GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

GASL Action Network Coordinators

Presentations on Innovation Highlights from GASL Action Networks

9th GASL Multistakeholder Partnership Meeting
Manhattan, Kansas, 10 Sept. 2019

BUILDING TOGETHER SUSTAINABLE LIVESTOCK
for people, for the planet

GASL Action Networks

- Closing the Efficiency Gap
- Restoring Value to Grasslands
- Livestock Environmental Assessment and Performance Partnership (LEAP)
- Global Network on Silvopastoral Systems
- Dairy Asia
- Livestock Antimicrobial Partnership (LAMP)
- Livestock for Social Development
- Animal Welfare (AWAN)

CLOSING THE EFFICIENCY GAP

Ernesto Reyes
Livestock Manager International Institutions, Agribenchmark

GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

AN Closing the Efficiency Gap

Ernesto Reyes

Assessing “Practice Change” at the Farm Level

Methodological approach – tools and models

GASL MSP meeting
Manhattan, Kansas USA, September 09/2019

BUILDING TOGETHER SUSTAINABLE LIVESTOCK
for people, for the planet

ACTION PLAN PROPOSED 2019-21

Dialogue facilitation	Providing evidence	Support practice and policy change
Portfolio of Sustainable Livestock Production Systems (SLPS) By region/By sector		Calculating potential change of reducing climate change
		Restoring degraded soils
Methodological approach for assessing SLPS	Models and tools for assessing Sustainable Livestock Options	Reduce deforestation
		GHGs mitigation

Measuring efficiency at the FARM LEVEL

How to measure adoption?

How to measure practice change?

How to measure transitions?

How to measure baselines and sustainable livestock scenarios?

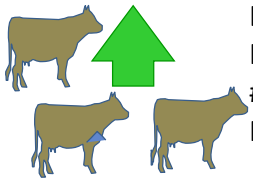
FORAGE PRODUCTION

Ton. dry matter/ha

700%

compared to baseline

ANIMAL PRODUCTIVITY



DWG
Fertility rate
animals/year
Milk/cow/year

compared to baseline

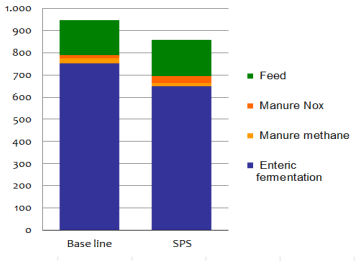
ANIMAL WELAFARE

Feeding
Housing
Health
Behaviour

compared to baseline

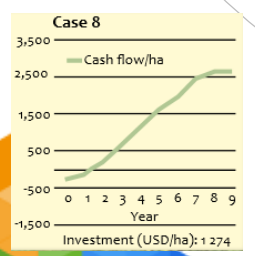
CO_2 - EMISSIONS

Kg CO_2 / 100 kg meat/milk added



ECONOMIC RESULTS

Profit (USD/ha/year)



LAND PRODUCTIVITY

Kg. meat/ha
Kg. milk/ha

450%

compared to baseline

WATER EFFICIENCY

Water use/kg meat/milk

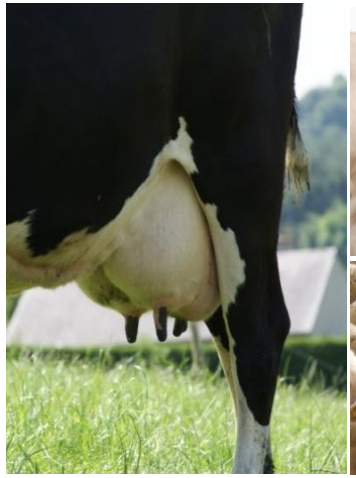
THÜNEN

Institute of Farm Economics, Germany

agri benchmark

Tools, standardised methodologies regional and local approaches, and models, are being developed and implemented by

Dairy Network	Beef & Sheep Network	Crops NWT Cereals, oilseeeds, sugar	Organic Production	Pigs	Horticulture Apples, grapes	Fish Network



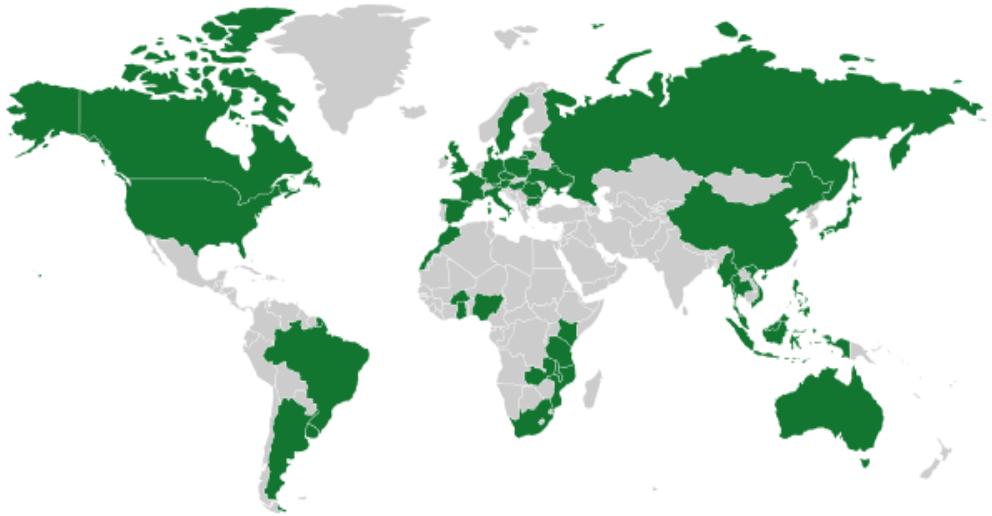




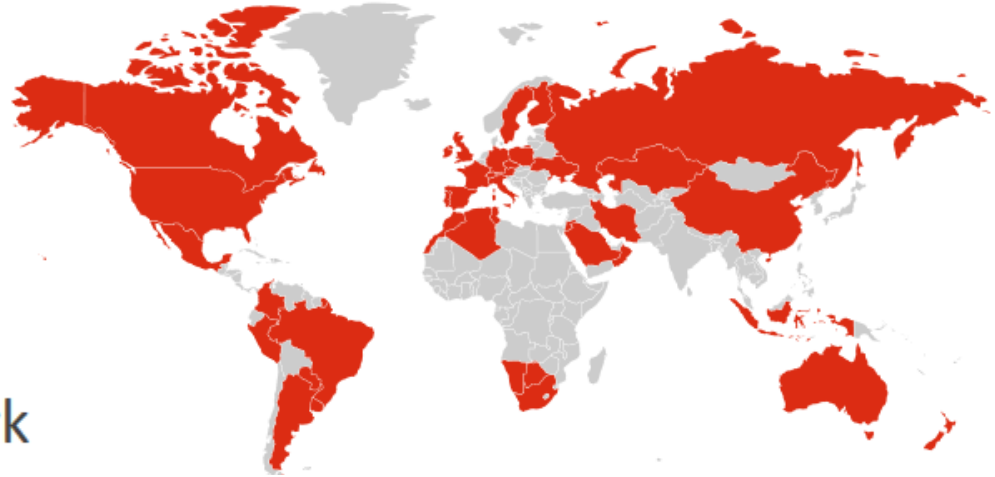

Production systems economics and international comparison are the core competences

agri benchmark

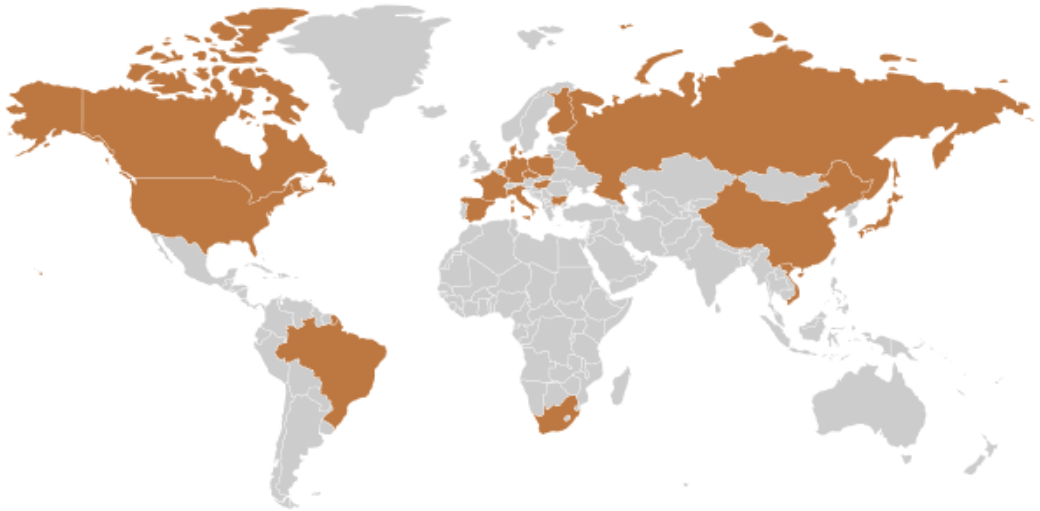
The Cash Crop Network



The Beef and Sheep Network



The Pig Network



This work has been carried out by several organizations

with the need to measure practice change

and to model sustainable livestock options and its adoption process

agri benchmark typical farm approach

The method

1

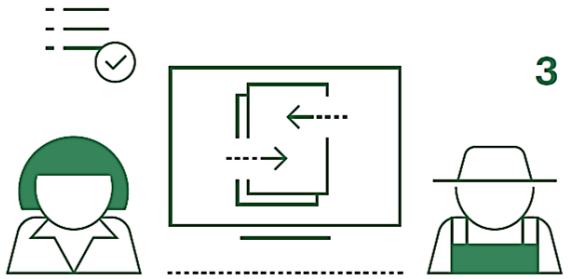
Identification

LOCAL SCIENTISTS

2

Data collection

LOCAL SCIENTISTS, ADVISERS, FARMERS



3

Processing and cross-checking

LOCAL SCIENTISTS

4

Validate and publish results to partners and clients

LOCAL SCIENTISTS, SCIENTISTS AT AGRI BENCHMARK CENTER

agri benchmark method: Data collection

Panel groups

- Collect full set of economic and physical farm data
  - either in focus group (consensus agreement for each figure)
  - or from individual farm which will be typified (particularities exchanged by prevailing / typical / common practice)
- Model typical farm
- Use regional expertise of advisors as a substitute for statistics not available

