the degree of advancement of different regional dairy industries are why the DSF is a Framework and not a certification scheme or standard.

DSF is an umbrella mechanism the global dairy sector uses to track and report performance in producing food responsibly and in an increasingly sustainable way.



© Dairy Farmers of Canada.

“DSF has been developed as the reporting framework for the global dairy sector to share sustainability priorities and mitigation/improvement initiatives, and importantly, the quantified progress that is being achieved by these initiatives”

Brian Lindsay

The 11 DSF indicators have also been mapped to the UN Sustainable Development Goals (SDG's), providing the sector with knowledge about how its actions contribute to delivering the SDG's. The dairy sector has an immense opportunity to contribute towards the delivery of the SDG's, and DSF provides the framework to measure that progress.

GLOBAL AND AGGREGATED REPORTING

The dairy sector is committed to understanding their current sustainability performance and the actions they can implement to continually improve.

Over the last three years, DSF has invested considerable time and finances in developing appropriate high-level Indicator Metrics to publicly report the sector's aggregate progress and inform DSF membership of the results.

Using a science-based approach implemented by the University of Arkansas, DSF members (through a consultative process, which included a period of public consultation) agreed on the metrics that will be implemented in their own local improvement programs. This permits the DSF to aggregate data and provide an annual report on progress.

DSF members have also provided the necessary data to enable a baseline for each of the metrics to be established. Starting in 2020, DSF will be reporting progress from all 11-indicator metrics against the established baselines.

DSF is not only producing Indicator Metrics to inform the sector of opportunities and progress. In December 2018, DSF conducted a side event at the United Nations COP24 Climate Change Conference to launch an important report undertaken by the Food and Agriculture Organization (FAO) of the United Nations titled, “[Climate Change and the Global Dairy Cattle Sector](#).” This report and the [summary factsheet](#) demonstrated that dairy sector emissions on an intensity basis globally have reduced by 11% over the 10-year period, 2005 – 2015. Reports such as this are encouraging and highlight areas for continued improvement which the DSF ensures are shared with the membership.

ENGAGEMENT

DSF recognizes that it cannot achieve its ambitions alone and collaboration is key. Linking with organizations such as the Global Agenda for Sustainable Livestock, FAO, Global Research Alliance on Agricultural Greenhouse Gases, Dairy Asia and of course our individual Advisory Council member organizations is fundamental to achieving success. DSF values collaborative opportunities and is always seeking others to achieve mutual desired outcomes.

For further information, access the [DSF website](#) or contact the [DSF Secretariat](#).

HOW CAN DAIRY BUYERS AND DAIRY PROCESSORS WORK TOGETHER TO IMPROVE SUSTAINABILITY AT FARM?

SAI Platform: dairy supply-chain collaborating to shift sustainability performance on farm

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The B2B Model for sustainable dairy is the result of the output of a pre-competitive and trustworthy cooperation between dairy buyers and processors on sustainability. Without recreating any new standards, the B2B Model builds on the Dairy Sustainability Framework and its 11 criteria. It provides a credible approach to foster and demonstrate continuous improvement and compliance to the Dairy sustainability framework (DSF).

The model aims to focus and streamline farm improvement efforts by reducing the needs of multiple and misaligned audits at farm level. It reduces costs for processors and buyers, facilitates efficient sourcing and achieve measurable progress against sustainability priorities.

The development of the B2B model was initiated in 2017, together with companies that represent 25% of the total milk volume. In 2018 the model was tested by 5 of the largest dairy processors in Europe, the US and Australia. Today, in 2019 we are finalizing the model to be ready to use in commercial relationships among the first wave of users.

“The B2B model recognizes national and company programs without recreating new standards and it leverages exiting relationships among dairy farmers and processors.”

Patricia Garcia Diaz

After concluding the five pilots, we have validated how the model streamlines the communication between dairy buyers and processors. It recognizes national and company programs without recreating new standards and it leverages existing relationships among dairy farmers and processors.

