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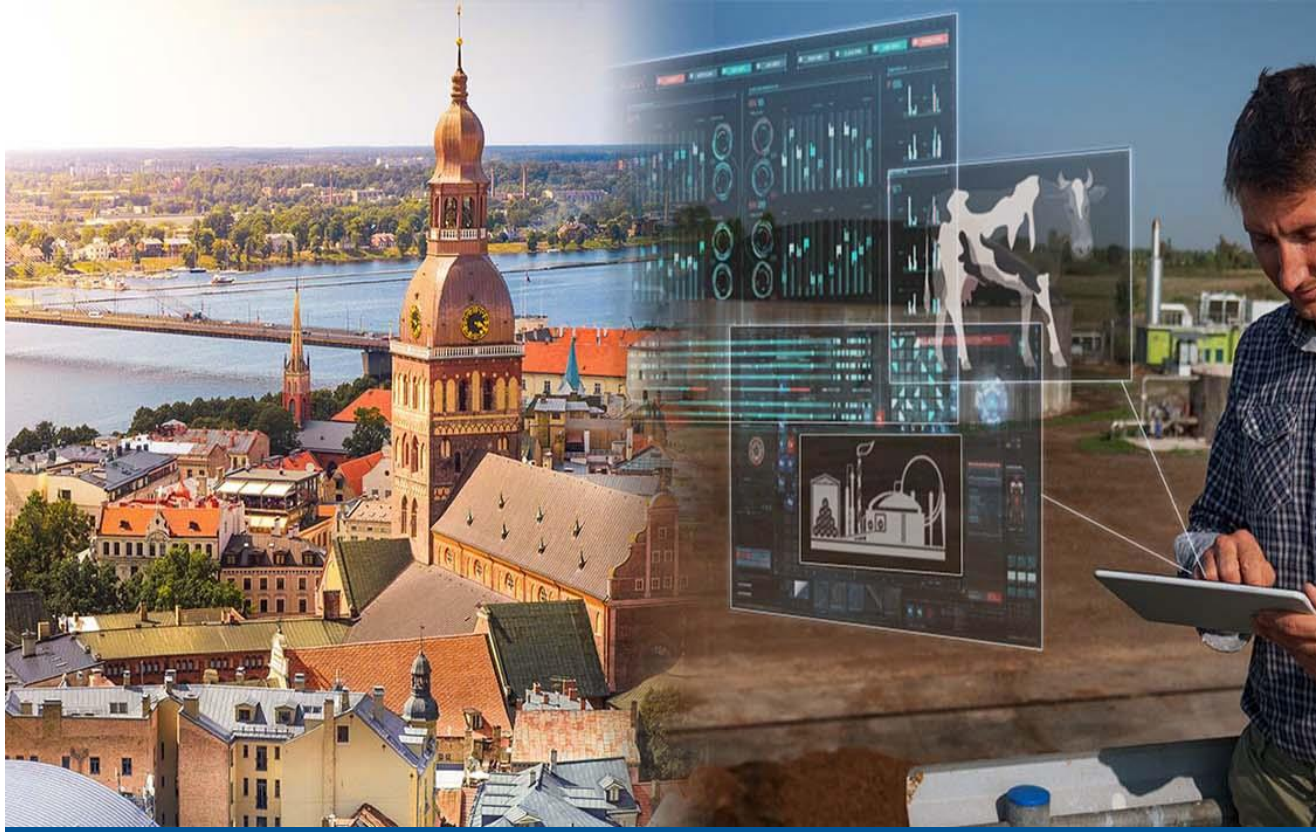

Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

Łukasz Wyrzykowski

General Manager

Amelie Kölbl

Event Manager

IFCN Team in Kiel

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TODAY WITH YOU

Tuesday, June 13th, 2023

24th IFCN Dairy Conference

Energy Crisis in Dairy

Challenge or Opportunity

Antitrust caution statement & recording

Introduction

There is a proposed caution below to be read at the start of each meeting.
The aim of this is to serve as a reminder to all participants of the antitrust law requirements.
The statement should also be recorded in the minutes as indicated below.

Antitrust caution statement

"The IFCN or any of its partners shall not enter into any discussion, activity or conduct that may infringe, on its part or on the part of its respective participants, any applicable competition law"

Message to new participants/partners or people taking part for the first time:

"Please take note that taking part in the IFCN Network is subject to having read and understood the antitrust guidelines of the IFCN Network.
If you have not yet done so, please do so now".

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OUR MISSION

We help people in the dairy world with dairy data, knowledge and inspiration to make better decisions

> 130

Dairy related companies In the network

> 100

Dairy Researchers over the world

24

Years of expierence

IFCN RESEARCH NETWORK 2023

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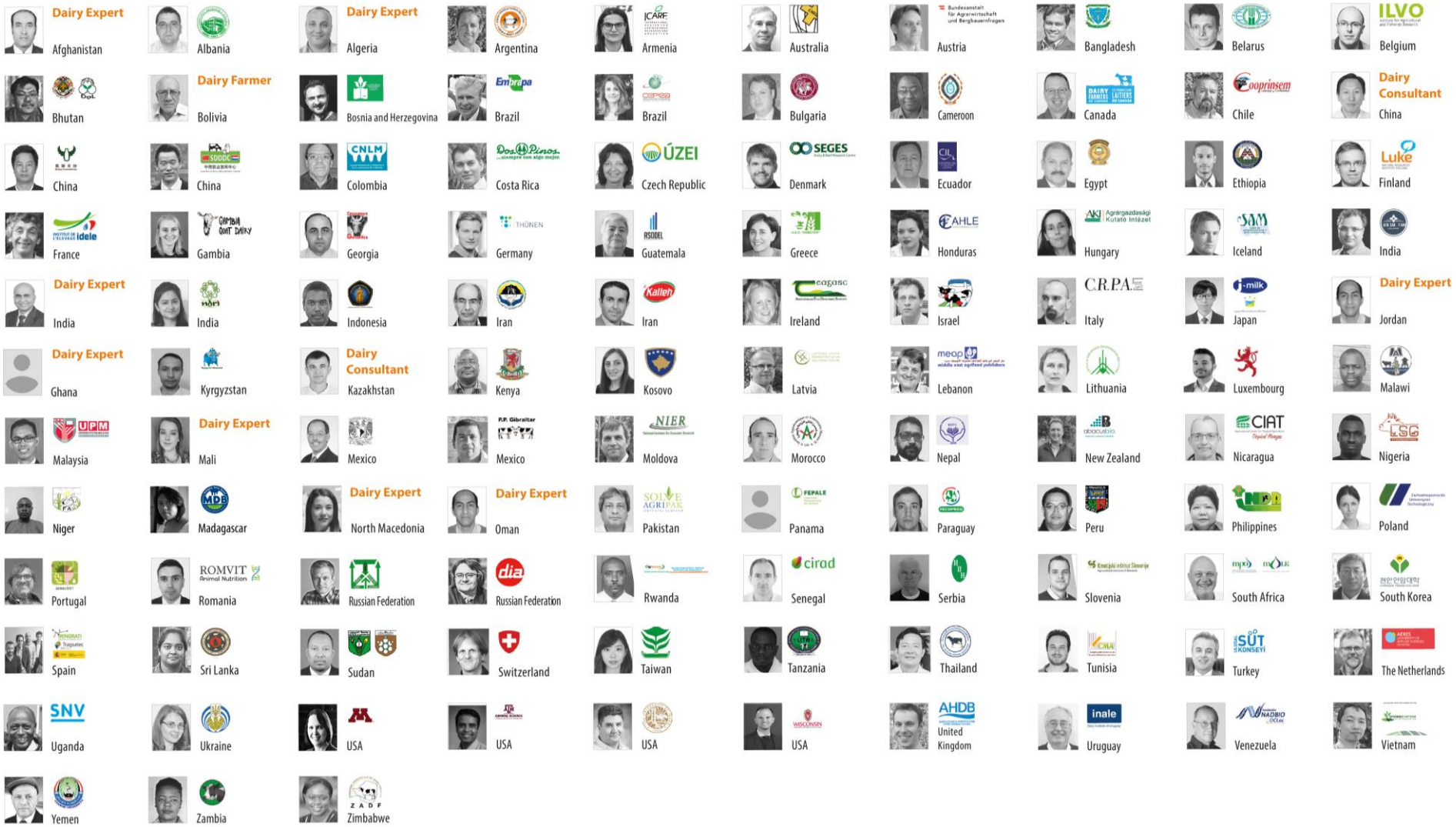

IFCN HELPS ITS PARTNER COMPANIES TO IMPROVE THEIR MARKET INTELLIGENCE AND MAKE BETTER DECISIONS

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Milk Processing

DFA Dairy Farmers of America, Fonterra, Groupe Lactalis, Arla, Nestlé, FrieslandCampina, Saputo, Amul The Taste of India, 蒙牛 好品质 绿生活, Danone, Agropur Dairy Cooperative, müller, dmk, Savencia Fromage & Dairy, Sodiaal Union, Leprino Foods, Emmi, Unilever, Mondelēz International Snacking Made Right, General Mills, Milcobel, TINE, Brazzale, Hochland, Zott, hochwald, Arborea, Hilmar Cheese Company, Dale Farm, Clover, Kalleh, Vreugdenhil Dairy Foods, Pınar, KDD

Milking and Barn Equipment

GEA, DeLaval, Lely, BouMatic For the life of your dairy, Madero Dairy Systems, milkrite InterPuls, VES-Artex, T D M Total Dairy Management, spinder, Groupe Serap, Milkplan Farming Technologies, Animat, Holm & Laue

Feed and Feed Additives

Cargill, ab agri, dsm-firmenich, Alltech ...naturally, Phibro, Lallemand, Josera, Evonik Industries, trouw nutrition a Nutreco company, Adisseo, Kemin, Nutribio, Perdue AgriBusiness, UBM, Berg+Schmidt, agolin, Leiber, balchem, Inatega, Nukamel, hydrogreen Nutrition Technology, Ferraroni, de heus powering progress

Health and Hygiene

zoetis, MSD Animal Health, Elanco, Ceva, vetoquinol, HIPRA, Ecolab, kersia, Mileutis, CHR. HANSEN improving food & health, CALIER

Farm Machinery

John Deere, kverneland group, KRONE, KUHN, POTTINGER, FARESIN, WEIDEMANN

Milk Processing and Packaging Technologies

Tetra Pak, SIG, ELOPAK, FOSS

Finance Institutions

IFC International Finance Corporation, Rabobank, Farm Credit East, VR Bank Nord eG, StoneX, DZ BANK

Agriculture Technology Companies

MADCAP Dairy Software, milc group, MooMe, nedap, TOPCON Agriculture, VYLA

Genetics for Animals & Plants

URUS, SEMEX, Select Sires, Genus, SYNETICS, PROCROSS

Dairy Farming

ЕКОНИВА ЭКОНИВА, Land Molkerei Hagenow, Family Dairy Farms, mooh

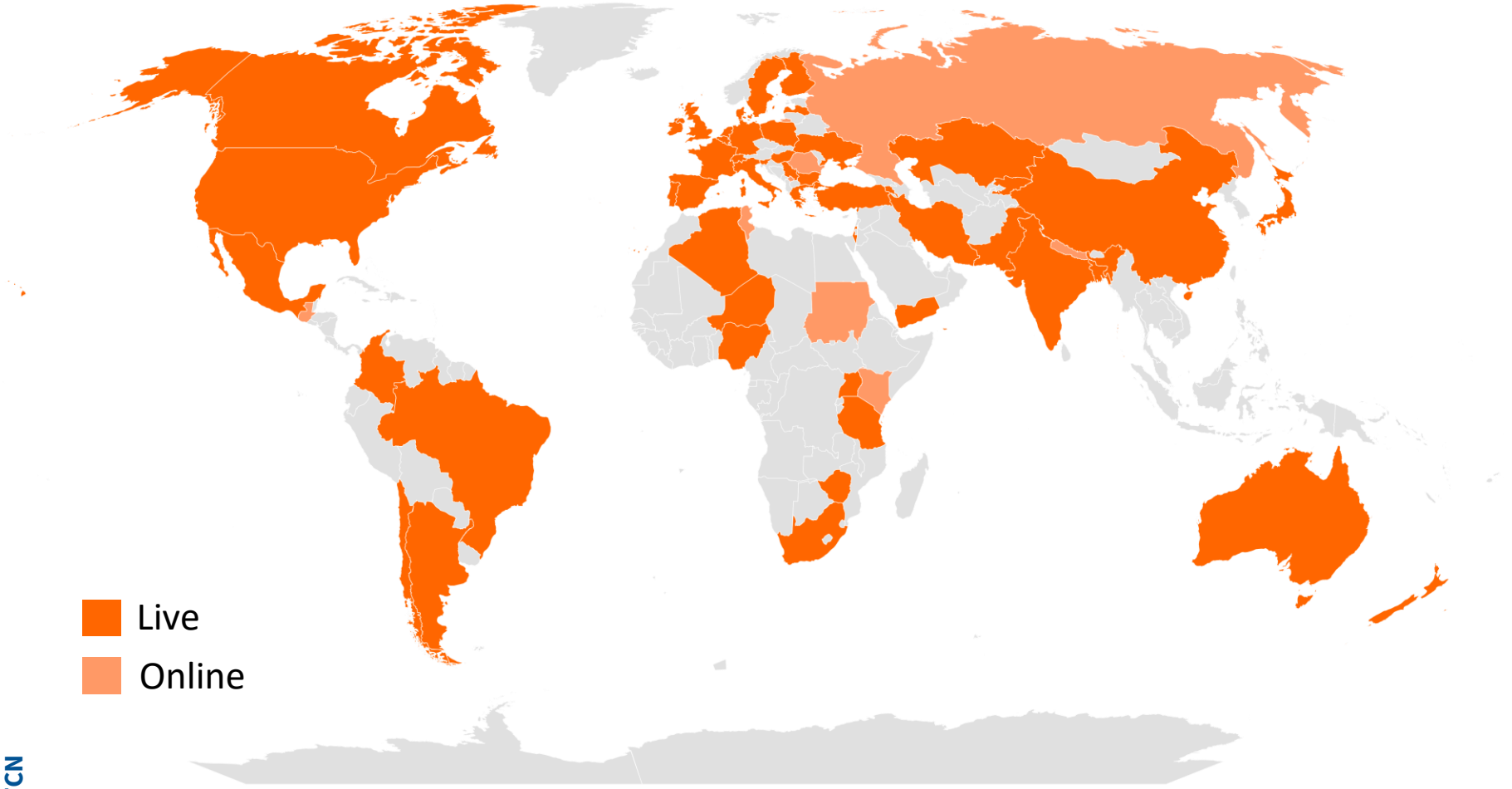
Other Companies

Kite, promar, Vion Food Group

FrieslandCampina nourishing by nature 150 years

The IFCN Audience

Who is with us today?