The model

Whole-farm

Natural conditions
- *Soil type*
- *Climate*

Fully specialised

Combination with other enterprises
- Crop
- Beef fattening
- Cow calf
- Pig production
- *Other*

Land area

Labour organisation
- Mainly family labour
- Mainly paid labour
- Extent contractors used

Capital input
- *Old or new buildings*
- *Type of buildings*
- Own machines/contractor
- Loan level

Cow-calf

Breeds

Own replacement

Stocking rate

Weaning weights

Weaned calves per cow / year

Extent purchase of feed

Feed base
- Pasture
- *Silage and hay from grass*
- *Other silage and hay*
- *Grains and others*

Destination of the weaners
- Slaughter
- *Finishing*
- *Breeding*
- *Live export*

Beef finishing

Breeds

Origin of animals
- *Dairy*
- *Cow calf*

Category
- *Bulls, Steers*
- *Cows, heifers, calves*

Stocking rate

Final weights

Daily weight gain

Extent purchase of feed

Feed base
- *Pasture*
- *Silage and hay from grass*
- *Other silage and hay*
- *Grains and others*

Sale of beef
- *Domestic/Export*
- *Direct sale to consumer*

Dairy

Breeds

Own replacement

Stocking rate

Milk yield

Extent purchase of feed

Feed base
- *Pasture*
- *Silage and hay from grass*
- *Other silage and hay*
- *Grains and others*

Sale of milk
- *Domestic/Export*
- *Direct sale to consumer*

Crop and Forage

Land use
- *Cereals*
- *Feed grains*
- *Oilseeds*
- *Protein plants*
- *Potatoes and sugar beet*
- *Permanent crops*
- *Industrial plants*

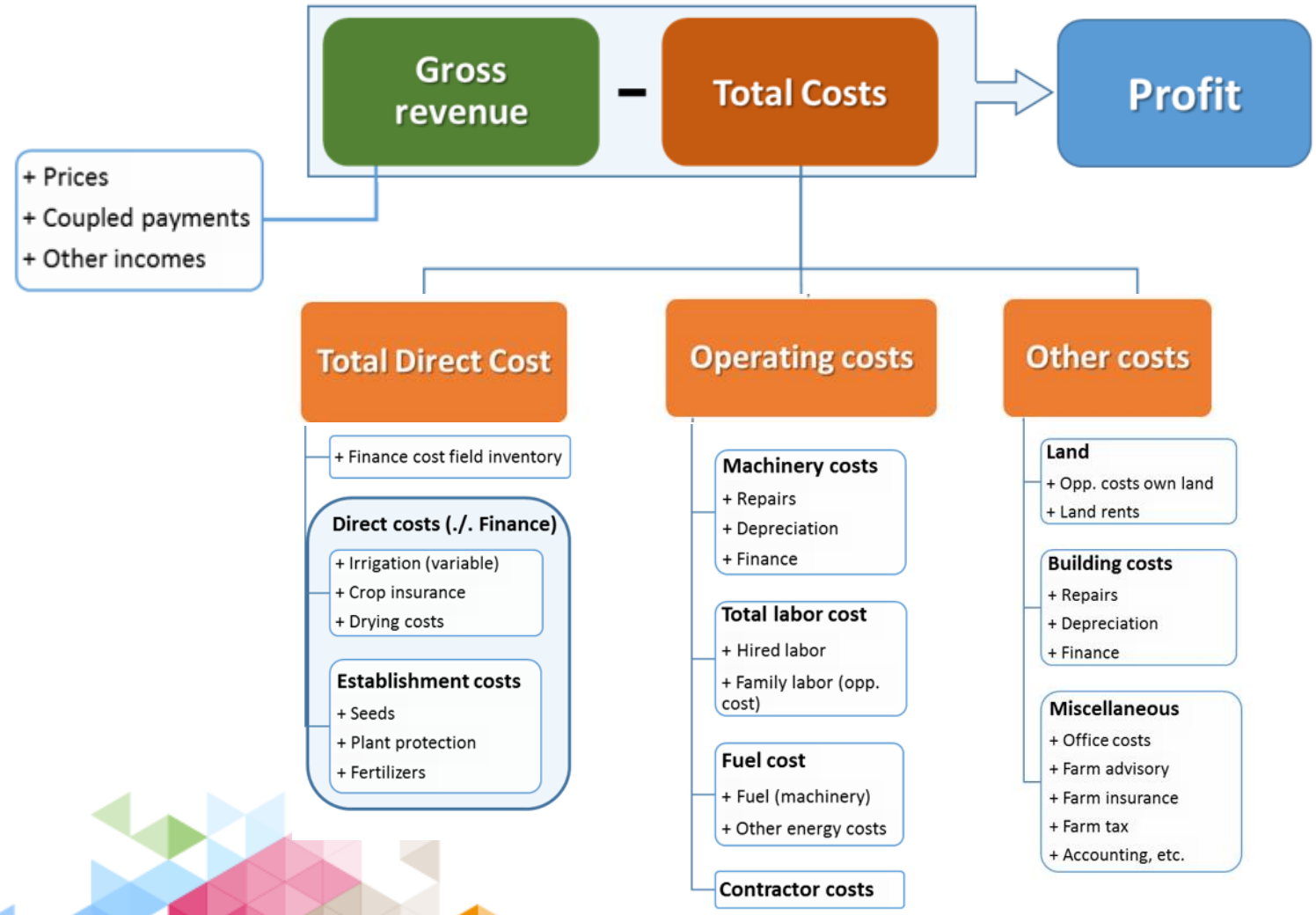
Intensity of inputs
- *High intensity*
- *Low intensity*
- *GMO*

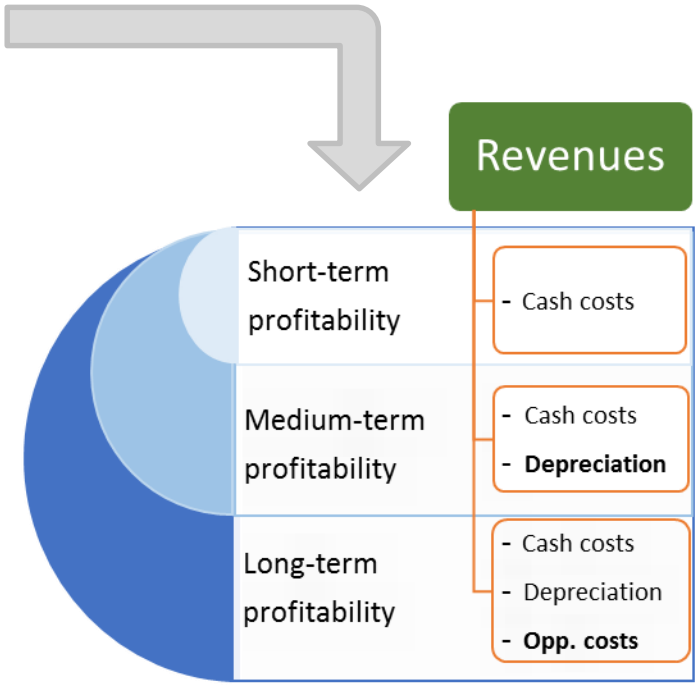
Tillage systems
- *No till*
- *Minimum till*
- *Ploughing*

Yields

Sale of crops
- *Domestic/Export*
- *Sold at harvest or storage*
- *Direct sale to consumer*

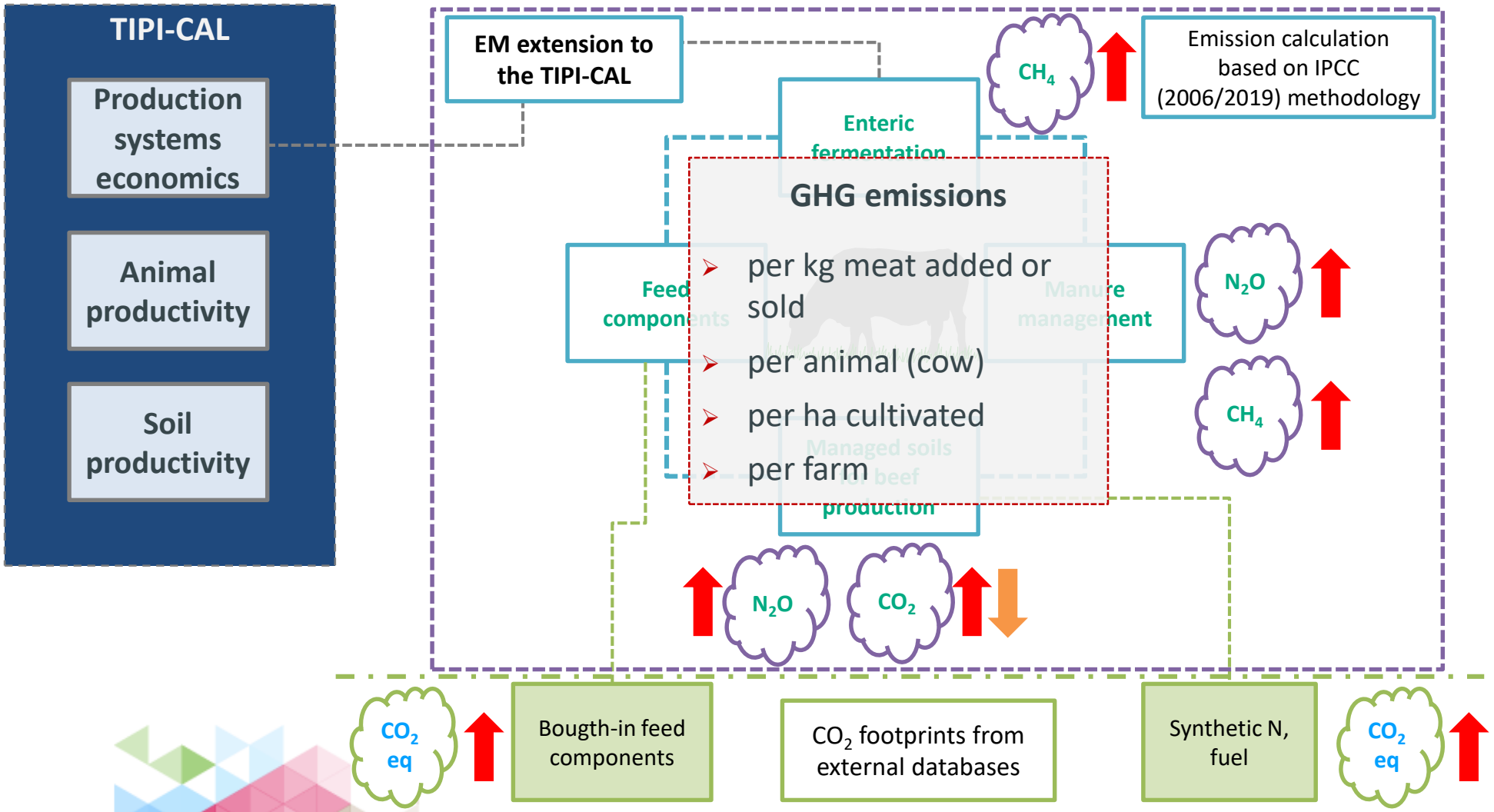
The model


Gross revenue
–
Total Costs
Profit
+ Prices
+ Coupled payments
+ Other incomes
Total Direct Cost
+ Finance cost field inventory
Direct costs (./. Finance)
+ Irrigation (variable)
+ Crop insurance
+ Drying costs
Establishment costs
+ Seeds
+ Plant protection
+ Fertilizers
Operating costs
Machinery costs
+ Repairs
+ Depreciation
+ Finance
Total labor cost
+ Hired labor
+ Family labor (opp. cost)
Fuel cost
+ Fuel (machinery)
+ Other energy costs
Contractor costs
Other costs
Land
+ Opp. costs own land
+ Land rents
Building costs
+ Repairs
+ Depreciation
+ Finance
Miscellaneous
+ Office costs
+ Farm advisory
+ Farm insurance
+ Farm tax
+ Accounting, etc.


