Global Advances in dairy sustainability

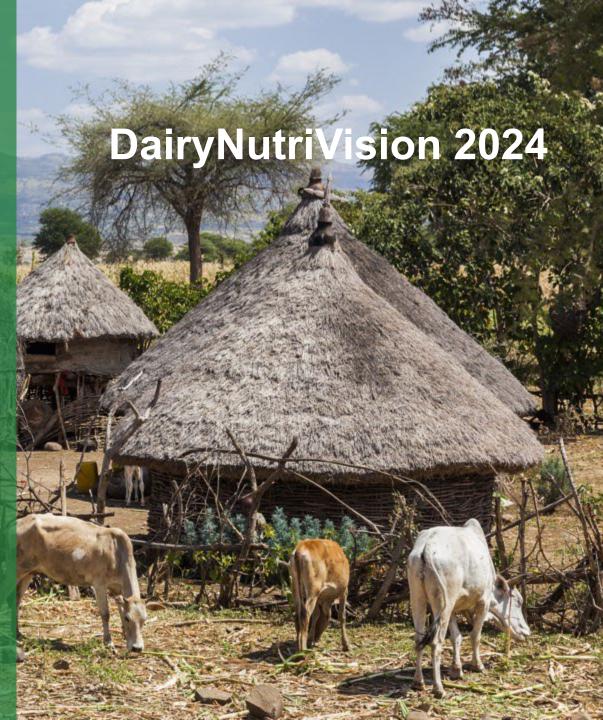
Driving change across the value chain

Brian Lindsay
Director – Dairy Sustainability Framework
Global Sector Lead – Sustainability –
Global Dairy Platform













The Dairy Sector



1 billion people strong



people are employed, directly or indirectly, in the dairy sector



600 million people living on farms



133 million dairy farms



400 million
additional people are supported by
the full time jobs that are created in
support of dairy farming



37 millionfarms led by women, **80 million**women employed in dairying

The Dairy Sustainability Framework

The Sustainability Monitoring and Reporting Framework for Global Dairy

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

1. Preserving natural resources

2. Ensuring decent livelihoods across the industry

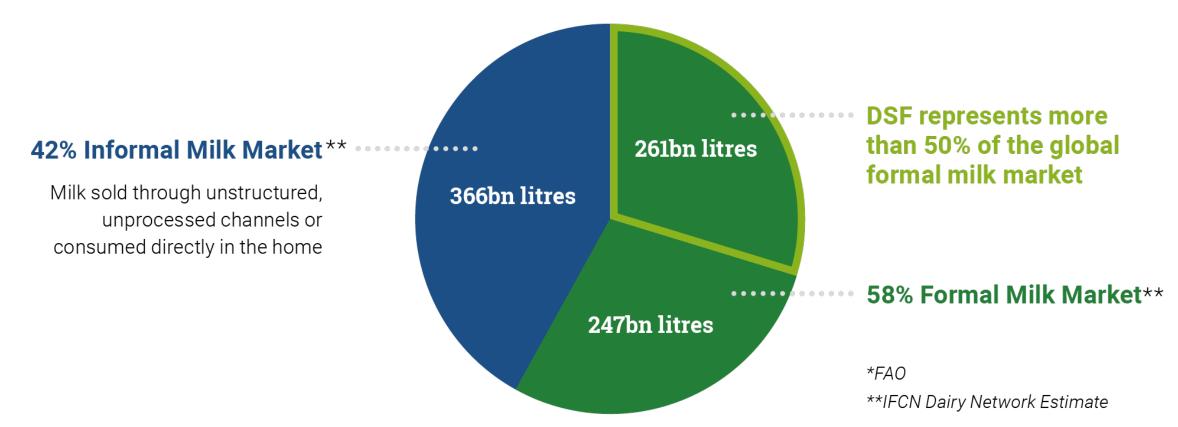


DSF and Global Milk Production - 2022

dsf

Global Milk Production: 874 Billion Litres*

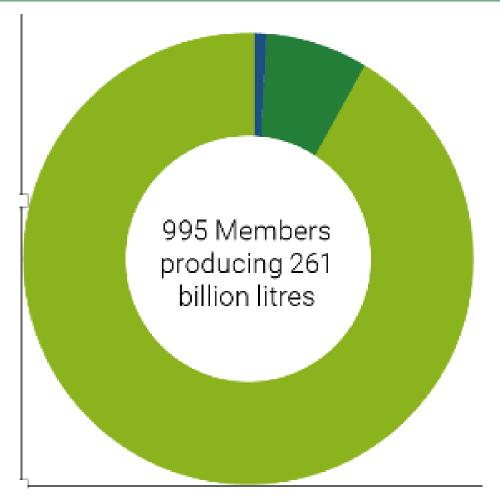
DSF milk volume: 261 Billion Litres



Age and size does actually matter!