90+

Live Participants

150+

Online Participants

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24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

24th IFCN Dairy Conference – Tuesday 13.06.2023

The Special Topic Day

IFCN Dairy Data · Knowledge · Inspiration

IFCN Dairy Conference 2023

09:00 – 10:30

IFCN Opening | Amelie Kölbl, Łukasz Wyrzykowski

Framework of today: Why this Topic is important | Łukasz Wyrzykowski

New green policy in EU: impact, necessary changes and future trends for EU & Latvia | Jānis Grasbergs

From Challenges to Opportunities: The Potential of Dairy Farming in Latvia| Iewa Leimane




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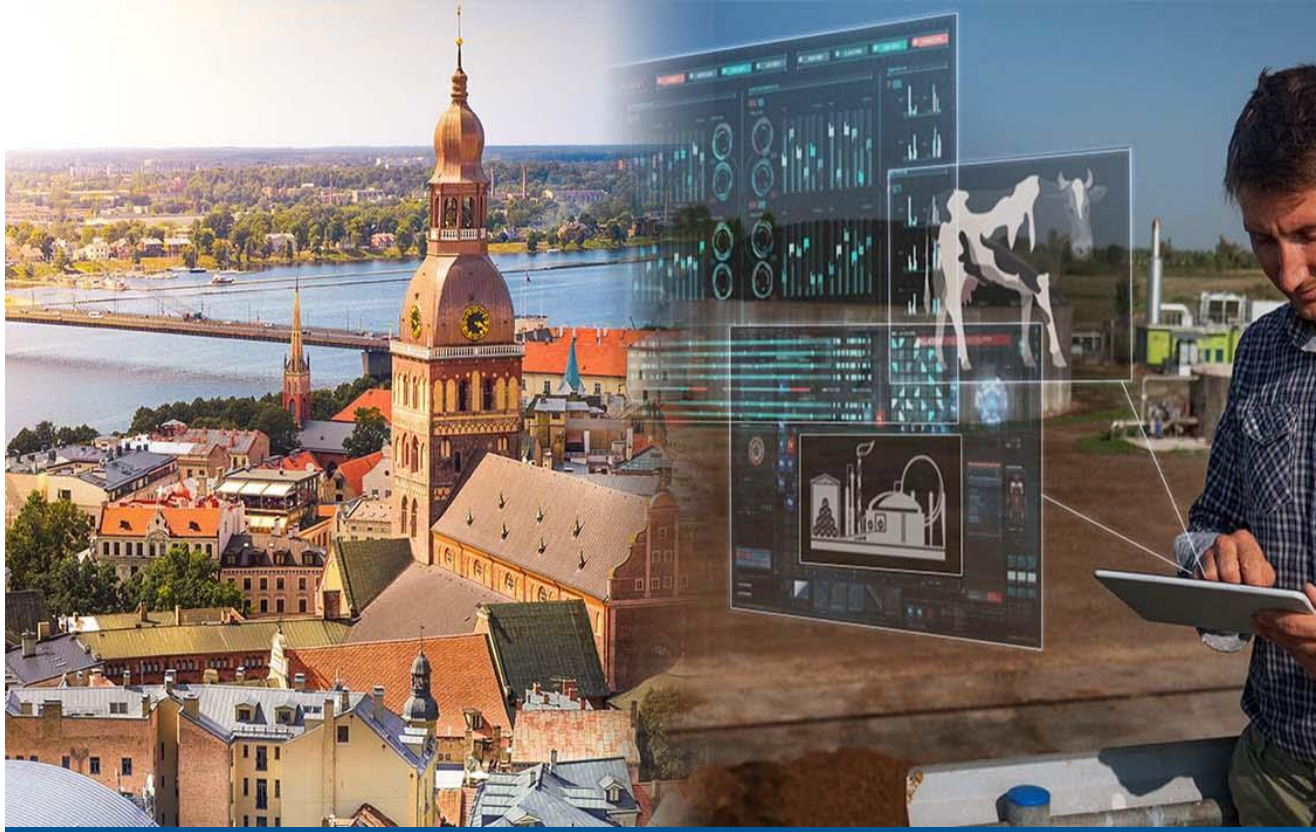
Framework of today

Łukasz Wyrzykowski
Managing Director IFCN



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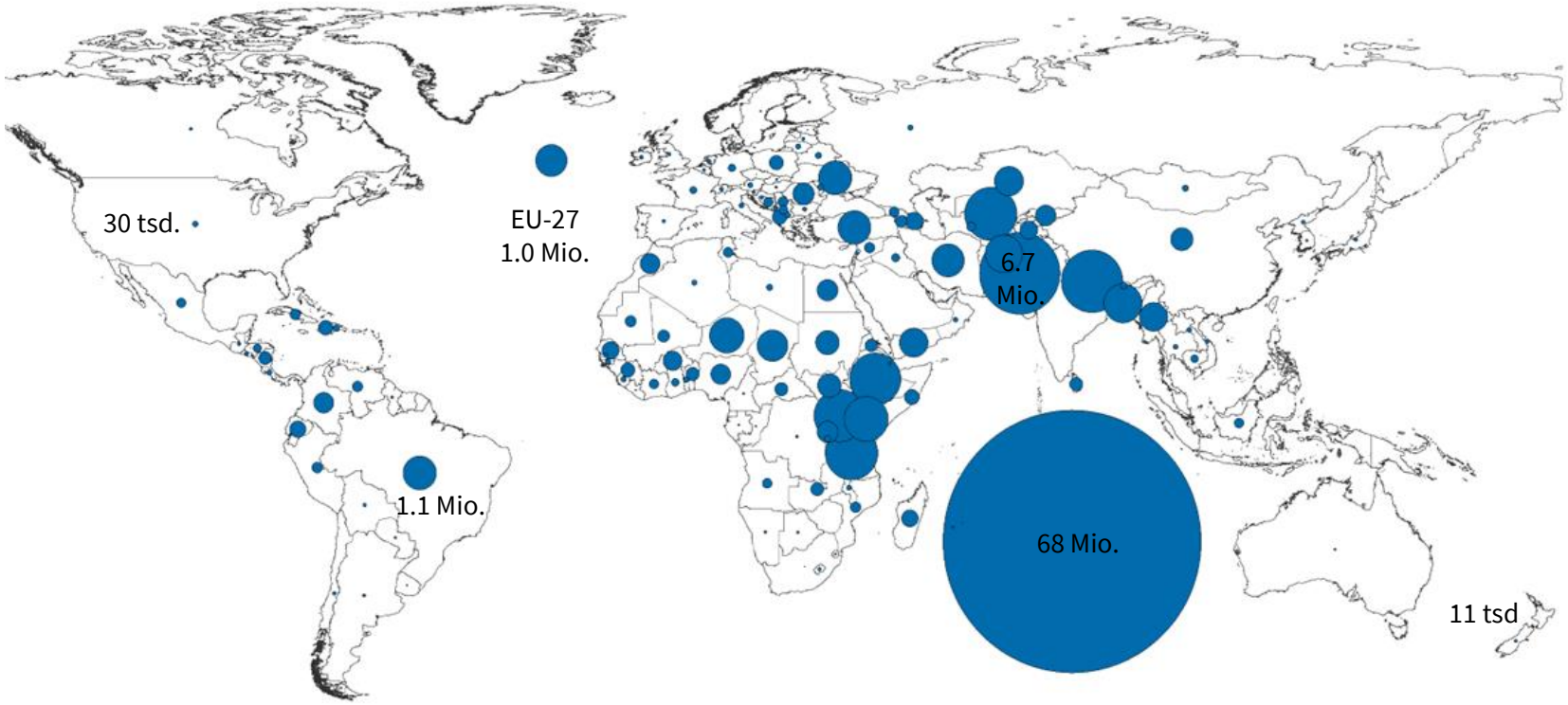
Dairy impacts the income of 1 bill people

Dairy farm numbers in 2022



More than **116 million dairy farms**
97% of them have 1-10 cows and counting **62%** of all dairy animals

Dairy World 2022

116 mill dairy farms,
3 cows / farm
7.5 kg milk / day

1 Bill People Mathematics

=> Over 600 million people
live on dairy farms (120*5)

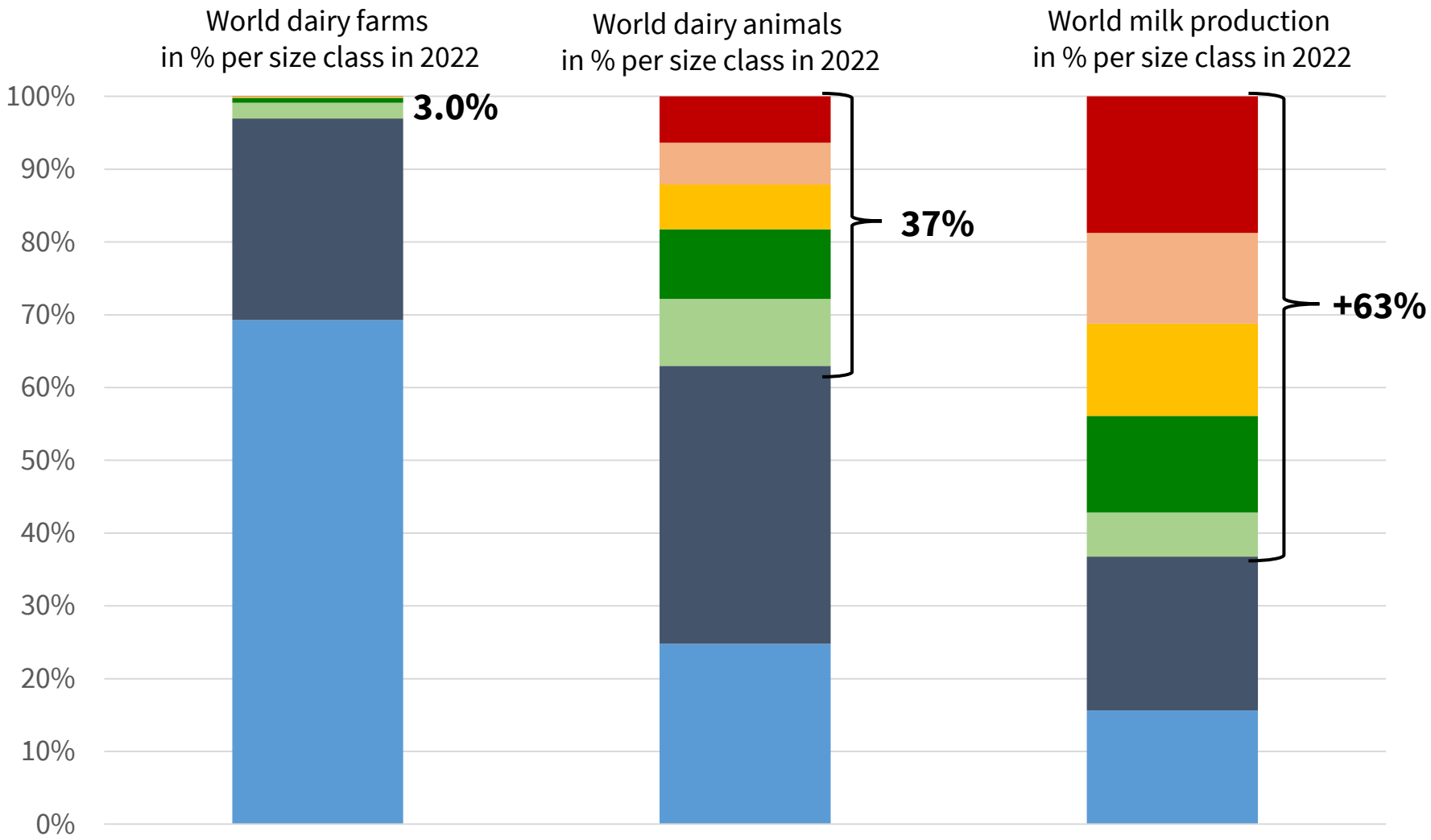
=> Over 355 million people
live in household where 1 person has a job in the dairy chain (71*5)

=> Over 50 million people
impacted by induced jobs / spin offs

Source: IFCN Dairy Report and Annual Dairy Sector Database

The most of the formally delivered milk is produced on only 3% of all world dairy farms

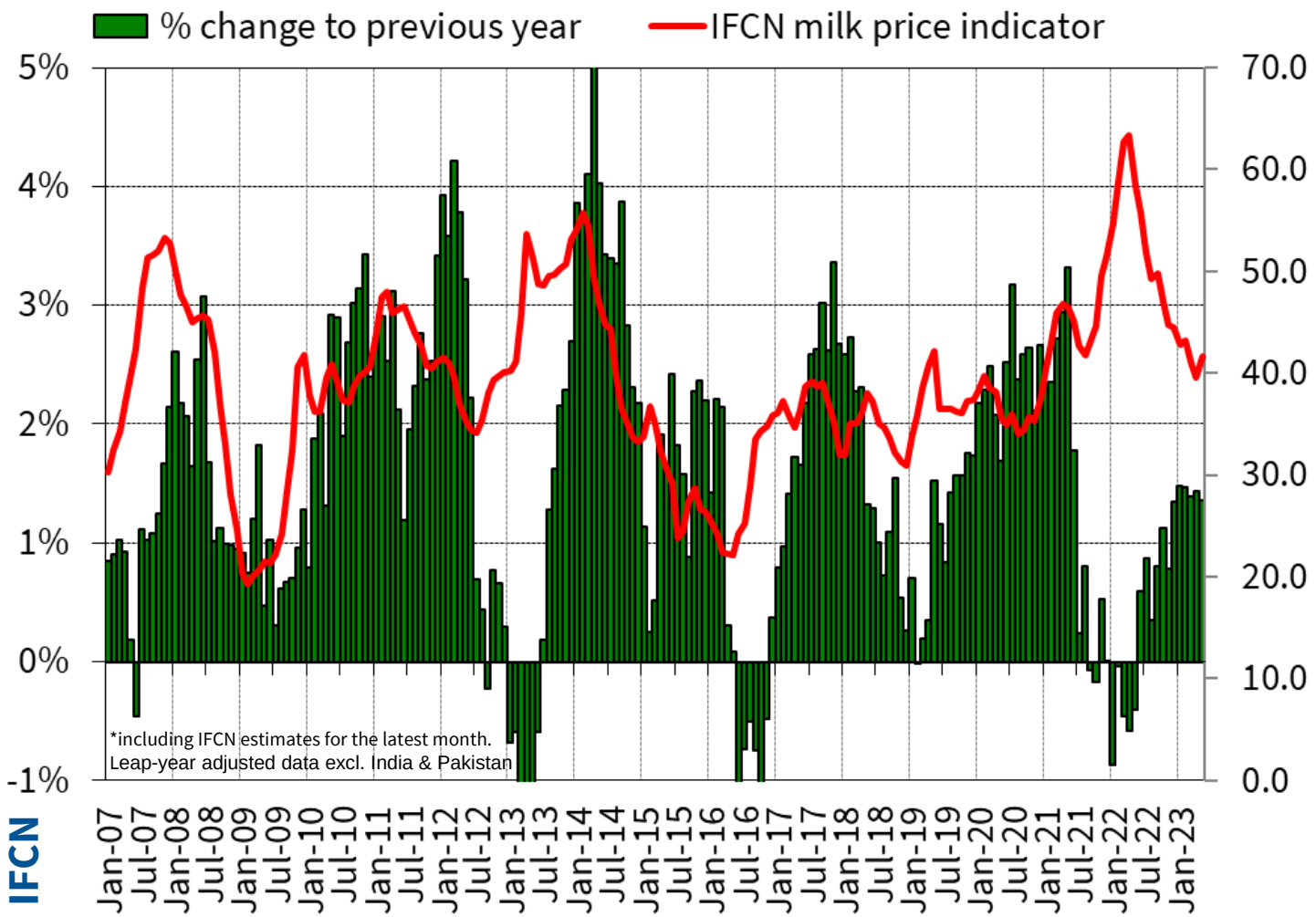
Farm structure status in 2022, IFCN Standard Classes



Source: D3.7 Annual Farm Structure Data 2022, status March 2023

World milk production is not fixed variable

Change in world milk production*



Average annual % change:

- In 2022 only **+0.3%**
- In 2023 (until May) **+1.4%**

Record high milk prices in 2022, but milk production was not activated:

- The base-year effect.
- High farm-input costs.
- Unfavourable weather conditions.

