



# IDF DAIRY SUSTAINABILITY OUTLOOK

United Nations Food Systems Summit 2021



SPECIAL EDITION  
UNITED NATIONS  
FOOD SYSTEMS  
SUMMIT 2021





© Image courtesy of Dairy Australia

# PREFACE

## MESSAGE FROM THE IDF DIRECTOR GENERAL

The United Nations Food Systems Summit, which is being convened this September by UN Secretary-General António Guterres, is stimulating dialogues and actions generation on the future of food production and consumption. The commitment of the global dairy sector to the UN Sustainable Development Goals was formalized by the Dairy Declaration of Rotterdam signed by IDF and the FAO in 2016. The dairy sector has been dynamic and innovative to nourish the world with safe, nutritious, and sustainable dairy. Our series: IDF Dairy Sustainable Outlook provides some examples of programs, activities and projects implemented by the dairy sector around the world. This fourth edition is featuring examples based on the Action Tack structure of the UN Food Systems Summit.

The global dairy sector has been actively engaged in the preparation of the UN FSS and submitted game changing solutions that could be scale up to make the food systems better such as: School Milk Programs, Dairy Sustainability Framework, Net Zero, Pathways to Low Carbon Dairy, Dairy Nourishes Africa, Protein Quality.

Milk and dairy food production and consumption are a crucial part of sustainable food systems and to achieving the SDG 2030 agenda.

Dairy contributes to health and wellness by delivering vital nutrition in the form of high-quality protein and essential vitamins and minerals. Dairy helps reduce poverty and contribute to nutritional security.

Global dairy production is part of critical infrastructure. Without dairy animals inhabiting and grazing land and transforming grass, by-products, and inedible plants into nutritious milk, a pasture that is highly productive would become unproductive grassland, and land degradation and biodiversity losses may occur.

Dairy is a staple food with traditions deeply woven into societies all around the world. The versatility and affordability of milk and dairy products allow for varied use and incorporation into various dietary patterns and across different cultures.

As you will see in this edition, Dairy is part of the solution!

**Caroline Emond**  
IDF Director General

## MESSAGE FROM THE SCIENTIFIC EDITORS

Dear Reader,

We are pleased to present the 4th edition of IDF Dairy Sustainability Outlook. Guided by the five Action Tracks FSS, this issue presents case studies from the dairy community, showcasing how the sector is committed to nourishing the global population with safe and nutritious foods through sustainable production systems. Billions of people around the world rely on dairy for nutrition daily. Through its dynamic nature and forward thinking the sector will be able to continue to innovate to reduce its environmental impact and be part of the solution to tackle climate change. We had several more examples to share but had to make thoughtful choices for this edition. Please visit our website: [fil-idf.org](http://fil-idf.org) to learn more about IDF work.

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

We wish all of you an interesting and informative read.

**Dr María Sánchez Mainar**  
IDF Science and Standards Manager  
✉ [msanchezmainar@fil-idf.org](mailto:msanchezmainar@fil-idf.org)

# CONTENTS

**Action Track 1** : Ensure access to safe and nutritious food for all

**Action Track 2** : Shift to sustainable consumption patterns

**Action Track 3** : Boosting nature-positive production at sufficient scale

**Action Track 4** : Advance equitable livelihoods

**Action Track 5** : Building resilience to vulnerabilities, shocks and stress





**ACTION TRACK 1**  
**ENSURE ACCESS TO SAFE AND**  
**NUTRITIOUS FOOD FOR ALL**



## AUSTRALIAN DAIRY SECTOR SUSTAINABILITY FRAMEWORK: PROVIDING NUTRITIOUS FOOD FOR A HEALTHIER WORLD

## People's health relies on a balanced, nutritious diet

**AUTHOR**

Helen Dornom  
Dairy Australia • Australia  
✉ [helen.dornom@dairyaustralia.com.au](mailto:helen.dornom@dairyaustralia.com.au)

**ALIGNMENT WITH SDGS**

“Nutrient-dense foods such as milk and dairy foods provide high-quality nutrition at all life stages and are part of healthy diets. They are a good source of under-consumed nutrients, particularly for children and older adults.”

**Helen Dornom**

Dairy foods provide a unique package of more than ten essential nutrients important for healthy bones, nervous and immune systems, eyesight, muscle function, healthy skin, energy levels and growth and repair in all parts of the body.

Scientists and nutritionists are increasingly recognising the value of the dairy matrix, as the effects of dairy foods go beyond the benefits of the individual nutrients they contain.

Despite this, there is increasing pressure on the role of animal-based proteins, including dairy, in a sustainable diet. The demand for plant-based food and beverages, such as soy and almond, is increasing.

Milk, cheese and yoghurt continue to be recognised in the National Health and Medical Research Council (NHMRC) Australian Dietary Guidelines as part of a healthy diet. The guidelines are set to undergo a major review, commencing in 2021. The NHMRC has outlined the first step of the review: a scan of the latest nutrition science research and evidence from Australia and overseas.

The Australian dairy industry is working to ensure dairy is recognised as having a key role as part of a healthy sustainable diet.

### A PLACE IN DIETS THAT ARE GOOD FOR PEOPLE, PLANET

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) published research in the European Journal of Nutrition, 2021 (<https://pubmed.ncbi.nlm.nih.gov/32277271/>) that shows a healthy balanced diet should include dairy foods such as milk and yoghurt; and this has lower greenhouse gas (GHG) emissions compared to other less healthy options.

Researchers examined a subset of 1,732 Australian adult diets that had higher diet quality scores and lower GHG emissions. These diets are of interest because they show habits that could realistically be adopted by more Australians. The research found that 90% of these healthier and lower GHG emission diets included dairy foods, particularly milk, then cheese and yoghurt. What set these diets apart was much less discretionary foods, including sweets, fast foods and soft drinks.

The Australian dairy industry is working to ensure dairy is seen as part of the solution – as unhealthy diets are not sustainable.

### THE DAIRY MATRIX

Scientists and nutritionists are recognising that the effects of dairy foods go beyond the benefits of the individual nutrients they contain. The whole dairy food is greater than the sum of its parts and the unique ‘dairy matrix’ is responsible for its many health benefits. In 2020, Dairy Australia launched a communications program on the dairy matrix aimed at health professionals to reinforce dairy’s unique health benefits. This contributed to 88% of general practitioners feeling confident to recommend dairy as part of a balanced diet, as indicated by Dairy Australia research. (see [The Dairy Matrix - Dairy Australia](#))

### DAIRY MATTERS

‘What matters to you, matters to us too’ is the catchline for consumer communications which showcase the industry’s commitments around sustainability. The dairy industry launched the ‘Dairy Matters’ campaign to help consumers learn more about the Australian dairy industry.

This included sharing our four sustainability commitments.

The ‘You Ask, We Answer’ component allows consumers to ask questions online and get answers from experts. The 2020 Dairy Australia Trust Tracker survey revealed that over 80% of socially conscious consumers, which is a key target audience, trust dairy as a healthy and wholesome food. (see [The Dairy Matrix - Dairy Australia](#))

### HEALTH RESOURCES HUB

A wide selection of health fact sheets and healthy recipes featuring dairy has been collected on the Dairy Product Health Resources website, to make it easy for consumers and health professionals to find the information they need.

Topics covered include dietary guidelines and nutrients, health benefits (including bone and cardiovascular health), and intolerances and allergies. Information is also provided for different life stages and levels of activity. (See <https://www.dairy.com.au/health>)

### REFERENCES

To see more on the information provided by Dairy Australia to support the role of dairy in a healthy sustainable diet, please see: <https://www.dairy.com.au/sustainability/healthy-sustainable-diets>

Also see <https://www.dairy.com.au/30ways> - 30 ways the Australian dairy industry is reducing its GHG emissions



**Working hand-in-hand to support a healthier world**

Australian Dairy Industry Sustainability Framework  
2017 Update



## BRAZIL

# Artisanal raw milk cheese: a Brazilian experience with existing regulations and their suitability for family producers

## AUTHOR

Michèle de Medeiros Carvalho<sup>1</sup>, José Guilherme Prado Martin<sup>2</sup>, Belisa Lamas Gaudereto<sup>3</sup>, Célia Lucia de Lucas Fortes Ferreira<sup>2</sup>, Juliano de Dea Lindner<sup>1</sup>

<sup>1</sup>Universidade Federal de Santa Catarina, Florianópolis, Brazil. <sup>2</sup>Universidade Federal de Viçosa, Viçosa, Brazil. <sup>3</sup>Universidade Estadual de Campinas, Campinas, Brazil

## ABSTRACT

In Brazil, most artisanal cheese production comes from family farms and involves the use of raw milk. Thousands of producers obtain their source of income from cheesemaking. However, there are no legal regulatory parameters specifically related to this production model. Generalized quality standards based on the industrial production model are practically inaccessible to most small producers, especially in less economically developed regions. Although some recent legislation has been altered in an attempt to better serve artisanal cheesemakers, some questions remain about its practical effects. Despite the lack of legislation at the national level, some specific actions have had interesting results to help preserve the artisanal model of production, at the same time, guarantee the production of safe food. We present some successful experiences that resulted in the enactment of laws that specifically serve artisanal cheese producers, such as those related to the production of Colonial Cheese type, in the state of Santa Catarina, south of Brazil. This report intends to present the main challenges we faced in this process, as well as ways to strengthen the production of artisanal cheese in the country.

## INTRODUCTION

Brazilian artisanal cheeses are traditionally made from raw milk and mostly produced by family farming (1). For a long time, the artisanal model was neglected in the country; cheeses were produced and sold clandestinely. In recent years, federal rules were established to include them in the supply chain; however, it was done in a disorderly manner and did not favor the family producers because it was based on existing legislation, disrespecting the

traditional knowledge. In this context, we carried out an intensive work of visits to producers of Colonial Cheese, the main artisanal cheese in the State of Santa Catarina. The project considered the cheesemakers as the central pillar of the discussion about the artisanal cheese safety. Based on the results, a proposal for a legislation was prepared, sanctioned as State Law 17486/2018 (2). This experience can serve as a model for future discussions about legislation of artisanal cheese production in Brazil.

## MATERIALS AND METHODS

The project involved 7 properties producing Colonial Cheese type, located in Diamante, municipality of Major Gercino-SC. The main objectives were to guarantee the milk quality and the health of the herd; to build milking parlors and simple cheese dairies, respecting the rules applicable to the artisanal model as well as the socioeconomic conditions; to train the producers in GMP. Firstly, all the producers received training about the importance of controlling the entry of animals. The bovine herd was then examined for brucellosis and tuberculosis, which was repeated after 6 months to obtain certification as a property free of

“Artisanal cheese production in Brazil supports livelihoods and rural development”

Guillaume Tessier

## ALIGNMENT WITH SDGS



these zoonoses, as provided in our national program (PNCEBT) (3). Later, cheese dairies were built in each of the properties, following simplified and low-cost norms. In this, such properties are allowed to perform the ripening and packaging steps in the same production environment; they are also exempted from the requirement of specific locations for storage and warehousing, as long as they respect a production flow that avoids cross contamination, and make use of adequate locations for the storage of daily inputs<sup>2</sup>. Once the physical construction was completed, training was given to train the producers in hygienic milking, respecting GMP. The quality of the milk and cheeses was also monitored with physical-chemical and microbiological analyses. The project was funded by the Fundação Banco do Brasil and conceived by researchers from the Federal University of Santa Catarina (UFSC) and the Agricultural Research and Rural Extension Company of Santa Catarina (EPAGRI).

## RESULTS

Regarding zoonoses, all seven properties were certified as free of brucellosis and tuberculosis, demonstrating the producers' full compliance with the management of the dairy herd. This is, therefore, an indispensable condition for the safety of artisanal cheese. From a new scenario, with the cheese dairies built, the cheeses produced therein, applying the good agricultural, milking and production practices discussed during the producers' training stage, a new collection of samples was taken to monitor the quality of the final product. From the laboratory analysis, it was found that the cheese samples produced using raw milk of better quality (corresponding to 71% of the samples) met



© Image Courtesy of Dairy Australia

the microbiological parameters established by legislation after 15 days ripening, the average time practiced by producers in the region to market the Colonial cheese type from Diamante.

## DISCUSSION

The interventions were carried out in a way that respected the traditional knowledge of the artisanal production of Colonial Cheese type from Diamante. This is, therefore, a very important premise for the success of the actions developed in the community, since it is in line with the practice of those who actually produce the cheese. It is necessary that the proposed changes are imbued with meaning for the producer; otherwise, the risk of not meeting them would be high (4). In this context, it was proposed to maintain the traditional wooden utensils, such as presses, molds and maturation shelves. The new cheese dairies were built with an architecture similar to the producers' homes, according to their personal choices regarding the organization of the physical space, provided, of course, that the sanitary norms in force were respected. In this way, characteristics familiar to the producers were preserved, constituting a symbolic value and an invaluable identity for them. In each of the executed stages, the producers were recognized as an important part of the adaptation process, whose previous experiences were widely valued. Considering that the central idea was to assist the producers in legalizing

the production and commercialization of cheeses, without de-characterizing the artisan mode of production, the implementation of changes aiming at improvement could not be done in a vertical way (as reported so far by the producers assisted by the project), especially by agents of regulatory agencies averse to issues related to secular traditions inherent to the cheesemaking activity.

## CONCLUSION

The Colonial Cheese type from Diamante, which historically was produced in the same kitchen and stove where the family meals were prepared, would have its production moved to another location. However, the possibility of coming out of clandestinity made the cheesemakers quickly identify personally with the new work space, affectionately called “cheese houses”. For a practice to be considered tradition, it is necessary that it be passed on over time and be imbued with meaning, that it makes sense to its practitioners. The production of Colonial Cheese was, in recent years, losing its meaning for the producers. The new cheese dairies provided, therefore, a wave of hope and pride in preserving this centuries-old practice. Before the project, many producers indicated a desire to stop production and dedicate themselves to another type of economic activity. In the end, we have observed the return of the children to the community, leaving large urban centers to dedicate

themselves to the cheese making activity in the rural environment. The effects were also noticeable from the recognition of the cheeses in the Prêmio Queijo Brasil, the largest national contest of Brazilian cheeses. The producers understood the importance of the work developed, especially since it became possible to price the final product more fairly and profitably. Subjectively, recognizing the real value of the cheese, for the producers, is also symbolic: it is the appreciation of the efforts of many past generations that have provided the existence, in the present, of the Colonial Cheese type from Diamante.

## REFERENCES

1. Carvalho, M.M., de Fariña, L.O., Strongin, D., Ferreira, C.L.L.F. & Lindner, J.D.D. Traditional Colonial-type cheese from the south of Brazil: A case to support the new Brazilian laws for artisanal cheese production from raw milk. *J. Dairy Sci.* 102(11):P9711-9720 (2019).
2. Estado de Santa Catarina. Lei Nº 17.486, de 16 de janeiro de 2018. Dispõe sobre a produção e comercialização de queijos artesanais de leite cru e adota outras providências. *Diário Oficial do Estado*, Florianópolis, SC, 16 de janeiro de 2018.
3. Brasil. Ministério da Agricultura, Pecuária e Abastecimento – MAPA. Instrução Normativa SDA nº 10 de 3 de março de 2017. Estabelece o Regulamento Técnico do Programa Nacional de Controle e Erradicação da Brucelose e da Tuberculose Animal - PNCEBT e a Classificação das Unidades da Federação de acordo com o grau de risco para as doenças brucelose e tuberculose, assim como a definição de procedimentos de defesa sanitária animal a serem adotados de acordo com a classificação. *Diário Oficial da União*, Brasília, DF, 20 de junho de 2017.
4. Freire, P. Extensão ou comunicação? 7ª edição. Rio de Janeiro: Paz e Terra (1983).



DENMARK

# Improving access to affordable dairy nutrition in rural Bangladesh

**AUTHOR**

Irene Quist Mortensen  
Arla Foods, Aarhus • Denmark

**ALIGNMENT WITH SDGS**



**ABSTRACT**

In a country in which 56% of children are underweight and malnutrition is prevalent, Arla is determined to give everyone in Bangladesh access to affordable, nutritious dairy products. This was the inspiration behind the development of Dano® Daily Pushti - fortified filled milk powder, in 20-gram sachets, at an affordable price. The product is the first of its kind in Bangladesh. Reaching consumers in the country's cities proved straightforward but with almost 70% of the population residing in the rural and remote areas, coupled with poor infrastructures and limited distribution networks, an innovative, alternative sales model was called for. Equipped with Dano Daily Pushti sachets in their backpacks, a growing team of female microentrepreneurs is being enabled to reach people in rural parts of the country.