Governance



Piercristiano Brazzale



Dr David Nation



Donald Moore



Alexander Anton



Dionys Forster



Peter Ngaruiya



Gary Wertish



Dr Ariel Londinski



Meneesh Shah Batbaatar Bayarmagnai



Barbara O'Brien



Advisory

























DSF ADCO – Chaired by the IDF President

New DSF members in 2022



+301 farms



+280,740 cows



+6 processing plants



+586 dairy farmers



+11,009 employees



+1.4 billion litres of milk

2022 Snapshot - Total Membership



487,712 farms



34 million



3,211 processing plants



585,029 farmers



2.4 million employees

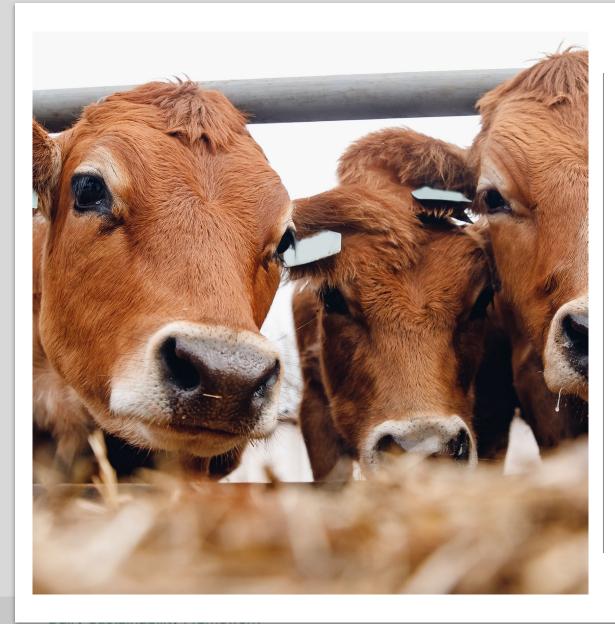


261.2 billion litres of milk



>25 million hectares

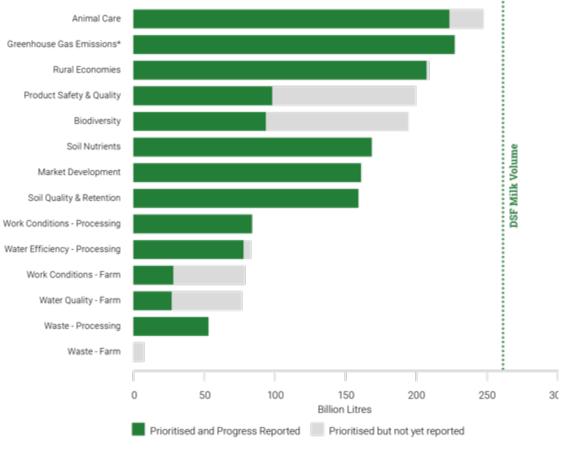




2022 DSF Milk Volume, Priorities and Reporting

Milk Production in Billion Litres

- · For the first time, Animal Care was the number one priority for DSF members, closely followed by GHG emissions.
- · Rural Economies was the third most prioritised Criteria, reflecting the increasing emphasis on economic sustainability.