In 2023:

- Availability of milk is not yet abundant.
- Might not be enough to compensate last year's decline.

Source: D3.4 – Monthly IFCN Real Time Data, Preliminary results

Some temporary shocks can contribute to or even turn into megatrends

You cannot change something you are not measuring

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Shocks	Megatrends
Economy (Stagflation, interest rates)	**Costs of production*** (Buffer capacity, investments)
Price shift (Farm inputs, energy crisis)	**Farm consolidation***
Labour market (Wages, immigration)	**Farm productivity / efficiency*** (Technical Progress)
Environmental policies (Green Deal)	**Demand growth *** (Strong in emerging countries)
Wars / conflicts	**Milk alternatives***
Logistics (Broken supply chain)	**Labour vs. automatization** (Skilled labour)
	(De)globalization (self-sufficiency, bilateral agreements)

* Included in the IFCN Long-term baseline outlook

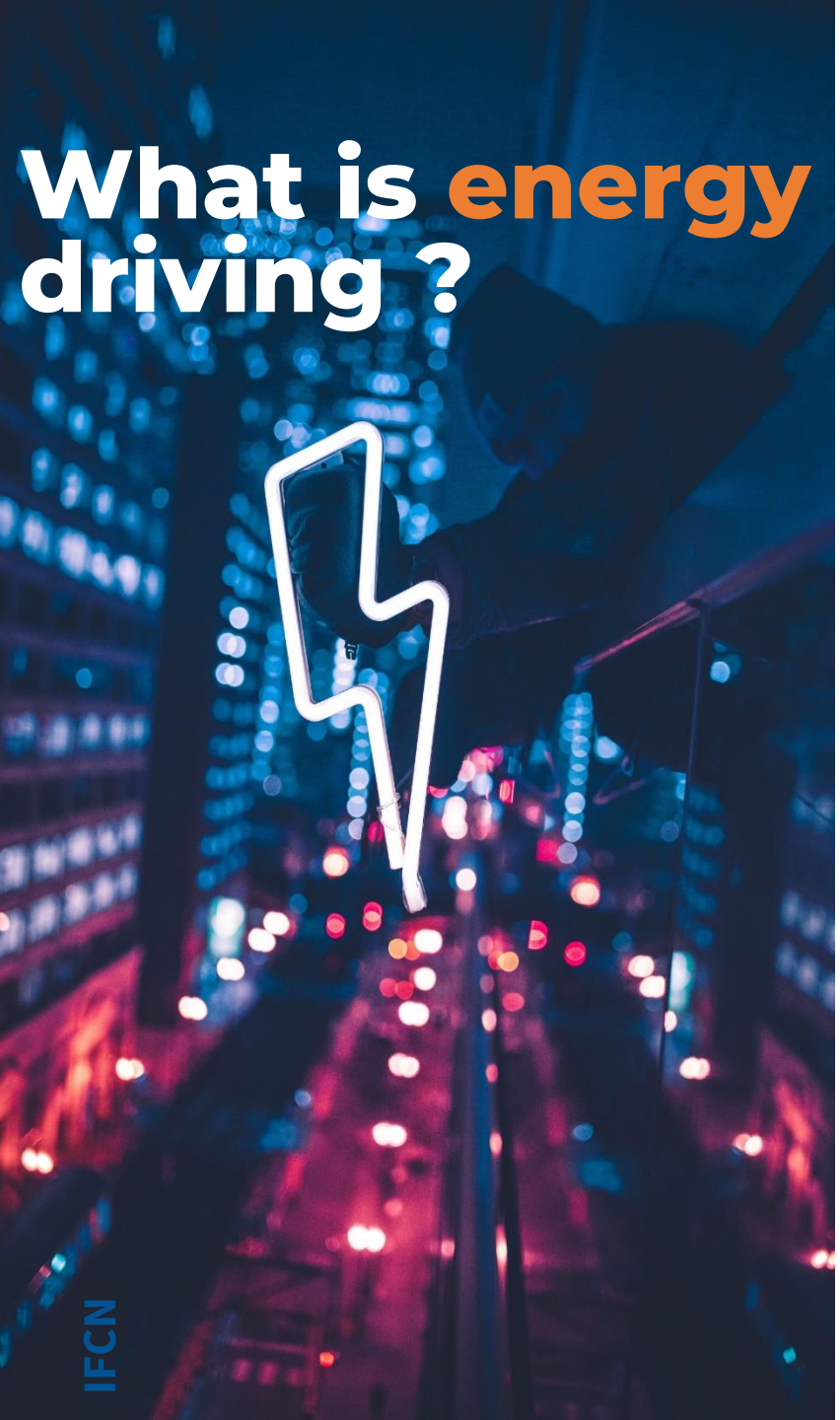
Some temporary shocks can contribute to or even turn into megatrends

You cannot change something you are not measuring

Shocks	Megatrends
Economy (Stagflation, interest rates)	**Costs of production*** (Buffer capacity, investments)
Wars / conflicts	**Labour vs. automatization** (Skilled labour)
Logistics (Broken supply chain)	**(De)globalization** (self-sufficiency, bilateral agreements)

Will there be enough milk?
Is the world on the right path?

* Included in the IFCN Long-term baseline outlook



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⇒ Rapid economic rebound following the pandemic

⇒ Russia's invasion of Ukraine in February 2022

⇒ Europe's gas supply reliance on Russia

⇒ World economy is interlinked

How does energy affect our life?

Consumers

Inflation

Reduced purchasing power

Shift demand from dairy products

Industry

Eroded profit margins

Prevention of innovations

Bankruptcies / Consolidation

Dairy Value Chain and the energy

Policy

⇒ Diversify energy sources in supply chains - shifting from fossil fuels to domestically produced clean energy

⇒ Food Security – increasing self sufficiency of the region/country

Farm input

⇒ Elevated feed prices

⇒ Higher electricity costs

⇒ Availability of production resources like steal etc.

Dairy Farming

⇒ Higher energy usage costs for milk heating, milk cooling, milk harvesting, water pumping and lighting

⇒ Higher animal feed costs

Processing Packaging

⇒ Increase of energy costs for pasteurization and milk powder production

⇒ Higher fuel consumption costs for farm machinery

Retailing

⇒ Increased shipment and labor costs with a lower consumer demand

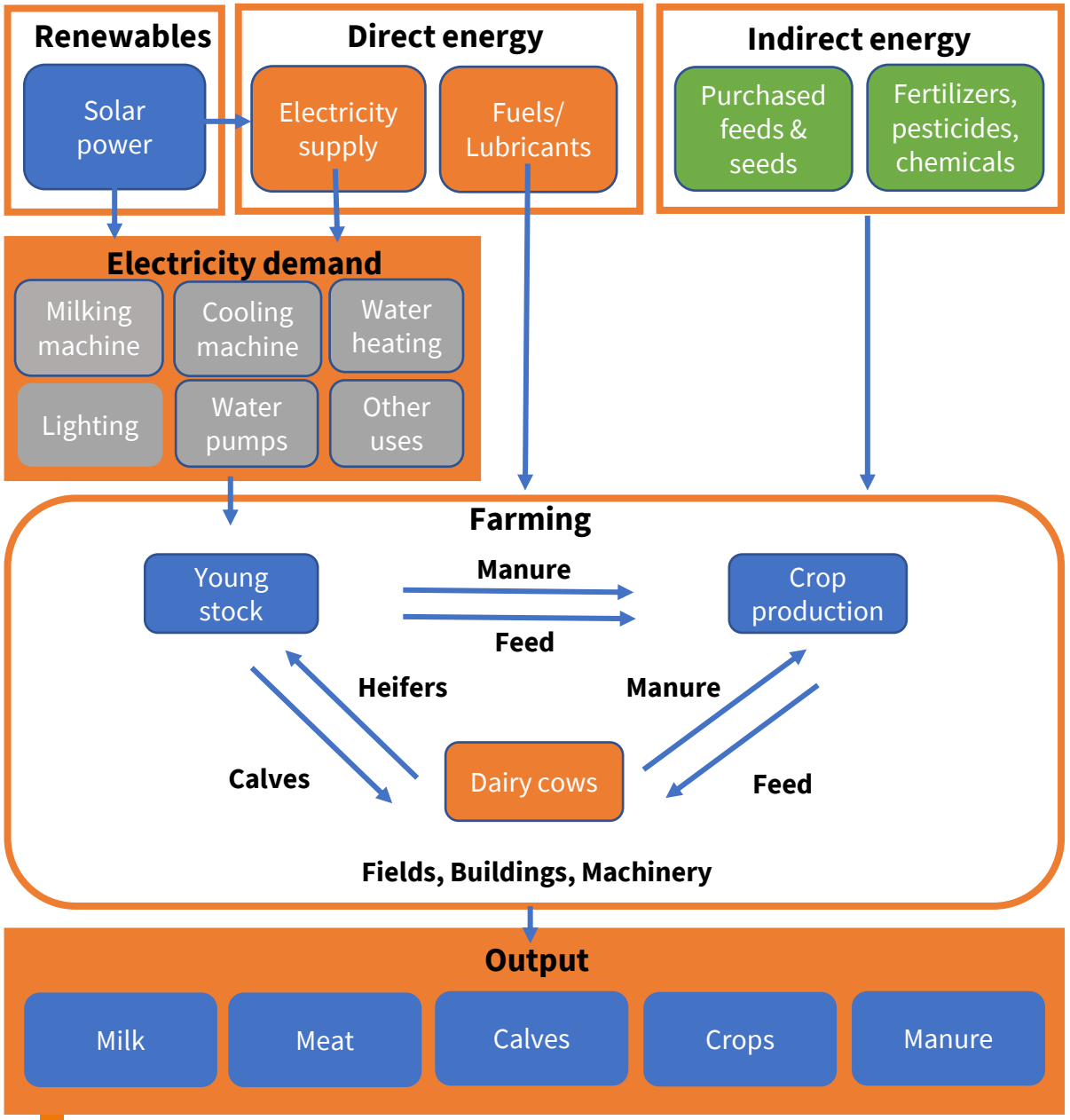
⇒ Insolvencies

Consumer

⇒ Price hikes impact all consumers, while the poorest suffer the most

⇒ Food availability at risk for vulnerable nations (Africa, Middle East)

How energy is produced on the farm?



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What farmers can do?

⇒ Invest in renewables

⇒ Lower fertilizer input

⇒ Change feed ratio, by start using less concentrates

⇒ Reduce cow herd size

⇒ Implement new technology, better genetics, and improve farming processes

Consumer

Government

Industry regulated-standards

Farmers

Industry

Government

too much regulations / costs

Farmers / consumers need to pay more

Farmer

Government

Industry

Consumer too many expectations

Do we have a common goal as society?

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The Dairy Trilemma

https://www.bundesregierung.de/breg-en/chancellor/olaf-scholz-1989326

EU Policy – how might the future look like?

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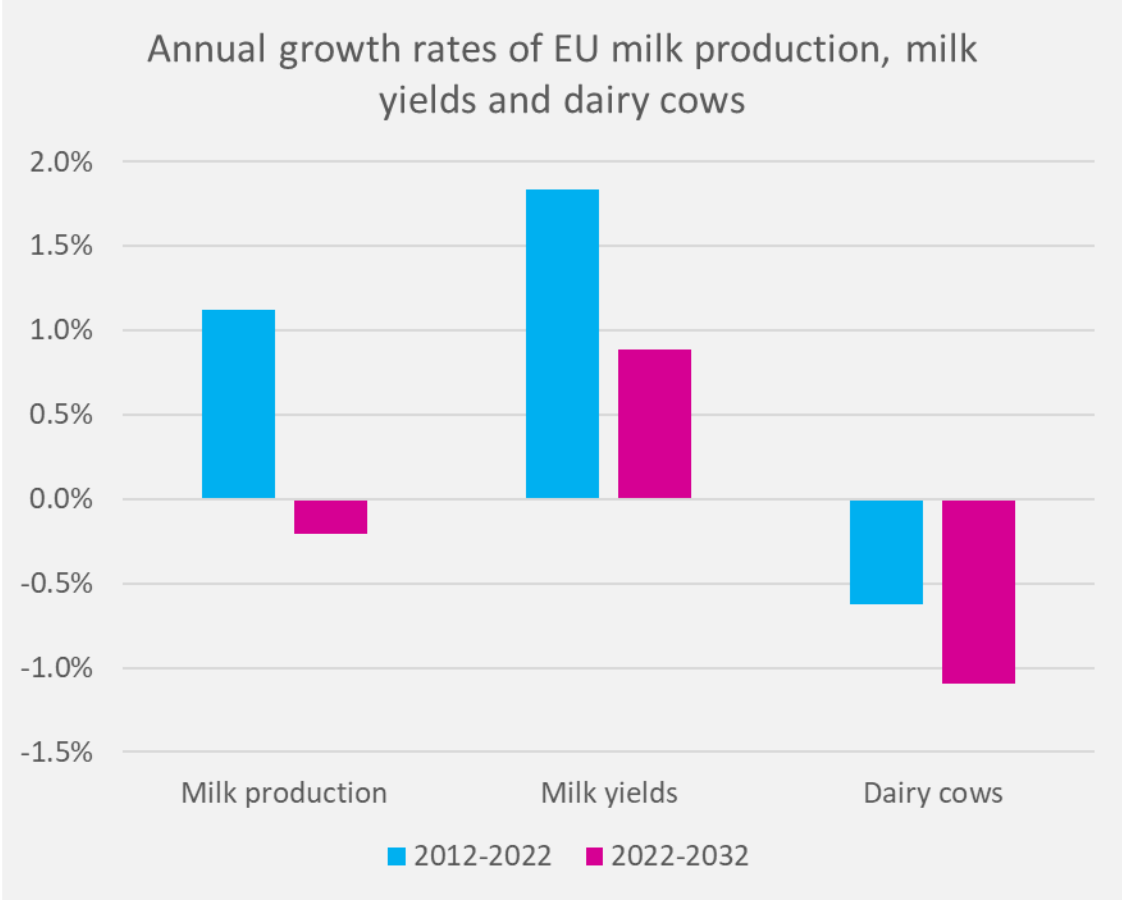
Goals vs Numbers – are we alligned?

