SUSTAINABILITY IN THE DAIRY SECTOR: AN INDUSTRY PERSPECTIVE

PIERCRISTIANO BRAZZALE

ICAR 2026 CONFERENCE, VERONA

If the World's 2 Billion High Consumers Cut Their Meat and Dairy Consumption by 40%...

IT WOULD SAVE AN AREA OF LAND **2X** THE **SIZE OF INDIA**

AND AVOID

168 B TONS OF FUTURE GHG EMISSIONS; **3X** THE **TOTAL GLOBAL EMISSIONS IN 2009**

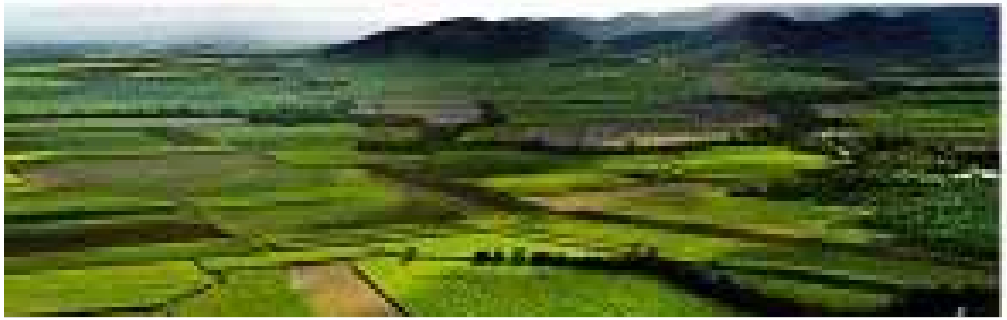
wri.org/shiftingdiets

WORLD RESOURCES INSTITUTE

uses 70% of fresh water

generates 24% of GHGs

uses 33% of land area



uses 30% of global energy

… But feed 100% of us

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

They're a solution or they're a problem!

TODAY'S CHALLENGES FOR AGRIFOOD & DAIRY SECTORS

Productivity vs. Sustainability

Increased food outputs with less environmental impacts - soil degradation, water scarcity, and emissions.

Fragmented & Inefficient Supply Chains

Post-harvest loss, lack of cold storage, low prices for farmers & producers, & high prices for consumers.

Aging Farmer Population & Rural Poverty

Youth are migrating away from agriculture, leading to an aging workforce, threatening future food production.

Climate Change Vulnerability

Increasingly frequent and severe droughts, floods, weather pattern changes impacting yields and food security.

Changing Diets & Health Concerns

Rapid urbanization is driving a shift towards processed foods, contributing to malnutrition, undernutrition & rising obesity.

CONTRIBUTION GLOBAL DAIRY SECTOR TO SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY

- Many rural areas rely on dairy production and processing for their income

2 ZERO HUNGER

- Dairy products are naturally nutrient dense foods, supplying significant amounts of high-quality protein and micronutrients, including calcium, magnesium, selenium, riboflavin, and vitamins B5 and B12
- Animal by-products can be used as fertilizers for crop production

3 GOOD HEALTH AND WELL-BEING

- Dairy products provide essential nutrients, especially for adolescents, women of reproductive age and the elderly
- The dairy sector also ensures the good health and well-being of its animals
- Dairy intake is associated with a decreased risk of type 2 diabetes and colorectal cancer

4 QUALITY EDUCATION

- A healthy diet, of which dairy is key, is vital for a person's learning capacities
- Dairy production provides incomes that can support education

5 GENDER EQUALITY

Milk production supports women empowerment.

6 CLEAN WATER AND SANITATION

- Dairy livestock can contribute to the protection of water quality through grazing
- In dairy manufacturing plants, the reuse of water provides opportunity to significantly reduce the stress of water availability in certain parts of the world and/or under certain environmental circumstances.

7 AFFORDABLE AND CLEAN ENERGY

- Dairy production can provide an alternative to fossil fuels, such as the recycling of manure

8 DECENT WORK AND ECONOMIC GROWTH

- The dairy sector from farming through processing and distribution provides socially just and economically rewarding opportunities for owners, managers, wo-rkers and the communities in which they live.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

- The entire dairy value chain, from production, processing to retail, provide valuable inputs
- There is an increasing amount of innovation in the sector

10 REDUCED INEQUALITIES

- Dairy production is a source of income, creates employment opportunities and provides market participation

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

- Wastes and losses along the dairy production chain are still relatively high (of 1 l milk, 100ml - 250 ml is wasted, depending on the region)
- The dairy sector is has been a major stakeholder in food waste reduction initiatives

13 CLIMATE ACTION

- The dairy sector is a significant contributor to global Greenhouse gases emissions (2.7%)
- Dairy producers have been the forefront of developing and implementing more environmentally friendly practices