Revenues
Short-term profitability
- Cash costs
Medium-term profitability
- Cash costs
- Depreciation
Long-term profitability
- Cash costs
- Depreciation
- Opp. costs

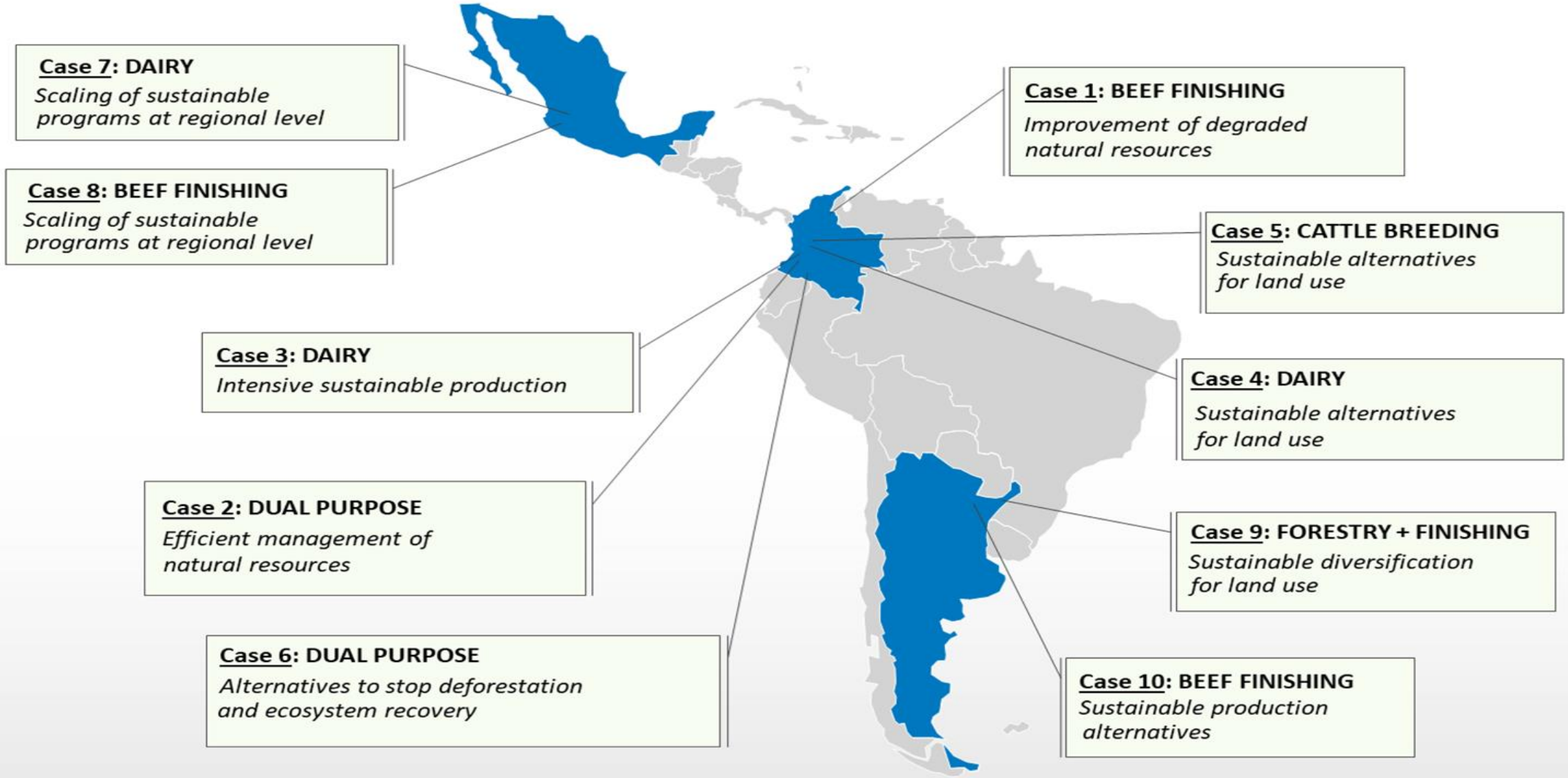
Tools and models for assessing SLOs
AGRIBENCHMARK MODEL

Farm level emissions and production system economics within one tool



10 Silvopastoral case studies

In association with Global Network of SPS



Projects	1. Identifying sustainable cattle ranching options	2. Land use climate smart planning	3. Mitigation scenarios of GHGs
Partnership	GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK; WORLD ANIMAL PROTECTION; CIPAV	WWF	FAO FIAT PANIS
Main topic	NRUE and SPS	Land use and cattle ranching, NRUE	NRUE
	agri benchmark	agri benchmark	agri benchmark
Issues addressed	NRUE, land use, conservation, mitigation GHGs, deforestation, animal welfare	Best practices for NRUE, bio-diversity, land competition	GHG emissions and mitigation potential
Locations	Colombia, Mexico, Argentina	Paraguay and Colombia	Argentina, Morocco and Colombia
agri benchmark's role	Modelling the adoption of SPS	Modelling land use (baseline and improved scenarios)	Identifying alternative practices (comparing baseline - alternative scenarios)

Ernesto Reyes

Assessing “Practice Change” at the Farm Level

Methodological approach – tools and models

Thanks

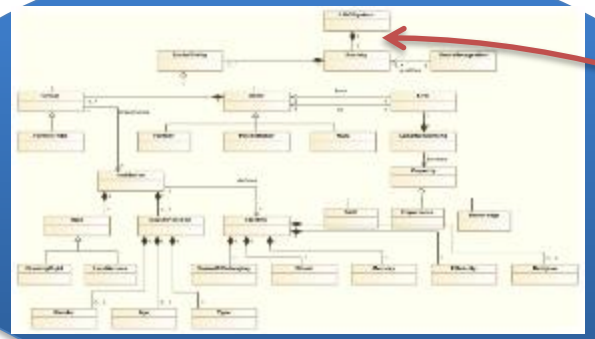
RESTORING VALUE TO GRASSLANDS

Liz Wedderburn

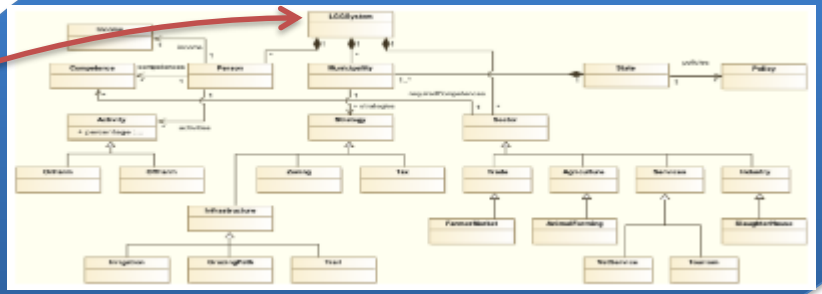
Assistant Research Director, AgResearch, New Zealand

4 Dimensions and associated indicators and relationships

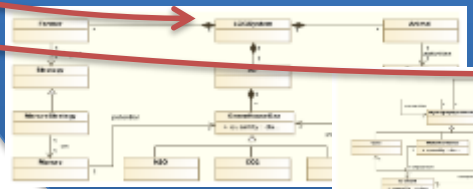
Social

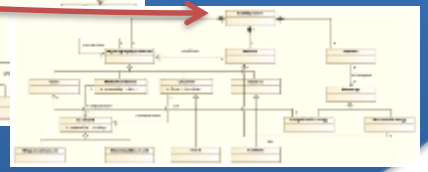


Local development



Production





Environment

Constructive conversations leading to action

- To guide policy
- A common framework to enable comparative analysis
- To identify shared solutions
- To assess impact of policy, climate change, consumer preferences
- To educate
- Lead to more integrative knowledge and consistency of the whole system

Innovation Highlights from GASL Action Networks

LIVESTOCK ENVIRONMENTAL ASSESMENT AND PERFORMANCE PARTNERSHIP (LEAP)

Caroline Emond

Chair of LEAP 2019

#LivestockAgenda

Caroline Emond

leap

LIVESTOCK ENVIRONMENTAL ASSESSMENT AND PERFORMANCE PARTNERSHIP

The **FAO LEAP Partnership** is a multi-stakeholder initiative convened by FAO currently composed of 356 partners:

Steering Committee

Governments (21 countries, 1 associate member)
Private sector (IFIF, IDF, IMS, IEC, IPC, WFO, ICT, IWTO)
CSOs/NGOs (WAMIP, WWF, IUCN, IPCFS, World Vision)

Secretariat

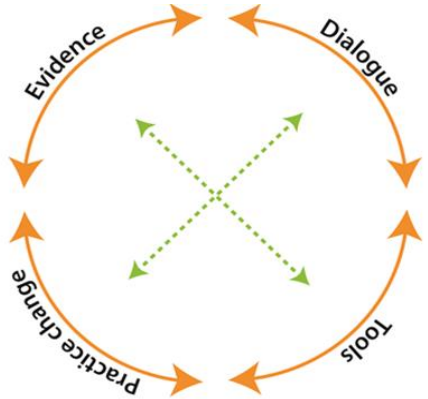
Technical Advisory Groups (11): 290 technical experts