Infographic - How EU countries are addressing the global food crisis
https://www.consilium.europa.eu/en/infographics/how-eu-countries-are-addressing-the-global-food-crisis/



DG Agriculture and Rural Development, Unit of Analysis and Outlook 28 March 2023,
forecast of EU Milk production presented at IFCN Eucolait Outlook Workshop in Brussels

Agenda of today

New green policy in EU: Impact, necessary changes, and future trends for EU & Latvia

Case study of LV

Energy & dairy market dynamics – an uneasy marriage

Case studies of NZ, UA, Africa

Energy and feed management on the farms

Case studies of the UK, AR, NL

The new normal in the dairy industry

– but is the world on the right path?

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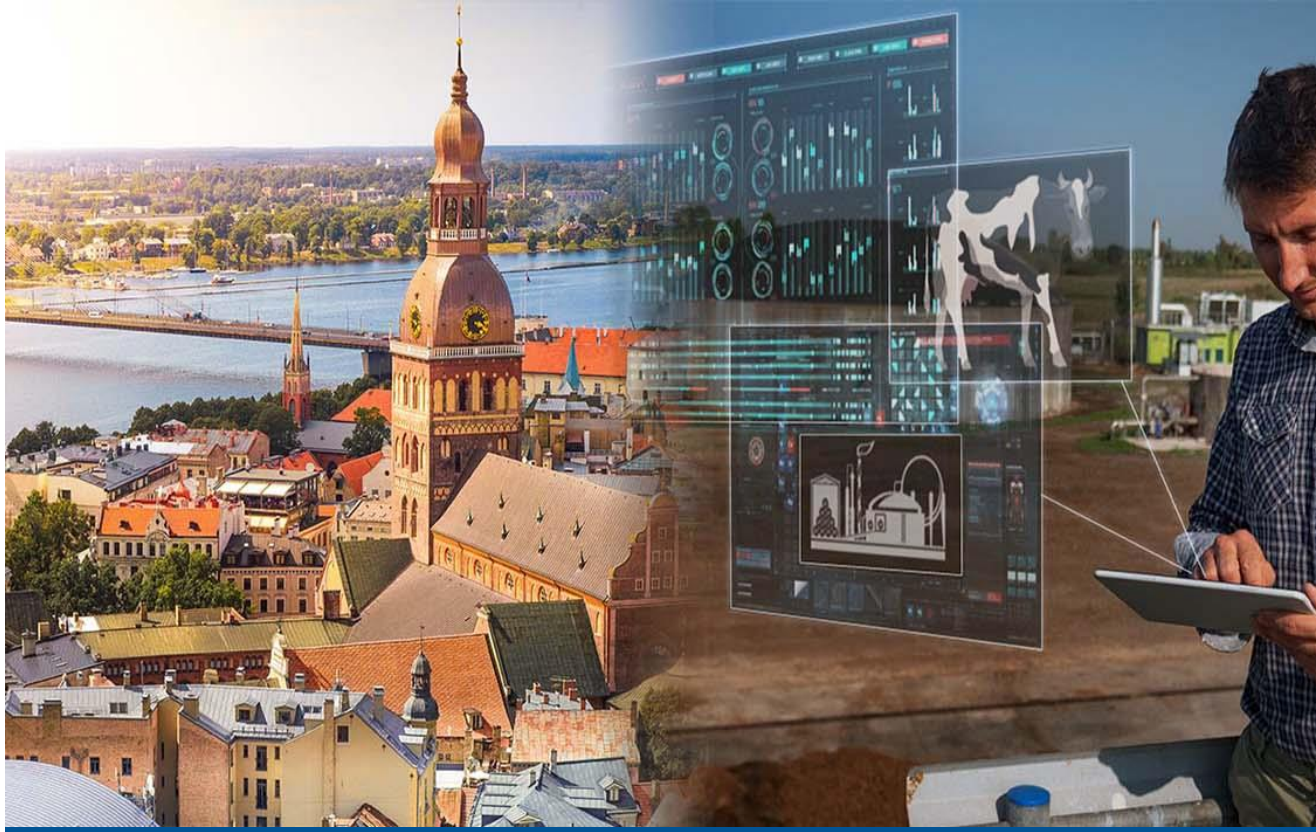
New green policy in EU:
Impact, necessary changes and future trends for EU & Latvia

Jānis Grasbergs
Deputy Speaker of the Saeima of Latvia,
owner of the Jaunbeņķi farm
Chairman of the Latvian Holstein Breeders Association



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Riga, Latvia

JĀNIS GRASBERGS

Member of Parliament
Deputy speaker of the Parliament of Latvia

PREVIOUSLY

2009-2016	Head of Family Farm "Žilūži" (Dairy production/agriculture)
2019	Parliamentary Secretary of the Ministry of Agriculture of Latvia
2021	Advisor to the Minister of Agriculture of Latvia.

DAIRY CONFERENCE

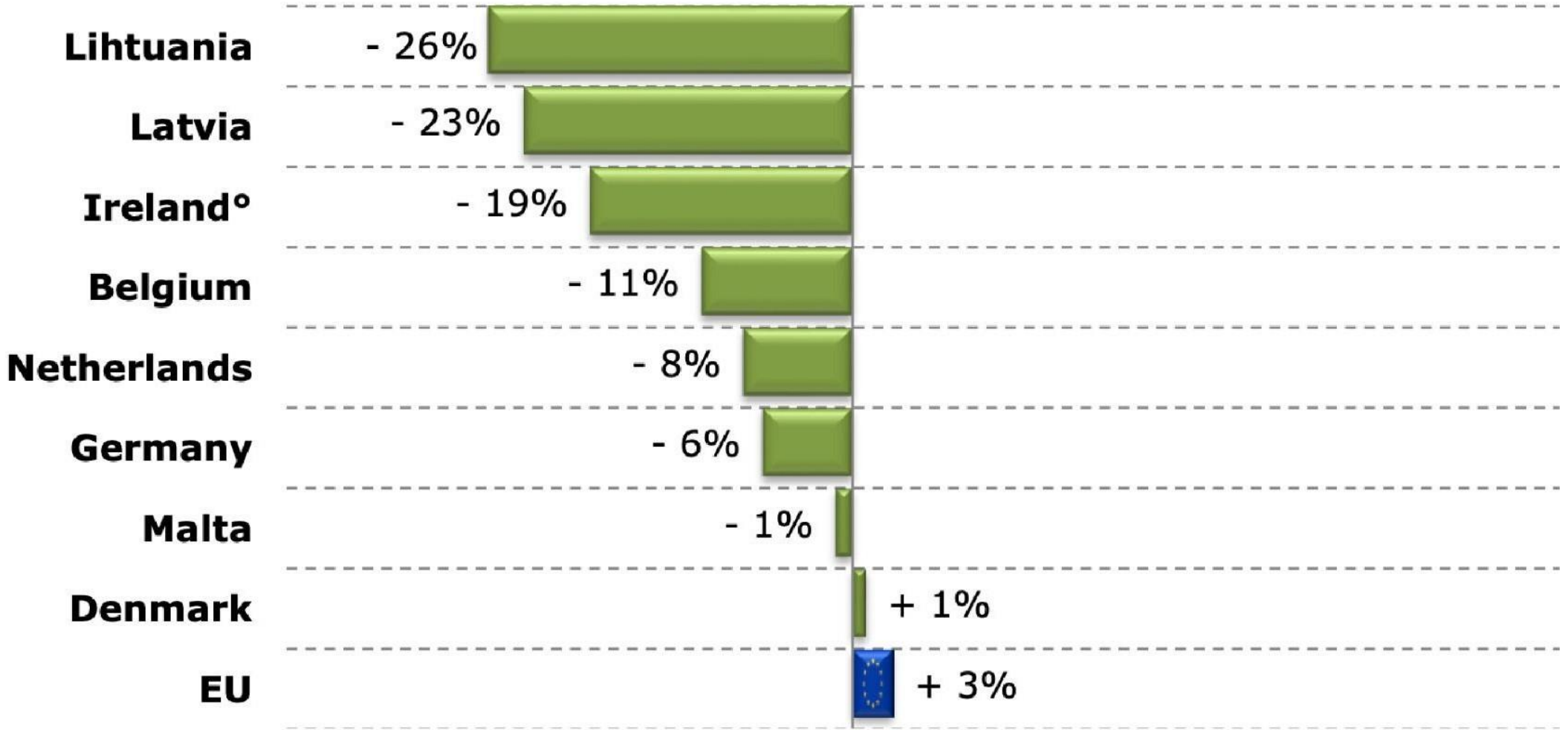
Second biggest agricultural sector
Fast changing industry
Milk crisis
United action