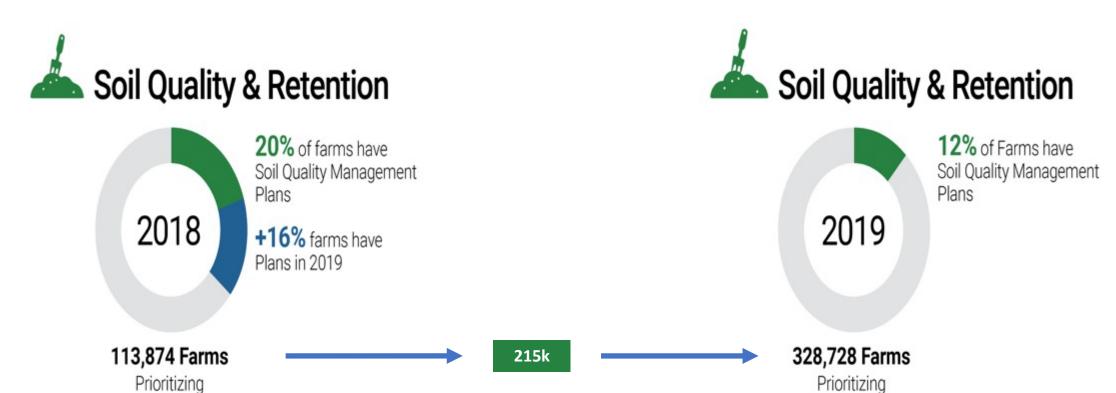


^{*}Reporting for entire global dairy sector provided by FAO analysis.

Water, Working Conditions and Waste Criteria have two indicator metrics as they cover both farm and processing levels of the dairy value chain.

Building the Narrative





Dairy Does Good!



Gender and Employment

Dairy Farmers



DSF Volume of milk reporting **24%**

Dairy Farm Employees



DSF Volume of milk reporting **24%**

Milk Processing Employees



DSF Volume of milk reporting **35%**

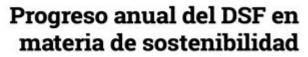












Informe anual de 2022

DSF Annual Sustainability Progress

2022 Calendar Year Reporting

DSF - Progresso Anual em Sustentabilidade

Relatório do ano de 2022

Progrès annuels du DSF en matière de développement durable

Rapport de l'année civile 2022

:年度可持续发展进展

2022 日历年报告

2023 DSF Reporting - Headlines



265 Billion litres (+3.6 bn litres)

30% of global milk production

52% of global formal milk production



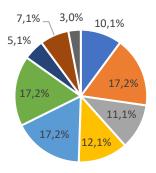
Animal Care remains at no.1 position followed by

- GHG emissions
- Rural economies
- Biodiversity

Over 1000 organizations providing data for the DSF

 Gender - reporting across the value chain – Rise in numbers reporting

Types of organisations represented in DSF Members' Local Management Groups



- Govt organisations
- Farmer owned coop/processors
- NGO
- Retailers
- Banks/investors

- Farmers/Farming organisations
- Academia
- Service providers
- Consumers

Dairy Sustainability Framework
REPORTING SECTOR PROGRESS SINCE 2013









New Stage 1 membership level created for organizations initiating their sustainability journey



for Agricultural Development OFADI and Global Dairy Platform (GDF), assists dairy organisations in emerging dairy markets to implement the Dairy Sustainability Framework (DGF). This is a process implemented by all DSF member organisations that includes the review and prioritisation of sustainability challenge and establishment of a local management group (LMG) to act as an advisory board for sustainability topics. Reviewing and prioritising challenges specific to that region ensures that perspective. The project objective is to capture the experience of the dairy organisations in different peographies and markets and therefore to provide guidance to others. The experiences and learnings of the organisations partnered with the DSF in this project are a valuable resource for other dairy value chain organisations that want to better understand how to improve the

The partners in this pilot were Vinamilk, Vietnam's largest dairy processor, and the DSF, a non-profit organisation developed by



sustainability progress of the sector and to provide a platform to

investors and the Vietnamese government, in 2021, Vinamilk. fletnam, it employed nearly 8,000 people with revenues of 61,012 active along the entire dairy value chain, from farm production to cessing and product manufacture, distribution and retailing.