These determined, driven women are not only gaining knowledge and an accreditation through training, crucially, they are securing a reliable income, helping lift them out of poverty.

They are known as Arla's Pushti ambassadors and, as well as selling products, the women conduct courtyard sessions to educate people about health and milk nutrition generally.

The four-year project started operating in 2019, with the ambition to scale up to 5,000 female micro-entrepreneurs reaching 1.25 million new consumers by 2023. The project now includes more than 200 entrepreneurs.

The project is supported by the Danish Ministry of Foreign Affairs and is a

*"Dairy transforms the lives of individuals, families, communities, and entire populations."*

**Irene Quist Mortensen**

partnership between the Dutch-based NGO, BopInc; Bangladesh based NGOs, dNet and a social enterprise called iSocial.

**INTRODUCTION**

22 million people in Bangladesh live below the poverty line, 56% of children are underweight and malnutrition is prevalent; the job creation pace is slow and female labor force participation is lagging and skills to meet labour market demands are inadequate. Demand for dairy products in Bangladesh also currently exceeds availability.

In October 2015, Arla Foods Bangladesh introduced a new, first of its kind filled milk powder in a 20 grams sachet named Dano® Daily Pushti to be sold at an attractive price point. During 2015 and 2016, Arla conducted in-depth studies in Bangladesh to investigate consumer behavior, local dairy sector development, and to assess human rights risks related to scaling-up Dano® Daily Pushti. Despite the success in terms of sales volume, it became clear that alternative distribution channels were required to reach non-urban low-income consumers who have the strongest need for better access to affordable nutrition.

Currently almost 70% of population resides in the rural and remote parts of Bangladesh which is an untapped market for Arla. By expanding the consumer base through innovative distribution mechanisms and sales penetration to rural consumers, more and better jobs are created in the dairy value chain.

This saw the development of Arla's Pushti ambassador network - a team of female microentrepreneurs. These determined women are not only gaining knowledge and accreditation through Arla's training programme, they are also securing access to a reliable income, helping to lift them out of poverty. In addition to selling products in the rural areas of Bangladesh, these women conduct courtyard sessions to educate people about health and milk nutrition generally.

The ambassadors are being mobilised through Arla's partnerships with the Dutch-based NGO BoP Innovation Centre and in Bangladesh with the NGO dNet and social enterprise iSocial.

Arla's motivation to collaborate in the programme lies at the heart of its vision and strategy, which sees the company committing to contribute positively to the societies in which it operates as behaving responsibly is an inherent part of Arla's culture. Arla recognises the opportunity it has to help address Bangladesh's high rates of malnutrition and to do so in a sustainable way, whilst having the additional benefit of creating employment opportunities for 5,000 female micro-entrepreneurs over the coming years and enabling them to generate their income.



**ADVANCING WOMEN'S INITIATIVE**

The four-year project started operating in 2019, with the ambition to scale up to 5,000 female micro-entrepreneurs reaching 1.25 million new consumers by 2023.

Due to COVID-19, the project implementation has been delayed and the results of the proof-of-concept phase, where the project model is tested in six hubs, still remains to be documented. However, despite COVID-19 and major floods, the female ambassadors succeeded in changing sales methods and thereby increased sales to improve nutrition in rural Bangladesh.

The project now includes more than 300 entrepreneurs and despite the COVID-19 setbacks, our ambition to reach 5,000 female microentrepreneurs remains.

**AN OPPORTUNITY OUT OF POVERTY**

The main beneficiaries of this programme are: 5000 low-income females who have been presented the opportunity to lift themselves out of poverty through training to enable them to gain an accreditation to become as sales agents and generate their own income, through selling, among other products Arla Dano Daily Pushti.

1.25 million low-income consumers in rural and remote areas are being given access to affordable, nutritious dairy products they wouldn't normally have access to.

Having currently recruited more than 300 entrepreneurs, next step is to continue to extend rural distribution networks using innovative tools with the ambition to scale up to 5,000 female micro-entrepreneurs reaching 1.25 million new consumers by 2023.

Looking ahead to the future, the success of Dano Daily Pushti is inspiring Arla to develop new, nutritious products for low-income consumers to add to the baskets of our ambassadors. We have recently funded a systematic literature study investigating intake of nutrients, food preferences and nutritional status among the population in Bangladesh, as a first step to doing so.

Similarly, it is crucial for the sustainability of the sales network that the agents are adequately equipped with market relevant skills to become successful entrepreneurs. In an ideal scenario, talented entrepreneurs will recruit own teams, advance to senior roles, start-up their own shops in the community or seek formal employment

elsewhere. This will sustain the development impact on the female sales agents and their related households on a longer term.

**A SUSTAINABLE BUSINESS MODEL**

If the programme is successful in recruiting a fully equipped and profitable female sales force of 5,000 by the end of 2023, Arla and its partners will be in a position to roll out the operation on a purely commercial basis, independent of the external funding support it currently receives. This will create a sustainable sales network of female entrepreneurs with more, better and inclusive jobs on a long-term basis and continued access to affordable nutrition to Bangladesh's low income, rural population.

The development of a successful and innovative model for last mile distribution also provides Arla with a blue print to potentially replicate in other emerging markets.



INDIA

# The 'Eat Right India' project

**AUTHOR**

Member Secretary, INC-IDF, National Dairy Development Board, Anand, Gujarat, India

**ABSTRACT**

Safe foods and healthy diets are critical in the context of India's high burden of food borne diseases, under-nutrition, micronutrient deficiencies and growing incidence of obesity and non-communicable diseases (NCDs) like hypertension, diabetes and heart related diseases. While on the one hand, 196 million Indians are undernourished<sup>1</sup>, 135 million are overweight or obese<sup>2</sup> putting them at risk for non-communicable diseases such as high blood pressure, heart disease and diabetes. Further, the number of cases of food borne illnesses is expected to rise from 100 million to 150 – 177 million in 2030 compared to 2013. This will directly impact the ability to absorb nutrients, fight infection, rendering millions vulnerable to a host of diseases.

In addition, the current food production and consumption food practices are threatening the environment and the future of our planet. Food production is responsible for up to 30% of global greenhouse-gas emissions contributing to global warming<sup>4</sup>. Global food waste accounts for 6.7% of global greenhouse gas emissions, directly leading to climate change<sup>5</sup>.

This underlines the need to focus on preventive healthcare through ensuring safe, healthy food for all people in an environmentally sustainable way.

**THE 'EAT RIGHT INDIA' MOVEMENT**

Inspired by the focus on preventive and promotive healthcare in the National Health Policy 2017 and flagship programmes like Ayushman Bharat, POSHAN Abhiyaan and Swachh Bharat Mission, the Food Safety and Standards Authority of India (FSSAI) has embarked on a large-scale effort to transform the country's food system in order to provide people safe, healthy and sustainable food through the "Eat Right India" movement.

*"Dairy production in India is providing nutrition security and livelihoods, thus contributing to communities and helping to build a resilient future in which nobody is left behind."*

**Meenesh Shah - Member Secretary, INC-IDF**

Following the Mahatma's footsteps in mobilizing the nation, "Eat Right India" is a people's movement. It adopts a judicious mix of regulatory, capacity building, collaborative and empowerment approaches to ensure that our food is good both for the people and the planet. Further, it builds on the collective action of all stakeholders - consumers, food businesses, community organizations, experts and professionals, and the government. Thus, 'Eat Right India' adopts an integrative or 'whole of the government' approach since the movement brings together food-related mandates of the agriculture, health, environment and other ministries. Furthermore, since foodborne illnesses and various diet-related diseases cut across all age groups and all sections of the society it also adopts a 'whole of society' approach, bringing all stakeholders together on a common platform.

**'EAT RIGHT INDIA': THREE KEY THEMES**

The 'Eat Right India' is based on three key themes- Eat Safe, Eat Healthy, and Eat Sustainable.

- **Eat Safe:** Ensuring personal and surrounding hygiene, hygienic and sanitary practices through the food supply chain, combating adulteration, reducing

**ALIGNMENT WITH SDGS**



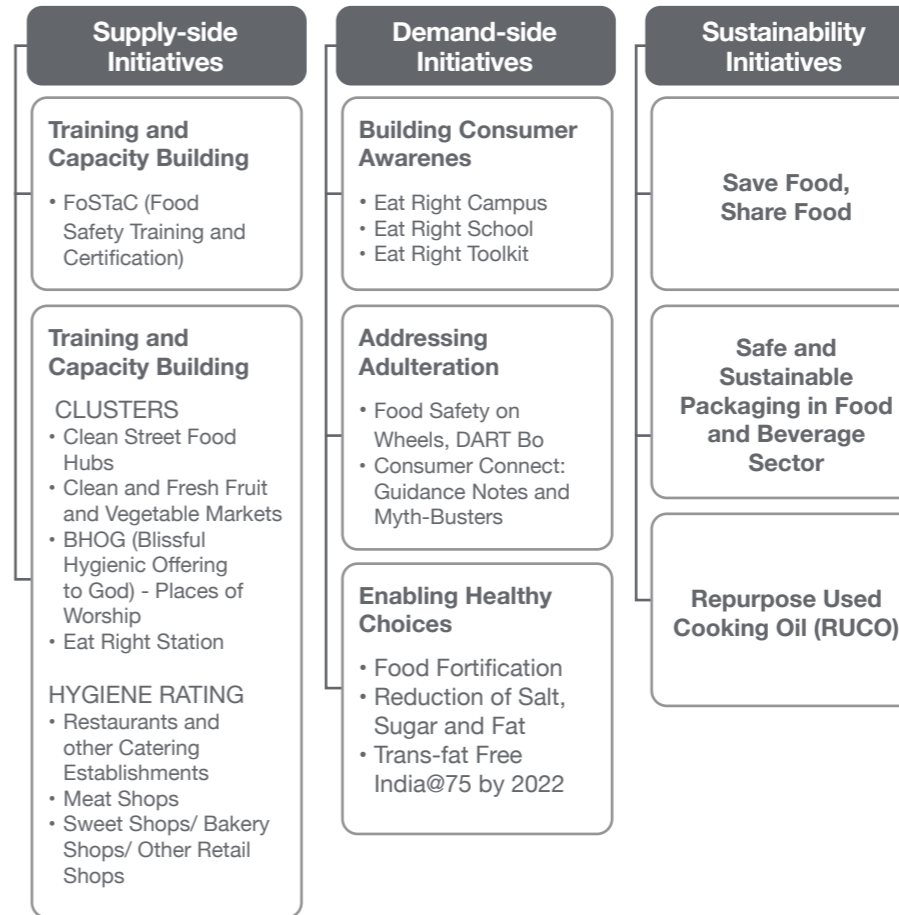
- toxins and contaminants in food and controlling food hazards in processing and manufacturing processes.
- **Eat Healthy:** Promoting diet diversity and balanced diets, eliminating toxic industrial trans-fats from food, reducing consumption of salt, sugar and saturated fats and promoting large-scale fortification of staples to address micronutrient deficiencies.
  - **Eat Sustainable:** Promote local and seasonal foods, prevent food loss and food waste, conserve water in food value chains, reduce use of chemicals in food production and presentation and use of safe and sustainable packaging.

**'EAT RIGHT INDIA' INITIATIVES**

Apart from the regulatory functions of FSSAI mandated by the Food Safety and Standards (FSS), Act 2006, such as setting science-based, globally benchmarked standards for food, ensuring credible food-testing and compliance to these standards through surveillance and enforcement activities, 'Eat Right India' encompasses a bouquet of initiatives. These initiatives aim to promote both the demand for and the supply of safe and healthy food in a sustainable way. While the supply-side interventions are aimed at building capacities of food businesses to promote self-compliance, the demand-side initiatives work towards motivating consumers to demand safe and healthy food. The initiatives for the production and consumption of food in a sustainable way are aimed at promoting environment-friendly food practices and habits.

**SUPPLY-SIDE INITIATIVES**

On the supply-side, to build capacities of food businesses on food safety, FSSAI has initiated Food Safety Training and Certification (FoSTaC) – a unique program to ensure a trained and certified Food Safety Supervisor (FSS) on each food



business premises. Several benchmarking and certification schemes to improve food safety and hygiene standards are in place. Clean Street Food Hub, Clean and Fresh Fruit and Vegetable Markets, Eat Right Station and BHOG (Blissful Hygienic Offering to God) for Places of Worship that are targeted to clusters of vendors. The Hygiene Rating scheme for Restaurants and Catering Establishments, Sweet and Meat Shops has been put in place for individual food service establishments

**DEMAND-SIDE INITIATIVES**

The demand-side initiatives of FSSAI aim at large-scale social and behaviour change by engaging consumers and educating them on eating right. They work on three major focus areas - Building Consumer Awareness, Addressing Adulteration and Enabling Healthy Choices

For building consumer awareness, a settings-based approach has been adopted with programmes like Eat Right Campus and Eat Right School that target individuals in workplaces, colleges, universities, institutes, hospitals, tea estates and jails as well as school children. The Eat Right Toolkit

has been launched to reach communities at the grass-roots level by training frontlines healthworkers on messages on eating right.

Through the Eat Right Campus, we nudge various institutions including corporate houses to adopt a holistic approach towards safe food and better nutrition in their premises. Safe, healthy and sustainable food in the campus would reduce the incidence of food borne illnesses, deficiency diseases and non-communicable diseases among the people in the campus. This means less absenteeism and loss of working hours and greater wellbeing, motivation and productivity of people. This would also reduce the burden of healthcare costs for the workplace, institution, hospital, jail or tea estate. All these factors would ultimately result in economic benefits to the campus. In addition, being recognized as an Eat Right Campus would increase the prestige and brand value of the campus, making it attractive for prospective students, employees etc. Last but not the least, this would also inspire other campuses to promote safe, healthy and sustainable food, thus resulting in the overall development of the country.

To address adulteration, FSSAI undertakes periodic food surveys to build trust of consumers in safety and quality of food products, in association with other relevant government departments, throughout the country. The DART Book to test food adulterants at home has been developed. A mobile food testing van called Food Safety on Wheels has been launched to reach remote areas and conduct training and awareness activities as well. Further, FSSAI regularly releases consumer guidance notes and myth busters to empower consumers to make informed choices.

To enable healthy choices, FSSAI has launched mass awareness campaigns to reduce salt, fat and sugar in the diet, "Aaj Se Thoda Kam" and Trans-Fat Free India@75 to eliminate trans fats by 2022. Food fortification is also being promoted on a large scale to address micronutrient deficiencies. Regulations for mandatory edible oil and milk fortification will be notified soon.

**SUSTAINABILITY INITIATIVES**

To encourage and support responsible production and consumption of food to protect the environment, FSSAI is spearheading initiatives such as Save Food, Share Food to reduce food waste and promote food donation, Safe and Sustainable Packaging in Food and Beverage Sector to reduce the use of plastics and Repurpose Used Cooking Oil (RUCO) for safe and healthy use of cooking oil and repurposing used cooking oil to make biodiesel, soap or other useful products.

'Eat Right India' aims to scale up all these initiatives at the national level in order to ensure that each citizens eats safe and healthy food in a sustainable way..

**SOURCES**

1. Chronic Hungry: FAO State of Food Security and Nutrition in the World, 2018
2. AHIRWAR & MONDAL (2019). Prevalence of obesity in India: A systematic review Diabetes & Metabolic Syndrome, Clinical Research & Reviews Vol, 13:1, 318-321
3. The economics of food safety in India—a rapid assessment by Wageningen Economic Research and ILRI 2017.
4. EAT-Lancet Commission: Brief for Farmers
5. FAO: Food Wastage Footprint & Climate Change



## INDIA

## A case study on milk fortification for improved nutrition in India

## AUTHOR

Member Secretary, INC-IDF, National Dairy Development Board, Anand, Gujarat, India

## ABSTRACT

Micronutrient malnutrition is a silent epidemic contributing to higher level of stunting, wasting and underweight issues among children in India. The issue is particularly pervasive in children, leading to impacted growth, affecting their physical and mental wellbeing. Among children under the age of five years in the country, more than 70 percent are deficient in Vitamin D, and 57 percent lacks adequate levels of Vitamin A. Malnutrition can impose significant costs on economic development in terms of reduced labour productivity, increased healthcare costs etc. This also stands as a major hurdle in the achievement of Sustainable Development Goals of Zero Hunger, Good Health and Well-being.