IMPORTANCE

CHANGES

Source:
agriculture.ec.europa.eu

Raw Milk Price evolution in April 2023 compared to April 2022

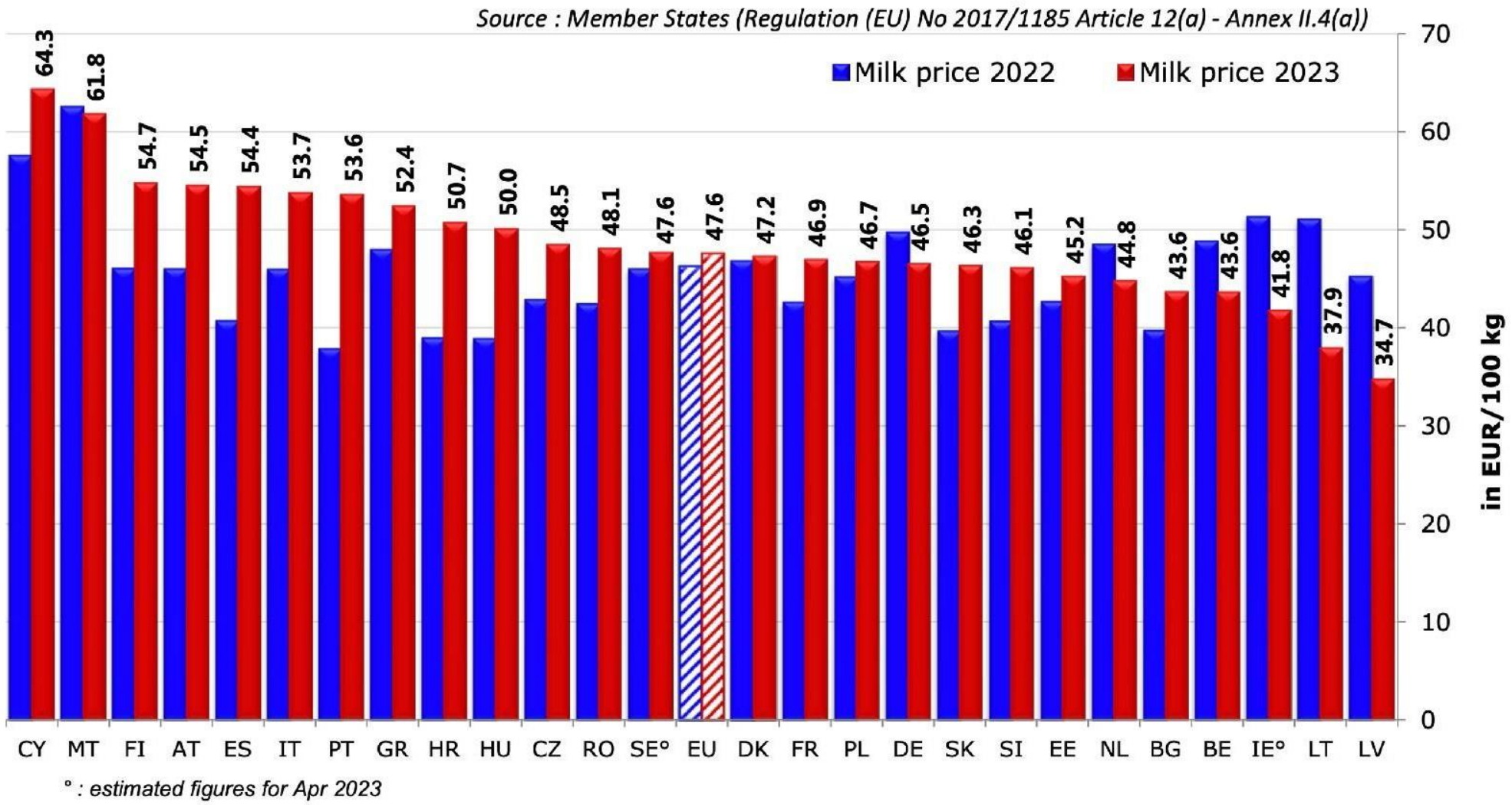


MARKET

Source:
agriculture.ec.europa.eu

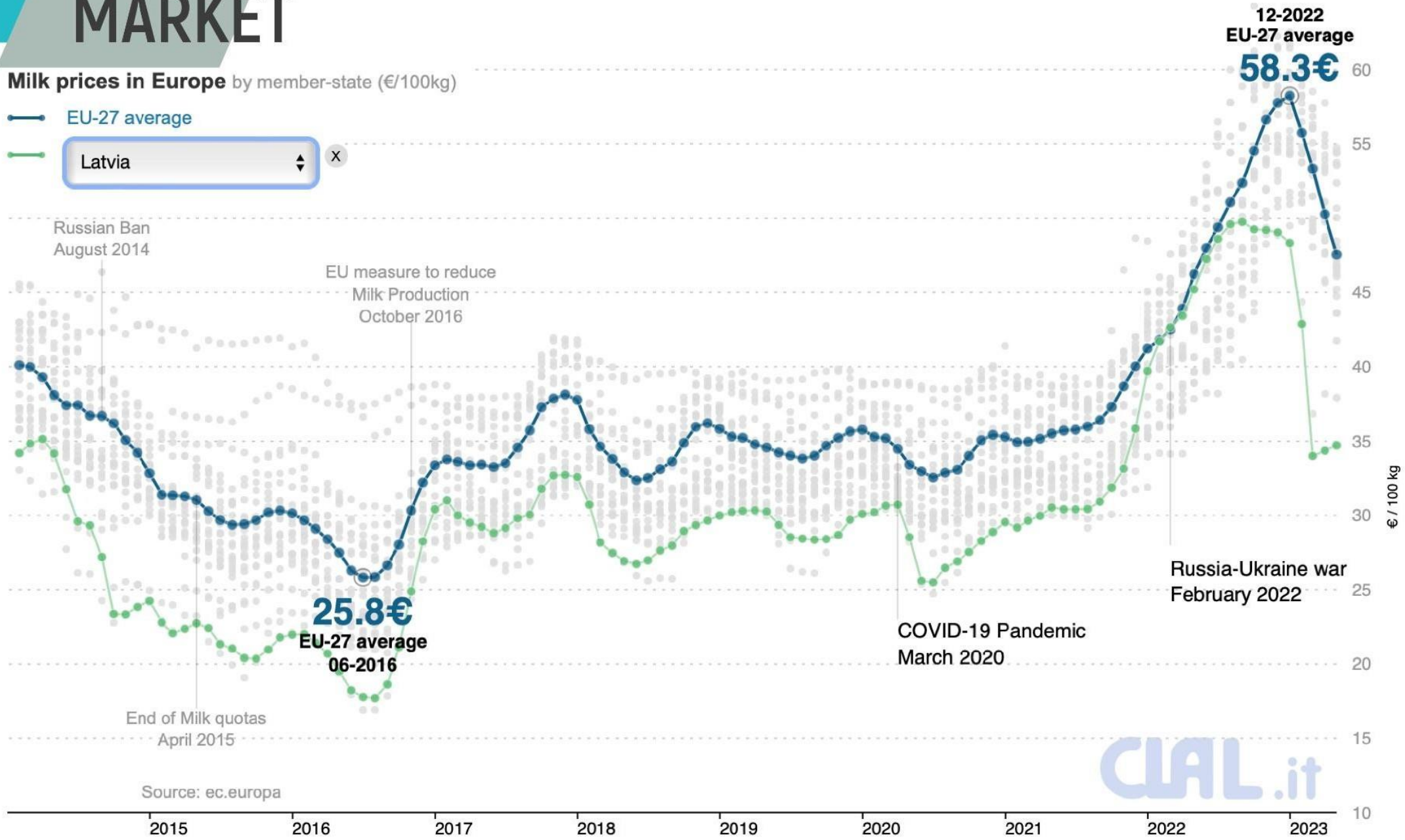
EU MILK PRICES

(Apr 2023 vs Apr 2022)



° : estimated figures for Apr 2023

MARKET

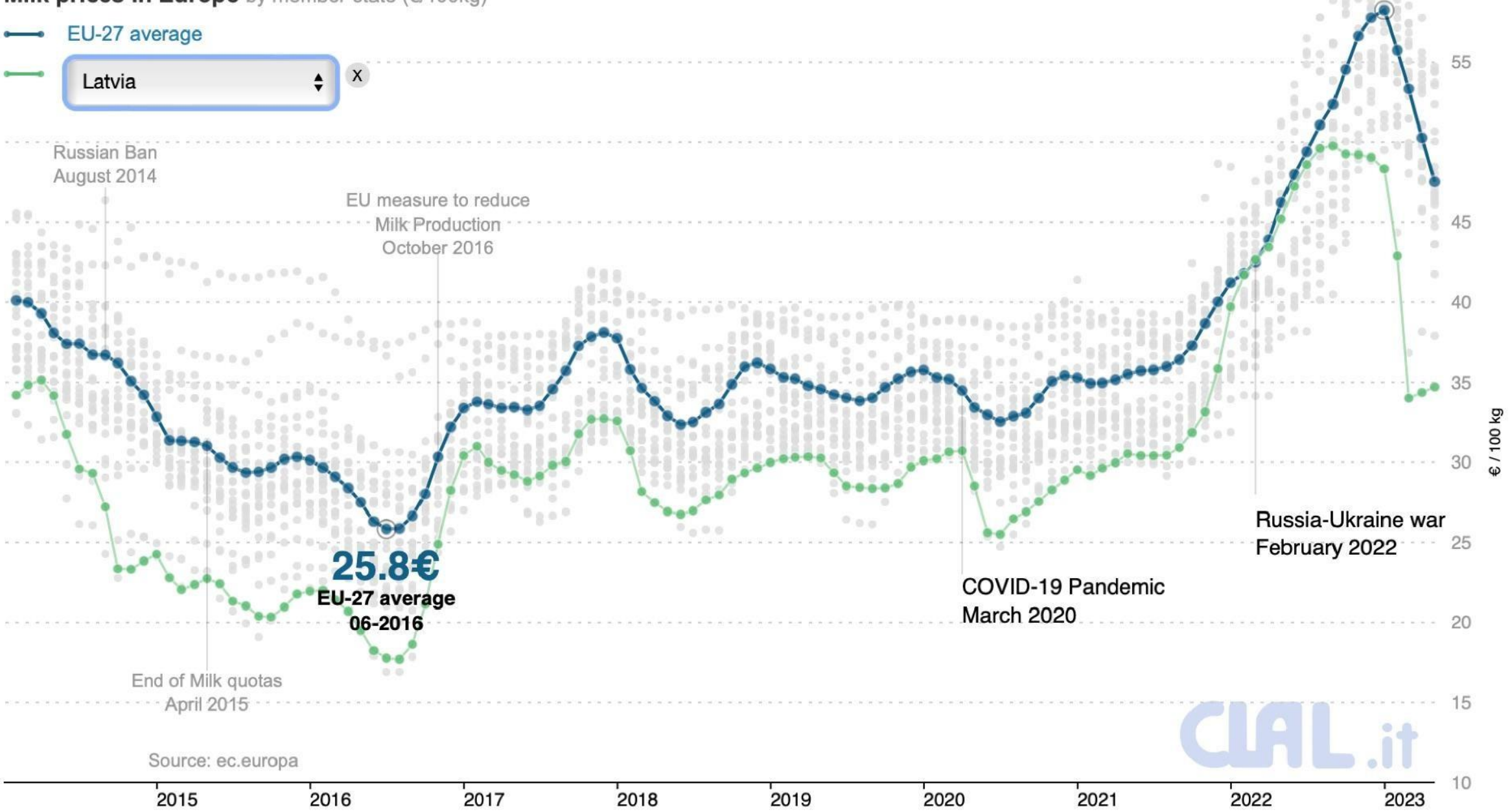

Milk prices in Europe by member-state (€/100kg)
EU-27 average
Latvia
x
12-2022
EU-27 average
58.3€
Russian Ban
August 2014
EU measure to reduce
Milk Production
October 2016
25.8€
EU-27 average
06-2016
End of Milk quotas
April 2015
COVID-19 Pandemic
March 2020
Russia-Ukraine war
February 2022
Source: ec.europa
60
55
45
40
35
30
25
20
15
10
€ / 100 kg
2015
2016
2017
2018
2019
2020
2021
2022
2023

LV MARKET

LV MARKET

1/3
DOMESTIC

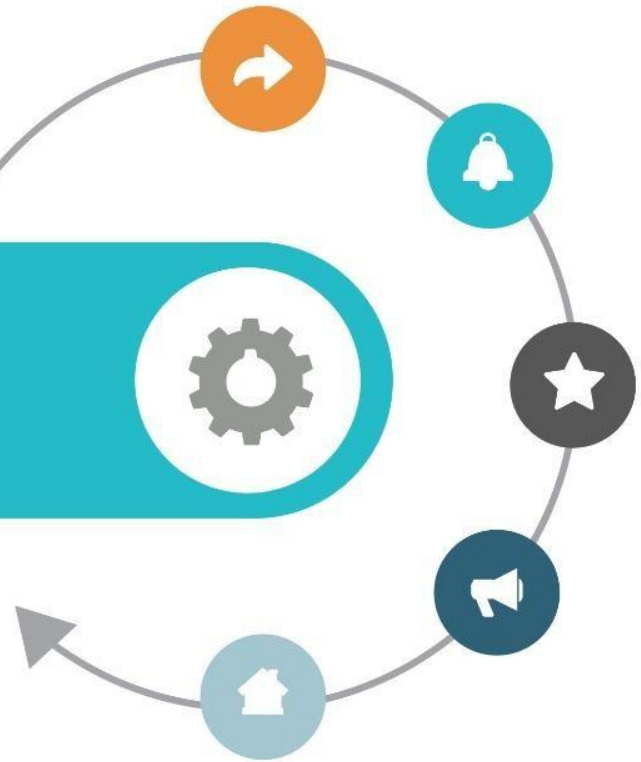
2/3
EXPORT



DAIRY INDUSTRY CHALLENGES

CHALLENGES

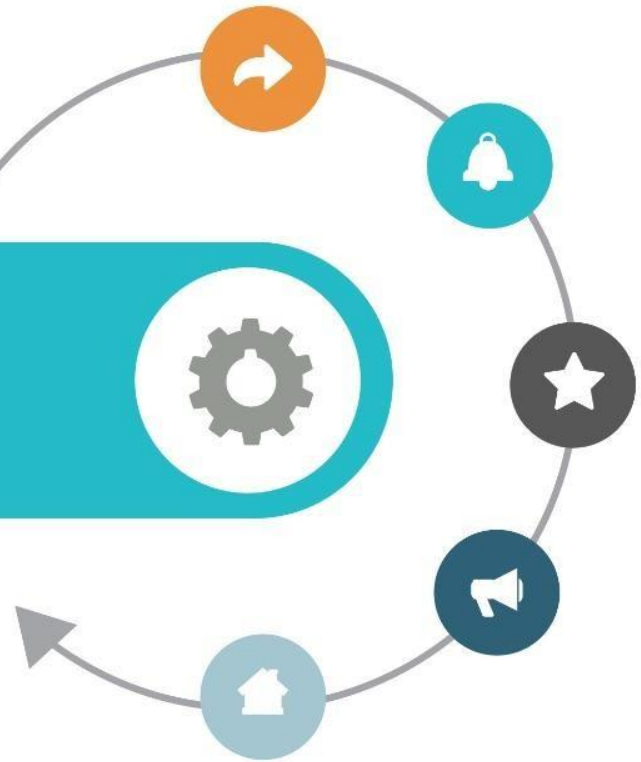
& OPPORTUNITIES



Where we direct industry?

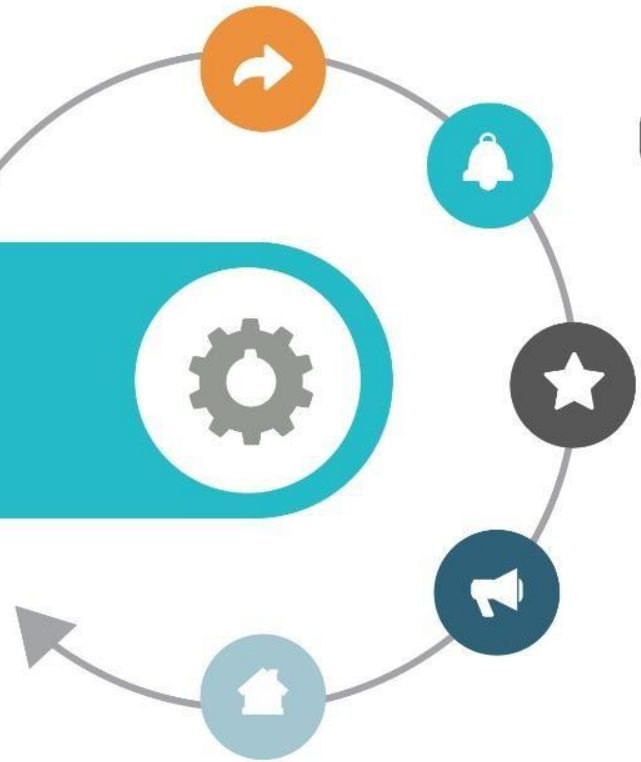
CHALLENGES

& OPPORTUNITIES



CHALLENGES

& OPPORTUNITIES



Where we direct industry?

Changing lifestyles

CHALLENGES

& OPPORTUNITIES

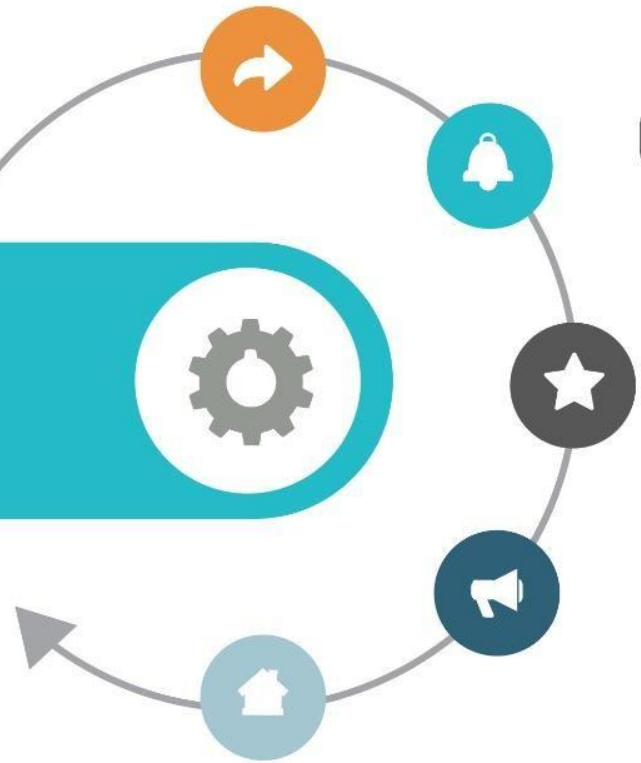
Where we direct industry?

Changing lifestyles

Advanced farming

CHALLENGES

& OPPORTUNITIES



Where we direct industry?