Executive Summary

sustainability performance by applying the DSF

learning for Vinamilk was the new experience of implementing a structured approach guided by the DSF to review sustainability challenges and identify priorities. The company also learnt to appreciate and apply the inputs and perspectives provided from stakeholders while developing a sustainability strategy.

the right track, giving the company the confidence to continue in the proposed direction. The project strengthened the working relationships within and across departments within the company helped Vinamilk to recognise that sustainability is a companywide

investment and helped to align efforts. The project also help to strengthen the relationships between Vinamilk and outside stakeholders. The LMG remains as a highly motivated advisorboard and is keen to continue supporting Vinamilk in their sustainability strategy delivery. Vinamilik has also decided to become a member of the DSF to better connect and exchange experiences with other global dairy member organisations and to contribute to the annual reporting of sustainability performance of the global dairy sector.

Overall, the plot has been very successful and Vinamilk is motivated to continue improving business sustainability.







EXPERIENCE THE NATURAL



ল্লামঞ্জত যত্ত্ব মন্তকাহী বুন্ধ ক্রবারেক মন্তামান্ত নিমিটেড The Jharkhand State Co-operative Milk Producers' Federation Limited

Managing Director

JMF: Planning: DSF: 595

Dated 20-02-2024

Group Head (Cooperative Services) National Dairy Development Board Anand, Gujarat Pin-388001

Subject: - Acceptance letter of Proposal for Participation in the Dairy Sustainability Framework Stage-I Pilot Study

Reference: - Your Letter no. CS: DSF: JMF: 9731 Dated 08-02-2024

Dear Sir,

This is in reference to your above referred letter, and our VC Discussion Dated 16th February 2024.

We do accept the Proposal for Participation in the Dairy Sustainability Framework Stage-I Pilot Study. The preferred criteria of study for Jharkhand Milk Federation would be Rural economies.

We look forward to NDDB for a template as well as follow up action on the matter.

Regards,

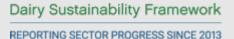
For the Jharkhand State Cooperative Milk Producers' Federation Limited



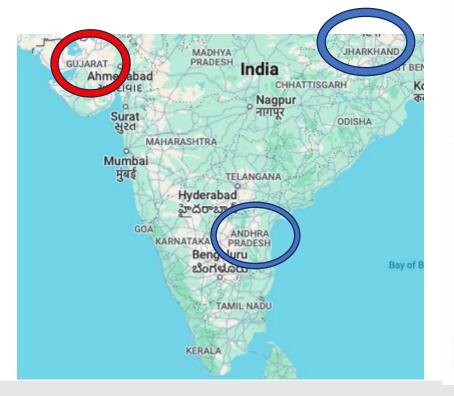
(S K Singh)

- Est 2013
- 55000 Farmers
- 145,000 Kg/milk/day

विकास प्रविद्या केंद्र परिवर, सेक्टर-3, रूपवेरी, कुरी, गोरी-834004, पोरा : 0651-2443055, है-चेतर : jieled3013@gmoil.com Farmers' Training Centre Compus, Sector-2, HEC, Dhurwa, Ranchi - 834004, Phone : 0651-2443055, E-mail : jmfed2013@gmoil.com











SMMCL:CE:NDDB:DSF:

14 February 2024

Group Head (Cooperative Services) National Dairy Development Board Anand – 388001 (Gujarat)

Sub: Expression of gratitude for participation in the DSF Stage-I pilot Ref: Your letter No: CS:DSF:Shreeja:9730 date 08th February 2024

With reference to the aforementioned correspondence, we are delighted to convey our appreciation for the privilege extended to us to participate in the Dairy Sustainability Framework Stage-I pilot (DSF).

We extend our sincerest gratitude to the NDDB for extending this invaluable opportunity to us. Your trust in our capabilities is truly humbling, and we are committed to making the most of this opportunity to contribute meaningfully to the DSF.

Thanking you,

Yours faithfully,

Thimmappa S R

• Est 2014

- All women producer company
- 127,000 Farmers
- 561,000 Kg/Milk/day

SHREEJA MAHILA MILK PRODUCER COMPANY LIMITED

CIN. U01403AP2014PTC094771, Registered Office: 3rd & 4th Floors, Plot No. 29 & 30, Bachala Towers, S.G.S. Arts College Road, New Indira Nagar, Tirupati - 517501, Andhra Pradesh, Ph.: 0877 - 2242173, 2242727, cmail: info@shreejamilk.com



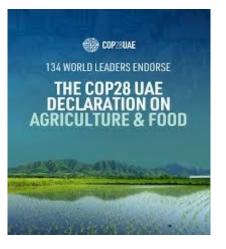








United Nations Climate Change



Harmoniya

























PATHWAYS TO DAIRY NET ZERO.