To address the issue of micronutrient deficiencies with a preventive approach, National Dairy Development Board (NDDB), the apex body for dairy sector in India has initiated the project 'Improved Nutrition through Milk Micronutrient Fortification' under with the South Asia Food and Nutrition Initiative (SAFANSI) of World Bank in the year 2017. The initiative was also joined by Tata Trusts, Food Fortification Resource Centre of the Food Safety and Standards Authority of India (FSSAI) and the dairy cooperatives across the country. The Milk Fortification Project aimed at fortifying milk with Vitamin A and D, and for consumer promotion and scale up. Fortification is a simple, powerful, and cost-effective nutrition intervention with a potential to address micronutrient deficiencies on a large scale. Since milk is a natural source of many vitamins, it is a right vehicle for fortification and is a staple food in India consumed by people from all age groups.

Both technical and financial support was provided to the dairy cooperatives under

the project. NDDB has developed the Standard Operating Procedures (SOPs) for fortification and testing. To build consensus among the industry partners and to engage them by sharing knowledge and resources on food fortification, multiple consultations and events were organized at national, regional and state levels by NDDB, Tata Trusts and FFRC. This systematically strengthened the collaboration between all stakeholders and nudged the milk industry in general to adopt food fortification as an industry norm. Capacity building and training of dairy staff at the local level in all cooperatives was also provided along with technical assistance for endorsement of +F logo - the identifier of fortified foods, and labelling.

The dairy cooperatives were also supported for ensuring quality control measures and quality assurance protocols including testing of fortified milk and vitamin premix samples collected from the dairies. Apart from this, to generate and improve consumer demand, various communication campaigns were supported including participation by the dairies in the Eat Right India movement of FSSAI ([https://www.youtube.com/watch?v=rm\\_5RSgqs7g](https://www.youtube.com/watch?v=rm_5RSgqs7g)). NDDB also initiated advocacy with the government on different ways to scale up milk fortification in the country. In the states-initiated milk fortification, the respective state governments were also involved and have encouraged its population to include fortified milk in their consumption. The project duration was 23 months and has achieved the target of fortifying more than 2 million metric tonnes of milk.

The efforts led to aligning the supply and demand for fortified milk in the market. It ensured that the dairy cooperatives are

## ALIGNMENT WITH SDGS



“Dairy products are nutrient-dense foods, supplying significant amounts of energy, high-quality protein and micronutrients, including calcium, magnesium, selenium, riboflavin, and vitamins B5 and B12 in one single food.”

**Meenesh Shah - Member Secretary, INC-IDF**

equipped to produce fortified milk, and it is reaching consumers at affordable prices. Significant progress has been made in terms of open market availability of fortified milk across the country. Currently, around 30 cooperative brands are fortifying milk and reaching consumers across 23 states of India. Apart from this, many private players also have started fortifying milk leading to achieving industry readiness to ensure the supply of fortified milk to a larger population.

To ensure better health and nutrition for all citizens, it is the need of the hour to integrate fortification into all government safety net programmes. The current Covid-19 scenario also suggests for a more universal approach and provision of more essential and nutritious commodities under the purview of social benefit schemes as the chances of pandemic induced poverty and malnourishment is huge. To provide essential micronutrients to the most vulnerable sections of the society, it is suggested to consider liquid milk/pouch milk marketed by organized sector for mandatory fortification. NDDB would continue to work towards this agenda and to make fortified foods available in the open market for all.





THE NETHERLANDS

# Initiatives to reduce salt in cheese and added sugar in sweetened dairy products in the Netherlands

**AUTHOR**  
Tjitske Bolt, Jacco Gerritsen  
NZO - Dutch Dairy Association • The Netherlands



**WORKING ON REFORMULATION FOR A HEALTHIER PRODUCT**

As a source of nutrients - like calcium, vitamins B2, B12 and A and protein - dairy plays a key role in a healthy diet. Because dairy covers many different kinds of products - from staple foods like milk, yoghurt and cheese to desserts and snacks - the dairy product group also makes a significant contribution to the average intake of added sugar, saturated fat and salt. The dairy sector has therefore actively been working on product reformulation since 2005.

Food manufacturers can help fight obesity by changing the way products are made. The Dutch dairy industry has been reducing the amount of salt in cheese, processed cheese and cheese spread and of added sugar in dairy beverages and desserts.

These efforts are part of the Dutch National Agreement to Improve Product Composition.

**OUR PROMISE**

The participating parties in the Dutch National Agreement to Improve Product Composition have drawn up ambitions to improve the product range in terms of salt, saturated fat and calories (sugar and fat) content. To achieve this, food producers have made chain agreements for various product categories.

**OUR JOURNEY**

Members affiliated with the Dutch Dairy Association have made sector-wide agreements about how reformulation of products could be reached, step by step. Gradual reduction is necessary so that consumers can get used to the new taste perception and to keep them from switching to other products or from adding sugar.

The limit values of salt reduction in cheese have been reached. Further salt reduction in cheese would lead to unwanted consequences for food safety and quality. Salt plays an important role in the shelf life, stability and flavour of cheese. For naturally ripened cheeses like Gouda, food safety and quality have to be guaranteed at the end of the ripening period.

The amount of sugar in sweetened dairy products is also gradually reduced and were rarely substituted with artificial sweeteners. This allows consumers to continue to be able to choose between products with or without sweeteners.

**LESS SALT, LESS SUGAR**

**Salt reduction in Gouda 48+ cheese**

Between 2006 and 2016, the amount of salt in Gouda 48+ - the most popular cheese in the Netherlands - was reduced by an average of 22%. Independent audits are conducted at member cheese factories regularly to check whether their products comply with this standard.

**Reduction of added sugar in dairy beverages and desserts (2015-2021)**

In 2015, the Dutch Dairy Association committed to a sugar reduction between 2015 and 2018. Its goal was to reduce the amount of added sugar in dairy beverages and desserts by an average of 5%. Products targeted were desserts like puddings and mousses, vla (similar to custard) and flavoured dairy beverages. In 2018 the Dutch Dairy Association again committed to reducing the amount of added sugar by another 5% between 2018 and 2021.

**A VALUABLE COMMITMENT**

The amount of reformulated Gouda 48+ cheese totals 360,000 tons of cheese each year. The new standard for the amount of sodium in cheese is 687 milligrams of sodium per 100 grams of cheese, compared to the standard of 763 mg in 2011.

Furthermore, the Dutch dairy sector has shown to be a reliable partner for the government and NGOs by showing diligence and proactivity. As a result, the sector is also regularly used as an example of successful reformulation interventions. The Dutch Dairy Association plays a central role in this.

“Strong scientific research and evidence supports milk and dairy foods’ role in global nutrition and health. The dutch dairy sector has improved Gouda’s composition in terms of salt, saturated fat and calories content.”

Tjitske Bolt

**FUTURE OPPORTUNITIES**

The Dutch government is developing a new approach to product improvement. In 2020, a consultation was held on a new approach regarding criteria for a number of product groups. As a result of this consultation, proposals for criteria have been drawn up for several food groups among which cheese. These criteria have again been submitted to stakeholders. The Dutch Dairy Association has given feedback to both consultations on the classification of the food groups and the proposed limit values for salt in cheese, processed cheese and cheese spread.

**REFERENCES**

<https://www.nzo.nl/en/nutrition/product-reformulation/> Report “Product reformulation in Dutch dairy” (Only available in Dutch): <https://www.nzo.nl/media/uploads/2019/01/Productreformulering-in-Nederland-se-zuivel-HR-180910.pdf>  
Report “Added sugar decline in Dutch dairy products Reformulating dairy products”: [https://www.researchgate.net/publication/313888928\\_Added\\_sugar\\_decline\\_in\\_Dutch\\_dairy\\_products\\_Reformulating\\_dairy\\_products\\_REPORT](https://www.researchgate.net/publication/313888928_Added_sugar_decline_in_Dutch_dairy_products_Reformulating_dairy_products_REPORT)  
Report “Salt reduction in Dutch Gouda cheese: 22% reduction in 2006-2016”: [https://www.researchgate.net/publication/305391633\\_Salt\\_reduction\\_in\\_Dutch\\_Gouda\\_cheese\\_22\\_reduction\\_in\\_2006-2016](https://www.researchgate.net/publication/305391633_Salt_reduction_in_Dutch_Gouda_cheese_22_reduction_in_2006-2016)







**ACTION TRACK 2**  
**SHIFT TO SUSTAINABLE**  
**CONSUMPTION PATTERNS**



GLOBAL

# The Dairy Sustainability Framework - Annual Progress Reporting

**AUTHOR**  
 Brian Lindsay  
 Dairy Sustainability Framework

**ABSTRACT**  
 Like all sectors, dairy understands it must improve the sustainability of its products. The Dairy Sustainability Framework (DSF) with broad multi-stakeholder support, was created by the sector in order to share and improve its sustainability activities, regardless of production system or geography. Importantly, DSF goes beyond implementation to provide global monitoring and validated aggregated reporting to monitor the continuous improvement of the global dairy sector.

The DSF currently reports the sustainability progress on 30% of global milk production. By working closely with organizations such as the International Dairy Federation, that number should increase over time.

DSF membership ranges from individual dairy processors (implementing members) that conduct sustainability improvement programs with their suppliers, to aggregating members that coordinate a number of dairy industry stakeholders and provide an annual aggregated progress report to the DSF.

“DSF goes beyond implementation to provide global monitoring and validated aggregated reporting to monitor the continuous improvement of the global dairy sector. Currently the DSF represents 46% of the formal milk market.”

**Brian Lindsay**

Members undertake a materiality analysis to identify which of the 11 DSF Criteria (covering the three pillars of sustainability – Social, Economic and Environmental) they will focus on. DSF members acknowledge that all 11 criteria are vitally important but the materiality assessment helps identify which are the most pressing on which to focus. Members remain in control locally and develop their own improvement programs be they at farm or manufacturing level (The DSF is a total value chain initiative). The DSF provides knowledge/resource sharing and comparing platforms for members to benchmark and explore solutions in a pre-competitive environment.

The University of Nottingham (UK) processes DSF’s data against an agreed protocol and generates the annual aggregated reports. This reporting not only considers the DSF Indicator Metrics, it also captures the growth in membership and prioritisation of the criteria. The reports allow members in their unique geographies to monitor their progress against the global dairy sector’s performance and provides invaluable data for other sustainability initiatives such as the Dairy Declaration of Rotterdam, UN Framework Convention on Climate Change (UNFCCC), UN Food Systems Summit, or other relevant platforms.

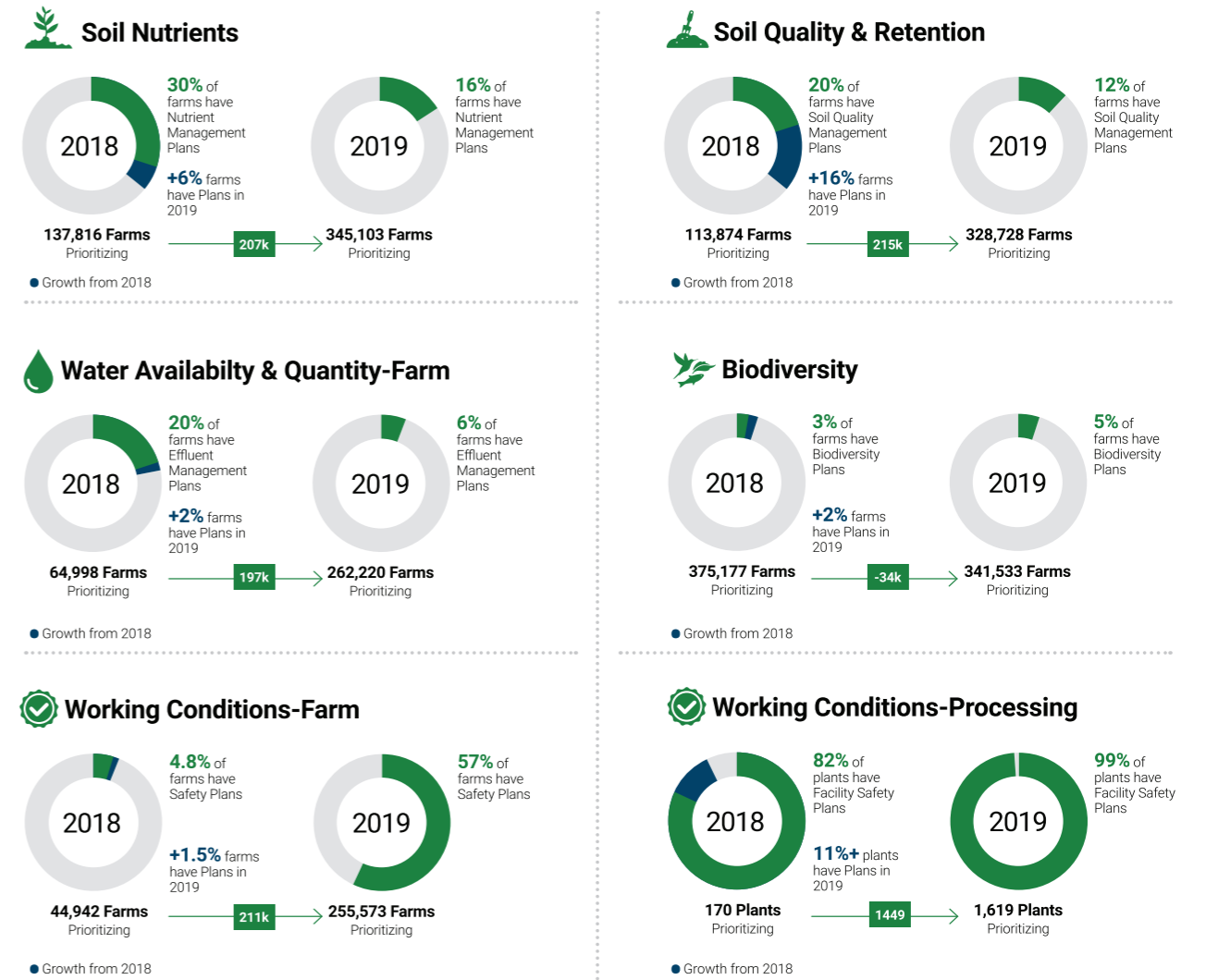
Dairy sector colleagues who are not already part of the DSF are encouraged to get in contact either directly or through the IDF so they too can benefit from the DSF’s implementation process and collaborative approach. By engaging you will be supporting the global dairy sector in demonstrating that it is a responsible sector that takes its sustainability commitments seriously.

**This publication clearly demonstrates the ‘commitment and activity’ of the dairy sector in addressing sustainability at a local level with a focus on the UN Food Systems Summit Action Tracks.**

## Action on Priorities

Compared to 2018, 2019 reporting shows considerable growth in members who are addressing priority criteria and implementing strategies and processes to measure their progress.

- Key**
- Members report the number of farms they represent
  - Assumption: 1 plan per farm



## Baselines Being Set in 2019

- Waste-Farm**  
210,604 Farms Prioritized  
0% Report having Waste Management Plans
- Waste-Processing**  
45,181 tonnes to landfill
- Product Safety & Quality**  
16 Members Prioritized  
81% Report having Product Safety & Quality Recall Plans  
37 public product recalls
- Market Development**  
313,641 Farms Prioritized  
78% Report having a process to inform Producers of Market Opportunities
- Rural Economies**  
\$59.28 billion in payments for raw milk by DSF members

## Reduction on These Criteria Demonstrates Progress

- Animal Care**  
Average weighted annual Somatic Cell Count:  
2018: 210,000 | 2019: 183,539  
-8.7% (vs -2.9% in 2018)
- Water Processing**  
Water use efficiency for processing (litres of water to produce 1kg of product):  
5.5 litres per kg of product produced  
+21.6% (vs -2.2% in 2018; increase due to more members reporting against this criteria)
- Greenhouse Gas Emissions**  
FAO “Climate Change and the Global Dairy Sector” report, 2005-2015: 2.8-2.5 CO2eq/kg fat and protein corrected milk over 10 years.  
-11% (results reported every 5 years)



DENMARK

# GAIN Access to Better Dairy project : Developing safe, nutritious and affordable yoghurt in Ethiopia

**AUTHOR**  
Charlotte Sørensen  
Arla Foods, Aarhus • Denmark



**IN A NUTSHELL**

Through the GAIN Nordic Partnership, and in cooperation with DanChurchAid, the Confederation of Danish Industry and two Ethiopian Dairy Companies, Arla Foods Ingredients is working to connect low-income families with affordable foods based on milk from Ethiopia's 11 million cows.

At the same time, the aim of the GAIN Access to Better Dairy project is to build a sustainable dairy chain in collaboration with smallholder farmers and two local dairies.

As lead business partner, AFI's role is to equip the two dairies with the capabilities to produce a safe, nutritious and affordable yoghurt for sale in Ethiopian markets and kiosks. The yoghurt recipe contains our whey permeate – an ingredient rich in milk minerals and lactose – to maximise the dairies' yoghurt production and ensure a good taste and consistency.