Additional 30 participants:

- International Organizations, national agencies, NGOs/CSOs, private sector organizations

FAO LEAP is an associate action network of GASL

FAO LEAP builds consensus on comprehensive guidance and methodology to assess the environmental footprint of feed and livestock production



Food and Agriculture Organization of the United Nations

KORONIVIA JOINT WORK ON AGRICULTURE

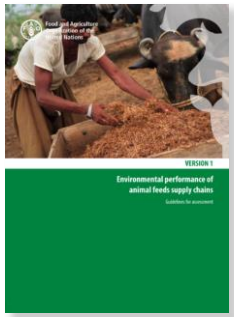
LEAP

SUSTAINABLE DEVELOPMENT GOALS

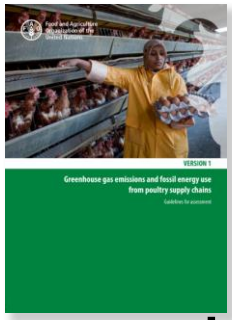
2019 **2030**

LEAP Achievements Phase 1&2 (2012-2018)

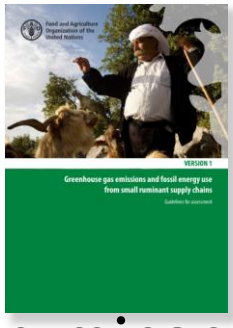
Feed



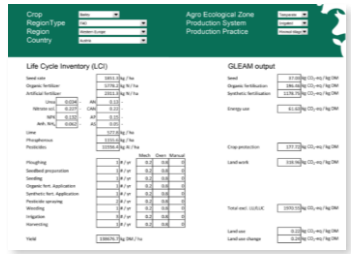
Poultry



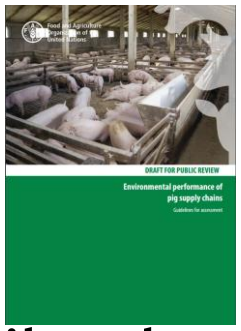
Small Ruminants



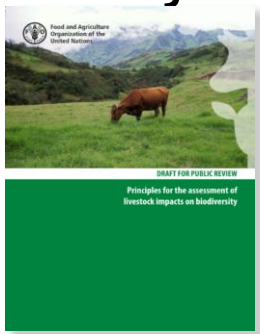
Feed Crops Database



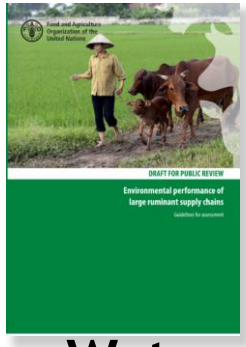
Pigs



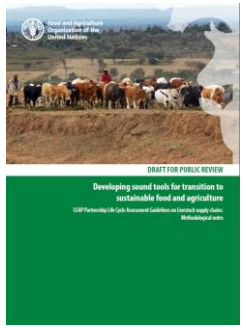
Biodiversity



Large ruminants

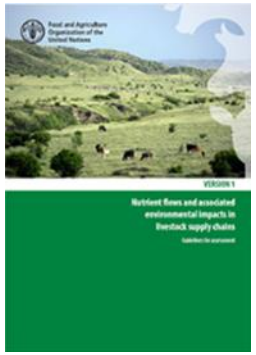


Methodological notes

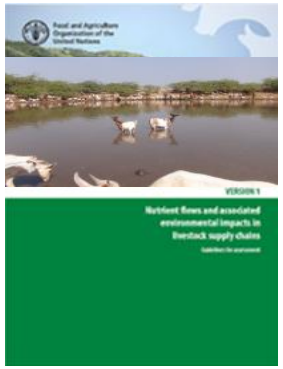


Soil carbon

Nutrients cycle



Water



Feed Additives (in review)

Biodiversity (in review)

LEAP3 (2019-2021) Guidelines Road testing

consistency check

national

projects

local + sectoral scale

FAO LEAP Plenary Meeting - 21 October 2019, FAO, Rome, Italy

Towards carbon neutral livestock systems in the context of the SDGs

GLOBAL NETWORK ON SILVOPASTORAL SYSTEMS

Julian Chara
Research Coordinator, CIPAV

Global Network
on Silvopastoral Systems

GLOBAL NETWORK ON SILVOPASTORAL SYSTEMS

Silvopastoral Systems

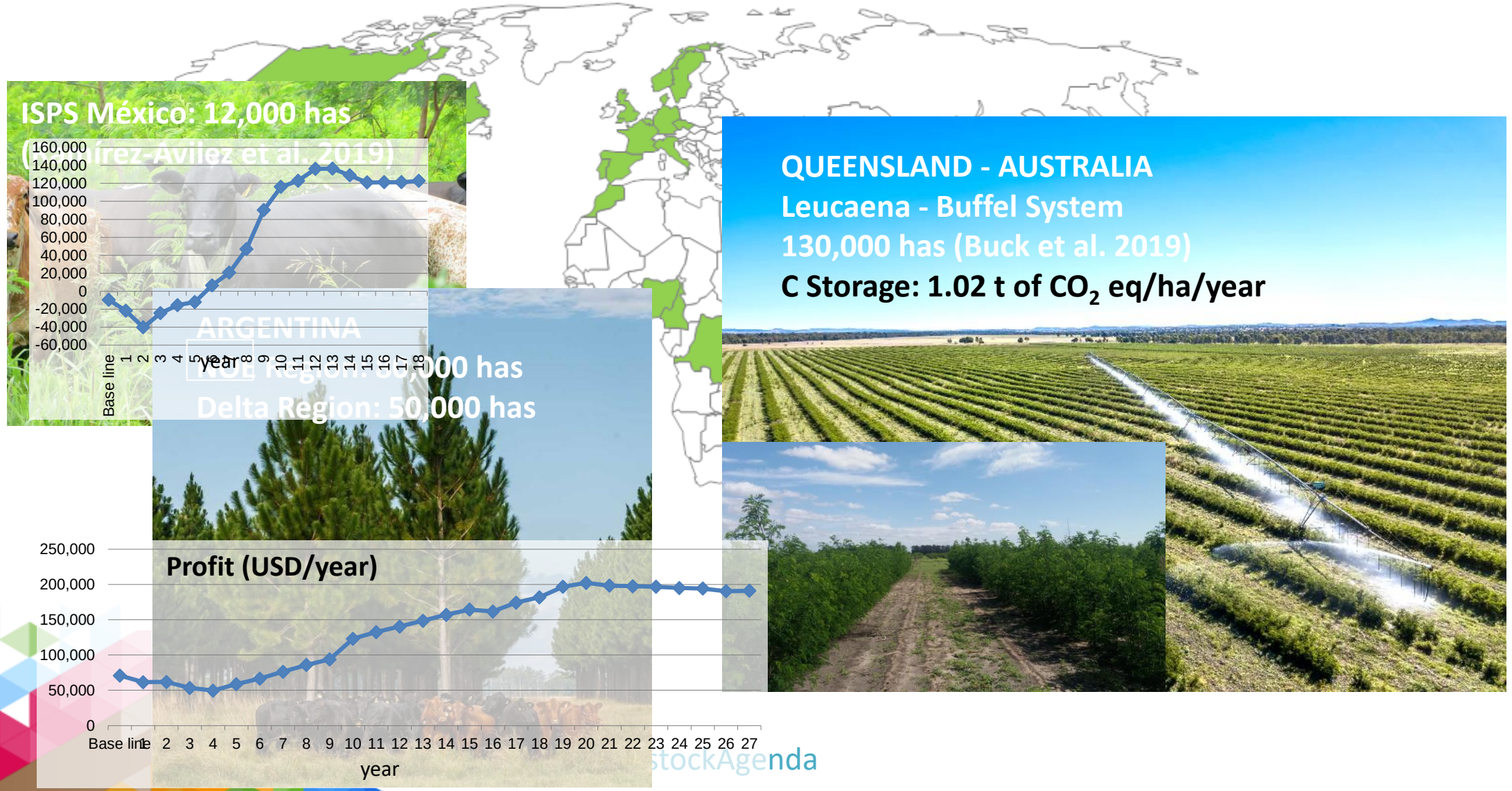
- Arrangements that purposely combine fodder plants, such as grasses and leguminous herbs, with shrubs and trees for animal nutrition and complementary uses (Murgueitio et al. 2011)

Intentional integration of trees and pasture and livestock where interactions are intensively managed (the four "I"s) (Jose 2017)

Global Network on Silvopastoral Systems

#LivestockAgenda

GLOBAL NETWORK ON SILVOPASTORAL SYSTEMS



GLOBAL NETWORK ON SILVOPASTORAL SYSTEMS

1. Facilitate the exchange of information

- International Leucaena Conference. Australia
- Book “Silvopastoral systems of Central and Northern South America
- International Congress on Silvopastoral Systems. Paraguay
- Farmer to Farmer exchange Australia - Colombia - Paraguay

2. Provide Evidence

- Developing silvopastoral case studies in Brazil
- Training on economic and sustainability analyses of SPS

2. Contribution to Public Policy

- Contribution to the development of NAMAs
- Dissemination of lessons learnt from successful interventions

Global Network on Silvopastoral Systems

GLOBAL NETWORK ON SILVOPASTORAL SYSTEMS

1. Facilitate the exchange of information

- Two Special Issues of the International Leucaena Conference
  - http://tropicalgrasslands.info/index.php/tgft/issue/view/29
  - http://tropicalgrasslands.info/index.php/tgft/issue/view/31
- Book: Silvopastoral systems of Central and Northern South America. Project under development with Springer.

  Expected in 2020.