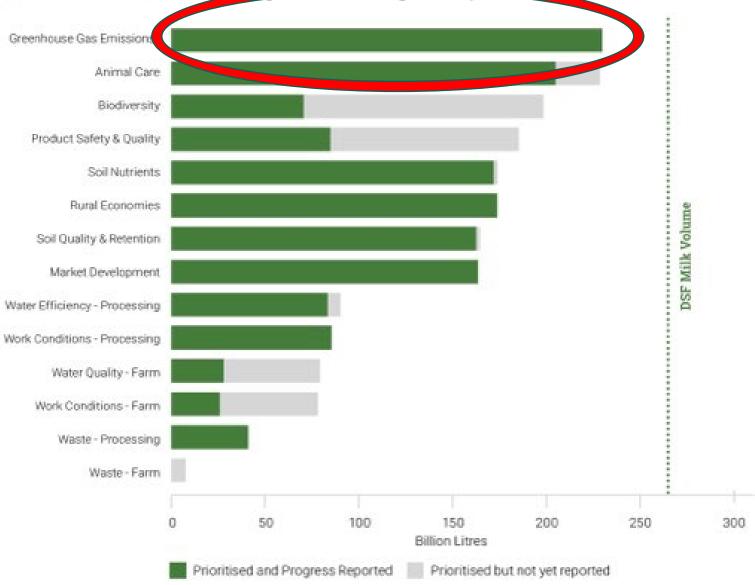
Tracking & reporting

2020 Reporting The Corp less shall be Transect movines and report the continues and majors the

2021 DSF Milk Volume, Priorities and Reporting

Milk Production in Billion Litres

- The majority of new members are yet to complete the process of prioritising the DSF Criteria, this impacts the % criteria prioritisation when considered in relation to total DSF milk volume.
- The fluctuations associated with these characters in roughout the report





Pathways to Dairy Net Zero

A collaboration between:























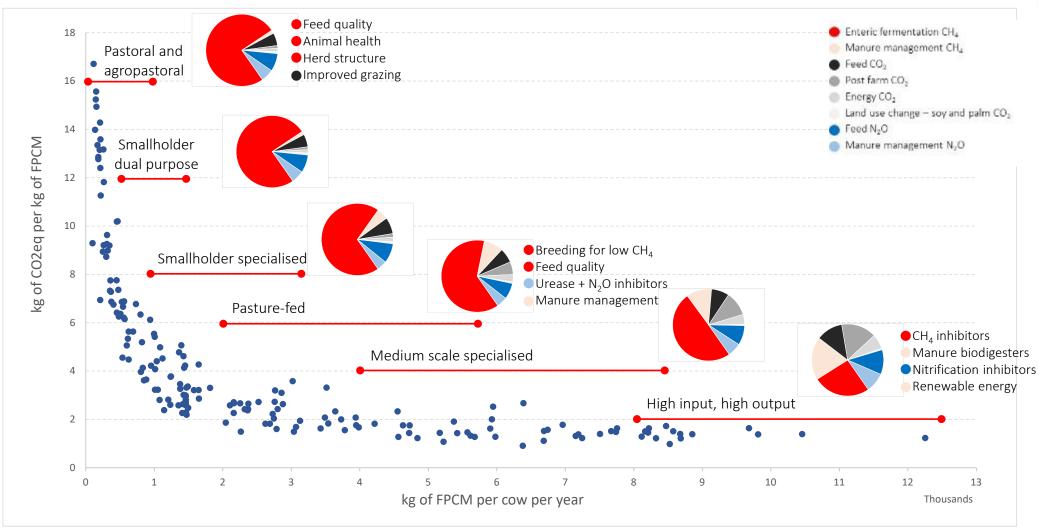
OBJECTIVES



- Systematically introduce or enhance climate action in global dairy systems
 - food and nutrition security
 - livelihoods and economic growth
 - animal health and welfare
 - climate and natural resource use
- Develop pathways for all dairy systems
- Stimulate commitments + Action

Typologies and Targeted Actions





Source: FAO GLEAM 3, unpublished 2020 data

Barriers to Adoption

Changing existing **practices** through **known** levers

~40%

reduction

Scaling existing and emerging technologies

> ~35% reduction

Long term, fundamental and applied research

> ~25% reduction



Progress in developed dairy economies



4 Tracks guide regional work:

Methods /
Frameworks
/Proof points

Accelerated Implementation & R+D

Policy Making and Partnerships

Pilots /
Lighthouse
Projects

Globally seek 3-4 Collaborative actions:

1. Carbon Accounting
Ensuring the sector is recognized for its emission reductions efforts is key to the Pathways initiative.