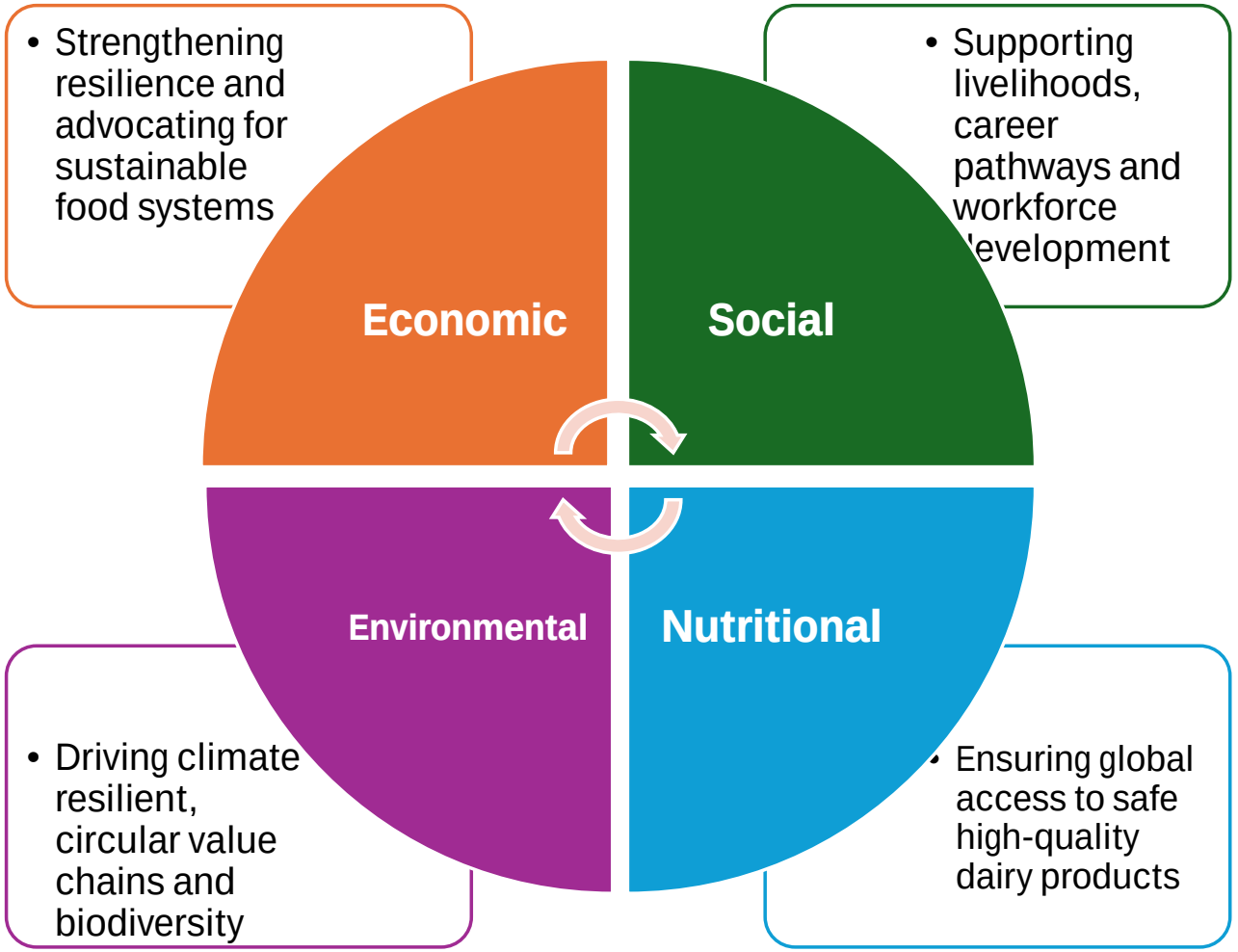
15 LIFE ON LAND

- Efficient grazing management can contribute to grassland restoration, carbon sequestration in soils and can reduce deforestation through agroforestry
- Ruminant grazing can turn unusable peripheral land into high quality protein for human consumption

17 PARTNERSHIPS FOR THE GOALS

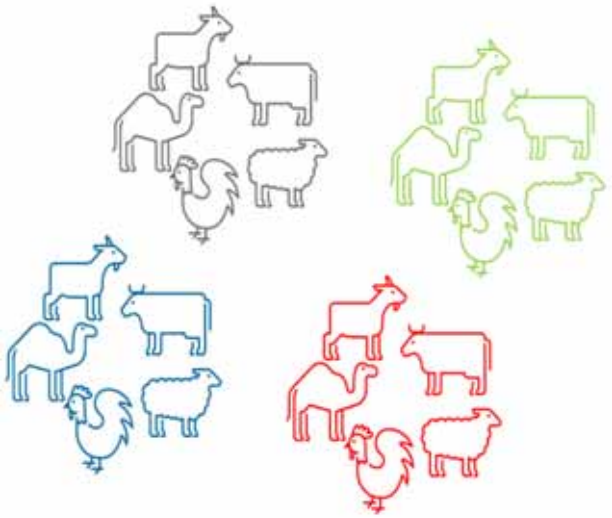
- The dairy sector stakeholders have come together under the Global Dairy Agenda for Action (GDAA) and created the Dairy Sustainability Framework, a roadmap towards greater sustainability in the sector

A HOLISTIC VIEW OF SUSTAINABILITY



What do we want to achieve?

Sustainable Livestock Transformation Initiative



Sustainable livestock sector that ***satisfies global demand*** for animal source foods and other animal products, ***distributes benefits equitably***, and ***contributes positively to the environment*** while ***using natural resources efficiently and sustainably***.

HOW FIL-IDF SUPPORT THE ENTIRE DAIRY SECTOR

IDF GLOBAL REACH

- Established in 1903
- Members in 40 countries representing 2/3 of world milk production
- Accredited by FAO, Codex, WOAH, UNEP, UNFCCC, ECOSOC
- Collaborate with IGO's and several other international organizations – ISO, ICAR, FEPALE, ESADA IICA, GDP, DSF, WFO, OECD, GASL, EDA, IFCN, etc.

REPRESENTING THE ENTIRE DAIRY SECTOR

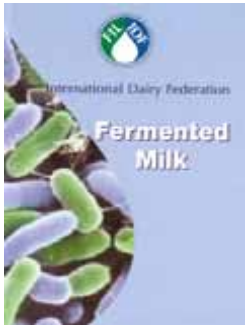
- Dairy Farmers
- Milk processors
- National dairy organizations
- Academia/non-profit research institutes
- Government (Ministry of Agriculture)
- Suppliers
- Milk Sector Employees

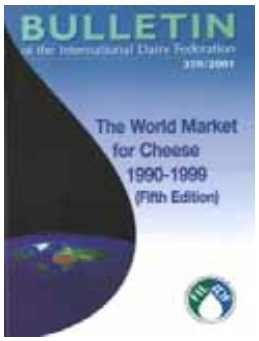
NOURISHING THE WORLD WITH SAFE AND SUSTAINABLE DAIRY

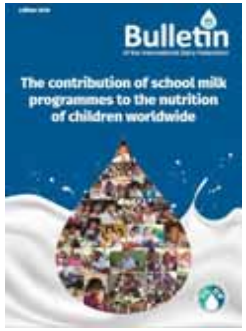
Sustainability	Nutrition	Food Safety
Supporting a vibrant dairy sector committed to continuously improving its ability to provide safe and nutritious milk and dairy products from healthy animals whilst preserving natural resources and ensuring decent livelihoods across the whole dairy value chain	Support science-based nutrition policies to ensure that dairy is an integral part of the diet for all age groups and contributes to closing the nutritional gap	Safeguard the integrity and transparency of the dairy supply chain to ensure safety and quality of milk and dairy products
Standards		
Develop science-based globally harmonized standards, guidelines, codes of practice and related methodologies, to continually improve regulatory environments for the dairy sector		

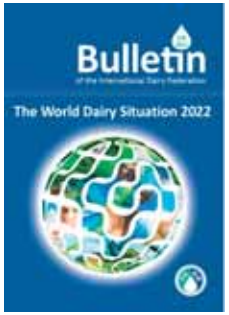
A1

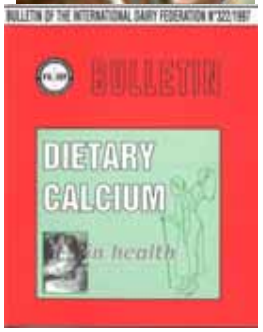
IDF has been delivering a range of publications since 1903