Tropical Grasslands -Forrajes Tropicales Online Journal

Springer science+business media

DAIRY ASIA

Brian Lindsay
Steering Committee Member

Dairy Asia

Asian Milk for Health and Prosperity

Experiences on country level presented by:

Mr. Brian Lindsay – Steering Committee Member

Event: 9th GASL MSP Meeting at Kansas State University in Manhattan, Kansas, 9 - 13 September 2019

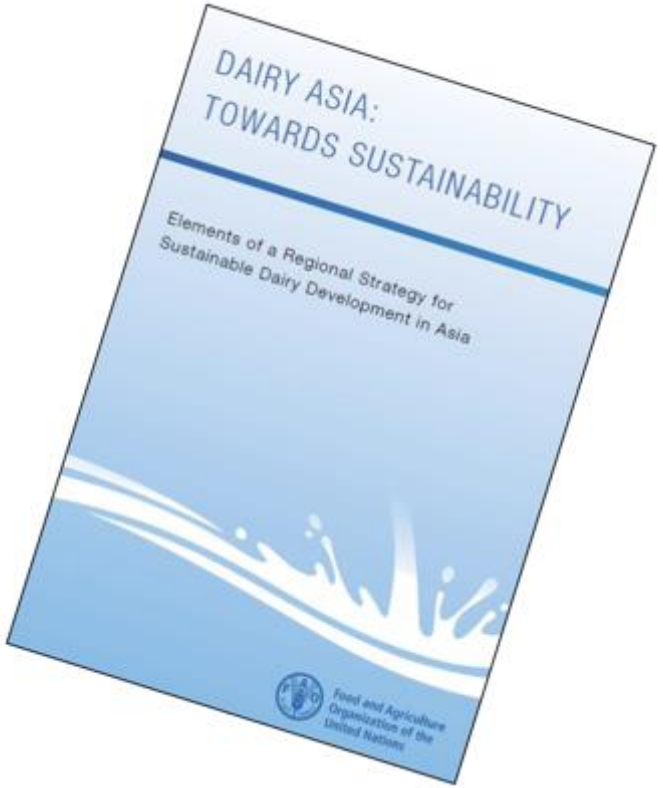
Dairy Asia for health and prosperity

Food and Agriculture Organization of the United Nations

Global Agenda for Sustainable Livestock

Dairy Sector in Asia – Dairy Asia partnership

- Dairy Asia Partnership was founded in 2014 by initiation of FAO, UN
- Voluntary multi-stakeholder partnership of 13 countries committed to building a sustainable dairy sector in Asia and the Pacific region
- Our vision: ***A socially and environmentally responsible Asian Dairy Sector that enhances rural livelihoods, improves nutrition, and contributes to economic prosperity.***



Dairy Sector in Asia – Secretariat now back up and running!

- New Secretariat now in place
- Platform taking a more ‘virtual’ approach to sharing and learning

- One recurring key challenge for Dairy Asia is regional ownership & financial sustainability
- In June 2019, A proposal was received from a member country to host and financially support a Dairy Asia office.

Dairy Asia
for health and prosperity

Country Priorities

Strategic Objective	Afgha-nistan	Bangla-desh	Bhutan	China	India	Indo-nesia	Mongo-lia	Myan-mar	Nepal	Philip-pines	Sri Lanka	Thai-land	Viet-nam
1. Improving milk productivity and farm profitability	1	1	1		1	1	1	1	2	1	1	1	
2. Integrate small-scale producers in the modern value	2		2		2	2	3	2	1	2	2	2	
3. Protect and enhance human health		2		1	3		2	3			3	3	
4. Enhance resilience and adaptability of dairy systems							3						
5. Protect and restore terrestrial ecosystems				2									
6. Combat climate change		3	3										
7. Enhance levels of education	3			3		3	2		3	3			
8. Promote gender equality													
9. Improve access to clean affordable energy													
10. Building national, regional and global platforms													

1. Dairy Sector in Asia – Dairy Asia Sustainability Awards – Winner

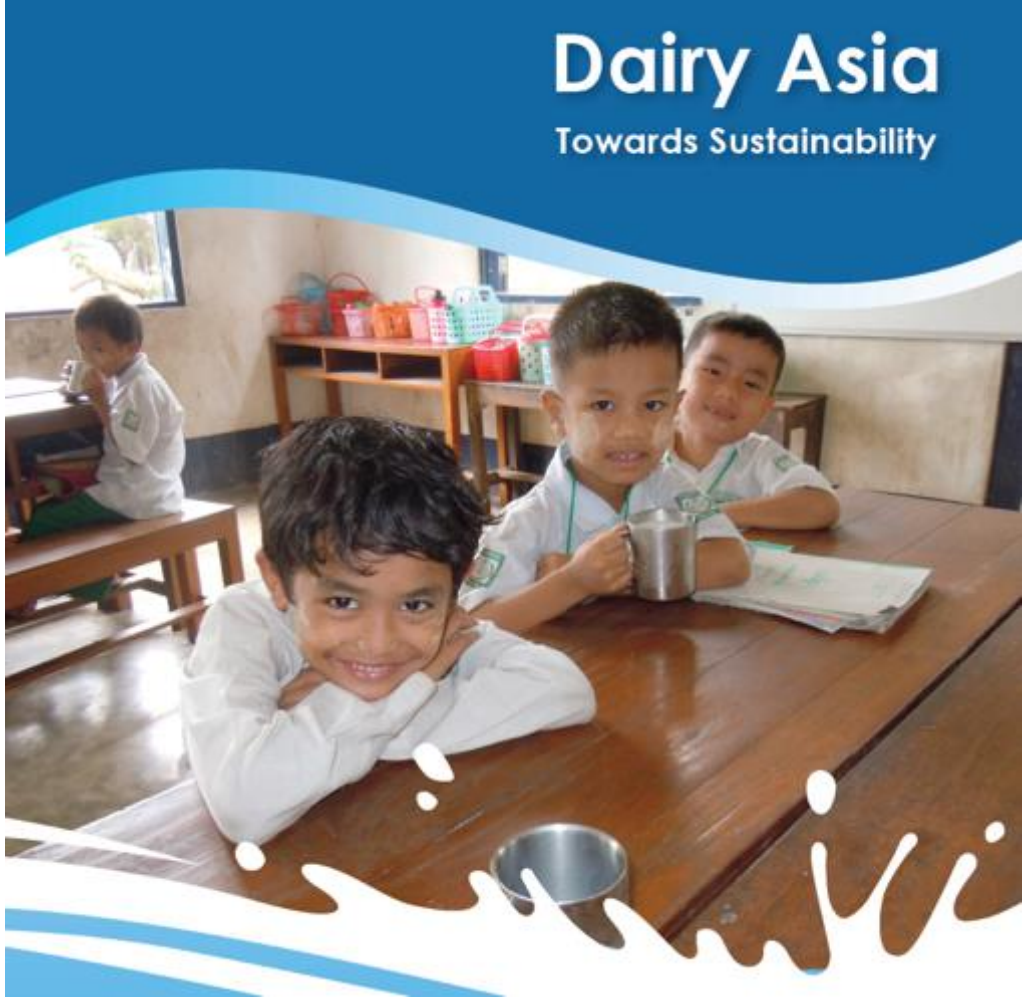
- 2/3's animals fed in excess of requirements
- Similar number deficient in essential minerals
- Ration Planning – Local feeds
- Training for locals to deliver advice (approx 6k are women)
- Animals tagged to monitor progress

- 2.4 million animals
- 30,000 villages
- 1.8 million farmers – 26% are women

Outcomes:

- Net daily income of farmers increased by INR 25/animal/day (annual INR - 7625.00)
- Increased milk production – more milk for families
- Reduced feeding costs!
- Decrease in GHG emissions 12-15%
- Social status of LRP's increased substantially to INR 1500-3000

Thank you



Further questions? Contact us!
Contact: www.dairyasia.org
Email: asia-dairy-network@fao.org

Dairy Asia
for health and prosperity

Food and Agriculture Organization of the United Nations

Global Agenda for Sustainable Livestock

LIVESTOCK ANTIMICROBIAL PARTNERSHIP (LAMP)

Ulf Magnusson

Professor, Swedish University of Agricultural Sciences

#LivestockAgenda

GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

http://www.slu.se/LAMP

E-mail: Lamp@slu.se

Livestock Antimicrobial Partnership

Action network update September 10h
GASL MSP 2019 at KSU

BUILDING TOGETHER SUSTAINABLE LIVESTOCK
for people, for the planet

Innovation Highlights from GASL Action Networks

LIVESTOCK FOR SOCIAL DEVELOPMENT

Ernesto Reyes

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#LivestockAgenda

GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

Action Network
Livestock for Social Development

Ernesto Reyes

Dairy's impact on reducing global hungry

GASL MSP meeting/Kansas, September 9-12-19

BUILDING TOGETHER SUSTAINABLE LIVESTOCK
for people, for the planet

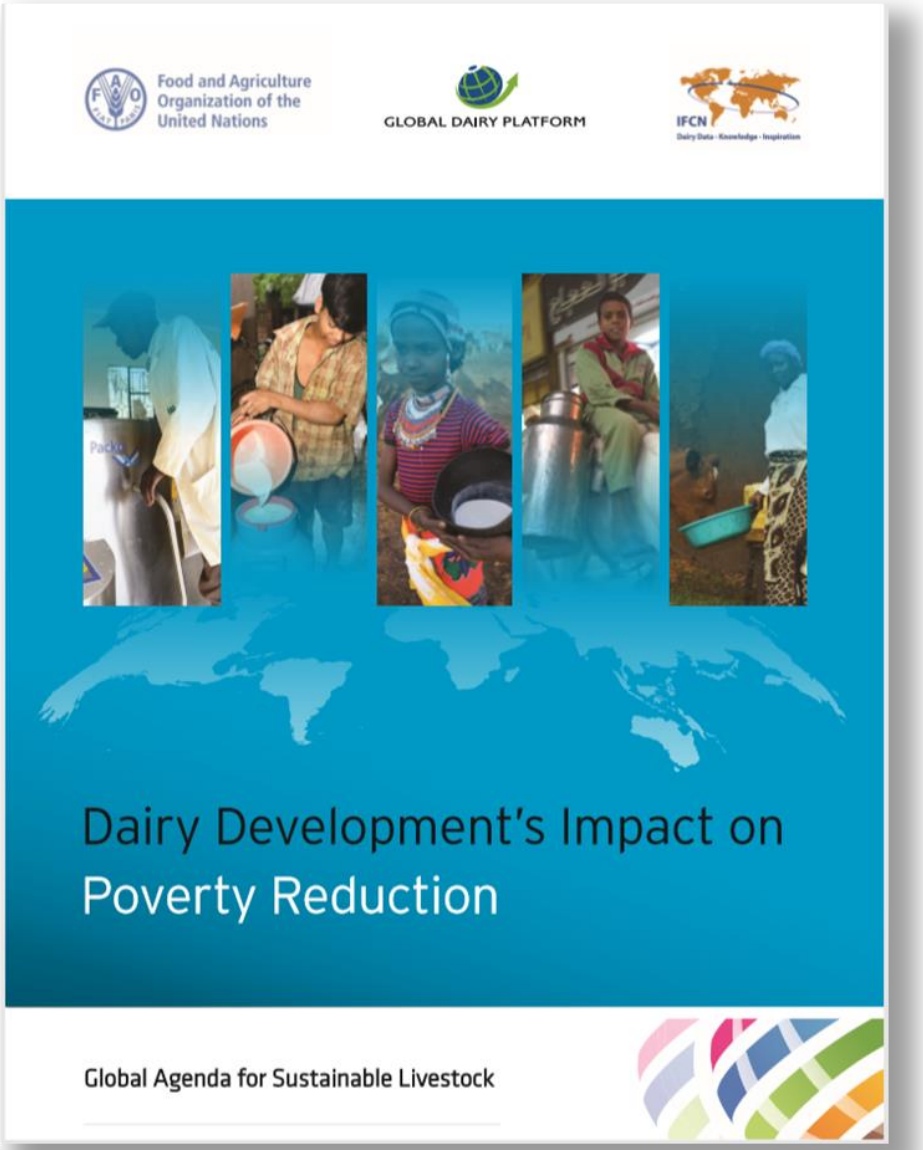
Two working areas

Evidence of the contribution of dairy to sustainable development

Supporting guidelines and tools for measuring **dairy impact**

Sustainable Development Goals

Impact on Poverty Reduction



Impact on Poverty Reduction

Dairy development makes a significant contribution to poverty reduction, both at **community** and **household** level