2. Dairy Processing

Taskforce to investigate latest advances in dairy processing technologies to tackle GHG emissions.



3. Methane

Develop science-based narrative on dairy and methane emissions and actions underway

 Animal Nutrition – Recent workshop identified 4 key work streams





Land Sector and Removals Guidance Part 1: Accounting and Reporting Requirements and Guidance

Supplement to the GHG Protocol Corporate Standard and Scope 3 Standard

Area	Topic	Outcome		
1	Definitions	Dairy sector agreed interpretation and understanding of existing guidan		
		and terms		
2	Mass Balance/Sourcing Region	Develop a robust position for an alternative to the Land Management Unit		
	approach	requirement for traceability		
3		Project MRV		
		Develop a GHG-P recognized MRV and appropriate safeguards for		
	MRV Safeguarding	incorporating project-based mitigation outcomes in corporate reporting		
		Sourcing Region MRV		
		Develop a GHG-P recognized MRV and appropriate safeguards for		
		incorporating sourcing region mitigation outcomes incorporate reporting		
		Standard dairy sector Inset Protocol development		
		Establish a standard dairy inset protocol for the dairy value chain.		
4	Dairy Sector Guidance	Guidance at a principal level to deliver the required inventory adjustments for		
		'offsets' and 'insets'		
5	Land Carbon Losses/Carbon	To support the development the concept if retained in the LSRG for		
	Opportunity Cost	application by the global dairy sector		
6	Biogas	Explore the opportunities in the LSRG for farmers generating biogas		
7	Boundaries	Opportunities for farmers with non-contiguous 'assets' linked to the dairy		
		platform identified and tested.		
8	Managing change in reporting	To explore how an aligned approach to updating and reporting corporate data		
	methodological updates	can be established		

Carbon Accounting





POSITION PAPER:

Land Management Unit Traceability for Carbon Removals May Impede, Rather Than Accelerate Greenhouse Gas Mitigation Action in the Global Dairy Sector September 2023

Abstract

The GHG Protocol is finalizing its Land Sector & Removals Guidance (LSRG) and considering chain of custody models and traceability requirements for carbon reduction/removal accounting and reporting. Finalized guidance requiring physical traceability to the individual land management unit (LMU) level would impose significant barriers to climate change mitigation activities and result in negative economic consequences for commodity agriculture, including the global dairy sector. LMU traceability for accounting of GHG interventions and improvements along dairy value chains would encourage increasingly segregated supply chains, effectively working against the dairy sector's robust sustainability management agenda by hampering the ability to operate with efficiencies of scale.

Develop a 'built-on-GHG-P' dairy sector Mass Balance Chain of Custody guideline, with sufficient safeguards to protect the valuation of reductions through the value chain avoiding unnecessary bureaucracy.

References and footnotes 25



Animal Nutrition Pillar of work



- **1.Optimizing Dairy Farming Systems**
- **2.Improving Nutrition Systems**
- 3. Improving Innovation Adoption
- 4. Building a Database of GHG Mitigation

Innovations









Progress in emerging dairy economies

Potential Early Adopters

Region	Early Adopters	Status	
Africa	<mark>Tanzania</mark>	Agreed	
	<mark>Kenya</mark>	Agreed	
	<mark>Rwanda</mark>	Agreed	
	<mark>Uganda</mark>	Agreed	
Americas	Uruguay	Agreed	
	Costa Rica	Agreed	
	Colombia	Agreed	
Asia	<mark>Pakistan</mark>	Agreed	
	<mark>Vietnam</mark>	Agreed	
	India	In discussion	
Dairy GHG %	~31%		