A third example of our involvement has been smaller holder farmer training via one of our farmer owners who has twice visited Ethiopia to share his knowledge and best practise in the true spirit of cooperative engagement.

The initiative works across the entire value chain, including smallholder farmers, dairy processors, distributors, sales agents, and consumers.

-----

As one of the world's leading whey ingredient suppliers, Arla Foods Ingredients sees and embraces two key opportunities:

**1. Supporting Ethiopia's health and poverty agendas**

Despite having one of the highest dairy cattle populations in the region, the consumption of milk in Ethiopia is only 19 kilos/year per person, which is one of the lowest consumption levels in sub-Saharan Africa (average 30.2 kilos/year), and far below the WHO recommendation of 175 kilos/year. Ethiopia is facing the challenge of 38% of children aged 6-59 months being stunted and 57% being anaemic. Only 7% of Ethiopian children aged 6-23 months meet the minimum acceptable dietary recommendations. Even in suburban areas, stunting is still as high as 25%, and the prevalence of anemia is 49%. Women and children are

particularly vulnerable. The lack of access to affordable and processed dairy products among low-income segments in Ethiopia is largely due to the fact that only 5% of farm milk reaches the formal market via professional dairy factories. The majority of milk produced is consumed by the farmers and their families, sold as raw milk, or lost. Milk loss is mainly due to inefficiencies within the dairy value chain in Ethiopia. 20-35% of the milk produced gets spoiled due to the lack of cold chain management, and a poor infrastructure for milk collection. Consequently, the price of raw milk is very high, making dairy products relatively expensive for consumers. In addition, the fluctuating supply and quality of milk poses a significant challenge for dairy producers.

As well as being a health issue, malnourishment is directly linked to poverty. Malnourished girls often leave school early, marry young and give birth to malnourished babies – continuing the vicious circle of malnutrition that traps people, communities and countries in poverty. It is estimated that malnutrition is responsible for a more than 16% loss in Ethiopia's gross domestic product. One of the drives of the project was therefore growing year-round demand from children and mothers for safe, affordable, dairy-based products.

Working with our partners and the whole local dairy value chain, we have collectively developed an affordable, safe, nutritious yoghurt to support the fight against malnutrition in Ethiopia. By breaking the circle of malnutrition, the project also hopes to contribute to lifting Ethiopians out of poverty and therefore secure a brighter future for the next generation.

In respect of the yoghurt production, Arla's contribution is two-fold:

1. We provide our whey permeate – an ingredient rich in milk minerals and lactose – to maximise the dairies' yoghurt production and ensure the yoghurt has a good taste and consistency.
2. We have equipped two dairies - Loni Dairy and Family Milk - with the capabilities to produce the yoghurt through the sharing of our technical dairy production expertise, supporting product innovation and assisting in the implementation of quality assurance control and best practices.

**2. Supporting the development of the local dairy sector through capacity building**

The Ethiopian dairy industry is mainly made of small holder dairy farmers with somewhat improved dairy breeds and management practices in urban and peri-urban areas. Access to feed, water sources, poor husbandry management practices and inadequate access to basic services such as veterinary, artificial insemination, market information and other dairy extension services are the main areas that need to be addressed in improving the dairy sector. Another reason for the weakness of the dairy industry is the lack of strong value chain systems.

The capacity building project is addressing this by training 400 farmers in best practice methods for high quality milk and yield to increase the availability of safe raw milk. The project's specific objectives in this area are:

- Improve smallholder farmers dairy productivity and quality through improved dairy management practices
- Create sustainable markets for fresh milk through value chain linkages
- Create/strengthen business linkages of dairy farmers with input suppliers
- Construct 4 milk collection sheds
- Increase smallholder farmers' incomes by giving them a premium price for higher-quality milk

Our involvement in this part of the project has been smaller holder farmer training via one of our farmer owners who has twice visited Ethiopia to share his knowledge and best practise in the true spirit of cooperative engagement.

AFI's motivation to invest time and resources in the partnership, is two-fold:

- It is a strategic investment in its core business, as the venture is helping it build strong relationships with local dairy processors and develop the Ethiopian dairy market.
- The ambitions of the programme are central to its vision and strategy: AFI is committed to contributing positively to the societies in which it operates. Playing an integral role in the provision of a nutrition-rich food for low income consumers and helping improve the livelihoods of the country's smallholder farmers, leads straight into this commitment.

**OUR ACHIEVEMENTS**

GAIN Nordic launched the project after completing an impact assessment of the Ethiopian dairy sector.

As of end 2020:

- The two dairies are in a position to begin manufacturing the yoghurt, however its launch has been postponed to summer 2021 due to COVID
- All the 100 farmers in the pilot project have been trained as per the planned capacity building interventions
- 300 follower farmers have been trained and capacitated through peer learning and directly from the project.
- There is a 19% increase in the income of the farmers (project target = 25%)
- Four milk collection sheds have been constructed, from which up to 10,000 litres of fresh milk can be collected per day. They enable farmers to pool their milk together and achieve marketable volumes





“When we work together in a partnership, with highly motivated people and local partners, we can really make a difference. As a business we have a wealth of knowledge and expertise and we consider it our responsibility to share this for the greater good and development of sustainable dairy in developing countries”

Charlotte Sørensen

- Opportunities for dairy farmers to be organized into milk marketing cooperatives have been created. Four marketing coops have been created around the four milk collection sheds, each with a management committee with 5 members, who are trained in basic cooperative management principles and dairy marketing. These dairy marketing coops are in the process of formation and legalization

**OUR NEXT STEPS: THE LAUNCH OF THE YOGHURT**

We aim achieving our aim, and SDG8, through farmer capacity building, which is seeing an increase in the incomes of the farmers involved.

Next step is to launching the yoghurt into the market, which is planned for summer 2021, COVID restrictions permitting. The aim, by the end of the project, is for 10,000 yoghurt servings to be sold per day and work to scale up the idea with other dairies in Ethiopia and surrounding countries is underway utilising the UN's initiative: Scaling Up Nutrition business network.

In 2021, a school feeding study is being conducted to evaluate the nutritional impact of the yoghurt among schoolchildren, which was postponed from 2020 due to COVID.

**AN AFFORDABLE, NUTRITIOUSLY BALANCED YOGHURT SOON FOR SALE IN ETHIOPIAN MARKETS**

In mid-2017, the GAIN Nordic partners, of which Arla is lead commercial partner, began cooperating with two local dairies, which will produce an affordable, nutritiously balanced yoghurt for sale in Ethiopian markets and kiosks and for testing in a school feeding programme. It is planned that production of the yoghurt will begin in summer 2021. At the same time, work also began to raise public awareness of the importance of good nutrition and the role of milk-based products.

Together the GAIN Nordic partners have co-developed a yoghurt prototype primarily based on local milk and fortified with selected vitamins and minerals to meet the criteria of a low price point, appealing taste and good nutrition profile. Arla Foods Ingredients took the lead in the development of the yoghurt, which is intended to function as a supplement to consumers' daily nutritional intake.

To secure availability of high-quality, local milk, the project is engaging with 400 smallholder farmers to increase their capacity and build a sustainable livelihood from dairy farming.

Strong market connection is key, and the project is successfully integrating smallholder farmers and the two local dairies.

The next key milestones for the project are the production of the yoghurt, bringing it to market, commencing the school feeding programme and continued engagement with other dairies in Ethiopia and surrounding countries is underway utilising the UN's initiative : Scaling Up Nutrition business network.

Charlotte Sørensen, senior project manager in Arla Foods Ingredients, reflects: “When we work together in a partnership, with highly motivated people and local partners, we can really make a difference. As a business we have a wealth of knowledge and expertise and we consider it our responsibility to share this for the greater good and development of sustainable dairy in developing countries.”



© ArlaFoods



## UNITED KINGDOM

## Food loss & waste – an ambition for UK dairy

## AUTHOR

Henry Clifford  
Dairy UK  
The United Kingdom

## BACKGROUND

Globally, it is estimated that roughly one-third of the food produced for human consumption – approximately 1.3 billion tonnes – is lost or wasted.

The impact of this cannot be understated. Beyond the loss of valuable dairy nutrition, the financial cost of food loss and waste is estimated to exceed \$1 trillion every year<sup>1</sup>, and if food wastage were a country it would be the third-largest emitter of greenhouse gases in the world<sup>2</sup>.

Food Loss and Waste can occur at every stage from farm to fork, and whilst the predominant causes or sources may vary around the world, the consequences; unnecessary economic, social and environmental burdens are faced by all.

In the UK between processing and the home, an estimated 330,000 tonnes of milk gets wasted each year. Although only 2.2% of UK raw milk production this still accounts for roughly 3.2% of the total food waste footprint of the UK. Whilst losses are reported all along the dairy supply chain the vast majority (90%) is attributed to consumer food waste<sup>3</sup>.

## OUR COMMITMENT

Recognising the social, economic, and environmental burden of food loss and waste, Dairy UK is committed to reducing food waste at all points in the dairy supply chain, and is working closely with dairy processors and industry partners like WRAP (Waste & Resource Action Programme) to support a step-change in consumer perceptions on food waste.

As a signatory of both the Courtauld Commitment and the UK Food Waste Reduction Roadmap, Dairy UK is committed to helping the UK dairy sector to deliver on its part in achieving

“Driving down food loss and waste is paramount to securing a sustainable food system, and the UK dairy sector is taking action to deliver improvements from farm to fork.”

Henry Clifford

Sustainable Development Goal 12.3 and achieving a 50% per capita reduction in food waste by 2030.

Through the Dairy Roadmap<sup>4</sup>, the UK dairy industry has incorporated these ambitions and has set a series of targets to support this delivery. In addition to targeting a reduction in food waste from dairy processors, we have also set an ambition to increase product and packaging design features that help prevent consumer food waste, recognising the vital role that food manufacturers can play in influencing consumer behaviour.

## MONITORING &amp; REPORTING

Since 2018 the UK Food Waste Reduction Roadmap has provided a consistent framework to define, monitor and report food loss and waste within UK food businesses. Included in this Roadmap is a series of sector-specific guidance documents, including world-leading guidance to assist in monitoring and reporting food loss and waste within dairy processing facilities.

Now embedded within Dairy UK's annual Environment Benchmarking survey, we are

supporting Dairy UK members across over 30 dairy processing sites to acknowledge, track, and report the food loss and waste generated throughout processing.

With every year, the quality of our reporting improves and the latest figures from 2020 estimate that only 1.8% of the milk entering dairies is lost or wasted. Whilst more time is needed to show the progress we have made against our food waste ambitions, early indications show waste is already declining after only two years.

Beyond data, Dairy UK, its members, and a wide variety of industry stakeholders continue to deliver actions and initiatives aimed at reducing food waste across the dairy supply chain. A key avenue for consideration has been waste valorisation and identifying opportunities to use previously discarded dairy by-products, such as salt whey, acid whey and digester sludge.

## CONSUMER FOOD WASTE

In the UK most food waste – in the case of milk almost 90% – is attributed to consumers. This poses a unique challenge to dairy businesses aiming to reduce their products environmental footprint, and the sector is constantly exploring opportunities to minimise consumer waste.

Dairy UK frequently supports consumer food waste campaigns developed by WRAP aiming to address this issue, one campaign – *Chill the Fridge Out* – encouraged consumers to lower their fridge temperature to 5°C, in light of the impact of an incorrect fridge temperature on milk and other food waste.

Changes in product design, packaging, and labelling have also proven valuable

in extending shelf life and minimising consumer food waste. Data reported in the WRAP retailer survey shows an increased shelf life of 1.4 days for milk and 17 days for hard cheese, and on-pack chilled storage and freezing and leftover recipe guidance becoming more and more commonplace.

## NEXT STEPS

The introduction of the dairy specific monitoring framework has provided a vital tool to assess the sectors waste. Moving forward we as Dairy UK will continue to drive uptake amongst dairy processors.

Over the coming year, the UK dairy sector plans to build on this success by encouraging further reductions in food waste along the supply chain. The sector continues to review guidance for open-life and date labelling to ensure this remains in step with the latest science.

The importance of food waste is also central in the industry's consideration of packaging design, and as the sector reconciles itself with changing consumer demands, the balance of food waste vs sustainable packaging is constantly under consideration.

## REFERENCES

1. **UK Dairy Roadmap:** <https://www.dairyuk.org/publications/the-dairy-roadmap/>
2. **Courtauld Commitment 2025:** <http://www.wrap.org.uk/food-drink/business-food-waste/courtauld-2025>
3. **UK Food Waste Reduction Roadmap:** <http://www.wrap.org.uk/food-waste-reduction-roadmap>
4. **Retail Survey:** <https://wrap.org.uk/resources/report/retail-survey-2019>
5. **Food Date Labelling Guidance:** <http://www.wrap.org.uk/food-date-labelling>





## **ACTION TRACK 3**

# **BOOSTING NATURE-POSITIVE PRODUCTION AT SUFFICIENT SCALE**





## SUSTAINABLE AGRICULTURE INITIATIVE PLATFORM

## Deforestation in the feed supply chain for dairy companies

## AUTHOR

Patricia Garcia Diaz, SAI Platform

## ABSTRACT

The lack of transparency and traceability in feed supply chains, and the potential risk of feed ingredients related to deforestation and conversion are a huge challenge to the dairy industry. As an industry solution, the [Sustainable Dairy Partnership](#) (SDP) recognises the potential connection with deforestation and animal feed as a concerning challenge with an important impact on climate change and nature. The aim of this project is to seek ways to address these issues and use the SDP methodology to support dairy companies in finding the tools and means to improve the outcomes of feed ingredients related to deforestation and ecosystem conversion in dairy supply chains.

## INTRODUCTION

A lack of transparency and traceability in the supply chains for animal feed are a constant challenge to the dairy industry. As an industry solution for continuous improvement in dairy sustainability, SAI Platform's Sustainable Dairy Partnership (SDP) recognises the potential linkages between deforestation and conversion with animal feed as a key challenge with an important impact for climate change and nature as well as indigenous people's rights. To address this challenge a focused workstream and the resulting project was created to identify and evaluate possible solutions.

To explore potential ways to address the challenges, the workstream has partnered with the World Wildlife Federation (WWF) to pilot the implementation of the Accountability Framework Initiative (Afi). Afi aims to clarify how companies can meet commitments to eliminate deforestation, ecosystem conversion, and human rights violations from their supply chains.

With the project, the Deforestation Workstream will evaluate if using the Afi as an industry approach might help the SDP address and evolve the issue of deforestation and ecosystem conversion in the dairy feed supply chain.

We are at the early stages of this project and are creating a deep understanding of the situation at the origin and the impact for dairy users. We are exploring different routes to address the challenge where every supply chain actor will have accountability within the solution.

## METHODOLOGY

**Phase 1:** Uses the Afi to assess the current scenario developing risks profiles and action points to address potential deforestation and conversion in the supply chain of animal feed.

**Phase 1b:** A series of workshops takes a deep dive into the findings on the first phase, develops deeper knowledge of the situation and understands the current behaviour drivers of all supply chain actors to identify collective action points to address the challenges.

**Phase 2:** Defines the visibility to explore different solutions, this might include collaboration with other organisations leveraging existing efforts and defining a clear action plan for each supply chain actor.

**Phase 3:** last phase executes the approach and evaluates the impact.

The project is currently in Phase 1(b).

## EXPECTED RESULTS

Define potential solutions to address deforestation in relation to animal feed in the dairy industry and what role the

Sustainable Dairy Partnership can have in relation to this challenge.

## NEXT STEPS

The project will continue to define feasible routes to address the challenge, on a next phase we will define how to implement pilot exercises to evaluate the impact.

The aim is to apply the concept of the SDP's continuous improvement to address the issue. By determining a set of actions in relation to each of the maturity levels of the SDP, companies will be able to create individualised DCF Implementation Plans based on already existing templates that organise recommended activities with associated milestones. Once this is developed for soy, we will be looking into expanding the approach to other feed ingredients related to deforestation and conversion.

## CONCLUSION

The Sustainable Dairy Partnership is committed to tackling the issue of deforestation and conversion in the dairy feed supply chain. By collaborating they have been able to gain a deep understanding of the issue at origin and are exploring various solutions. The results of this project will enable us to define a step-by-step approach solution for the short-, medium- & long-term, and identifying the role SDP will play in this.