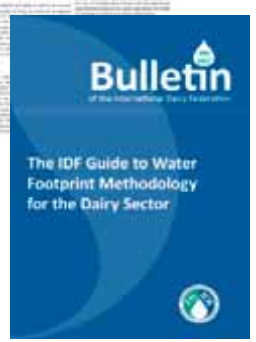












Diapositiva 13

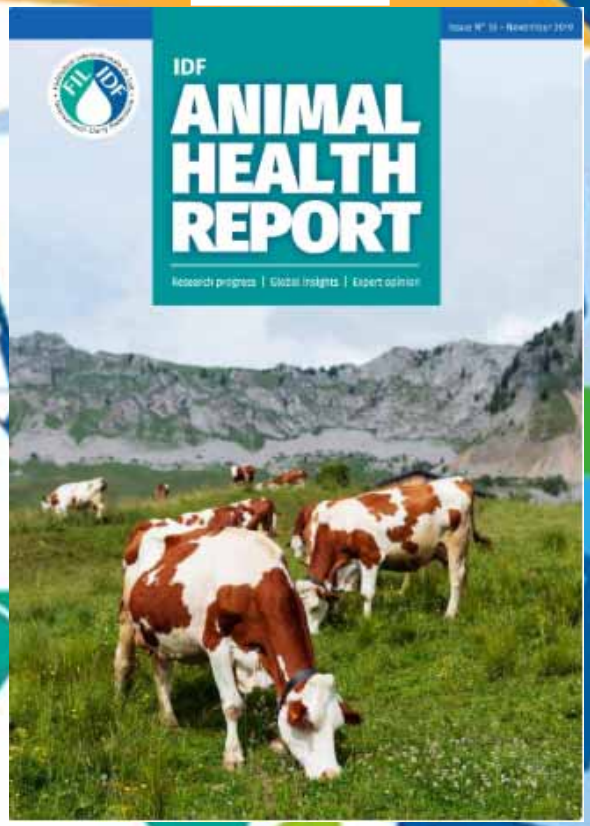
A1 EE: I personally think this could be presented in a much neater way.
Author; 2024-01-30T09:12:10.391

A1 0 Text also needs to be added to the notes
Author; 2024-01-30T09:13:51.059

A1 1 Let's think of new ways to show this
Author; 2024-01-31T10:49:03.216

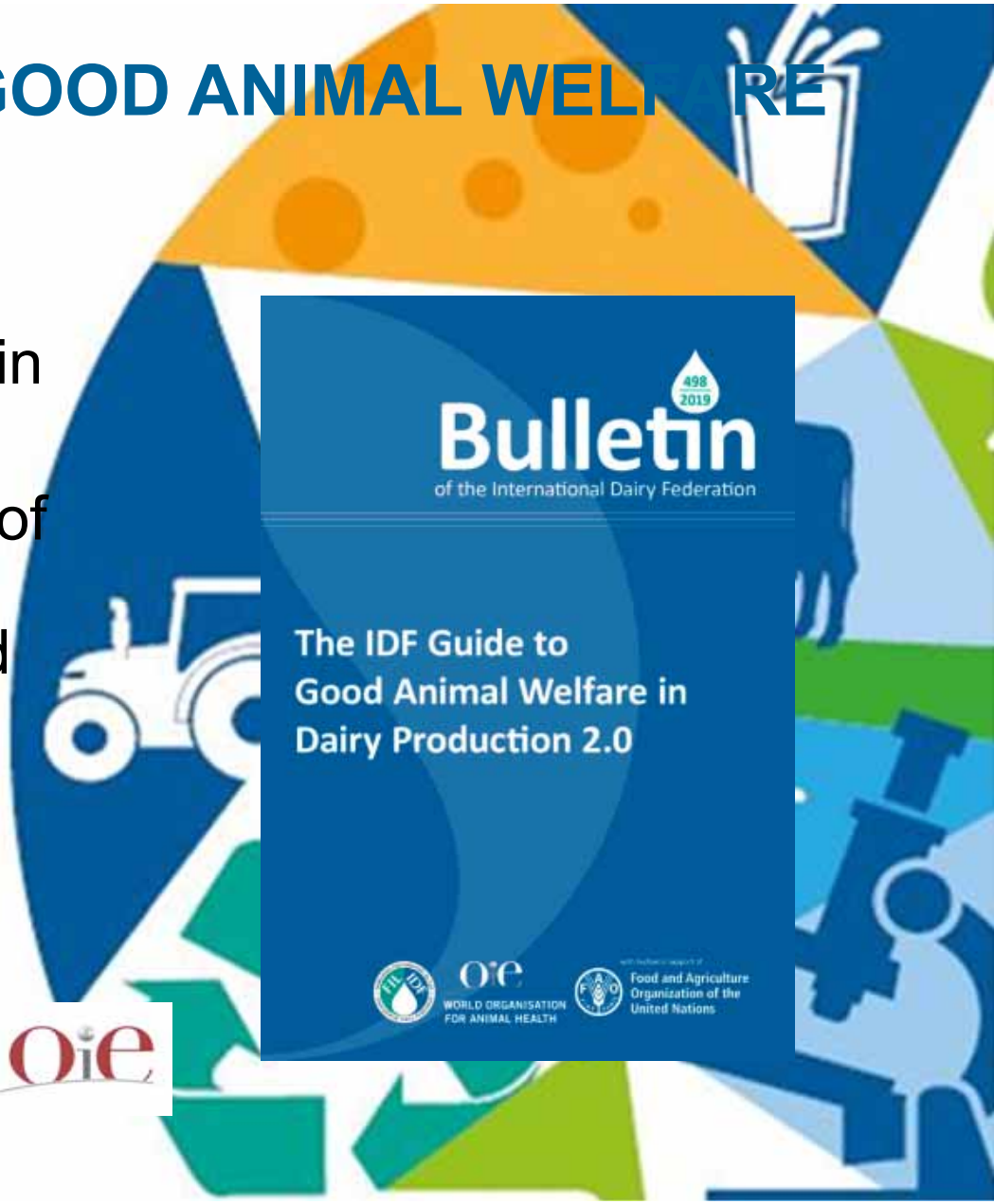
FIL-IDF PROMOTE THE ONE HEALTH STRATEGY

- Guidelines for the prudent use of antimicrobials in the milk production.
- The Animal health report.
- Technical support to guarantee and mantain productive and healthy animals.