Impact on Poverty Reduction

household

Milk consumption and nutrition

Crops yield (food security)

On-farm employment generation

Dairy cow ownership and improvement of cow's production had a substantial positive **impact on household welfare**

community

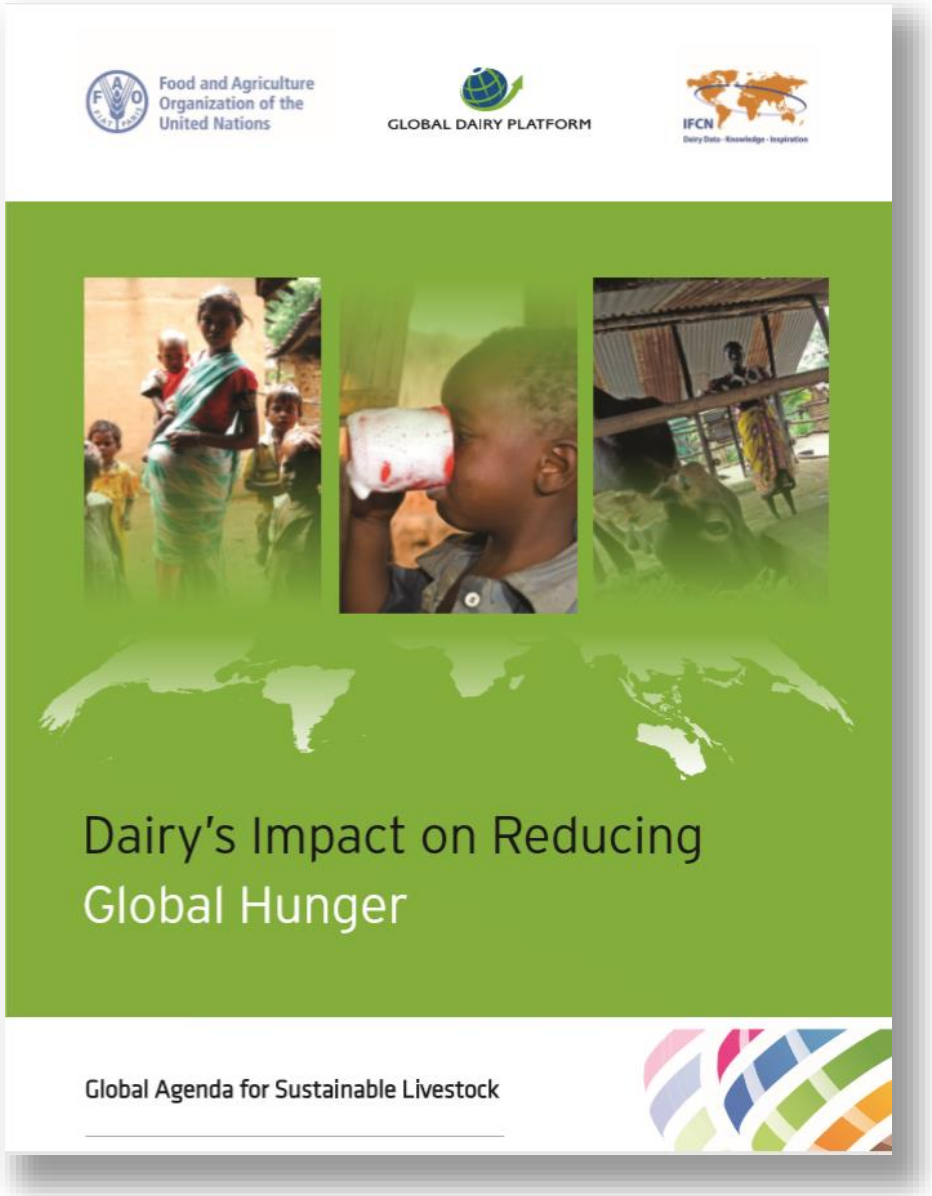
Milk collection and processing employments

Employments at processing sub-sector

Multiplier effect at industry level

Sustainable Development Goals

Sustainable Development Goals



Dairy's impact on reducing global hungry

Introduction

Review

Methods

Results

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Scope

Review

This study evaluates the evidence of a positive and causal relationship between

Ownership of dairy animals

Milk/dairy consumption

Child growth in Low and Middle Income Countries

Dairy's impact on reducing global hungry

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Defining relevant studies

Intervention trials
Observational studies

- Original works (excluding reviews)
- Published in a peer-reviewed journal
- Full papers in conference proceedings

- Carried out in Low and Middle Income Countries,
- Involved children in the age range 0–19 years,
- Reported anthropometric measurements
- Quantified dairy consumption
- Controlled for confounding by statistical techniques and/or by using a control group

Dairy's impact on reducing global hungry

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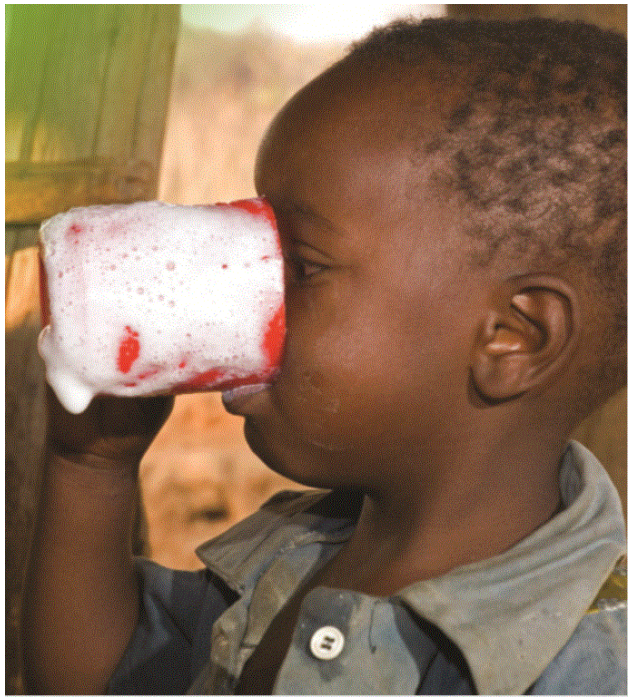
What is the Evidence telling us?

Results



Studies provides strong evidence that in rural low-income settings **household milk production increases Hh milk consumption,**

and that increased **milk consumption results in improved child linear growth** and reduced stunting.

Main topics

Dairy consumption and child growth

Intervention trials

Observational studies

Results

Cow ownership and child growth

Intervention trials

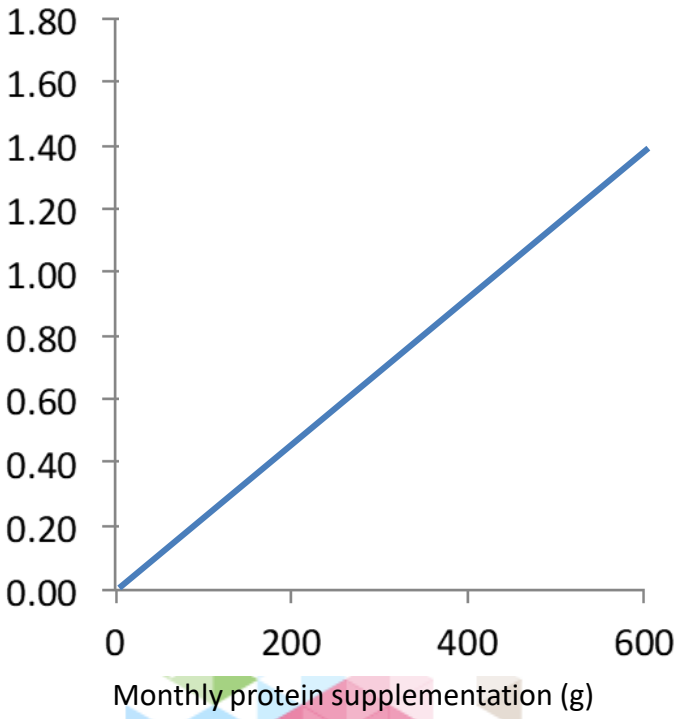
Observational studies

Dairy consumption and child growth

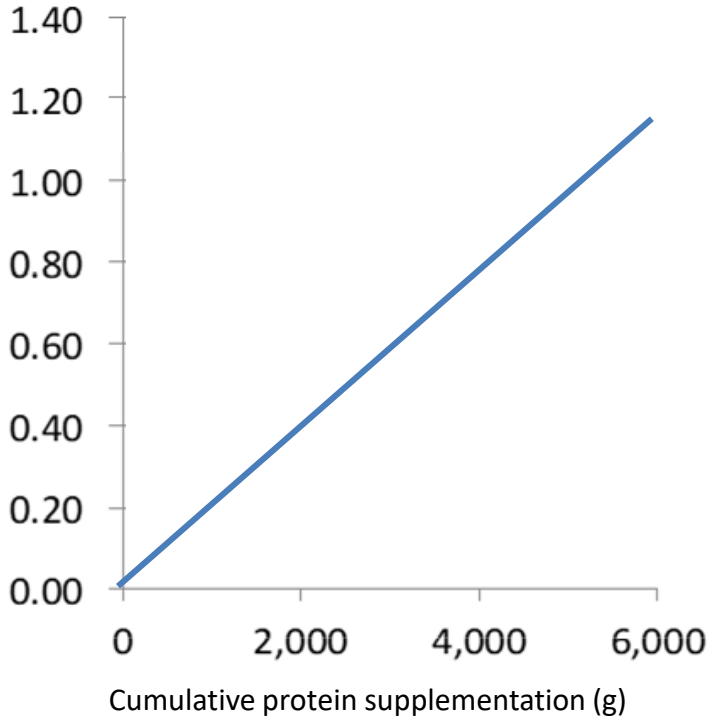
Intervention trials

HEIGHT GAIN

Monthly difference (mm)