## REFERENCES

**SAI Platform Website:** Dairy Working Group <https://saipatform.org/working-groups-committees/the-dairy-working-group/>

**WWF Website:** Article on Afi <https://www.panda.org/?348210>

## SUSTAINABLE AGRICULTURAL INITIATIVE PLATFORM

## Toolbox practices for GHG reduction on dairy farms

## AUTHOR

Patricia Garcia Diaz, SAI Platform

## ABSTRACT

With 80-90% of greenhouse gas (GHG) emissions from the dairy industry generated at farm level, dairy companies are looking for the best ways to tackle the challenges of GHG emissions and improve the Environmental Impacts of their dairy farms. Academic institutions and companies have researched and tried different approaches and practices that have delivered various outcomes. Phase 1 of this project aims to present an overview of relevant practices in a consistent manner to create a toolbox that companies could apply within their own dairy supply chains, recognising such things as: geographical locations, farm archetypes, potential for GHG reductions, implementation costs, potential barriers and incentives, to name some aspects. The overview will also include current research and what potential the research could offer. Phase 2 envisages companies having sufficient knowledge to create net zero farm pilots to demonstrate good practices within their operating context, as required. Phase 3 of the project could potentially provide opportunities for partnerships between companies to scale the lessons learnt from phases 1 and 2 and help drive innovation and collaboration within the dairy industry to reduce GHG emissions.

## INTRODUCTION

The dairy industry recognises that GHG emissions produced at farm level are contributing to climate change. To tackle this issue, SAI Platform's Dairy Working Group and the European Roundtable for Beef Sustainability (ERBS), created a workstream and joint project dedicated to identifying known and practical solutions to mitigate GHG at farm level.

The project focuses on capturing members' activities and insights to create a globally comprehensive toolbox of

*“Burgeoning technologies will enable the livestock sector to lower GHG emissions from field-to-fork even further in the coming years.”*

Patricia Garcia Diaz, SAI Platform

practices. As a consolidated insight into operations already in practice and the potential of evolving practices for GHG reductions in dairy and beef farms, this toolbox provides the opportunity to scale activities on climate action.

Collaboration is key to this project, and partners are invited to pilot and test different practices together. The resulting toolbox will be used as a knowledge base and data centre that will serve the industry as a source of information to improve GHG impact at farm level.

## Project members

Ahold Delhaize, Arla, Barry Callebaut, Bord Bia, Coca-Cola, Dairy Australia, Dairy Farmers of America, Danone, Ferrero, Fonterra, Friesland Campina, Givaudan, Glanbia Ireland, Innovation Centre for US Dairy, Kerry, Land O' Lakes, Mars, Molkerei Ammerland, Nestlé, Reckitt, Starbucks, Unilever and the European Roundtable for Beef Sustainability (ERBS).

The project consists of 3 key phases:

- Phase 1 Collect and Categorise
- Phase 2 Pilot
- Phase 3 Scale

The project is currently in Phase 1 which aims to compile a comprehensive toolbox identifying current known practices used within the industry, as well as potential research outcomes. The workstream will also identify actionable insights on potential options to reduce greenhouse gas emissions across regions and different farm systems. This includes information such as GHG reduction potential, cost of implementation or applicability across different regions and farm archetypes.

A survey was created and shared globally through SAI Platform's Dairy Working Group and ERBS members and IDF Partners. To ensure academic rigor in the data collection and analysis, SAI Platform contracted Wageningen University to collect and analyse the information.

The survey was distributed in May 2021. The goal of the survey is to collect information on relevant farm level GHG mitigation options that are currently being used through a structured process. Mitigation options are split up into four main categories and examples of each can be seen in figure 1.

Information on the areas here will be sorted as follows:

- The applicability of the practice for different farm archetypes,
- The required investment or economic viability,
- The range of GHG reduction,
- Required skills to implement the practice.



Mitigation options	
Main categories	Examples
Animal production	<ul style="list-style-type: none"> <li>• Improving animal health</li> <li>• Improving diet composition &amp; increasing digestibility</li> </ul>
Feed production and grassland management	<ul style="list-style-type: none"> <li>• Improving grazing management</li> <li>• Increasing carbon sequestration</li> </ul>
Manure management	<ul style="list-style-type: none"> <li>• Application of primary separation of manure</li> <li>• Anaerobic digestion</li> </ul>
Farm management	<ul style="list-style-type: none"> <li>• Reducing fossil fuel consumption</li> <li>• Application &amp; production of renewable energy</li> </ul>

A list of mitigation options have been outlined to help structure the data collected in the survey

Figure 1 – Examples of Mitigation Options

**EXPECTED RESULTS**

We expect by Q3 2021 to have a collection of best practices that mitigate GHG emissions categorised and described at farm level.

**NEXT STEPS**

After completing Phase 1 of the project in Q3 2021, the results of the survey will enable us to create a “Toolbox of Practices for GHG Reduction in Dairy & Beef Farms”.

In Phase 2, the group aims to run several net-zero farm pilots that will test and/or implement practices described and identified from the toolbox through the collaboration of SAI Platform Dairy Working Group Members, ERBS, and other partner organisations.

In Phase 3 we aim to scale-up activities on climate action in the dairy industry through member collaborations on

stand-out solutions as well as potential collaborations with other organisations to provide the industry a source of information to improve GHG impact at farm level.

**CONCLUSION**

SAI Platform’s Dairy Working Group and the ERBS are committed to tackling the issue of GHG mitigation at farm level. By creating a global, comprehensive “Toolbox of Practices for GHG Reduction in Dairy & Beef Farms” knowledge sharing is encouraged, and members can support their suppliers to apply best practices on their farms. This collaboration will encourage improvements in GHG mitigation at an industry level.

**REFERENCES**

SAI Platform Website: Dairy Working Group <https://saiplatform.org/working-groups-committees/the-dairy-working-group/>  
 WWF Website: Article on Afi <https://wwf.panda.org/?348210>





## SOUTH AFRICA

# Environmental impact of rotationally grazed pastures at different management intensities in south africa

## AUTHOR

Hendrik P.J. Smit<sup>1</sup>, Thorsten Reinsch<sup>1</sup>, Pieter A. Swanepoel<sup>2</sup>, Ralf Loges<sup>1</sup>, Christof Kluß<sup>1</sup>, Friedhelm Taube<sup>1</sup>

<sup>1</sup>Institute of Crop Science and Plant Breeding, Grass and Forage Science/Organic Agriculture, Christian-Albrechts-University Kiel, Kiel, Germany. <sup>2</sup>Department of Agronomy, Stellenbosch University, Stellenbosch • South Africa

## ALIGNMENT WITH SDGS



## ABSTRACT

Nitrogen fertilization, irrigation and concentrate feeding are important factors in rotational pasture management for dairy farms in South Africa. The extent to which these factors affect environmental efficiency is subject to current and intense debate among scientists. A three-year field study was conducted to investigate the yield response of different N-fertilizer treatments (0 (N0), 220 (N<sub>20</sub>), 440 (N<sub>40</sub>), 660 (N<sub>60</sub>) and 880 (N<sub>80</sub>) kg N ha<sup>-1</sup> year<sup>-1</sup>) on grazed pastures and to calculate the carbon footprint (CF) of milk produced. Excessive N-fertilization (N<sub>60</sub> and N<sub>80</sub>) did not increase herbage dry matter and energy yields from pastures. However, N<sub>80</sub> indicated the highest N-yield but at the same time also the highest N surpluses at field level. A maximum fertilizer rate of 220 kg ha<sup>-1</sup> year<sup>-1</sup> (in addition to excreted N from grazing animals) appears sufficient to ensure adequate herbage yields (~20 t DM ha<sup>-1</sup> year<sup>-1</sup>) with a slightly positive field-N-balance. This amount will prevent the depletion of soil C and N, with low N losses to the environment, where adequate milk yields of ~17 t ECM ha<sup>-1</sup> with a low CF (~1.3 kg CO<sub>2</sub> eq kg ECM<sup>-1</sup>) are reached. Methane from enteric fermentation (~49% ± 3.3) and N<sub>2</sub>O (~16% ± 3.2) emissions from irrigated pastures were the main contributors to the CF. A further CF reduction can be achieved by improved N-fertilization planning, low emission irrigation techniques and strategies to limit N<sub>2</sub>O emissions from pasture soils in South Africa.

## INTRODUCTION

Dairy farmers generally use high amounts of fertilizer to promote pasture growth per hectare, despite the high amounts of manure that is available. However,

“Climate-smart dairy products in South Africa from pasture-based farms can be achieved.

The dairy sector continuously strives to use new strategies and innovation to reduce its environmental impact and have a positive impact on our planet.”

Pieter A. Swanepoel

additional herbage yield response is often not obtained from high amounts of fertilizer [1,2]. Nitrogen fertilization, irrigation and concentrate feeding are key management factors in grazed dairy-pasture systems. However, the extent to which these management factors affect environmental efficiency needs investigation. The growing concern over GHG and the effect of dairy production on the environment has led to the need to express the total emissions associated with milk. Product carbon footprint (CF) analysis has become broadly accepted as an assessment method. The N-fertilizer management is an important parameter to consider when calculating the CF of milk [3]. The aims of the study were to evaluate dairy-pasture systems in terms of different N fertilization levels on herbage yields as well as calculate the associated CF of milk.

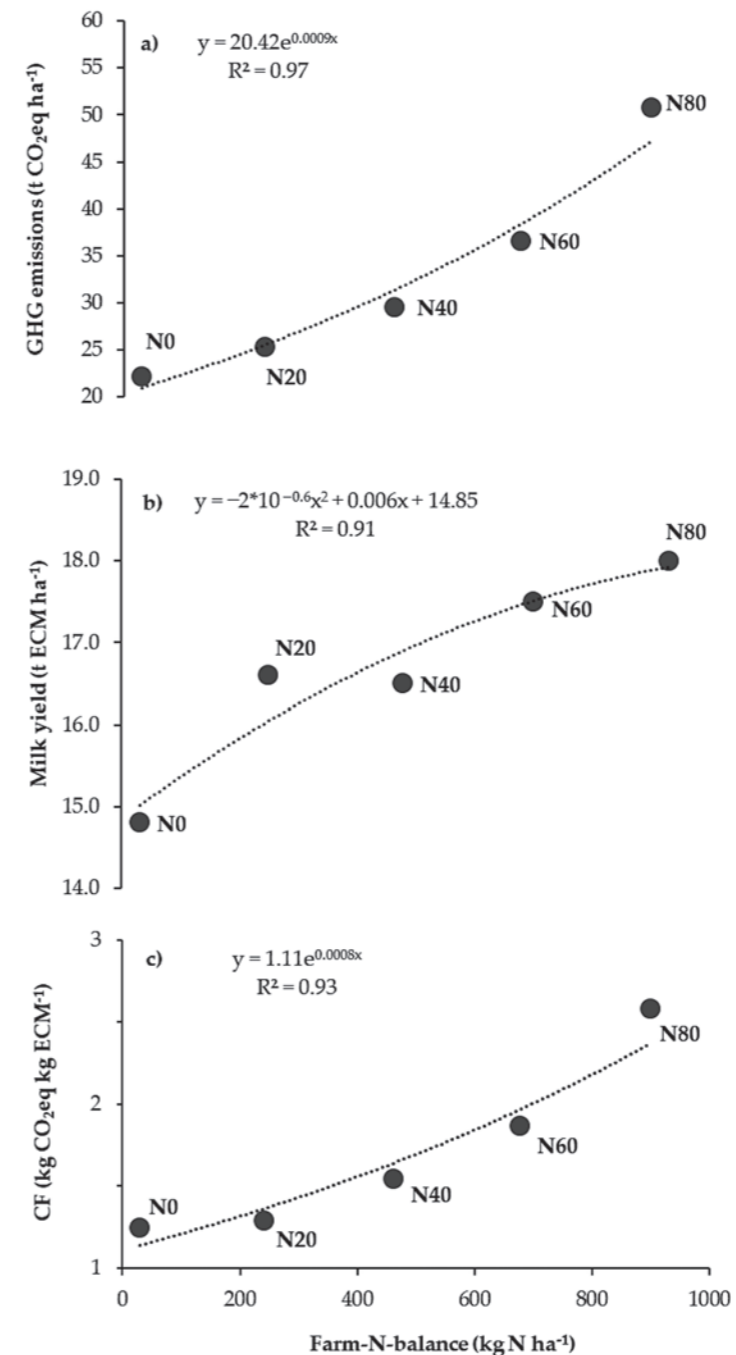
## MATERIALS AND METHODS

Experimental field data was used to investigate the effect of mineral fertilizer levels, as management strategies, on the pasture yield and the PCF of produced

milk. Field trials were laid out as a randomized block design to evaluate five N fertilizer rates (0, 220, 440, 660 and 880 kg N ha<sup>-1</sup> year<sup>-1</sup>) as treatments, on the CF from irrigated kikuyu-perennial ryegrass (*Pennisetum clandestinum*-*Lolium perenne*) pastures. The study was conducted near the city of George in the southern Cape region of South Africa. Plots were 15 × 15 m and replicated in 4 blocks. The study was carried out over a three-year period from April 2016 to June 2019. The additional N-excretion from grazing animals was considered. Forage quality parameters were estimated using near infrared reflectance spectroscopy (NIRS). The on-farm soil organic carbon (SOC) changes of the tested production systems were also considered and calculated. The global warming potential (GWP) per hectare was calculated using the respective value for each trace gas (CO<sub>2</sub> = 1, N<sub>2</sub>O = 265, CH<sub>4</sub> = 28) over a life-span of 100 years [4] and expressed as CO<sub>2</sub>eq. The efficiency of the different N fertilization strategies, in relation to climate change, was calculated on the basis of the functional unit ECM as proposed by Sjaunja et al. (1990) [5]. The farm-N-balance was calculated using a simple equation which deducts the nitrogen outputs at farm gate from the sum of the nitrogen inputs.

## RESULTS

Methane emissions resulting from ruminal enteric fermentation were on average the largest contributor (49%) to the total GWP per hectare over all treatments. Herbage production as a result of pasture management and direct N<sub>2</sub>O emissions from fertilization accounted for 28% of the total GWP. More than half of emissions



**Figure 1.** The relationship between a) GHG Emissions (t CO<sub>2</sub>eq ha<sup>-1</sup>), b) milk yield (t ECM ha<sup>-1</sup>) and c) CF (kg CO<sub>2</sub>eq kg ECM<sup>-1</sup>) in relation to the farm-N-balance (kg N ha<sup>-1</sup>) between the different treatments (N0, N<sub>20</sub>, N<sub>40</sub>, N<sub>60</sub> and N<sub>80</sub>). Soil carbon changes were considered. Means for the three experimental years are shown (n = 3).

in the N<sub>60</sub> and N<sub>80</sub> treatments were the result of direct N<sub>2</sub>O emissions from mineral fertilizer applied to pastures and as a result of irrigation. Mineral N fertilizers as inputs accounted for the third largest contributor (12%) of total GWP per hectare. Soil carbon sequestration had a positive effect in reducing the total GWP per hectare over all treatments. The field-N-balance, based on the N in milk yield from pasture and N-returned through animal excreta revealed a range of -119, +86, +299, +501 and +706 kg N ha<sup>-1</sup> on pastureland for the N0, N<sub>20</sub>, N<sub>40</sub>, N<sub>60</sub> and N<sub>80</sub> treatments on average over the three experimental years. However, in order to calculate the farm-N-balance, gaseous N-losses were not deducted and therefore the N-losses increased from 31 to 899 kg N ha<sup>-1</sup> year<sup>-1</sup>. With increasing farm-N-balance per hectare, the GHG emissions were generally higher. This relationship could best be described as exponential (Figure 1a). In contrast, the ECM ha<sup>-1</sup> correlated linearly with the farm-N-balance (Figure 1b). However, the lowest farm-N-balance (N0 treatment) did not result in the lowest CF (Figure 1c) and were similar between the N0 and N<sub>20</sub> treatment.

## DISCUSSION

The results from the current study indicated an improvement in the carbon footprint as the amount of N-fertilizer was reduced. The main source of N came from purchased mineral fertilizers. Consequently, the fertilizer and imported supplements were the most prominent factors influencing the field- and farm-N-balance, respectively, as well as the N-footprint for milk. In South African pasture-based dairy systems, cows graze pastures year-round, which makes high



N returns to pastures more likely. Dairy cows excrete ~75% of their N intake, whereas less than ~25% is metabolized into the milk output from the pasture system [6]. Even if concentrates are fed at low levels there will still be a considerable amount of N returned through excreta. Therefore, excreta should be considered in fertilization management strategies. The CF of milk from pasture-based dairy farms can be further improved through management such as timing of fertilizer application, reducing the amount of fertilizer applied, and by incorporating forage legumes. This study indicated that the excess N applied (>220 kg N ha<sup>-1</sup> year<sup>-1</sup>) in combination with excreta on pasture-based dairy farms have no beneficial effects on herbage yields and therefore contribute to negative environmental effects as well as the CF of milk.