THE VALUE OF SAI PLATFORM

The model provides a win-win situation for all parties involved and allows more effort to be focused on improvements at the farm level. Dairy processors and their supplying farmers can prioritise effort on what really matters to their business rather than in fulfilling multiple differing demands

from their customers. Dairy buyers can demonstrate impact of their suppliers at farm level, reward good performance and collaborate with their suppliers in addressing their challenges.

WHAT'S NEXT?

In 2019 the model is being refined and used by members of the Dairy working group from the SAI Platform: Sustainable Agricultural Platform to prepare it for wider use. The model will be ready and open for use by the global dairy industry in early 2020.

Further information on the [Dairy Working Group on SAI Platform](#).



BETTER UNDERSTANDING OF THE EFFICIENCY OF NUTRIENT FLOWS AND USE AND ASSOCIATED ENVIRONMENTAL IMPACTS TO IMPROVE ENVIRONMENTAL PERFORMANCE OF LIVESTOCK SUPPLY CHAINS.

FAO LEAP: nutrient flows and associated environmental impacts - guidelines for assessment in livestock supply chains

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ALIGNMENT WITH SDGS



The assessment of nutrient flows in different stages of livestock supply chains, including dairy, and their associated environmental impacts is challenging due to the rapid transformation of the livestock sector and the lack of harmonized scientific method. The lack of a harmonized method can complicate the benchmarking and monitoring of the nutrient use efficiency, thus resulting in wrong decision-making. For instance, there are large discrepancies in the nitrogen excretion factors by animals used by European Union countries to report the nutrient use performance.

Conscious of these challenges, the LEAP Partnership established in 2016 a Technical Advisory Group (TAG) to develop comprehensive guidelines for the quantification of nutrient flows and associated environmental impacts in the livestock supply chains. Through consensus building, TAG experts from all regions of the world developed the guidelines, which strive for alignment with international standards such as ISO 14040/44, IPCC guidelines and other international guidance.

The aim of the methodology developed in these guidelines is to introduce a harmonized international approach assessing nutrient flows and impact assessment for eutrophication and acidification for livestock supply chains taking the specificity of the various production systems involved into consideration. The guidelines cover all major livestock systems including cattle and buffalo dairy systems.

“These guidelines introduce a harmonized international approach of assessing nutrient flows and impact assessment for eutrophication and acidification for livestock supply chains taking the specificity of the various production systems involved into consideration. The guidelines cover all major livestock systems including cattle and buffalo dairy systems.”

MOVING THE WHEEL

The nutrient technical advisory group (TAG) of the LEAP Partnership was formed in April 2016. The core group included 38 experts in animal sciences, crop sciences, soil sciences, life cycle assessment, environmental science, and livestock production systems. Their backgrounds, complementary between systems and regions, allowed them to understand and address different perspectives.

The role of the TAG was to:

- develop guidelines to quantify nutrient flows in livestock supply chains;
- develop guidelines to quantify the environmental impact of eutrophication and acidification;
- select the relevant indicators to understand the nutrient use and associated environmental impacts in livestock supply chains.

HISTORY OF SUCCESS

The benefits of these guidelines include:

- use of recognized, robust and transparent methodology developed to take account of the specificity of nutrient use in contrasting production systems;
- identification of nutrient loss hotspots and opportunities to improve supply chain performance and to reduce environmental impacts;
- identification of opportunities to increase efficiency and productivity;
- ability to benchmark performance internally or against industry or government standards; supporting reporting and communication requirements;
- and raising awareness and supporting action on environmental sustainability.

The guidelines gain strength because they represent a multi-actor coordinated cross-sectoral and international effort to harmonize assessment approaches. Ideally, the harmonization leads to greater understanding, transparent application and communication of metrics, and, not least, real and measurable improvement in environmental performance.