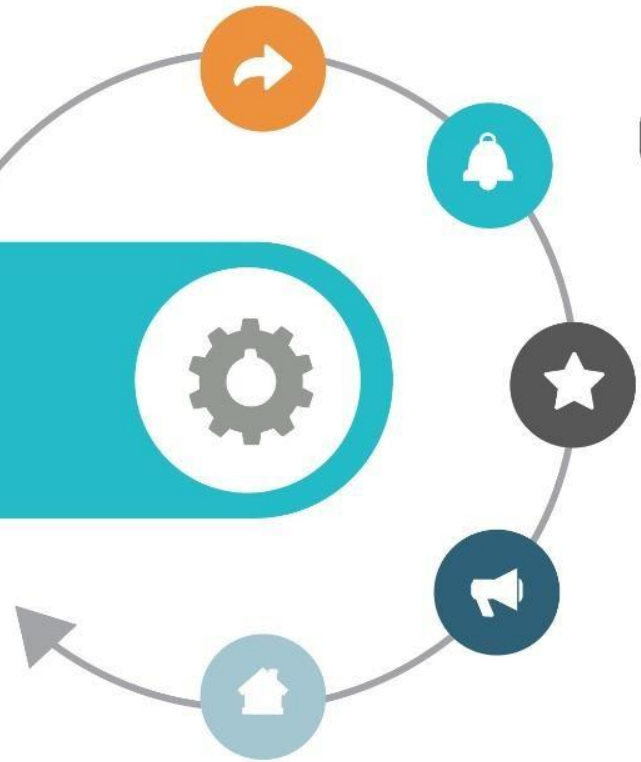
Changing lifestyles

Advanced farming

New forms of businesses and services

CHALLENGES

& OPPORTUNITIES



Where we direct industry?

Changing lifestyles

Advanced farming

New forms of businesses and services

Stable markets and prosperous households

THANK YOU

> “Without continual growth and progress, such words as improvement, achievement, and success have no meaning.”
>
> - Benjamin Franklin

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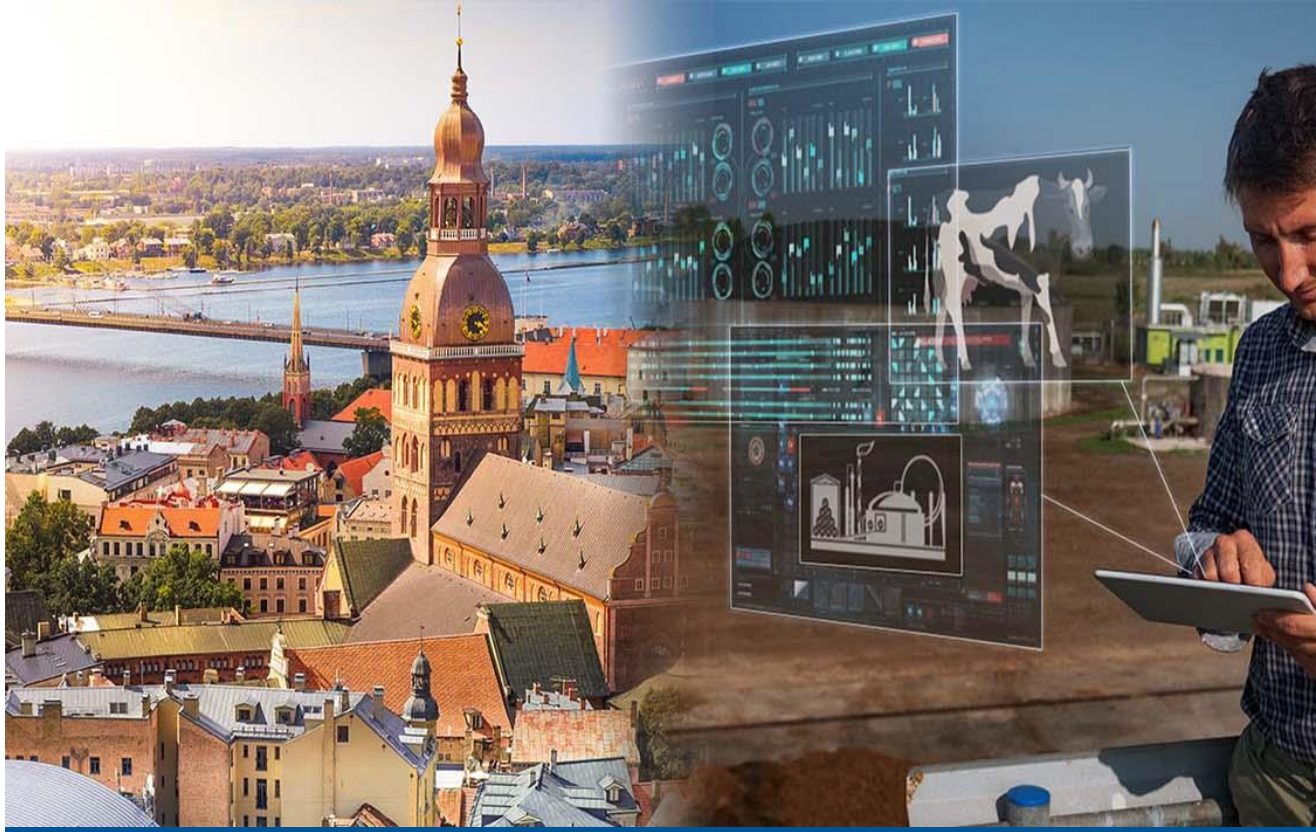
From Challenges to Opportunities
The Potential of Dairy Farming in Latvia

Iewa Leimane
AREI



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FROM CHALLENGES TO OPPORTUNITIES: THE POTENTIAL OF DAIRY FARMING IN LATVIA

24th IFCN Dairy Conference 2023, June 10th – 13th, Riga, Latvia

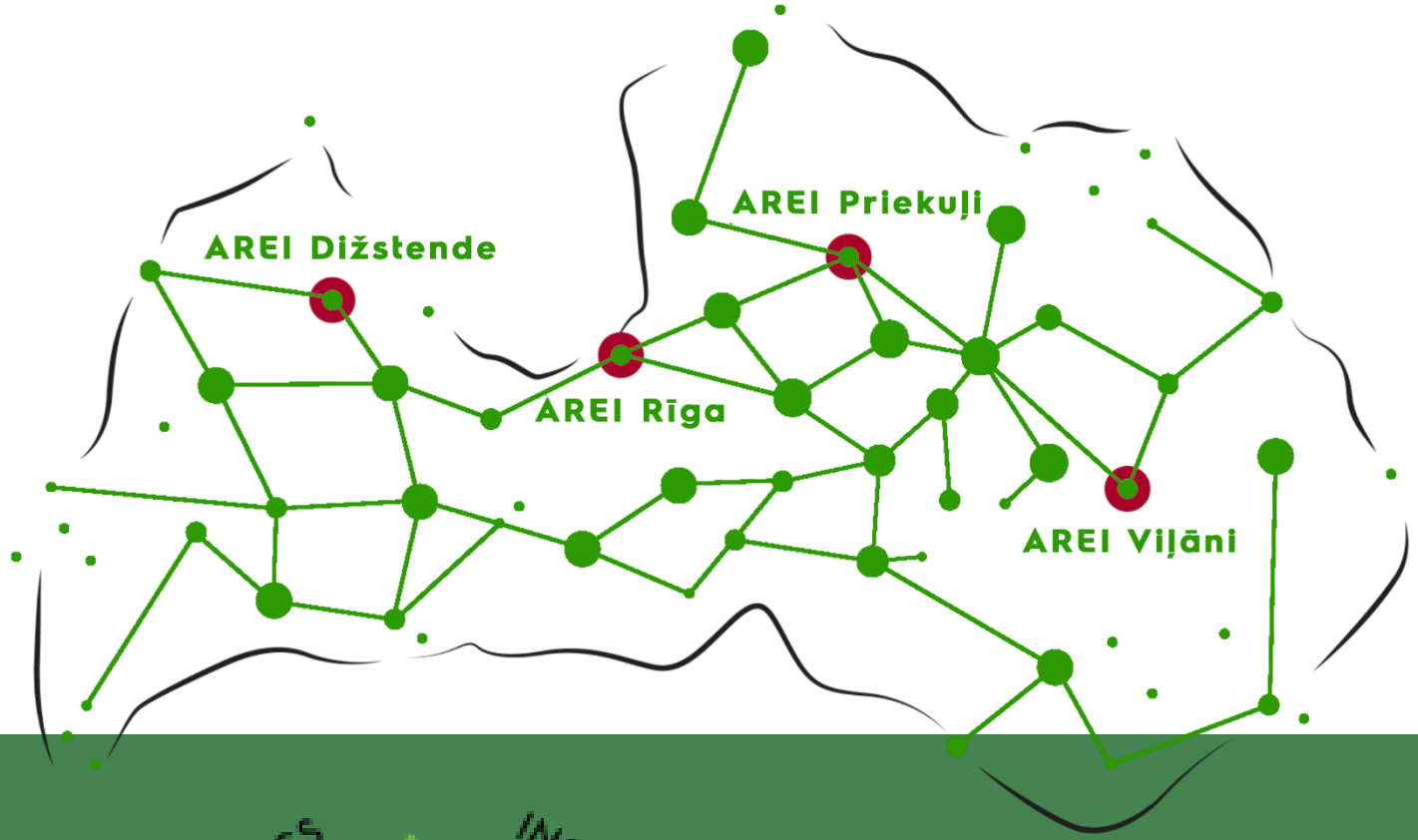
Hybrid event with selected streaming times

170 employees
involved in
~150 research projects
each year

500 ha of arable land

43 protected crop
varieties

5 mill.EUR turnover



INSTITUTE OF AGRICULTURAL RESOURCES AND ECONOMICS

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OUR RESEARCH THEMES

CROP RESEARCH DEPARTMENT

Research on crop breeding and genetics

- Development of crop varieties for integrated and organic farming
- Research on molecular biology
- Maintenance and research of crop genetic resources
- Development and reproduction of healthy potato initial seed material

Research on agroecology and crop management for integrated and organic farming

- Sustainable soil managment
- Crop managment technologies
- Weed ecology and control
- Plant nutrition circulation in agroecosystems

Research on crop quality for use efficiency

- Crop biochemical and technological value
- Crops as raw material for food and feed production
- Development of innovative products

DEPARTMENT OF BIOECONOMICS

Research on sustainable and rural development

- Regional development and agricultural policy evaluation
- Entrepreneurship diversification and development in rural territories
- Investigation of social innovations and sustainable food systems
- Evaluation of ecosystem services

Research on sustainable development of bioresource sectors and farm competitiveness

- Development of agricultural, fisheries and food sectors, towards export and markets
- Promotion of rural business and farm competitiveness
- Modelling of the effectiveness of measures for GHG emission and environmental pollution reduction
- Price formation for food supply chain from farm to fork
- Innovative solutions for development of adding value to food and biomass products
- Solutions for efficient investments and risk management

cows in a meadow - element of the traditional landscape

Photo: Dainis Arbidāns

Latvians address cows
by their names

please, meet Gauja,
Venta and Misisipi

Photo: Dainis Arbidāns

The river Gauja

Photo: Pēteris Lakovskis

The river Venta

Photo: Pēteris Jaunzems, EFIAP

Latvian blue cows

a great rarity nowadays,
but it is still possible to see
blue cows in Latvian pastures