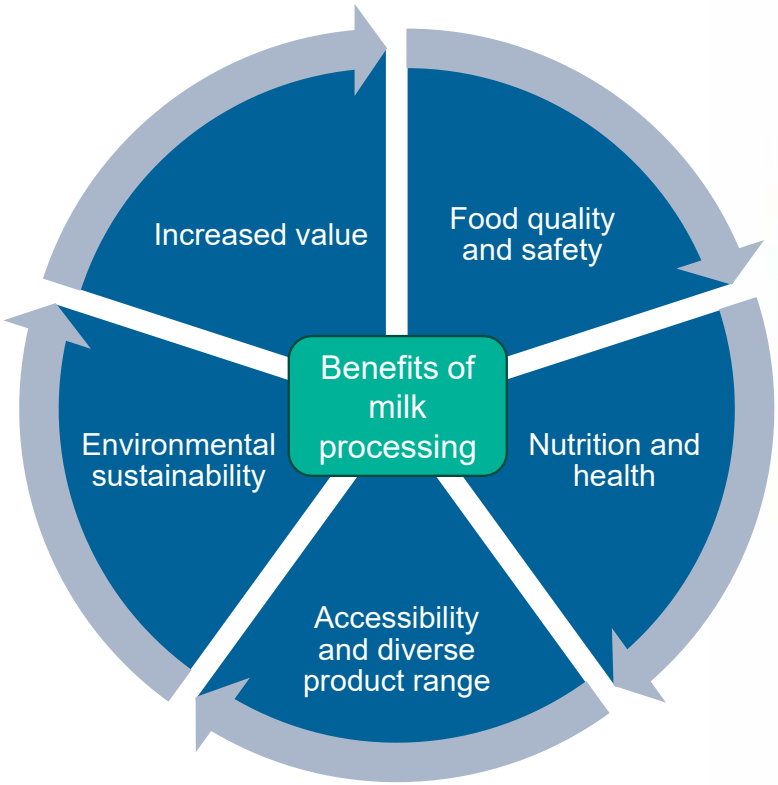
IDF GUIDANCE FACILITATES GOOD ANIMAL WELFARE PRACTICES

- IDF Guide to good animal welfare in dairy production 2.0
- Implements the current standards of the WOAH and the technical specification of ISO on welfare and provides a practical approach for farmers



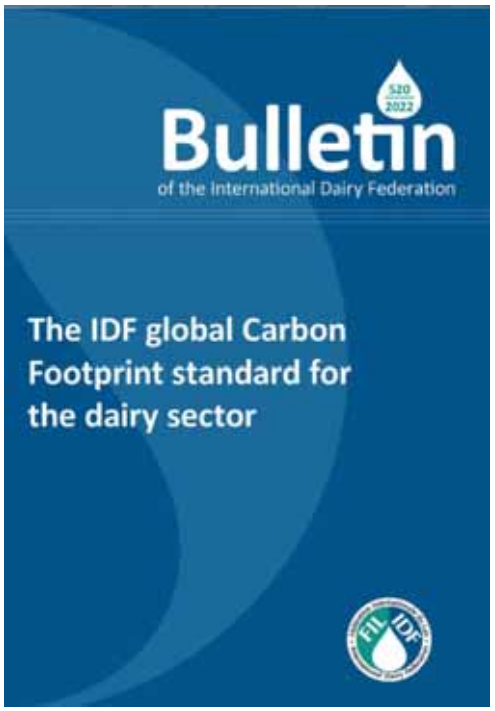
IDF PROMOTES SUSTAINABLE MILK PROCESSING

Processing covers technologies needed to transform, preserve milk and milk products

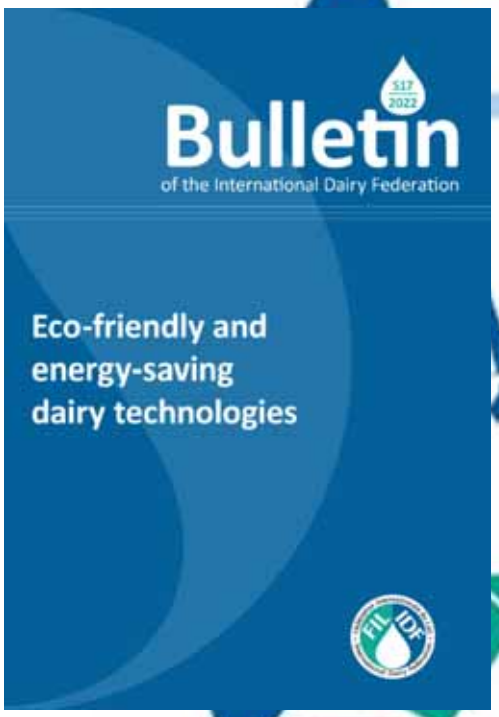


Factsheet of the IDF N° 37/2024:
Benefits of processing in dairy

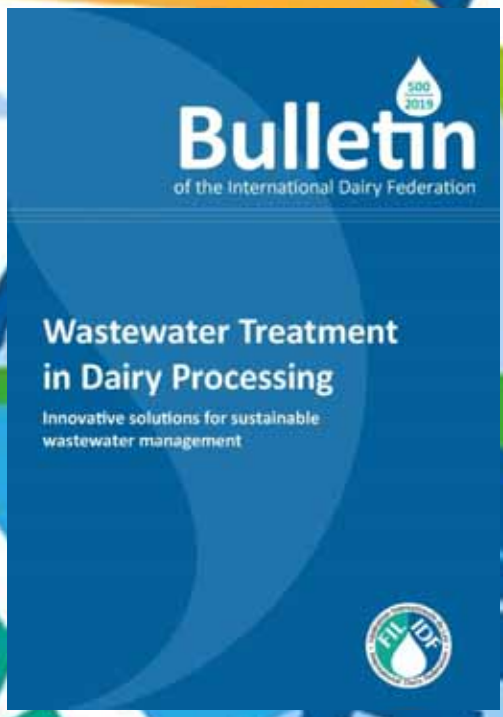
MILK PROCESSING – ENVIRONMENTAL SUSTAINABILITY



Bulletin of the IDF N°520/2022: The IDF global Carbon Footprint standard for the dairy sector