This guidance is relevant to a wide array of livestock stakeholders including the members of LEAP (governments, IDF and other private sector associations, NGOs/CSOs) and more broadly:

- livestock producers such as dairy farmers who wish to develop inventories of their nutrient use and to have the environmental performance of their production systems assessed;
- supply chain partners such as feed processors, livestock farming organizations, processors of animal products, as well as retailers pursuing a better understanding of the environmental performance of their production processes;
- policy makers interested in developing nutrient use accounting and reporting specifications for livestock supply chains.

NEW OPPORTUNITIES

This document is not intended to remain static. It will be updated and improved as the sector evolves and more stakeholders become involved in LEAP, and as new methodological frameworks and data become available.

LEAP, through its work programme from 2019 to 2021, will consolidate the current guidance through road testing and dissemination of the guidelines and development of tools in support of guideline application and uptake.

More information can be found on the [Guidelines – Version 1](#) and [Factsheet](#)

BIODIVERSITY HAS OFTEN BEEN OVERLOOKED IN ENVIRONMENTAL ASSESSMENTS OF THE LIVESTOCK SECTOR BECAUSE OF ITS INTRINSIC COMPLEXITY – THE LEAP PARTNERSHIP APPOINTED A SPECIFIC GROUP OF INTERNATIONAL EXPERTS TO TACKLE THIS CHALLENGE.

FAO LEAP: assessment of livestock impacts on biodiversity

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The current rate of species extinction is unprecedented in human history and is threatening human well-being as biodiversity is the basis for essential ecosystem services such as biomass production, crop pollination, water purification or climate regulation. Livestock is among the sectors with highest impacts on biodiversity. As a direct impact, around 30% of land on Earth are used for pastures and feed crops, which results in modifications of biodiversity habitats. In addition, livestock production has indirect impacts on biodiversity through its contribution to climate change and pollution (e.g. nutrients, ecotoxic substances). Importantly, livestock also has positive impacts on biodiversity such as extensive systems maintaining semi-natural grassland habitats that host a unique pool of wild species and provide key ecosystem services. Specific indicators and methods are needed to assess the impact of livestock on biodiversity across different systems (extensive to intensive), geographical areas and scales (farm, country, supply chain...).

Many livestock environmental assessments have focused on greenhouse gas emissions and overlooked biodiversity because of its intrinsic complexity. In the absence of more holistic approaches, the possibility remains of pollution swapping and unrecognized trade-offs among different dimensions of agro-environmental sustainability. The LEAP partnership tackled the challenge of assessing livestock impacts on biodiversity.

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MOVING THE WHEEL

In 2014, LEAP set up a specific group of international experts with various backgrounds to progress on biodiversity assessment of livestock production. Because of the early stage of the discussions of the topic, no specific methodology or indicators were recommended but principles were developed, to which the different assessment methods have to adhere in order to guarantee a minimum level of soundness, transparency, scientific relevance and completeness. The level of generality of these principles means that they are relevant to different scales and various users who may use different assessment methods to fit different purposes.

HISTORY OF SUCCESS

As a result of the initiative, two documents were published in 2016:

- A review of indicators and methods to assess biodiversity
- Principles for the assessment of livestock impacts on biodiversity

The second document was the main base for the development by IDF of their own Guide on Biodiversity for the Dairy Sector. It also contributed to the biodiversity component of other international initiative such as the EU Product Environmental Footprint and UNEP-SETAC life cycle initiative.

Biodiversity assessment is an emerging but increasingly important area of work. The initiative took a first step towards including biodiversity along with other criteria such as greenhouse gas emissions, in livestock environmental assessments. It was important to ensure that the livestock sector and the specificities of its relationship with biodiversity (e.g. positive impacts) are not left behind in the active recent developments on biodiversity assessment.

The main beneficiaries were the multi-stakeholder members of LEAP: governments, private sector associations (including IDF) and NGOs/CSOs.