Photo: Sandra Hvesko

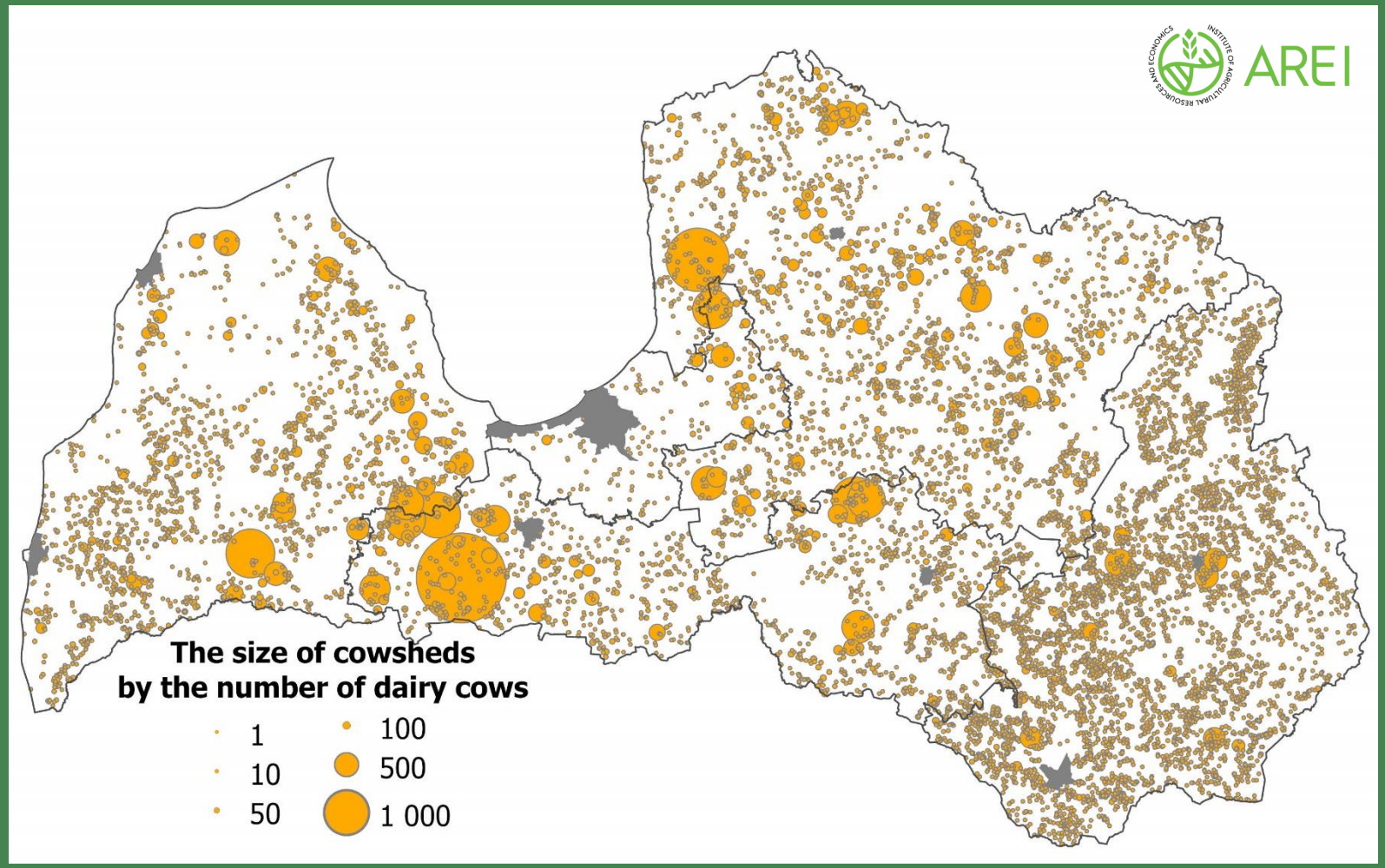
Dairy farming in Latvia

0.5 cows per ha of grassland

14 cows per farm, on average

0.97mill. tonnes of milk produced in 2022

140% self-sufficiency level



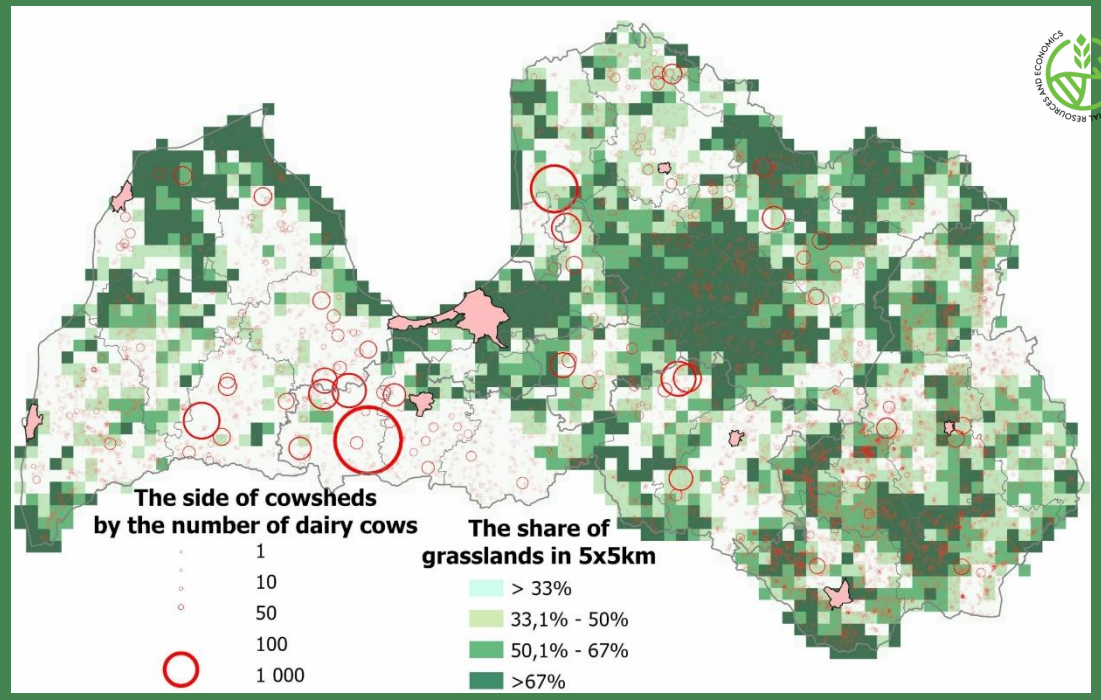
Dairy farming in Latvia –
high multifunctionality for sustainable food systems

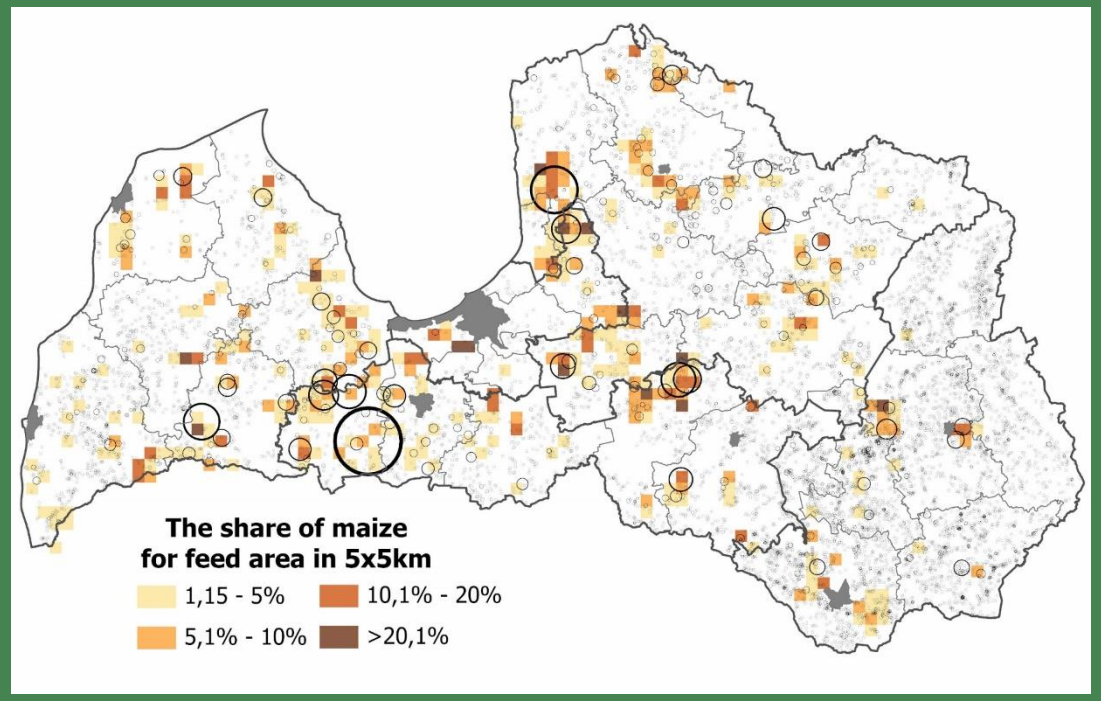
Number of dairy cows in herd	1-9	10-29	30-49	50-99	100-199	>200	Organic
Economic function							
Produced dry matter (fat + protein) kg/cow, 2020 (ADC)	505.3	479.3	514.1	579.8	651.6	733.9	423.6
Value added per employed in EUR per year, 2019 (FADN)	7 070	7 690	8 343	8 057	10 673	12 050	8 863
Share of support in net value added, 2019 (FADN)	60%	79%	70%	80%	55%	41%	108%
Social function							
Number of dairy farms, 2020 (CSB, ADC)	8111	1197	253	250	112	81	1262
Share of family labour, % of total, 2019 (FADN)	99%	85%	60%	28%	11%	2%	86%
Are the cows grazed? (yes/no, expert's evaluation)	yes	yes	yes	yes	no	no	yes
Environmental function							
GHG related to feeding, CH4 emissions CO2 eq. per year (authors' calculation)	3 924	3 760	3 604	3 604	3 979	4 471	3 741
Share of grasslands in total of farm's agricultural land, % (FADN)	52%	42%	29%	22%	21%	7%	46%
Share of grass forage in animal feed, % of total dry matter (expert's evaluation)	79%	79%	73%	73%	40%	36%	80%