Cumulative difference (cm)



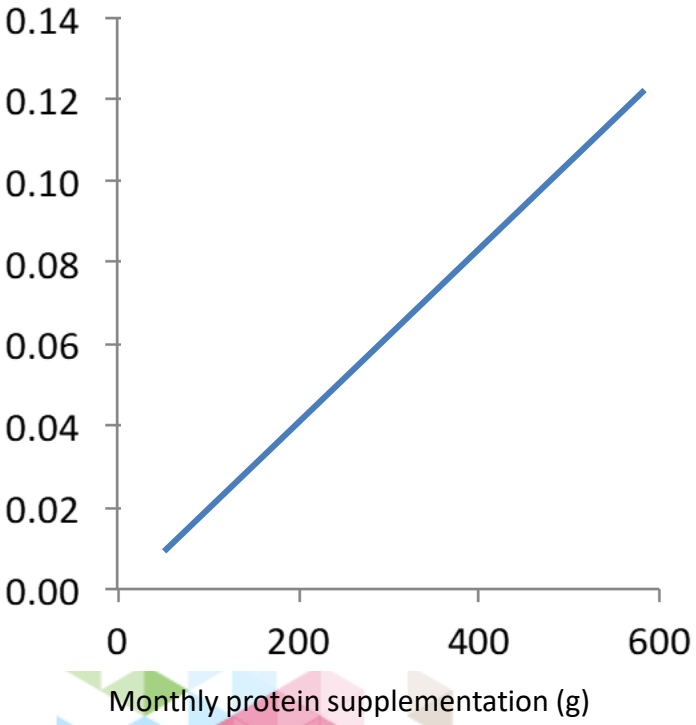
There is a positive association between dairy consumption and height gain (monthly and cumulative).

Dairy consumption and child growth

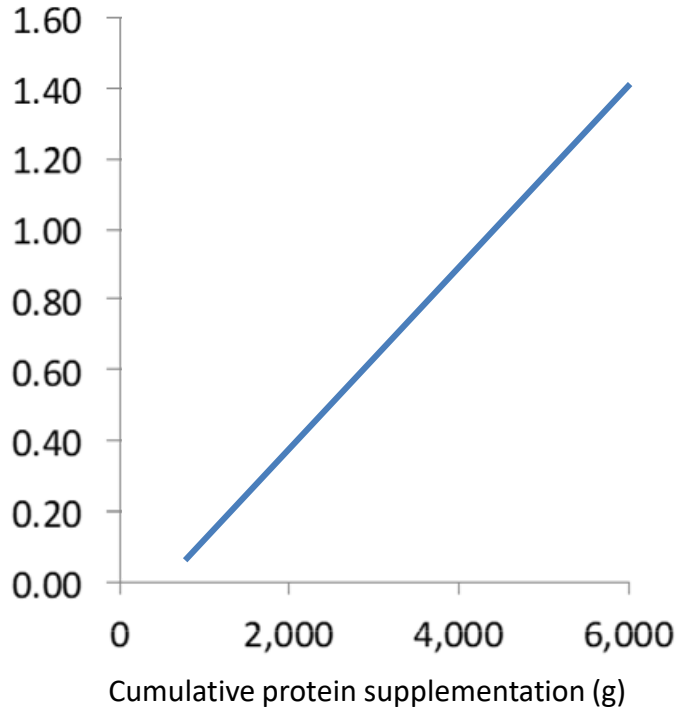
Intervention trials

WEIGHT GAIN

Monthly difference (kg)



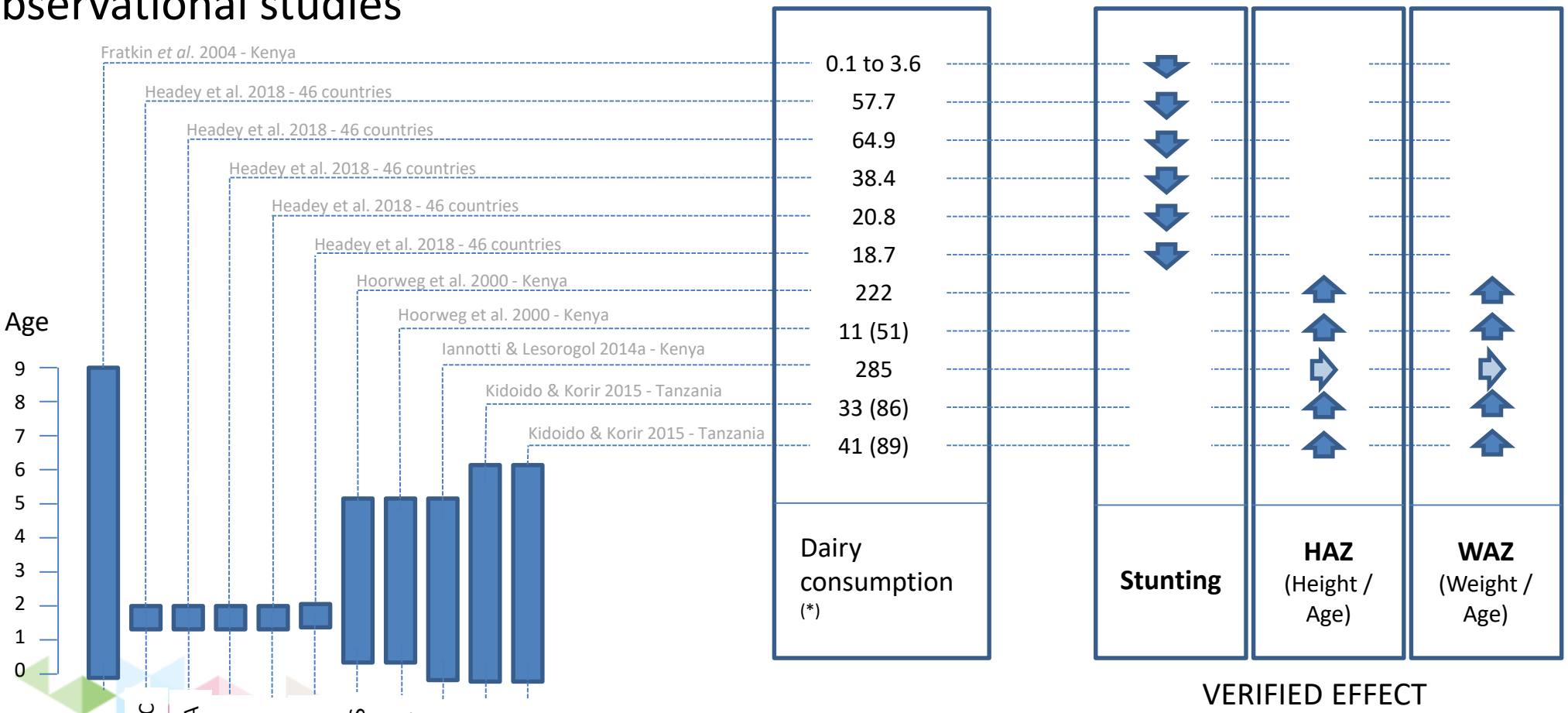
Cumulative difference in (kg)



There is a positive association between dairy consumption and weight gain (monthly and cumulative).

Dairy consumption and child growth

Observational studies



Abbreviations: LAC = Latin American and the Caribbean, NENA = Near East and North Africa, SC&E Asia = South, Central and East Asia, W&C Africa = West and Central Africa, E&S Africa = East and South Africa, HHs = households

Main topics

Dairy consumption and child growth

Intervention trials

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Intervention trials

Observational studies

Cow ownership and child growth

Intervention trials

Heifer International's dairy cow ownership program (Rwanda)

Rawlins *et al*. (2014)

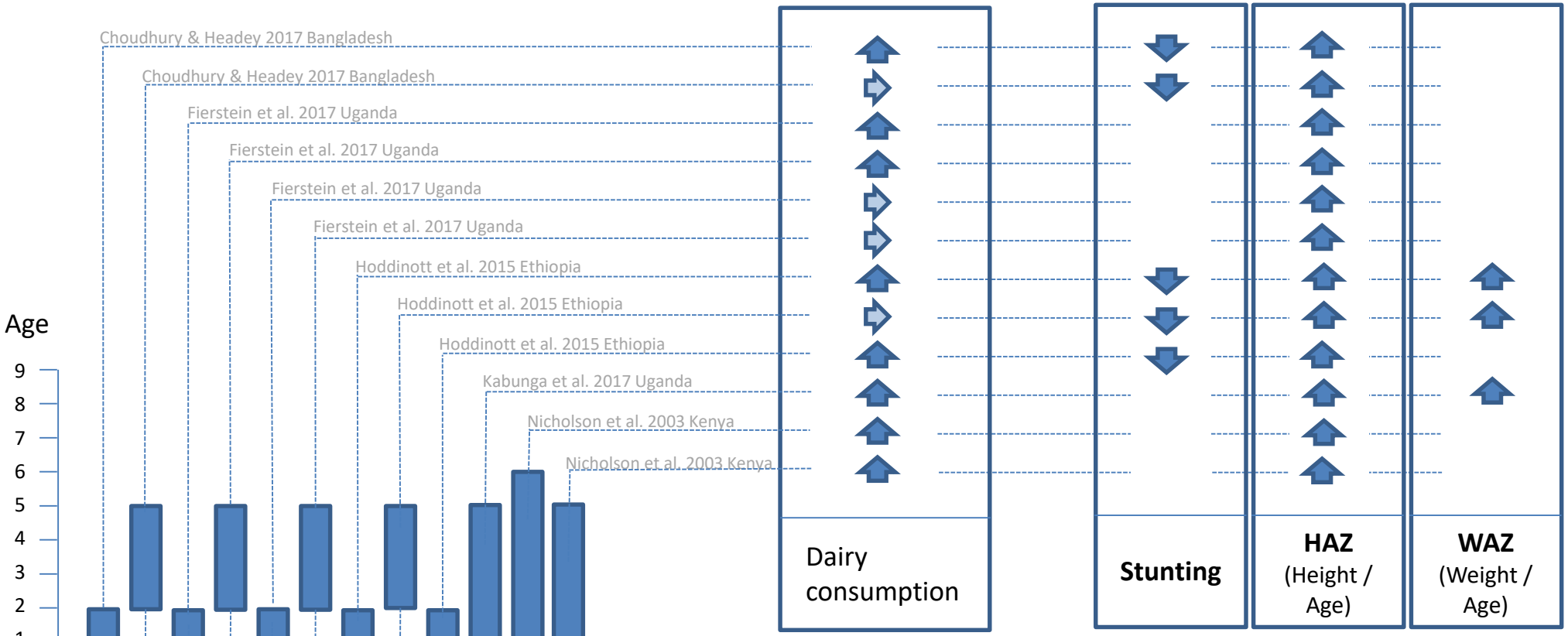
43 children
0-59 months
beneficiary households
(received a pregnant cow)