This study gave insight about the opportunities to produce climate-smart dairy products in South Africa. Regional developed values for the different parameters considered in the study could further update the accuracy of the calculated CF of milk from pasture-based systems in South Africa.

#### CONCLUSION

Applied mineral fertilizer (imported N onto the farm) contributed the largest fraction from the inputs category affecting the CF. The CF increased as the amount of

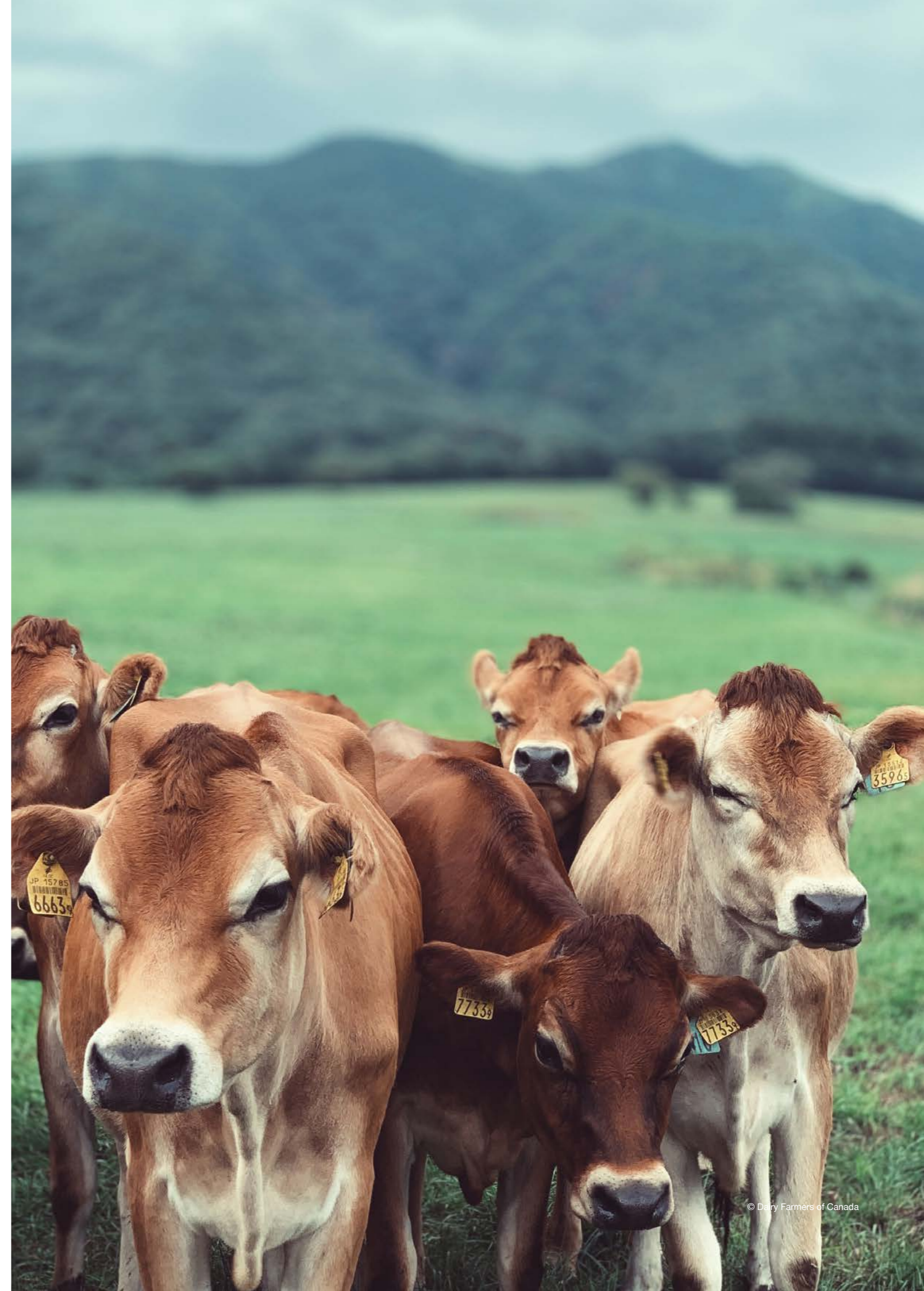
added N fertilizer increased. An increased herbage yield was not observed when high rates of N fertilizer were applied and a low rate of mineral-N fertilization resulted in the lowest CF in this study. However, a level field-N-balance should be sought in order to sustain high yields and forage quality in the long-term. Fertilizer-N rates in excess of the N<sub>2</sub>O treatment used in this study are unlikely to provide a cost-effective response on grazed pastures and will only increase environmental impacts. The opportunity exists in pasture-based dairy farms to reduce further the environmental impact of milk production by optimizing efficiency as well as by management strategies to prevent over-fertilization or feeding excessive amounts of purchased concentrates. The contribution of irrigation played an important role in calculating the CF and the careful timing and application thereof could lead to a lower CF. This will ensure that pasture-based dairy farms can potentially mitigate the CF of milk in a profitable manner.

The work presented here is based on the original article of Smit et al. (2021) [7].

This research received financial support from Milk South Africa. H.P.J.S. is supported by the Evangelisches Studienwerk Villigst foundation. The Western Cape Department of Agriculture and Stellenbosch University also contributed to the project.

#### REFERENCES

- 1 Viljoen, C., Van Der Colf, J., Swanepoel, P.A. Benefits Are Limited with High Nitrogen Fertiliser Rates in Kikuyu-Ryegrass Pasture Systems. *Land*. 9:173 (2020).
- 2 Smit, H.P.J., Reinsch, T., Swanepoel, P.A., Kluß, C., Taube, F. Grazing under Irrigation Affects N<sub>2</sub>O-Emissions Substantially in South Africa. *Atmosphere*. 11: 925 (2020).
- 3 Henriksson, M., Flysjö, A., Cederberg, C., Swenson, C. Variation in carbon footprint of milk due to management differences between Swedish dairy farms. *Animals*. 5: 1474–1484 (2011).
- 4 IPCC. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change; IPCC: Geneva, Switzerland. (2014).
- 5 Sjaunja, L.O., Baevre, L., Junkkarinen, L., Pedersen, J., Setälä, J. A nordic proposal for an Energy Corrected Milk (ECM) formula. In Proceedings of the 27th Session International Committee for Recording and Productivity of Milk Animals, Paris, France, 2–6 July (1990).
- 6 Luo, J. & Kelliher, F. Partitioning of Animal excreta N into Urine and dung and Developing the N<sub>2</sub>O Inventory; Ministry for Primary Industries: Wellington, New Zealand. pp. 1–19. (2010).
- 7 Smit, H.P.J., Reinsch, T., Swanepoel, P.A., Loges, R., Kluß, C., Taube, F. Environmental Impact of Rotationally Grazed Pastures at Different Management Intensities in South Africa. *Animals*. 11: 1214 (2021).





SWITZERLAND

# Point system climate protection for Swiss farms

**AUTHOR**  
 Maria Bystricky  
 Agroscope, Zurich • Switzerland

**ALIGNMENT WITH SDGS**



**ABSTRACT**

As one of the most important agricultural producer and distributor organizations in Switzerland, IP-SUISSE launched a new program with the goal to reduce greenhouse gas emissions from its farms by 10%. All farmers producing under the IP-SUISSE label must achieve a certain number of climate points, which they do by implementing climate protection measures.

Agroscope, the Swiss center of excellence for agricultural research, developed the point system together with IP-SUISSE. Using life cycle assessment methodology, we calculated the emission saving potential of each climate protection measure on model farms. From that, we derived the theoretical greenhouse gas savings of each measure and the extent to which each measure must be implemented to achieve one climate point. The prerequisite was that measures should not impede production and should be applicable on the farms as they are.

The potential to reduce greenhouse gas emissions of model farms with most of these measures was rather small and mostly less than 1%; only covering the manure store and increasing the number of lactations led to greenhouse gas savings of 3-3.6%. However, we expect that many small measures with low reduction potential will add up if used widely on farms. In 2021, we will collect data on the climate protection measures implemented on all IP-SUISSE farms for the first time. Their evaluation will show whether the point system needs to be adjusted in order to achieve the desired result. From 2022 onwards, the point system will be compulsory for all label farms.

“IP-SUISSE aims to ensure sustainable production, and more than 50% of the drinking milk sold in Switzerland is produced under this label.”

**Maria Bystricky**

**SWISS FARMERS’ ORGANIZATION LAUNCHES NEW CLIMATE PROTECTION PROGRAM**

Agriculture causes around 10% of Switzerland’s greenhouse gas emissions. As one of the most important agricultural producer and distributor organizations in Switzerland, IP-SUISSE provides a label that aims to ensure sustainable production. Among other things, participating farmers use fewer pesticides and implement measures to promote biodiversity and animal welfare. More than 50% of the drinking milk sold in Switzerland is produced under this label. In 2021, IP-SUISSE launched a new program with the goal to reduce greenhouse gas emissions from its farms by 10%. All farmers producing under the IP-SUISSE label must achieve a certain number of climate points, which is determined individually depending on their agricultural area and number of animals. They select climate protection measures from a list and can thus achieve savings where they can be implemented most efficiently. Agroscope, the Swiss center of excellence for agricultural research, developed the point system together with IP-SUISSE and provided data on the greenhouse gas saving potential of

the individual measures. In this, we were supported by the Swiss Federal Office for Agriculture and the Swiss Milk Fiduciary (TSM Treuhand GmbH).

**MODELLING THE POTENTIAL OF MEASURES TO SAVE GREENHOUSE GASES USING LIFE CYCLE ASSESSMENT**

We simulated each climate protection measure on four modelled farms that represent the average production in Switzerland (one of them was a dairy farm). Using life cycle assessment methodology, we calculated the emissions of each model farm assuming that it implemented the measure to the maximum extent, and compared them to the farm’s emissions without the measure. From the results, we derived the theoretical greenhouse gas savings of each measure and the extent to which each measure must be implemented to achieve one climate point. In addition, further environmental impacts were calculated in order to show trade-offs.

Measures with specific relevance to dairy cow husbandry include

- measures to reduce the use of fossil energy resources: installing a frequency converter for the milking system, heat recovery from milk cooling, and recycling silage films
- increasing the number of lactations of dairy cows to reduce greenhouse gas emissions from cattle rearing
- linseed as feed to reduce enteric methane emissions
- measures to reduce emissions from manure management: covering of liquid manure stores, and spreading of liquid manure with trailed hoses.

The prerequisite for defining measures was that they should not impede production and should be applicable on the farms as they are.

**MANY MEASURES HAVE A SMALL BUT POSITIVE EFFECT**

The potential to reduce greenhouse gases with most of these measures was rather small: The dairy model farm could reduce its climate impact mostly by less than 1%; only covering the manure store and increasing the number of lactations led to greenhouse gas savings of 3-3.6%. Some of the measures had negative effects on other environmental impacts, for example cultivating linseed for use as feed increased water use and aquatic eutrophication. Energy and resource saving measures reduced greenhouse gas emissions only slightly, but had comparatively low

uncertainty and almost no trade-offs in other environmental impacts. The figure below shows how much of a measure has to be implemented on a farm to get one climate point.

Overall, we expect that many small measures with low reduction potential will nevertheless add up if used widely on farms. In 2021, we will collect data on the climate protection measures implemented on all IP-SUISSE farms for the first time. Their evaluation will show whether IP-SUISSE can come close to its ambitious goal, or whether the point system needs to be adjusted or further measures need to be added in order to achieve the desired result. From 2022 onwards, the point system will be compulsory for all label farms.

**REFERENCES**

Alig M., Prechsl U., Schwitler K., Waldvogel T., Wolff V., Wunderlich A., Zorn A. & Gaillard G., 2015. Ökologische und ökonomische Bewertung von Klimaschutzmassnahmen zur Umsetzung auf landwirtschaftlichen Betrieben in der Schweiz. Agroscope Science Nr. 29, Agroscope, Zurich, 1-160.  
 Furrer C., Stüssi M. & Bystricky M., 2021. Umweltbewertung ausgewählter Klimaschutzmassnahmen auf Landwirtschaftsbetrieben. Agroscope Science Nr. 121, Agroscope, Zurich, 1-160.

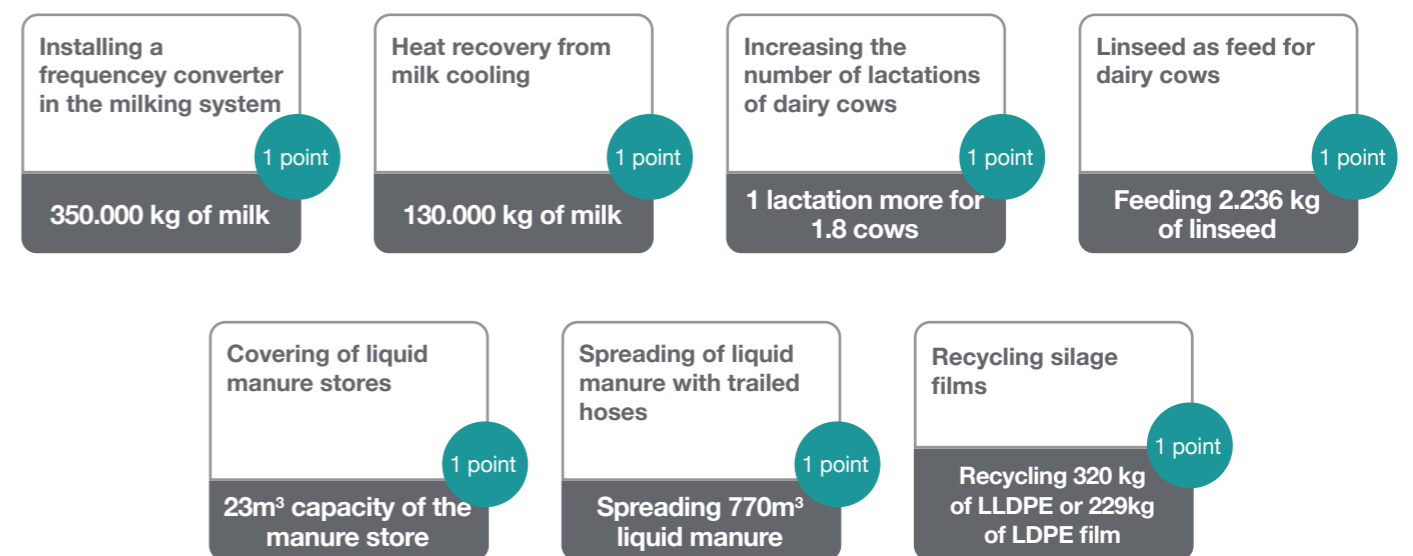


Figure 1. Translating climate protection measures into points (1 point = 1 t CO<sub>2</sub>-equivalents saved).



## SWEDEN

## Dairy farming: vital for biodiversity and sustainable local value chains

## AUTHOR

Victoria Thuillier<sup>1</sup>, Anna-Karin Karlsson<sup>2</sup>

<sup>1</sup>LRF Dairy Sweden, Stockholm • Sweden

<sup>2</sup>Norrmejerier Dairy Coop, Umeå • Sweden

## ALIGNMENT WITH SDGS



## ABSTRACT

Every dairy farmer in Northern Sweden and their agricultural activity is essential for maintaining biodiversity, protecting endangered species and delivering a resilient food system for future generations.

## THE BIG PICTURE

The area of northern Sweden is one of the most northerly areas with agricultural production in the world. This offers unique conditions to produce food, ecosystem services and biodiversity. Increased knowledge in the role and potential of dairy farming in this region is key to deliver long term sustainable food production.

The biggest threat to biodiversity in the agricultural landscape in Sweden is overgrowth and lack of grazing livestock. Short summers with many daylight hours in the north creates unique conditions to grow grass, while many other feed crops are not suitable to the area. Grazing livestock are necessary to maintain species-rich permanent or semi-permanent grassland areas that are under constant risk of overgrowth and being left abandoned. This has serious consequences for many ecosystem services and our future ability to produce food and bioenergy in the area.

Furthermore, improved knowledge is also important for social sustainability and farmer pride and confidence in a time where dairy farming and its role is often questioned from an environmental perspective. At the same time the sector must attract more young people. Best practice examples of sustainable farming will also improve the understanding among decision makers and consumers.



“Dairying has nature-positive benefits. Dairy farmers care for a significant portion of the world’s agricultural land and many dairy farmers have systems in place to support biodiversity and provide ecosystem services.”