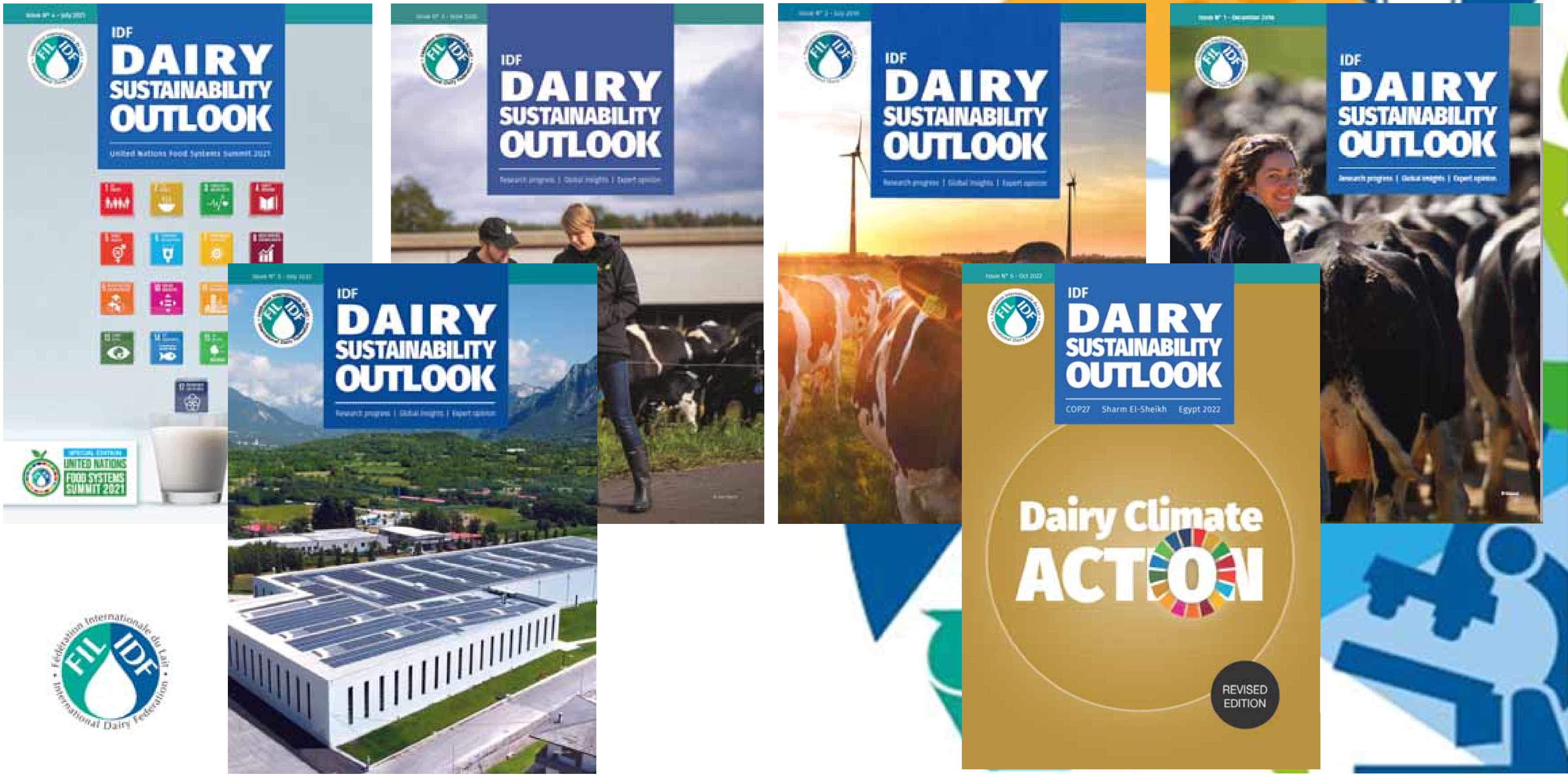
Bulletin of the IDF N°517/2022: Eco-friendly and energy-saving dairy technologies



Bulletin of the IDF N° 500/ 2019: Wastewater Treatment in dairy Processing

IDF methodologies and sustainable practices

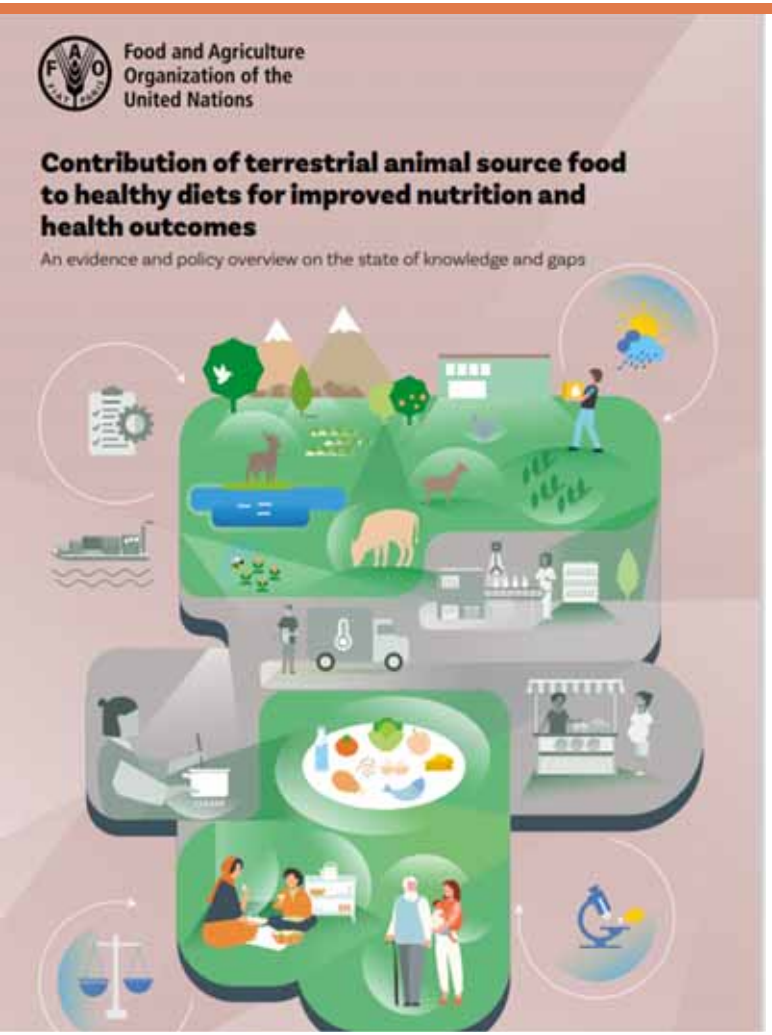
THE SERIES EXPLORES CASE STUDIES OF SUSTAINABLE PRACTICES & INNOVATIONS ACROSS THE DAIRY SECTOR



PROMOTING DAIRY'S VITAL ROLE IN NUTRITION

- IDF is highly engaged in the discussion on how to feed the world with a healthy and sustainable diets.
- Recent work has included a scientific symposium to look at the role of dairy in sustainable diets.
- Promoting science based nutrition within UN institutions

Value of terrestrial animal source food in human health



Nutrients found concentrated and bioavailable in terrestrial animal source food play important roles in human health

MACRONUTRIENTS

High-quality proteins
- Increase muscle mass
- Prevent loss of muscle mass

Long-fatty acids and ratios of essential fatty acids
- Cognition
- Neurodevelopment
- Anti-inflammatory processes