56 children
0-59 months
assessed as eligible
(not yet received a cow)

Higher HAZ scores
Positive difference WAZ score

Cow ownership and child growth

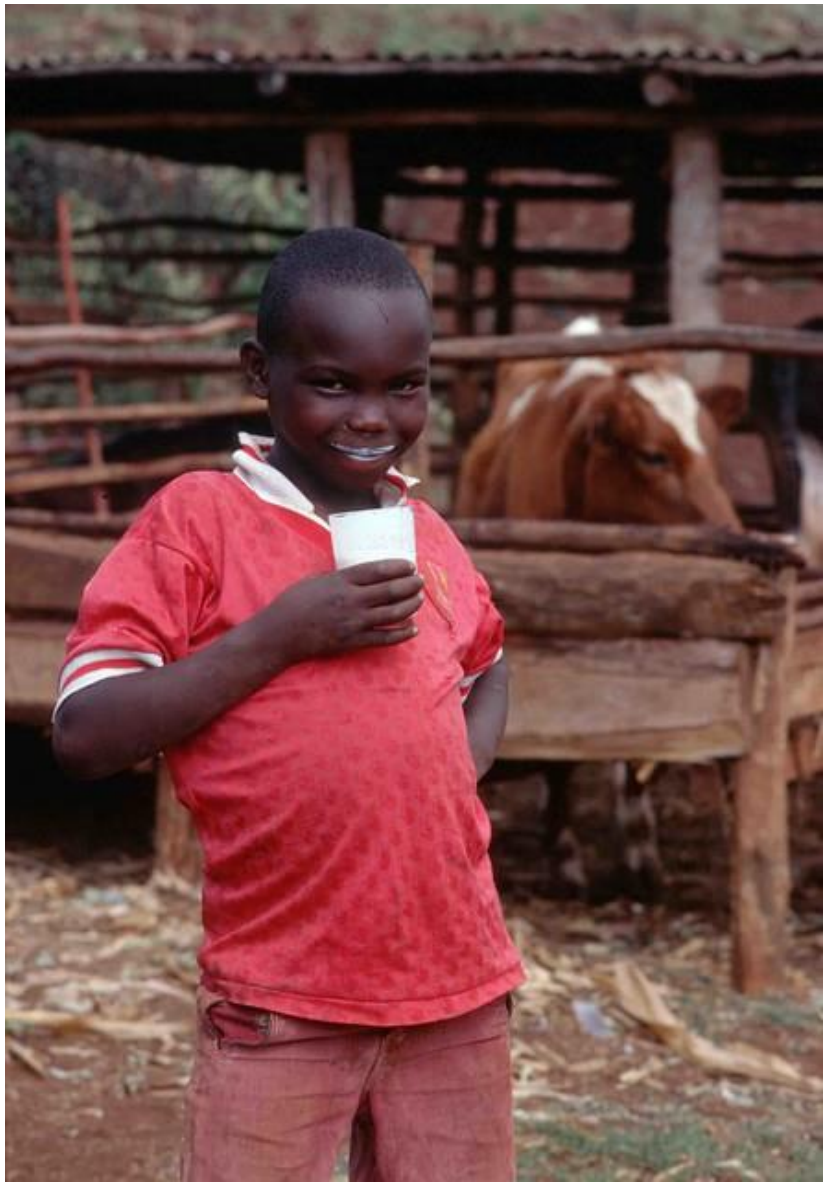
Observational studies



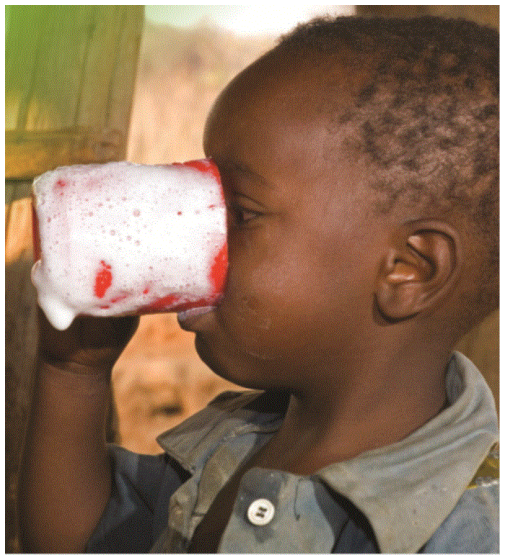
Final remarks

Final remarks

Milk consumption at the household level was positively associated with higher child growth



Final remarks


Consumption of dairy products in low-income households was associated with reduced stunting, underweight and wasting.

Final remarks

Dairy development can thus be considered a **useful instrument** in the quest **to achieve SDG2**, while simultaneously supporting **SDG1**

Dairy’s impact on reducing global hungry

Thanks

ANIMAL WELFARE

Valentina Riva

Advocacy Manager, The Donkey Sanctuary

AWAN introduction

Share practical examples and evidence of how animal welfare contributes to the SDGs and sustainable animal management in production and non-production systems

Animal Welfare Action Network

Current and planned activities

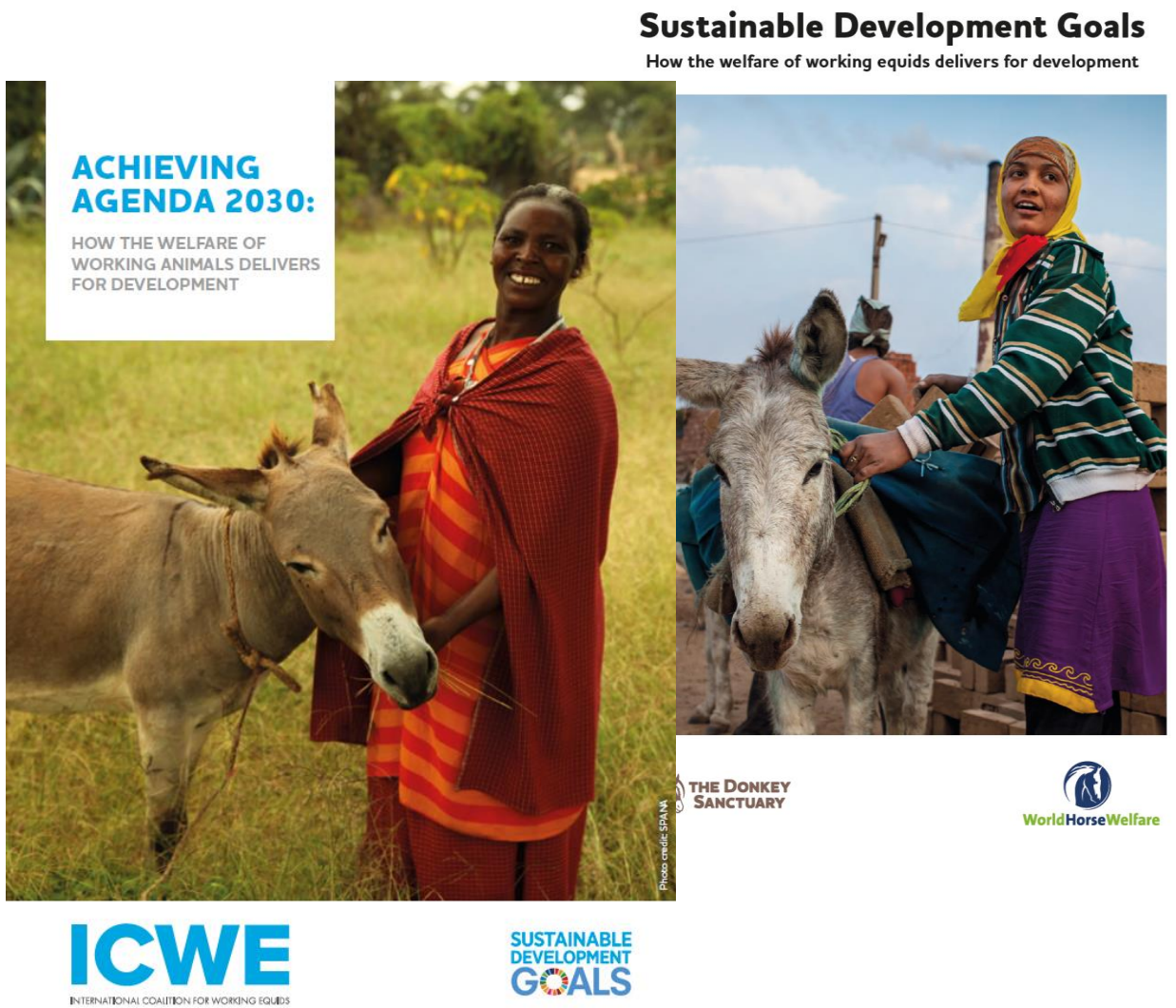
1. Develop targeted publications on animal welfare and the SDGs
2. Identify and share case studies for animal welfare and sustainability
3. Work towards promoting the use of common animal welfare indicators
4. *Clear opportunities to collaborate with other ANs too*

Animal welfare and the SDGs


Photo credit AVCD/ FIPS R. Jumah

Doyle et al 2018, UFAW Hong Kong
Doyle 2019, Science Week, Gold Coast, Australia

Animal welfare and the SDGs



The Donkey Sanctuary and World Horse Welfare, 2017
International Coalition for Working Equids, 2019

Sheep on migration along the Conquense Drove Road, Spain Photo Credit: ILC Rangelands Initiative