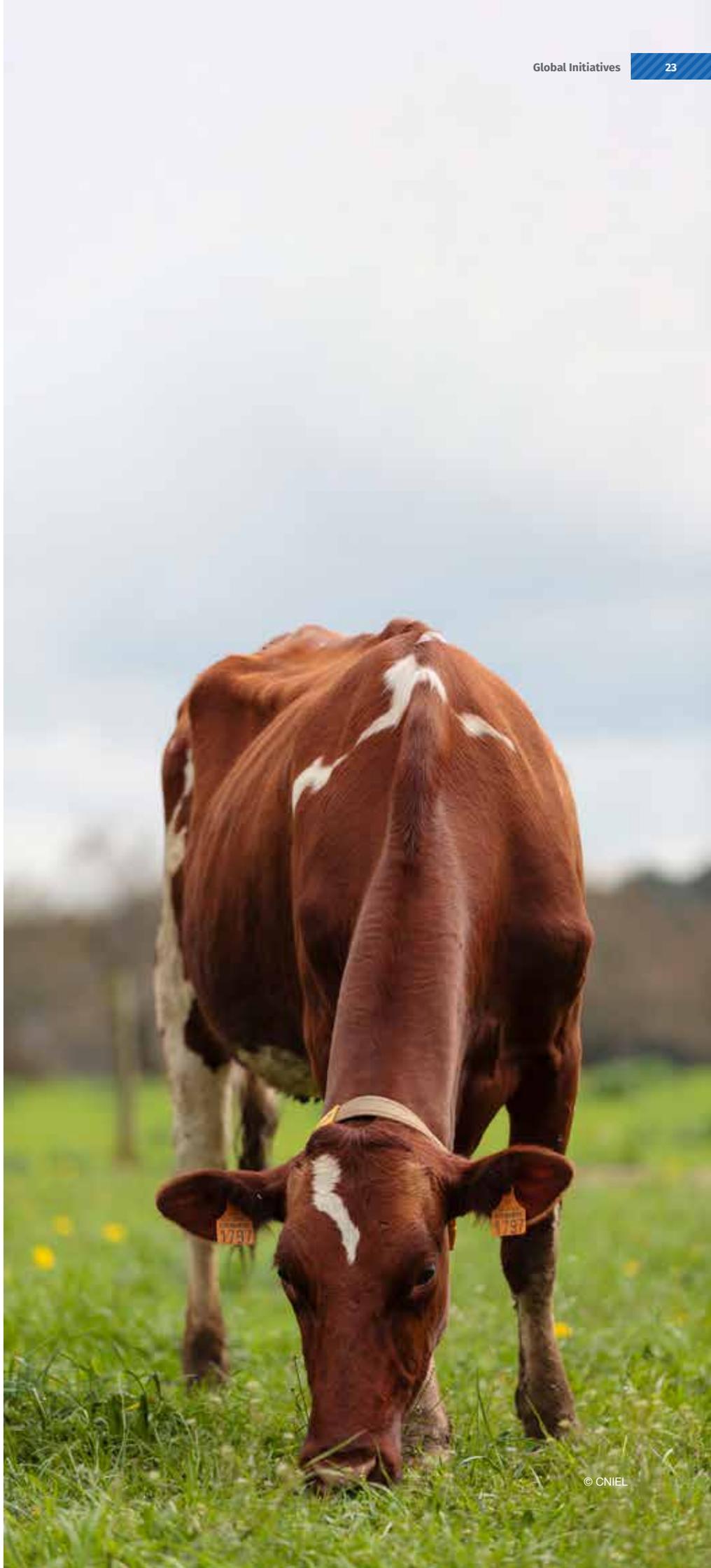
“Livestock also has positive impacts on biodiversity such as extensive systems maintaining semi-natural grassland habitats that host a unique pool of wild species and provide key ecosystem services”

NEW OPPORTUNITIES

In 2017, a second group of experts was formed within the LEAP partnership to move from the qualitative principles previously established, to quantitative indicators and methods to assess impacts of livestock on biodiversity. This is needed to ensure that biodiversity can be fully integrated along other quantitatively assessed sustainability criteria.