Victoria Thuillier

## THE PROMISE

The aim of this initiative by Norrmejerier Dairy Coop, was to study biodiversity on eight different dairy farms located in different regions in the area during the summer of 2020, to support and improve the knowledge of the role of dairy farming for biodiversity in northern Sweden today.

## MOVING THE WHEEL

A field study was conducted over two consecutive days on each of the farms in July 2020. Each farmer was also interviewed about management practises etc during the visits. The study was financed by Norrmejerier and conducted on eight of their members, farms.

The farms were chosen to represent the different regions and main nature types in

the Norrmejerier uptake area. The most northerly farm in the study is located near Övertorneå, less than 20 km south of the Arctic circle (66°23'17"N 23°39'13"E) and the most southerly farm is located in Nordingrå (62°55'45"N 18°17'14"E) in the High Coast area in central Sweden. By road an approximate distance of 600 km north/south. West to east, the distance between the farms in the study was approximately 500 km. The most western farm was located in the mountain area and the most eastern farms were located along the river valleys close to the Baltic coast.

## HISTORY OF SUCCESS

Over 200 different plant species were observed on the eight different farms, of which eight species are classified as endangered. Local conditions, proximity to water courses and amount of permanent grassland did have an effect on biodiversity. Management factors such as reseeding interval and timing of harvest were also important in ley and semi-permanent grasslands. Species diversity in semi-permanent grasslands was almost as rich as in permanent grasslands. The study confirms the importance of grazing livestock and grassland management in maintaining biodiversity. Several birds and other wildlife species that are rare in

## UNITED STATES

## U.S. Dairy net zero initiative: actionable pathway on farm to being an environmental solution

## AUTHOR

Jamie Jonker, Ph.D.<sup>1,2</sup>, Nicholas Gardner<sup>3,2</sup>

<sup>1</sup>National Milk Producers Federation, Arlington, VA, USA. <sup>2</sup>US IDF, Fitchburg, WI, USA. <sup>3</sup>U.S. Dairy Export Council, Arlington, VA, USA

## ALIGNMENT WITH SDGS



southern Sweden were found to be more abundant on the studied farms.

## THE VALUE OF THE INITIATIVE

The study confirms the importance of dairy farming in all of Sweden for biodiversity, and in northern Sweden in particular. A more balanced approach to sustainability by showing good examples will also contribute both to attract more young people into dairying and improve the understanding among decision makers and consumers.

## NEW OPPORTUNITIES

Future opportunities include identifying indicators of high biodiversity and improved opportunities for farmer remuneration for biodiversity and ecosystem services, which also will contribute to economic and social sustainability, especially in rural areas.

The information is also valuable in developing strategies to maintain and enhance biodiversity and overall resilience in the food and energy system. Furthermore, it is valuable information when discussing future planning of land use in the local community.

## MORE INFORMATION

The results and the report is one of many key steps in increasing the understanding of the importance of dairy production for biodiversity and broader sustainability in northern Sweden. This also contributes to the Swedish dairy sector sustainability goals, signed in 2020, where enhancing biodiversity is one focus area.

## REFERENCES

- <https://www.norrmejerier.se/om-norrmejerier/miljo-klimat-och-hallbarhet/hallbart-lantbruk>
- [Map of Norrmejerier members](#)
- [LRF Dairy Sweden and Norrmejerier](#)

## ABSTRACT

Imagine a world where dairy is seen as an environmental solution. Dairy presents solutions for today’s nutrition and environmental challenges. It provides accessible and affordable nutrition while sequestering carbon and improving soil health through improved land use systems; reducing greenhouse gas emissions through feed management, manure management, energy efficiency; and by generating renewable energy that powers the farm and homes and businesses.

With this vision in mind, the Net Zero Initiative (NZI) launched in 2020 as an industry-wide effort to accelerate voluntary action on farm to reduce environmental impacts by making sustainable practices and technologies more accessible and affordable to U.S. dairy farms of all sizes and geographies. This is achievable through existing and new partnerships where research, on-farm pilots, new manure-based products and ecosystem markets are developed, and by creating farmer technical support programs to share learnings and scale outcomes.

## INTRODUCTION

NZI is a coordinated and collaborative national platform informed by and designed for U.S. dairy producers – representing more than 31,000 independent farms, 95% of which are family-owned, and covering more than 15 million acres. Given the central role that farmers play in food production, research, and innovation, including their voice at the table helps to ensure the ability to feed

“The global dairy sector is already part of the solution to limit climate change. This initiative advances environmental solutions on farms and create economically-viable, scalable pathways to accelerate progress.”

Dr. Jamie Jonker

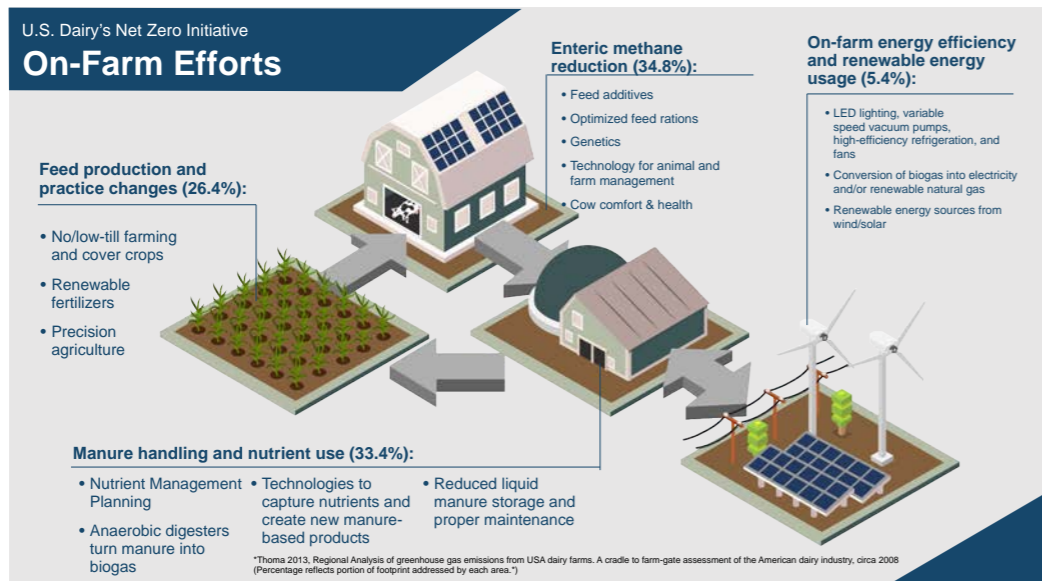
the next generation and ensure practical and economically viable environmental solutions.

Many technologies and practices that reduce farm environmental impacts are already available and some are widely employed today. NZI looks to break down barriers to accelerate more widespread adoption, such as addressing the economic viability of technology and practices. This can be achieved by realizing untapped value on-farm including sequestering carbon, converting manure and waste into nutrient-rich fertilizer, renewable energy and other valuable products, and contributing to ecosystem markets making more offsets available.

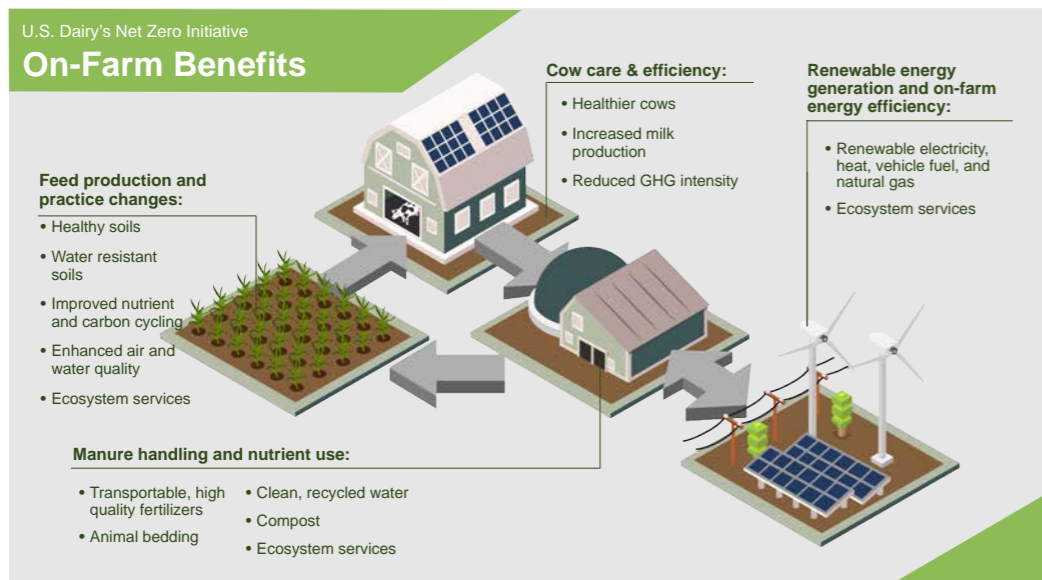
## MATERIALS AND METHODS

In 2008, the U.S. dairy industry was the first in the food agricultural sector to conduct a full life cycle assessment at a national scale<sup>1,2</sup>. In 2020, the Innovation Center for U.S. Dairy set aggressive environmental sustainability goals to collectively achieve carbon neutrality or better, optimize water usage and improve water quality by 2050, with a commitment for quantitative and

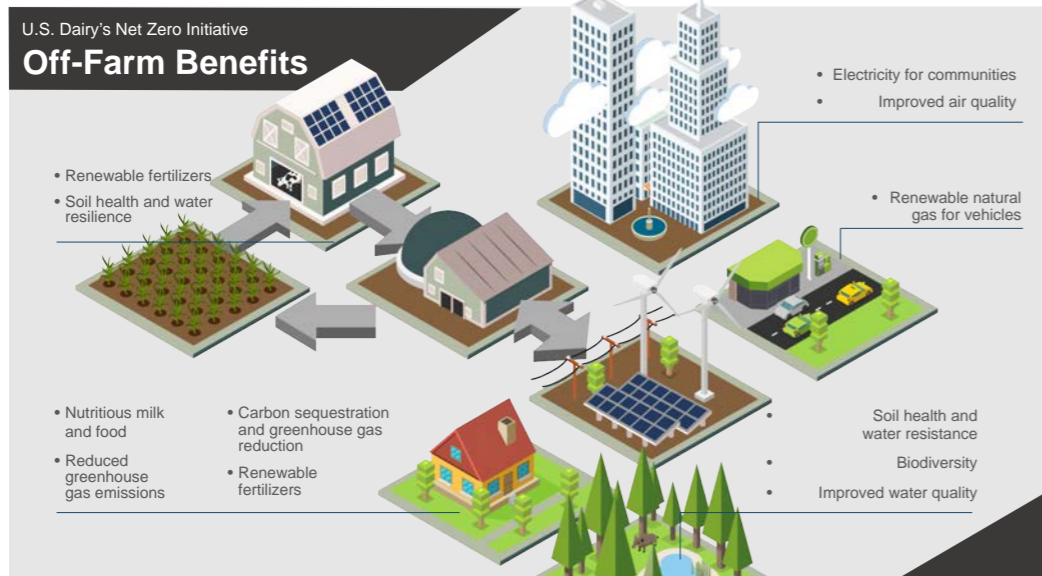




Visuals do not represent all possible practices, technologies or benefits. Each farm can voluntarily contribute to net zero efforts based on their individual operation.



Visuals do not represent all possible practices, technologies or benefits. Each farm can voluntarily contribute to net zero efforts based on their individual operation.



Visuals do not represent all possible practices, technologies or benefits. Each farm can voluntarily contribute to net zero efforts based on their individual operation.

credible measures of progress reporting every five years. As collective goals, not every farm, cooperative or processor is expected to reach these goals individually, but together the industry can leverage its diversity to meet them.

The farm-field strategy of these goals is termed the Net Zero Initiative (NZI). The intention of NZI is to remove barriers that stand in the way of all dairy farmers adopting best practices and technologies that advance sustainable food systems and garner recognition and sufficient compensation for the environmental assets they manage and enhance on their farms. The work of NZI is focused in four areas: feed production, enteric methane reduction, energy efficiency and manure management – which together represent the total footprint of a farm.

Success requires addressing the affordability of technology and practice solutions, closing the gaps on data and research for more quantifiable outcomes, and making solutions accessible to farms of all sizes. There are three tracks that are carrying out this work: Groundwork to address the foundational research gaps in modeling and measurement, Dairy Scale for Good to provide an economic and environmental viability study and Collective Impact to support widespread adoption.

### RESULTS

The primary expected outcomes include 1) the collective U.S. dairy industry advances to net zero carbon emissions and significant improvements in water use and quality, 2) in addition to nutrient-dense foods and beverages, dairy farms provide products and services that enable other industries and communities to be more sustainable, and 3) farmers are able to realize the untapped value on-farm, making the system of continuous improvement self-sustaining.

### DISCUSSION

NZI was established to unite the assets and expertise of dairy trade, professional and industry organizations and their constituents toward a shared objective. The founding partner organizations are Dairy Management, Inc., Innovation Center for U.S. Dairy, International Dairy Foods Association, National Milk Producers Federation, Newtrient and U.S. Dairy Export Council.

NZI is a collaboration of the U.S. dairy community, corporate partners, research institutions, nongovernmental organizations and other stakeholders. This unprecedented partnership brings together diverse expertise and perspectives to strengthen its plan and realize its full potential for dairy to be an environmental solution, with benefits both on and off farm.

This is a pioneering effort – if solved for dairy, the learnings can be transferred to other parts of agriculture, becoming a catalyst for broader change.

### CONCLUSION

The result of this work is transformative and reinforces the important role of dairy in sustainable food systems, making nutrient-dense foods more readily accessible. Through leveraging industry-wide collaboration and cross-sector partnerships, the U.S. dairy industry is equipped to advance environmental solutions on farms and create economically-viable, scalable pathways to accelerate progress. Successes and learning from NZI can not only benefit dairy but inform similar approaches across agriculture to advance a sustainable 21st century food system.

### REFERENCES

- G. Thoma, J. Popp, D. Shonnard, D. Nutter, M. Matlock, R. Ulrich, W. Kellogg, D. Soo Kim, Z. Neiderman, N. Kemper, F. Adom, C. East. Regional analysis of greenhouse gas emissions from USA dairy farms: A cradle to farm-gate assessment of the American dairy industry circa 2008. *Int. Dairy J.* 2013. (31) S29 – S40.
- G. Thoma, J. Popp, D. Nutter, D. Shonnard, R. Ulrich, M. Matlock, D. Soo Kim, Z. Neiderman, N. Kemper, C. East, F. Adom. Greenhouse gas emissions from milk production and consumption in the United States: A cradle-to-grave life cycle assessment circa 2008. *Int. Dairy J.* 2013. (31) S3 – S14.



© Zirbel Dairy Farm, De Pere Wisconsin, United States





**ACTION TRACK 4**  
**ADVANCE EQUITABLE**  
**LIVELIHOODS**



SOUTH AFRICA

# Reaching low-income consumers through quality education on dairy health and nutrition

**AUTHOR**  
Christine Leighton, Maretha Vermaak  
Milk South Africa, Pretoria, South Africa

**ALIGNMENT WITH SDGS**



**ABSTRACT**  
The Consumer Education Project of Milk SA (CEP of Milk SA) introduced a training programme to address malnutrition, poverty and hunger through quality education to communities in South Africa that are nutritionally at risk.

South Africa’s population of 58 million people is culturally diverse. The country consists of nine provinces and there are 11 official languages. About a third of South Africans live in rural areas. Poverty affects more than half of the population and one in five households is reported to run out of money for food during a month. For many South Africans, access to affordable, nutritious foods is limited.

The high rate of unemployment and associated poverty in South Africa, although less than in many other countries, have resulted in many nutritional challenges among its population. These include overweight and obesity; deficiencies in vitamin A, iron, calcium and potassium; diets without sufficient energy and nutrient density; hypertension and diabetes.

This education programme aims to reach nutritionally vulnerable South Africans from the low socioeconomic sector of the population. Its focus is to communicate the value of milk and other dairy products in the daily diet, as included in the South African FBDGs, to improve the well-being of the population.

Since 2014, the CEP of Milk SA has presented this education programme in each of the nine provinces in South Africa, with 92% of rural regions and townships reached. A total of 4500 health promoters have been trained so far.



**INTRODUCTION**

The CEP of Milk SA, a project of Milk South Africa, aims to communicate the health and nutritional benefits of dairy to consumers and health professionals.

The CEP of Milk SA runs various communication initiatives, each aimed at a defined target market in a socioeconomically and culturally diverse population. One of these initiatives specifically aims to reach nutritionally vulnerable South Africans from the low socioeconomic sector of the population. This education programme focuses on communicating the value of milk and dairy in the daily diet, as included in the South African food-based dietary guidelines (FBDGs), to improve the well-being of this specific consumer group.