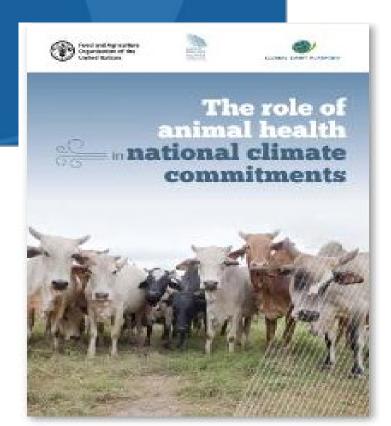




<u>Little Steps – Large Impact</u>



The IDF global Carbon Footprint standard for the dairy sector





Briefing note

What does Modeling with GWP* mean for the global cattle sector?

Introduction and Summary

The cettle sector (dairy, best and buffalls) produces milk and meet that provide high quality nutrition to a growing global population. As in the case with all application electron, greenhouse gas (\$100) embolisms are embled during the production process. For cettle, the majority of these emissions are in the torn of methanic Methodologies that accountally assess the seeming the impressing impacts of GHOs are ordical for informing the sector's indigation pathwess.

Introducing research was recently completed by 8C0 teasurch (Spain) to better understand GWP*, a relatively two metric developed by the University of Outred (UN), include University (UN) and a number of global expents to measure the warmship aguilations are resource of methans.

The discounsed auminishes recently embedded modeling research to better understand GMPP. The modeling confirmed produces shallow that found GMPP provides a more securities existence of the global warming impact of methern than dose GMPs, as GMPP closely shows that not zone semining from settles can be underwised by 2000 algorine a 2000 beautings by 0.7% consistentify reducing global cettle methers embessions by 0.7% annually (PM over the particl 5000 0008), GMPP has proven to be an excellent planning and forecasting model for identifying appropriate methods may be not associately and enhancement to GMP my when associating integration pathways for mothodic. However, there are limits to its applicability and any potential use as a benchmarking on target cetting internument at any level loss of them a global perspective is not appropriate, which is explanated laws.

Bedayane that has belong a trible? man be be referred?

C-sequ
Life cycle assessment
guidelines for calculating
carbon sequestration in cattle
production systems

PLOS ONE

€ OPENACCESS € PEER-REVIEWED

RESEARCH ARTICLE

Retrospective and projected warming-equivalent emissions from global livestock and cattle calculated with an alternative climate metric denoted GWP*

Agustin del Prado B. Brian Lindsay, Juan Tricarico

Published: October 2, 2023 * https://doi.org/10.1371/journal.pone.0288341

Article	Authors	Metrics	Comments	Media Coverage	Peer Review
u .					

Abstract

Materials and methods

Results and discussion

Conclusions

Introduction

Supporting information

Acknowledgments

References

Reader Comments Figures

Abstract Limiting warming

Limiting warming by the end of the century to 1.5°C compared to pre-Industrial times requires reaching and sustaining net zero global carbon dioxide (CO₂) emissions and declining radiative forcing from non-CO₂ greenhouse gas (GHG) sources such as methane (CH₄). This implies eliminating CO₂ emissions or balancing them with removals while milipating CH₄ emissions to reduce their radiative forcing over time. The global cattle sector (including Buffalo) mainly emits CH₄ and N₂O and will benefit from understanding the extent and speed of CH₄ reductions necessary to align its mitigation ambitions with global temperature goals. This study explores the utility of an alternative usage of global warming potentials (GWP²) in combination with the Transient Climate Response to cumulative carbon Emissions (TCRE) to compare retrospective and projected climate impacts of global livestock emissions (TCRE) to compare retrospective and projected climate impacts of global investock emissions from 1750 to 2019 using existing emissions datasets and projected their contributions to future warming under three historical and three future emission secaratios. These historical projected crimates were







- New Technologies coming to the market (additives)
- Initial criteria before consideration by any organization
- Science
- Data quality
- Conservative reporting

- Science based
- 6-week public consultation
- Documented responses
- ? Discounting factor x% of cases we are confident in this outcome
- Science only informs the statistical approach to be applied
- Balance robustness Application

Project collaborators













Partner organization



References and footnotes

The Power of Dairy!