MICRONUTRIENTS

Zinc
- Vital functions in growth, development and immunity

Vitamin B12
- Neurodevelopment
- Cell formation

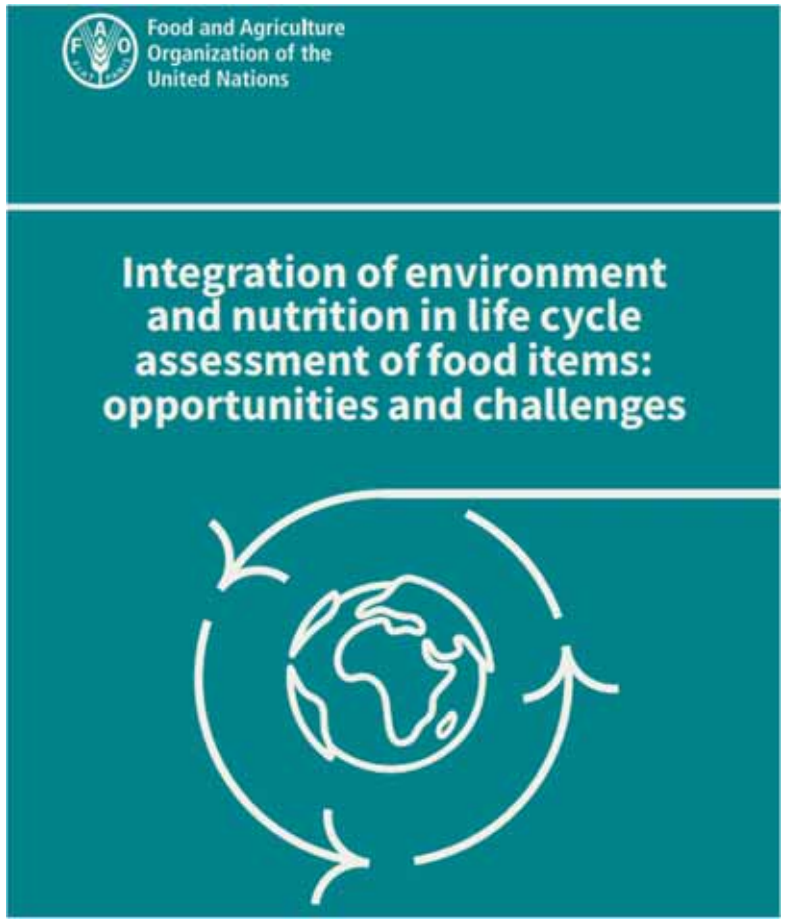
Choline
- Growth
- Brain function
- Gene interactions

Calcium
- Bone health

Iron
- Prevents iron deficiency anaemia

Selenium
- Anti-inflammatory
- Genome-level processes

FAO and nutritional LCA (nLCA)



McLaren, S. et al, 2021, FAO, Rome

FAO (2021): Nutrition and environment integration

"This report defines a nutritional LCA (nLCA) study as an LCA study where the provision of nutrient(s) is considered as either the main function or one of the main functions of a food item."

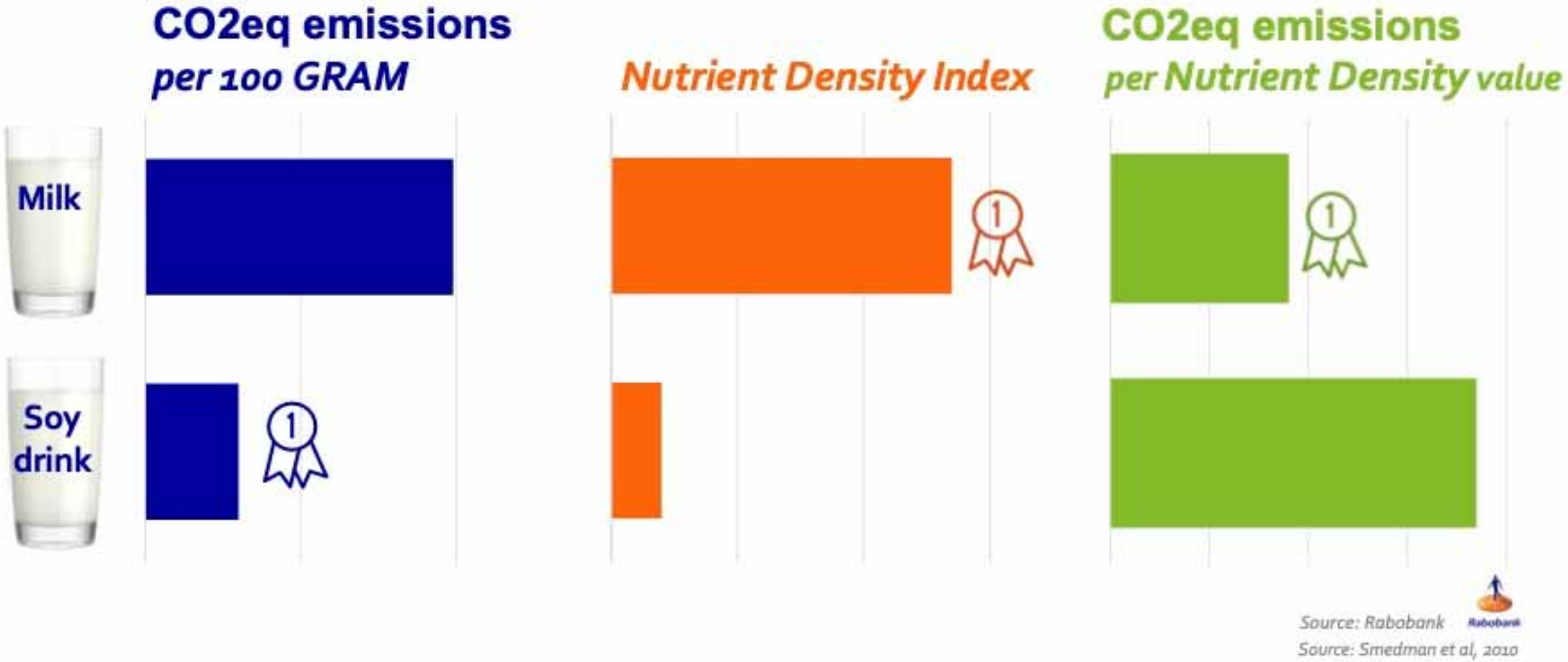
"nLCA studies should be undertaken by multidisciplinary teams involving nutritional and health scientists as well as environmental scientists".

LCA studies should become nutritional LCA (nLCA), which assess the environmental footprints of different food while accounting for nutritional value.

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Metrics Matter



Source: Rabobank

Source: Smedman et al, 2010

CH_4 from livestock, it's part of the biogenic carbon cycle and isn't adding new carbon to the current atmospheric stock *(Mitloehner F.)*