**MATERIALS AND METHODS**

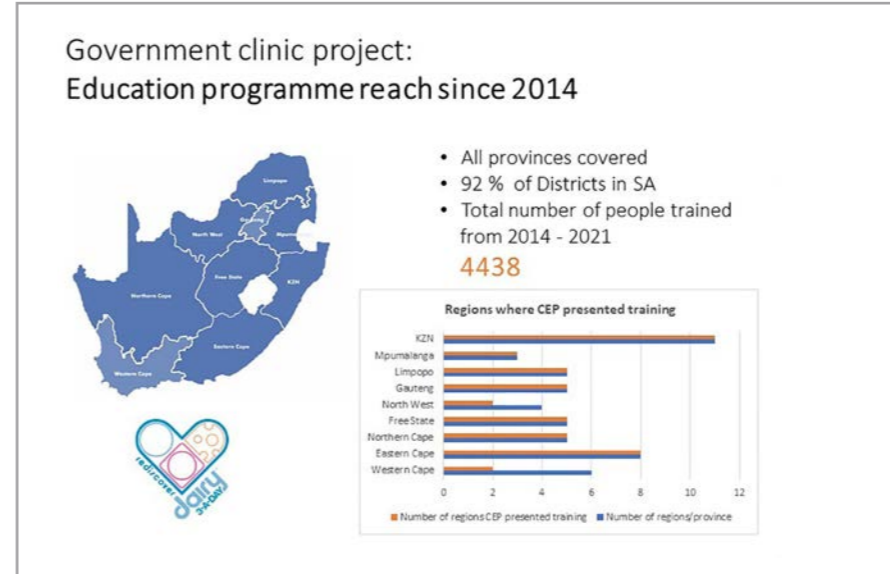
Health promoters and community workers that are employed by the Department of Health and work in collaboration with

government clinics, are trained on the value of adding dairy to a diet that typically lacks in calcium, potassium and Vitamin A.

This education programme communicates the health and nutritional benefits of milk and other dairy products through well-structured education actions that were developed in accordance with the South African FBDGs. The FBDGs include local and affordable foods that support healthy eating.

An important element of the education programme is regular one-day training events in rural regions across the various provinces. The process involves training health promoters and community health workers, who, in turn, educate their direct local communities in their region.

Each health worker who attends the one-day training event, receives a dairy-focused training tool, posters and pamphlets to



support their community-based nutrition education. The pamphlets are used as handouts to the community and are available in nine of the eleven official languages. An educational video titled ‘Why dairy is good for you (Tumi)’, is available in five languages or dialects. All training material and hand-outs were developed by the Consumer Education Project of Milk SA and are distributed free of charge. and can be downloaded from the website <https://www.rediscoverdairy.co.za/community-work/clinic-project/>.

**RESULTS**

In 2017, the outcomes of the training events were measured in order to evaluate its effectiveness. The purpose of the research was to:

- measure the recall rate
- determine the value or usefulness of the training
- get feedback about the use of the training material
- establish the main learning points
- understand the use and benefits of the training material (posters, pamphlets).

The research showed that the training events are highly functional and based on these results, the training initiative is ongoing in rural regions and townships.

**DISCUSSION**

The value of this education initiative lies in the commitment to communicate the nutrient richness of dairy to consumers who are nutritionally at risk, thereby highlighting how beneficial it is to ‘just add dairy’ to the diet that is typically nutritionally compromised. This training programme, presented across South Africa, contributes to build a healthier population overall. The main beneficiary is the Department of Health, whose employees are upskilled at no cost to the public health system.

**CONCLUSION**

The FBDG afforded the CEP of Milk SA the opportunity to communicate the importance of dairy in the diet of all South Africans and forms the basis of the content communicated in this education programme. Such a programme, that is ongoing, will have lasting impact on the overall health status of the population at large. An opportunity exists to expand the training to school nurses in specific selected rural and township communities<sup>1</sup>. (Townships were usually built on the periphery of towns and cities).

“Dairy foods are naturally nutrient-dense, regularly consumed by billions of people around the world, affordable and contribute to livelihoods. This education programme will provide a lasting impact on the overall health status of the South Africans population at large.”

**Christine Leighton, Maretha Vermaak**

**REFERENCES**

1. South Africa Demographic and Health Survey 2016. Key Indicators Report. National Department of Health. Pretoria, South Africa. Available from <https://dhsprogram.com/pubs/pdf/FR337/FR337.pdf>
2. Shisana O, Labadarios D, Rehle T, et al. 2013. The South African National Health and Nutrition Examination Survey SANHANES-1. Human Sciences Research Council & Medical Research Council. HSRC Press: Cape Town.
3. Vorster HH, Badham JB, Venter CS. An introduction to the revised food-based dietary guidelines for South Africa. S Afr J Clin Nutr 2013;26(3):S1-S164.
4. Vorster HH, Wenhold FAM, Wright HH, Wentzel-Viljoen E, Venter CS, Vermaak M. Food-based dietary guidelines for South Africa: Have milk, maas or yoghurt every day. S Afr J Clin Nutr 2013;26(3) (Supplement):S57-S65.
5. Food and Agricultural Organization. Food-based dietary guidelines of South Africa. Available from: <http://www.fao.org/nutrition/education/food-based-dietary-guidelines/regions/countries/south-africa/en/> (accessed on January 2021).
6. [www.rediscoverdairy.co.za](https://www.rediscoverdairy.co.za)



A woman with blonde hair, wearing a black jacket and brown riding pants, is walking through a grassy field. She is holding a blue folder. Next to her is a man wearing a black cap with 'GENETICS' on it, a red and black Lely vest, and black pants. They are both wearing green rubber boots. In the background, there are several brown and white cows grazing in a field with trees.

**ACTION TRACK 5**  
**BUILDING RESILIENCE TO**  
**VULNERABILITIES, SHOCKS AND**  
**STRESS**



CANADA

# Canadian Dairy Farmers' COVID-19 Response

**AUTHOR**

Paula Dunlop  
Dairy Farmers of Canada, Ottawa • Canada

**ALIGNMENT WITH SDGS**



**ABSTRACT**

With the shutdown of several sectors of the economy and the sudden closure of many workplaces, the COVID-19 crisis hit millions of Canadians hard. Many faced unexpected job losses and financial difficulties. According to Statistics Canada, at the end of March 2020, 17% of Canadians reported that the pandemic had a major impact on their ability to fulfill their financial obligations or meet their essential needs such as grocery purchases.

Thanks in part to the efforts of stakeholders in the dairy industry, the agri-food sector was designated essential by the Canadian government. This allowed our supply chain to remain open, ensuring all Canadians had access to local, safe and nutritious dairy products while respecting the constraints imposed by public health authorities.

Despite the Canadian government's best efforts to help workers and businesses through this challenging time, many struggled to gain access to quality and nutritious food. In the early days of the pandemic, some short-term supply chain disruptions in areas such as transportation and distribution also contributed to significant milk disposal, something that occurred in many other countries, as well. Dairy farmers in Canada adapted quickly by adjusting milk supply and increasing donations to food banks to ensure continued access to quality local food.

**INTRODUCTION**

The COVID-19 pandemic struck at a time when, due to seasonal fluctuations, milk production was near its peak. A sudden shift in consumption patterns caused an unexpected decline in overall demand, creating an imbalance between supply

“In the early stage of the Covid-19 pandemic, all sectors were affected. The dairy sector adapted quickly. Dairying is a vibrant and adaptive sector which functions around the world despite cultural and geographical differences.”

Paula Dunlop

and demand. Given that production control is inherent to the system of Supply Management, dairy organizations quickly took action to manage surplus supply and limit production on the farm. Moreover, the dairy industry put in place a special national donation program to help Canadian families in need through local food banks. The sector was pleased to be able to help reduce inequities and ensure Canadians families had continued access to nutritious dairy products, which are produced locally.

**RESULTS**

Dairy farmers have always believed that everyone should have access to affordable and nutritious foods, like dairy. We are extremely proud that during a time when many Canadians were facing financial hardship, our farmers collectively donated more than \$10 million worth of dairy products to food banks to support our fellow citizens in need. This donation was over and above contributions made normally throughout the year. Nationally, a \$1 million donation from Dairy Farmers of Canada was combined with federal government contributions to allow Food Banks Canada to purchase an additional

\$3 million in quality dairy products for distribution in communities right across Canada, including remote communities in northern Canada.

Financial support from dairy farmers' organizations, such as DFC, buoyed local food banks throughout this difficult period. With the financial contributions to food banks, our most vulnerable populations were able to have access to nutritious food. Thousands of Canadian families benefited from that program.

**CONCLUSION**

Dairy farmers across Canada are proud of their flexibility and adaptability in response to the sudden effects of the COVID-19 pandemic. Thanks to the coordination across the supply chain that is inherent under supply management, the industry adapted quickly to find appropriate solutions and implemented actions to minimize and eliminate any milk disposal. Supply management policy has demonstrated its relevance when it comes to the management of a crisis with direct impact on the supply chain and on the market. In collaboration with processors, our farmers demonstrated solidarity, exemplified by record-high donations to food banks to help those facing financial hardships as a result of the pandemic.

**REFERENCES**

Dairy Farmers of Canada. Annual Report 2019-20. <https://dairyfarmersofcanada.ca/en/annual-report-2019-20>

Dairy Farmers of Canada. Partnership with Food Banks Canada. [https://www.youtube.com/watch?v=j06uQwBKoeU&ab\\_channel=DairyFarmersofCanada](https://www.youtube.com/watch?v=j06uQwBKoeU&ab_channel=DairyFarmersofCanada)

Food Banks Canada. A Snapshot of Food Banks in Canada and the COVID-19 Crisis. [https://www.foodbanksCanada.ca/FoodBanks/MediaLibrary/COVID-Report\\_2020/A-Snapshot-of-Food-Banks-in-Canada-and-the-COVID-19-Crisis\\_EN.pdf](https://www.foodbanksCanada.ca/FoodBanks/MediaLibrary/COVID-Report_2020/A-Snapshot-of-Food-Banks-in-Canada-and-the-COVID-19-Crisis_EN.pdf)

Turcotte, M. & Hango, D. Impact of economic consequences of COVID-19 on Canadians' social concerns. Statistics Canada. <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00025-eng.htm>

# Celebrating International Day of Women and Girls in Science with IDF's Women in Dairy Science series

“The dairy sector has a longstanding history of empowering women. On the International Day of Women and Girls in Science, we at IDF recognise the extraordinary achievements of women scientists in the dairy sector around the world and remind ourselves that full potential may only be reached by making the most of all talent and diversity. We hope that by raising awareness of the variety of fascinating roles offered, we help inspire young girls to select a future in dairy science.”

**“Dedicated to food microorganism identification and functional development technology research for 20 years”**

Prof. Su Yao  
Chair of SCAMDM, IDF  
Director of R&D department of Fermentation, China National Research Institute of Food & Fermentation Industries, China Center of Industrial Culture Collection

[www.fii-idf.org](http://www.fii-idf.org)

**“I coordinate IDF projects related to safety and quality of milk and milk products, including publications, science based input to Standards Development Organisations, as well as joint standards for methods of analysis with ISO.”**

Aurelie Dubois  
Science and standards programme manager  
International Dairy Federation

[www.fii-idf.org](http://www.fii-idf.org)

**“The focus of my role is identifying and evaluating digital technologies for applied and futuristic applications in dairy processing i.e. inline sensors, robotics, and food 3D-printing.”**

Dr. Norah O'Shea  
Research Officer  
Teagasc

[www.fii-idf.org](http://www.fii-idf.org)

**“I'm a nutrition scientist and I analyse and share the emerging science relating to dairy and its role in human nutrition and health.”**

Erica Hocking  
Senior Nutrition Scientist  
Dairy UK

[www.fii-idf.org](http://www.fii-idf.org)

**“Teaching and research in fermented dairy foods - probiotics. My current focus is the protection of traditional artisanal cheeses legislation”**

Prof. Dra. Célia Lúcia de Lucena Fortes Ferreira MSc  
PhD, Teacher/Researcher on fermented dairy foods/probiotics  
Universidade Federal de Viçosa, Brasil

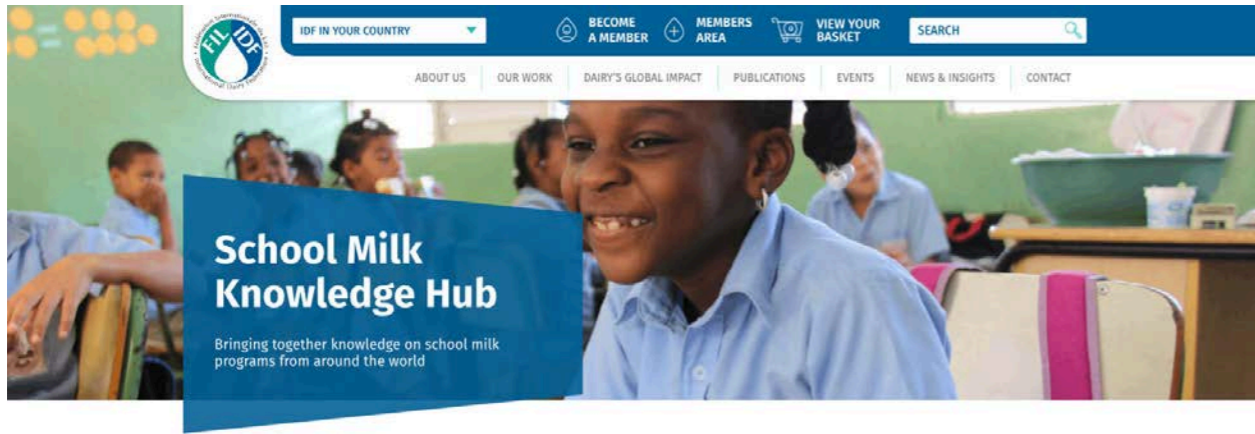
[www.fii-idf.org](http://www.fii-idf.org)

**“Scientific research collaborations and support of innovation and development towards healthy and productive cows in sustainable farming systems”**

Ilka Klaas, PhD  
Veterinarian And epidemiologist  
Dairy Development Director at DeLaval

[www.fii-idf.org](http://www.fii-idf.org)





### Learn more



#### School milk case studies

Sharing practical experience and resources from around the world.

[READ MORE](#)



#### Overview of programs worldwide

A long history of contributing to the good health and nutrition of school children around the world.

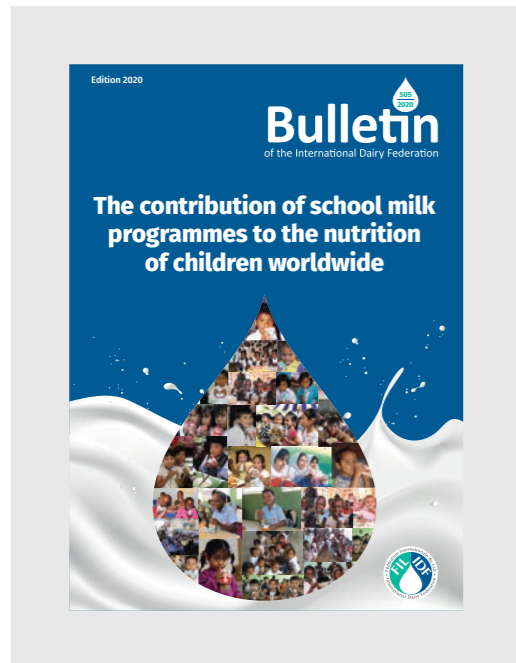
[READ MORE](#)



#### School milk resources

Find help with promoting, supporting and implementing school milk programs in your region

[READ MORE](#)



### NUTRITION & HEALTH

## Bulletin of the IDF N° 505/2020: The contribution of school milk programmes to the nutrition of children worldwide – Edition 2020

Following on from its previous research, IDF has developed a new report which compiles data from global experts in the field on different programs around the world. The report provides insights on the range of products, implementation and population, accompanied by raw data. The new edition also includes a review on the evidence of the nutritional benefits of these programs, offering new insights into the global impact of school milk. Results of the survey are included in Excel tables for your use.

[Download](#)









## **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.



### **INTERNATIONAL DAIRY FEDERATION**

70/B, Boulevard Auguste Reyers  
1030 Brussels - Belgium  
Tel: +32 2 325 67 40  
Email: [info@fil-idf.org](mailto:info@fil-idf.org)

 @FIL\_IDF

 International-dairy-federation

 @international dairy federation

 [www.fil-idf.org](http://www.fil-idf.org)