Guidelines for the quantitative assessment of the impacts of livestock production on biodiversity (based on existing indicators and methods) will be released for public review in the summer 2019. Indicators and methods described in these guidelines are relevant to a range of assessment objectives, users, scales, geographical regions, livestock species and production systems.

More information can be obtained on [A review of indicators and methods to assess biodiversity](#), [Principles for the assessment of livestock impacts on biodiversity](#) and this [factsheet](#).



RESEARCH

THE ROLE OF RUMINANTS IN SUSTAINABLE DIETS - KEY POINTS & VIDEOS

THE ROLE OF RUMINANTS IN SUSTAINABLE DIETS

High-level international speakers reported on the latest science to correctly assess the nutritional and environmental implications of ruminant livestock.

Here the videos of the talks!

[Watch Part 1](#) : Prof. Frederic Leroy (BAMST President), Andrew Mente (PHRI, CA) & Prof. Frank Mitloehner (UC Davis, US)

[Watch Part 2](#) : Dr. Anne Mottet (FAO of the UN) & Dr. Judith Bryans (IDF President)

[Watch Part 3](#) : Andrea Bertaglio (Env journalist, IT), Dr. Michelle Cain (Oxford Martin, UK), Prof. Martin Scholten (WRU, NL) & Jean-Louis Peyraud (INRA, FR) & Dr. Nico Peiren (ILVO, BE)

Recent findings from the PURE study: the case of saturated fat, dairy, and meat

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LEARNING OBJECTIVES:

1. What is the current evidence on the impact of fats and carbohydrates on cardiovascular events and mortality from observational studies and randomized controlled trials?
2. What does the PURE study add to the debate and why is its information valuable?
3. How do the PURE data affect dietary advice related to saturated fat, meat, and dairy?

TAKE HOME MESSAGES

Fats are part of a healthy diet:

- Unlike many epidemiological studies in high-income countries that suffer from strong Western lifestyle bias, the PURE study is unique in its global assessment representing diverse diets (involving 18 countries from five continents)
- PURE data are at odds with recommendations that limit the consumption of unprocessed meats, dairy, total fat (to <30% of total energy), and saturated fat (to <10% of total energy)
- The consumption of unprocessed meats and of dairy were associated with lower risk of mortality and cardiovascular disease; fats, including saturated and unsaturated fats, were associated with a lower risk of mortality
- Replacing saturated fat with carbohydrate had an adverse effect on blood lipids and a high carbohydrate diet (>50-55%E) was associated with a higher risk of mortality
- In general, cohort and intervention studies confirm that saturated fats do not lead to all-cause mortality or cardiometabolic diseases, which are also unlikely to be reduced by the replacement of saturated fat by omega-6 polyunsaturated fatty acids
- The PURE healthy diet score - comprised of higher intakes of fruit, vegs, nuts, legumes, fish, dairy, and meats - was associated with lower mortality and cardiovascular disease globally

Further information and additional resources are accessible through the research papers [de Souza et al. 2015](#), [Mente et al. 2017](#), [Dehghan et al. 2017](#), [Dehghan et al. 2018](#).

The 2050 Challenge: can we eat our way out of climate change?

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LEARNING OBJECTIVES:

1. What are the most challenging environmental problems related to agriculture?
2. What is the contribution of ruminant livestock to climate change?
3. Can dietary change moderate climate change?