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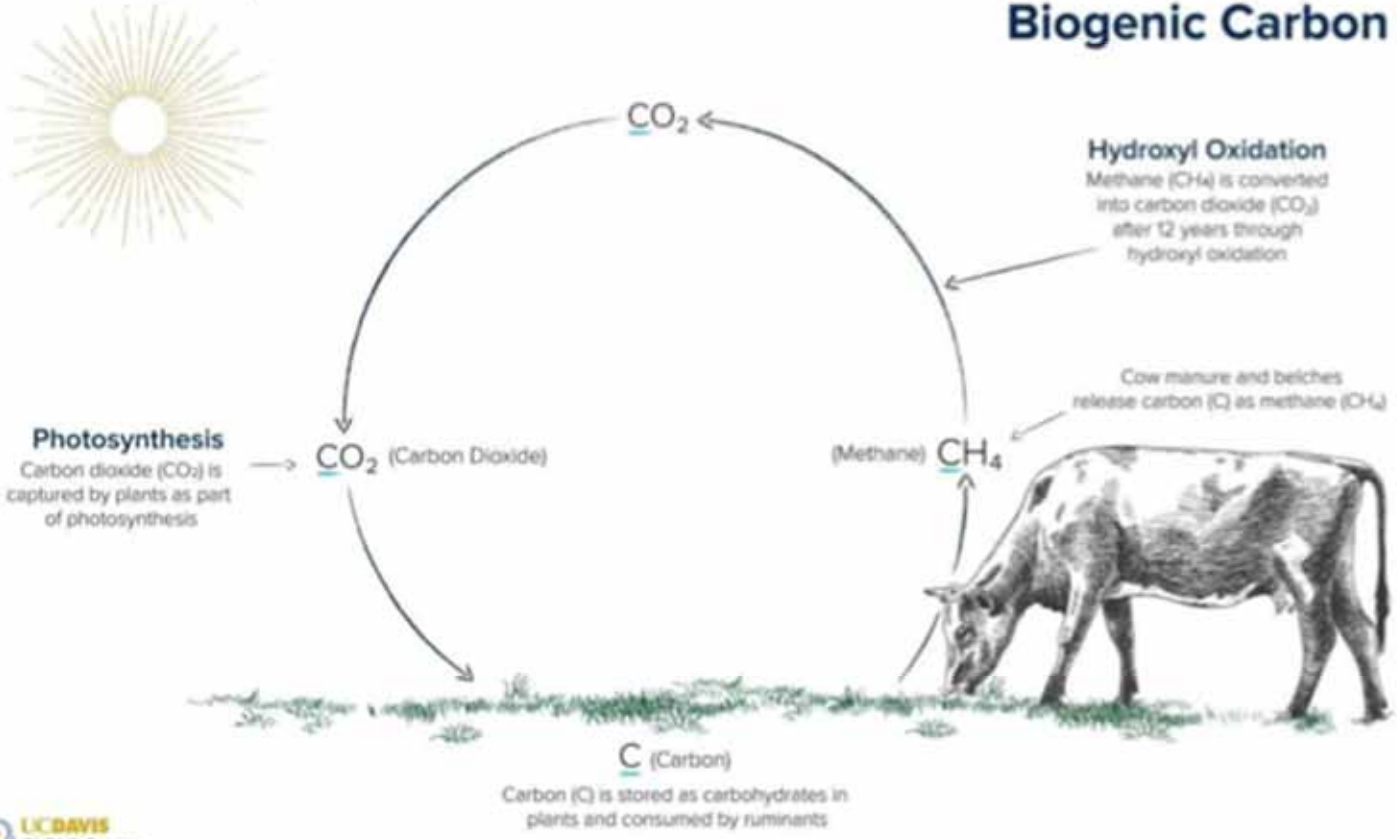

https://clear.ucdavis.edu/explainers/biogenic-carbon-cycle-and-cattle

The **biogenic carbon cycle of CH_4** is a natural, rapid cycle where atmospheric CO_2 is absorbed by plants, consumed by ruminants, and emitted as CH_4.

This **CH_4 breaks down into CO_2 in 10–12 years**, forming a closed-loop system, unlike fossil carbon, making it a key component in assessing livestock CH_4 emissions.

How to interpreter biogenic CH_4 emission and how to manage the livestock systems in the world?

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As a flow gas, (biogenic) **CH_4 is being destroyed as it's being added**. Its warming impact isn't determined by how much is being emitted – since it's destroyed relatively quickly – but by how much more or less methane is being emitted over a period of time.

If a cattle herd emits the same amount of CH_4 over 10 years, it's contributing to warming for the first 10 years. **Afterward, the amount being emitted is equal to what is being destroyed through oxidation.**

Consequently, **warming is neutral if methane emissions stay constant.**

If herd emissions are reduced – and dietary supplements and digesters are pointing in that direction – there is a cooling effect that can offset other carbon emissions.

Mitloehner F. - https://clear.ucdavis.edu/blog/methane-gwp100-not-measuring

Milk Yield per cow & GHG emission are inversely related.

This explain the drastic reduction of emission in HIC and intensive systems

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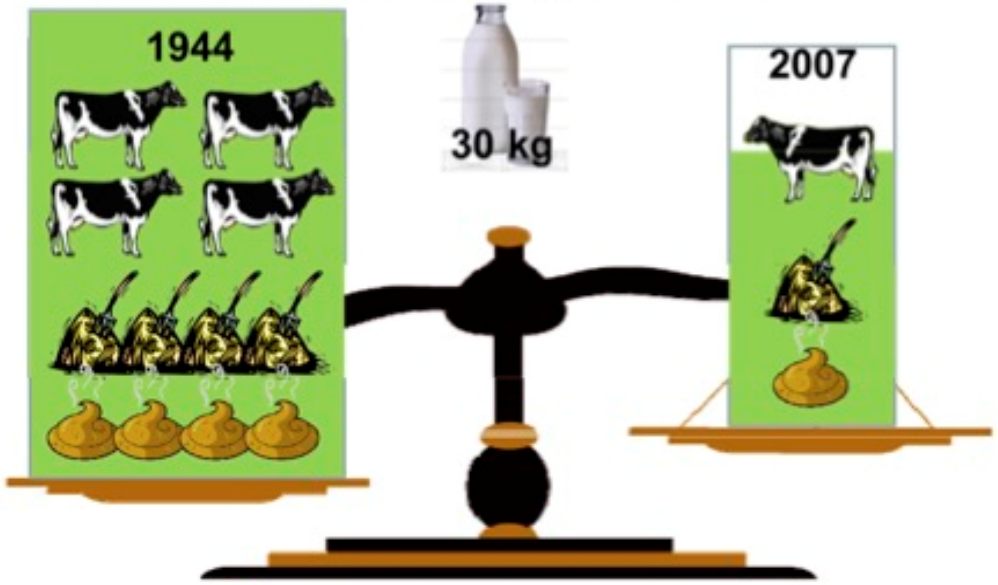
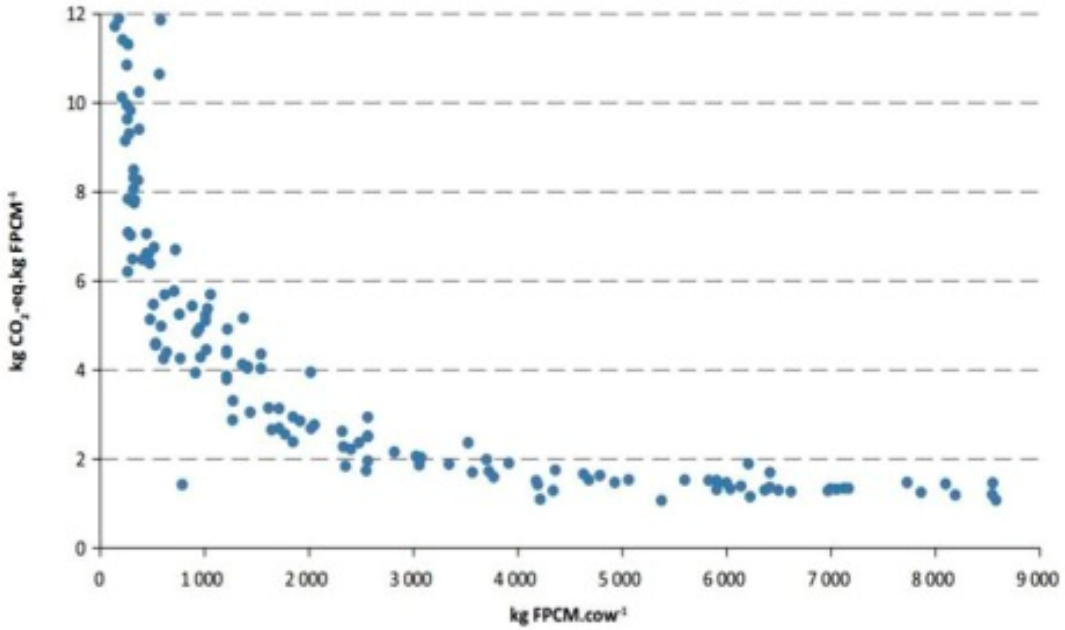
Es. USA:
1944 vs 2007
MY of 4 cows = MY of 1 cow
Drastic reduction of CH_4 emissions!