TAKE HOME MESSAGES

- Global warming is due to increases in the levels of greenhouse gases (GHG). The extraction and burning of fossil fuels is the major culprit, as this releases CO₂ which remains in the atmosphere (for 1000+ y). Any future use of oil, coal, and gas will add extra CO₂ and, thus, more warming.
- Livestock is said to cause global warming because ruminants produce methane, which is a potent GHG. This picture is simplistic because - in contrast to CO₂ - methane from ruminants does not accumulate in the atmosphere and produces no new warming, provided that herd sizes do not increase. Well-managed ruminants are even able to sequester carbon in the soil, thereby also improving soil health.
- Methane from livestock is part of the carbon cycle. Plant growth is based on photosynthesis, which consumes CO₂. Ruminant animals will upcycle human-inedible plant material into high-quality animal food, thereby releasing methane. The latter will be rapidly destroyed in the atmosphere (10 y) and converted into CO₂, which then goes once more to plant growth.
- The reason why atmospheric methane has been increasing during the last years despite stable emissions from cattle is because part of it originates from fossil fuel production and use, agriculture and waste, biomass burning, wetlands and other natural emissions.
- Globally, livestock causes 14.5% of the total GHG emissions but there are vast regional differences. US animal agriculture, for instance, represents only 4% of the country's total GHG emissions.
- In the US, in 1950, there were 25 million dairy cows, versus 9 million today. With 16 million fewer cows (1950 vs 2018), milk production nationally has increased 60%. The carbon footprint of a glass of milk is 2/3 smaller today than it was 70 years ago.
- Going vegan represents a decrease of 0.8 tons CO₂e per year, which is half of one transatlantic flight per passenger (1.6 tons CO₂e). Generalizing 'Meatless Mondays' in the US would represent a reduction in GHG emissions of merely 0.3% for the country, whereas 2.6% would be obtained if the entire country removed livestock. Moreover, this would result in a trade-off in nutritional outcomes.
- Developing countries display high GHG emission levels per unit of animal source food. This can be tackled by improvement of fertility rates, animal health, genetics and feeding. If the global average emissions intensity of developed countries was achieved worldwide, GHG emissions could be 45% lower and still produce the same amount of beef as we do today.
- Marginal lands, which represent 70% of total agricultural lands, are mostly unsuitable for crop growth but can be used for grazing livestock. Ruminants livestock has therefore a critical role to play in meeting the 2050 challenge.
- The main environmental issue around the food supply chain worldwide and in the US concerns food waste. Both in the US and globally, 40% of all food does not get eaten by humans but ends up in landfills.



Why methane should be treated differently compared to long-lived GHGs

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LEARNING OBJECTIVES:

1. How methane differs from other greenhouse gasses?
2. Why are current emission metrics incorrectly assessing global warming?
3. How can this identify adequate strategies to limit global warming?

TAKE HOME MESSAGES

- Reduction of CO₂ emissions is key; the latter is a long-lived gas that rapidly accumulates in the atmosphere due to the combustion of fossil fuels, which took millions of years to form.
- The usual reporting of greenhouse gasses as CO₂-equivalents, without mentioning of what proportion is from which gas and the, generates a misleading picture.
- Methane attracts attention because of its potency, but behaves as a flow rather than stock pollutant; its impact is overestimated by the current methodology (global warming potential, GWP)
- Methane emissions do not have to reach net zero to have “net zero warming” or “climate neutrality”, because constant emissions do not contribute to new global warming.
- The new GWP* metric provides a better comparison, more accurately reflecting warming and combining short- and long-term effects.
- Current policies presuppose that methane has a permanently worsening effect on the climate, while GWP* provides agriculture with a more reasonable framework to reduce its impact.
- Because of the warming intensity and short life of methane, its reduction could provide a rapid cooling effect leading to a new equilibrium.
- There is potential for methane reduction from fossil fuels, wetlands, and related to better livestock management, which does not necessarily have to compromise the generation of valuable nutrition from animal-source foods.

Further information and additional resources are accessible through the research papers [Allen, et al. 2016](#), [Allen, et al. 2018](#), and the [Oxford Martin Programme on Climate Pollutants briefing](#).



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