Capper et al. (2009) "The environmental impact of dairy production: 1944 compared with 2007" *J. Anim. Sci.*



Source: Gerber et al., 2011.

GHG emissions are higher in less productive cows (e.g. LMIC, extensive systems, low genetic merit cows)

FIL-IDF SUPPORTING SUSTAINABLE DAIRY

3 GOOD HEALTH AND WELL-BEING

8 DECENT WORK AND ECONOMIC GROWTH

13 CLIMATE ACTION

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

14 LIFE BELOW WATER

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

15 LIFE ON LAND

A NEW CHALLENGE THE PARIS DAIRY DECLARATION

- ✓ The dairy sector has shown strong commitment to sustainability
  - Global Dairy Agenda for Action (2009)
  - Dairy Sustainability Framework (2013)
  - Dairy Declaration of Rotterdam (2016)
  - Pathways to Dairy Net Zero (2021)
  - Global Methane Pledge (2022)

- ✓ The **Paris Dairy Declaration on Sustainability**, signed by IDF and FAO in October 2024, solidifies a global commitment to sustainable dairy development with **public, quantified, and time-tabled objectives**.

- ✓ IDF **calls on** all members, leaders, and stakeholders to **endorse the Paris Dairy Declaration on Sustainability** and commit to achieving its sustainability goals.

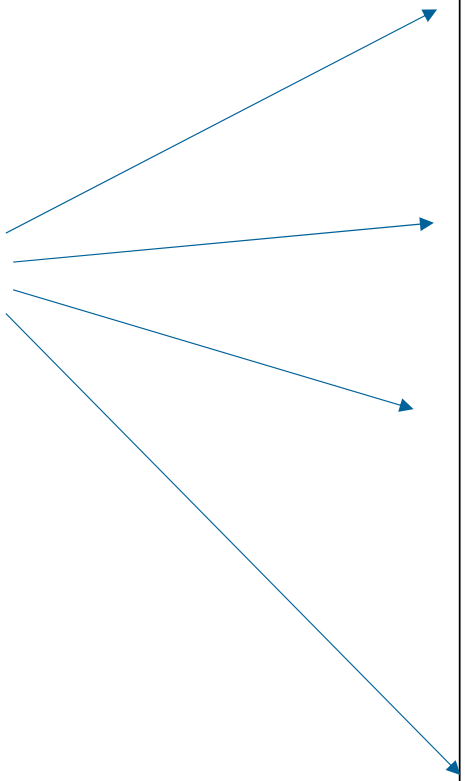
COMMITMENTS' STOCKTAKING ON SUSTAINABILITY

Dairy quantified
and timetabled commitments
on sustainability
over the coming years

29th April 2025

HOW ARE CLASSIFIED THE COMMITMENTS ?

4 main chapters



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Organisations and companies analysed

A2	New Zealand Quantified and timetabled commitments identified on A2 Milk website and a2 Milk Company net zero roadmap 2024
Agropur	Canada Quantified and timetabled commitments identified in Agropur 2021 ESG report and Agropur ESG report 2023
Almarai	Saudi Arabia Quantified and timetabled commitments identified in Almarai sustainability report 2024
Andechser Natur	Germany Commitment for GHG emissions in SBTi target dashboard
Andros	France Commitment for GHG emissions in SBTi target dashboard
Arla Foods	Denmark Quantified and timetabled commitments identified in Arla Foods annual report 2023 and Arla Foods annual report 2024
Aurora Organic Dairy	United States Quantified and timetabled commitments identified in Aurora Organic Dairy sustainability report 2022
Ausnutria	China Quantified and timetabled commitments identified in Ausnutria sustainability report 2023
Australian Dairy Sustainability Framework	Australia Quantified and timetabled commitments identified in Australian Dairy Sustainability Framework Report 2021 and Australian Dairy Sustainability Framework Report 2023
A Ware	Netherlands Quantified and timetabled commitments identified in Royal A Ware website – Pijler productie proces (NL), A Ware sustainability report 2023 (report downloading not allowed) and A Ware annual report 2024
A.J. & R.G. Barber	United Kingdom Commitment for GHG emissions in SBTi target dashboard
Bauer	Germany Quantified and timetabled commitments identified in Bauer website - sustainability
Bayerische Milchindustrie	Germany Commitment for GHG emissions in SBTi target dashboard
Bechtel Naturkäsewerk	Germany Commitment for GHG emissions in SBTi target dashboard
Bega Cheese	Australia Quantified and timetabled commitments identified in Bega Cheese 2022 sustainability report, Bega Cheese 2023 sustainability report and Bega sustainability report 2024

WHAT KIND OF COMMITMENTS DOES THE ANNEX CONTAIN?

On sustainability

Over the coming years

Quantified

Timetabled

In an open access document

Water consumption, saving, recycling and monitoring

aligned with SDG

Almarai	Saudi Arabia
Commitment	To increase water efficiency across our manufacturing, sales, distribution and logistics divisions by 15% by 2025 against a 2018 intensity baseline
Reference document	Almarai Sustainability Report 2022 (p 19)

4. PDDS WEBPAGE

https://fil-idf.org/dairys-global-impact/paris-dairy-declaration/ -

IDF DAIRY INNOVATION AWARDS BUILT-IN SUSTAINABILITY AND UN-SDGS

Scan to get information to learn more about IDF


IDF WDS DAEJEON 2018
Milk is Perfection
Milk is critical and essential for international efforts to combat poverty and hunger.
3 GOOD HEALTH AND WELL-BEING
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
8 DECENT WORK AND ECONOMIC GROWTH
13 CLIMATE ACTION
THE GLOBAL GOALS
For Sustainable Development
IDF WDS DAEJEON 2018
Dairy for the Next Generation!
IDF WDS DAEJEON 20
Dairy for the Next Generatio

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