Dairy farming in Latvia

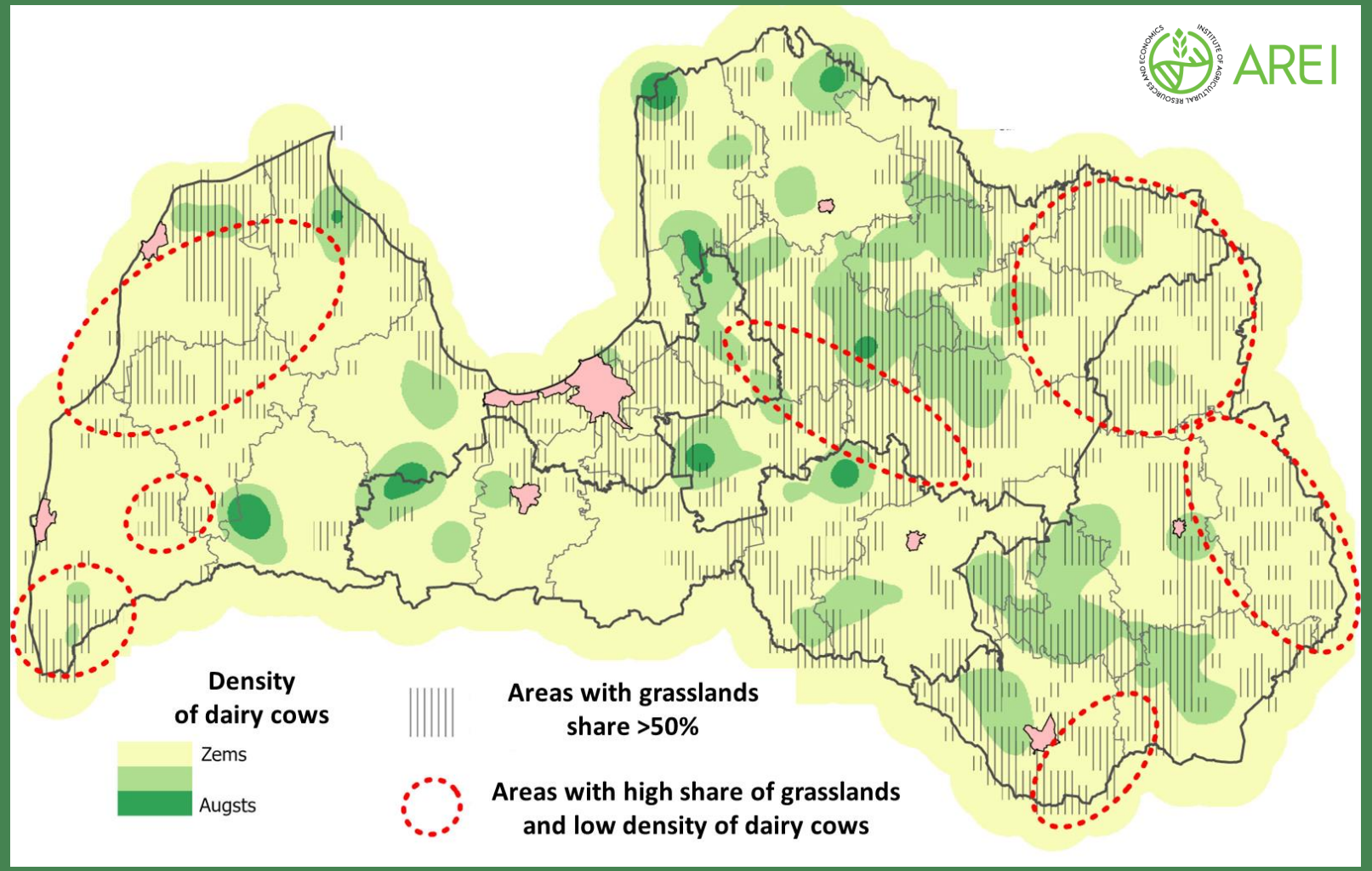
the structure of forage sources changes

grass still dominates



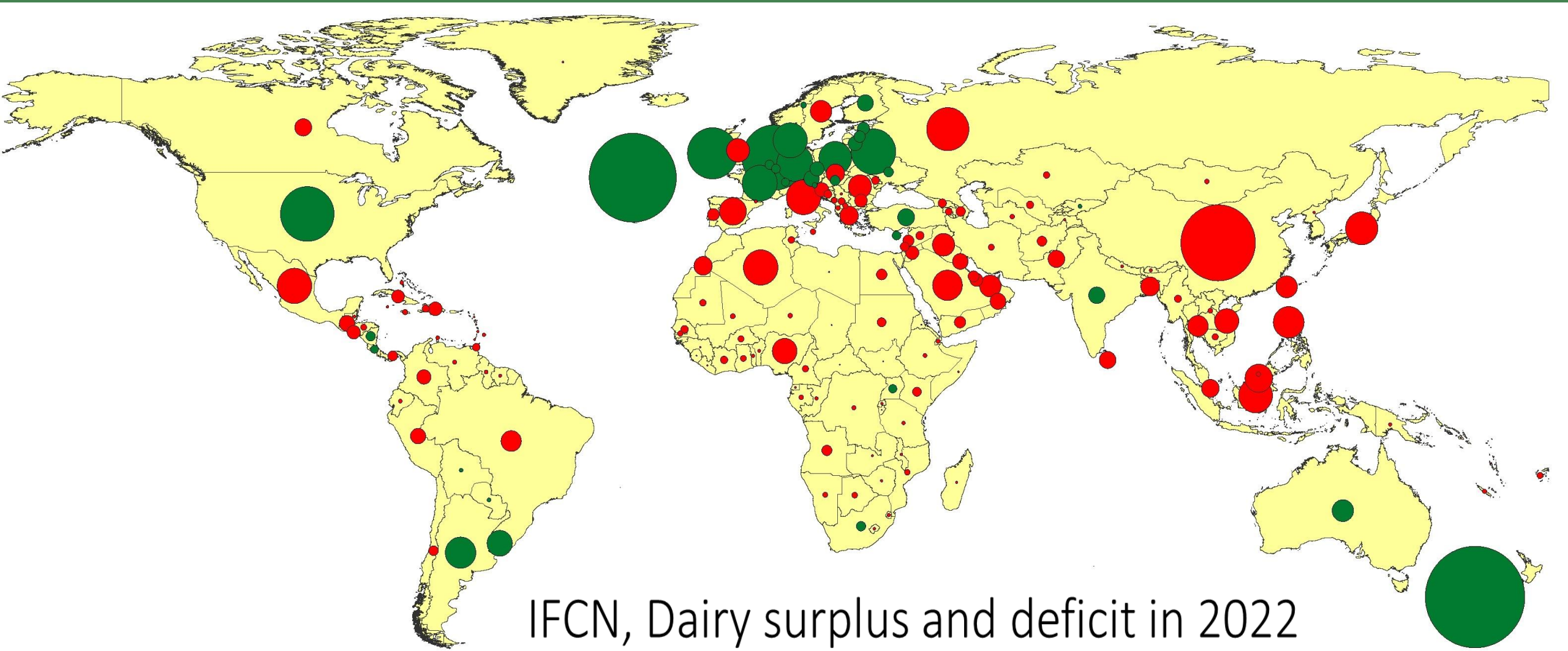


areas with high share of grassland and low density of dairy cows

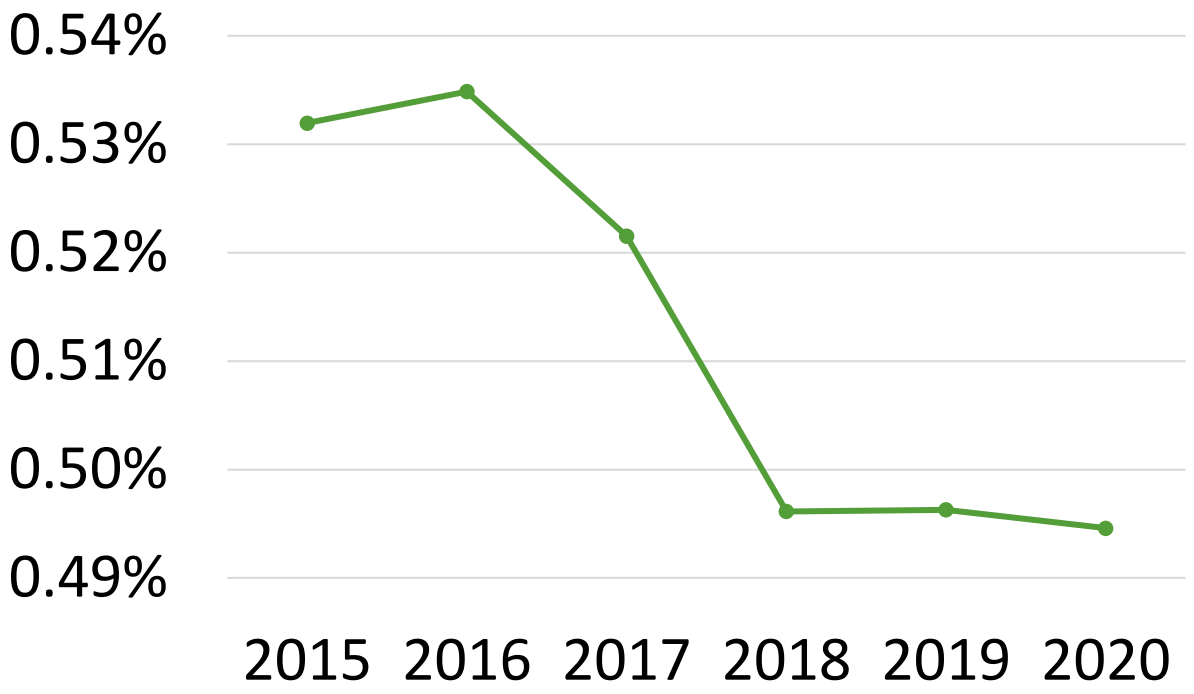


Dairy farming in Latvia

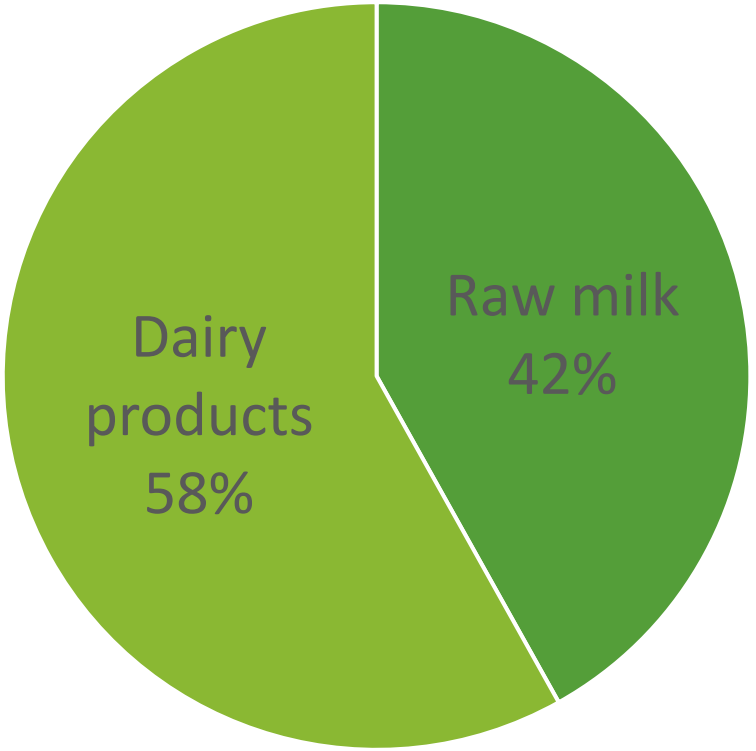
Not easy days ahead:
internal and global challenges to overcome



Presence of Latvian dairy products in the global market



Share of Latvia's milk in the EU milk supplies, %

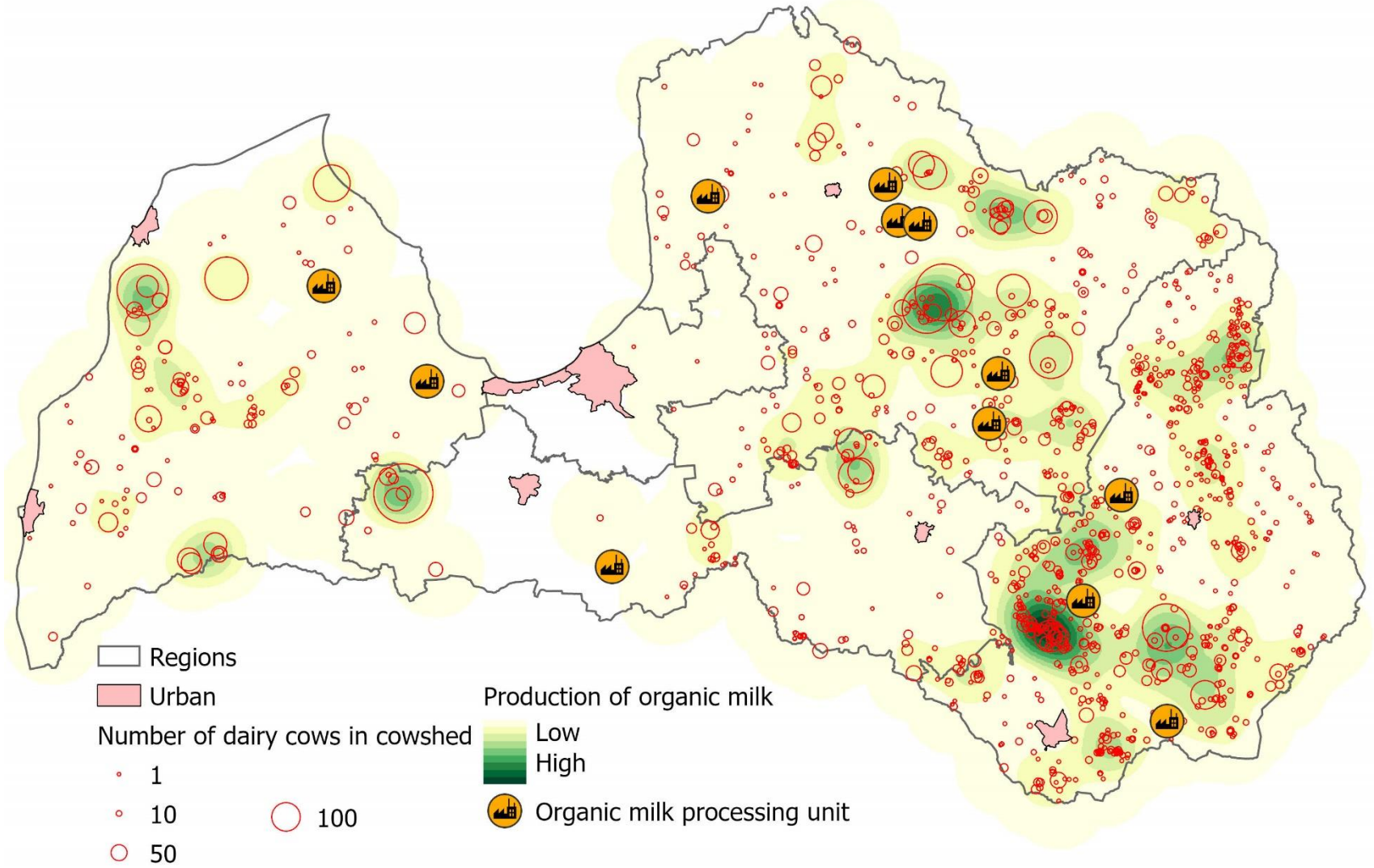


Export structure, 2020

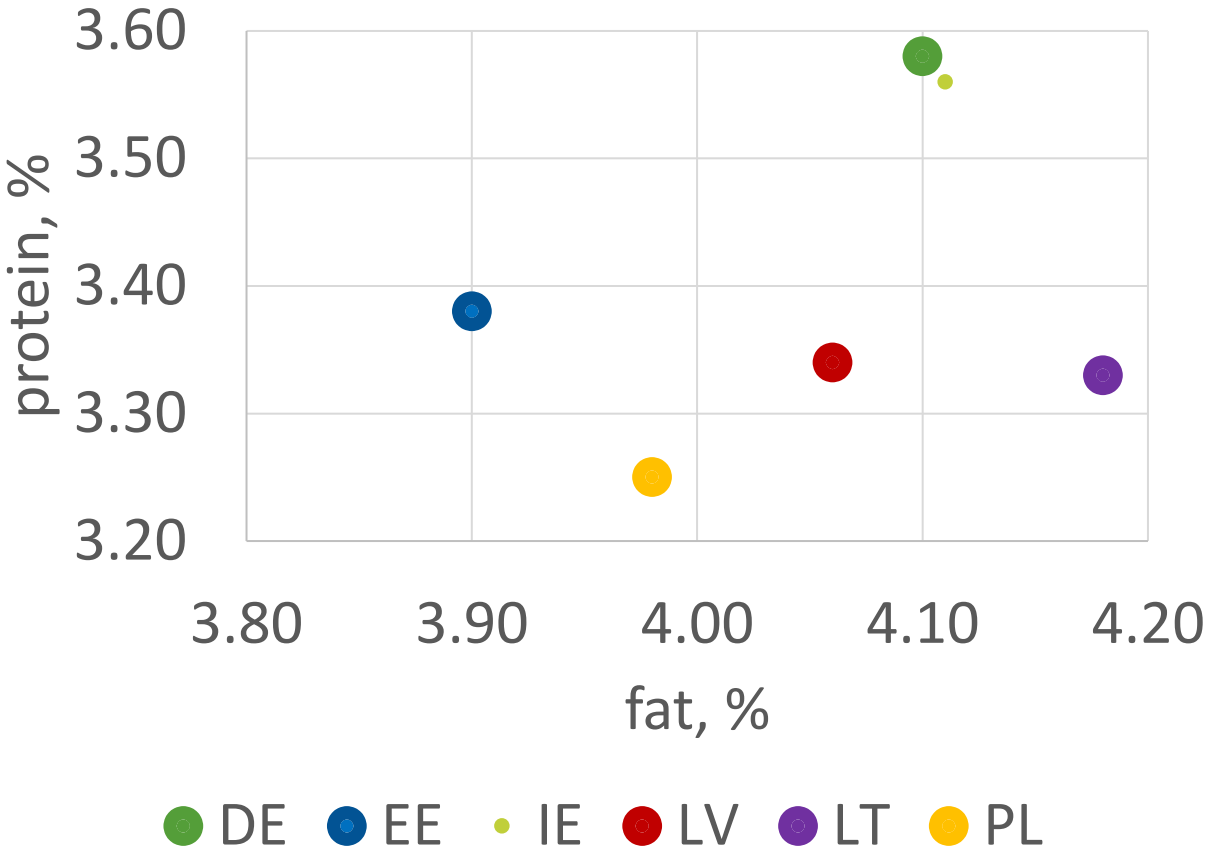
In line with the current consumption trends

Organic dairy farming accounts for 10%,

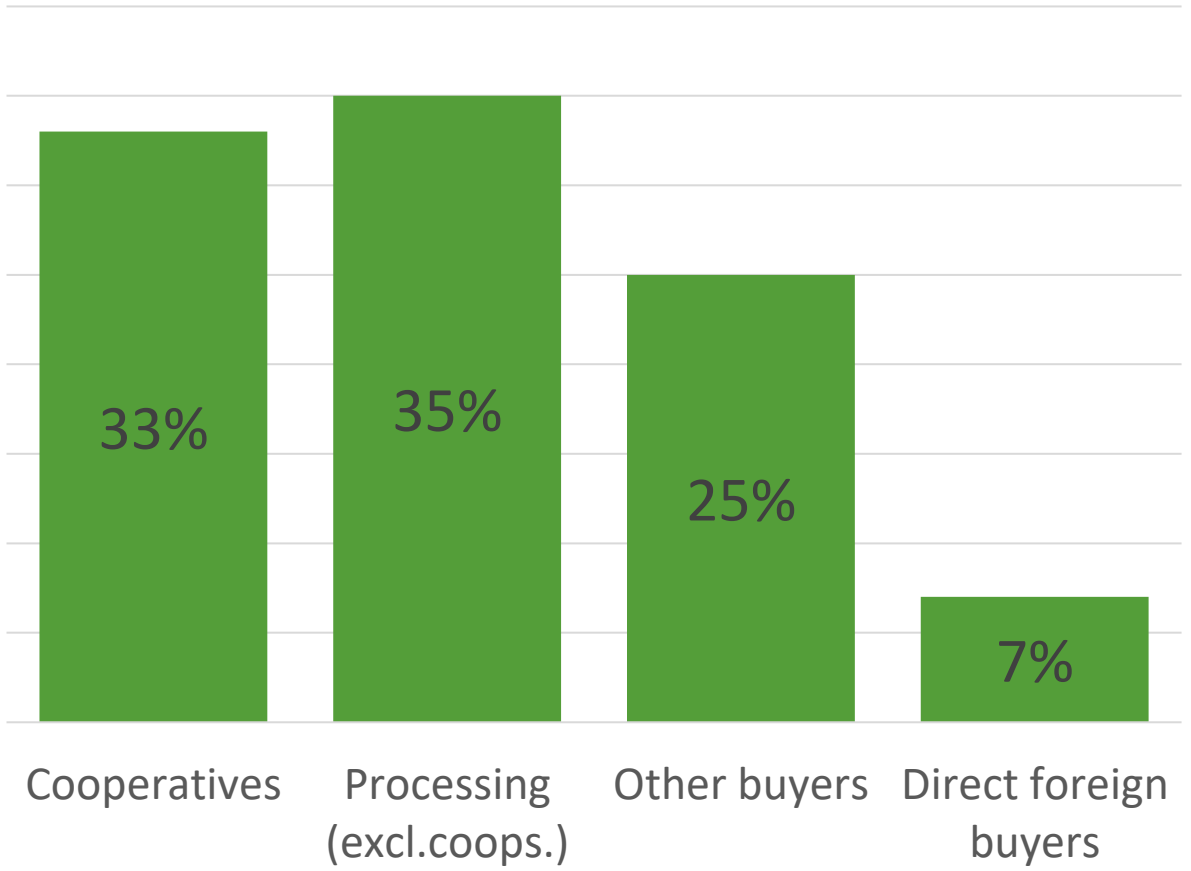
only 42% of milk processed as organic



Relatively low milk price



Content of fat and protein



Structure of milk buyers, LV

To break the trend of stagnation and grow at the global level

- Boosting farmers' cooperation to a new level - in terms of volume and processing
- Growth of milk production in family-run farms - for sustainable dairy farming
- Implementing the "Farm to Fork" strategy for organic milk

The superpower of the dairy sector:

ability to convert the solar energy accumulated in grassland into nutrient-rich food products

The grassland area in Latvia can accommodate the involvement of at least 100,000 additional cattle

Photo: Pēteris Lakovskis

Photo: Mārtiņš Cimermanis

Wishing well-being for people and cows!

Ieva Leimane,

Agnese Krieviņa,

Pēteris Lakovskis

AREI researchers

BREAK until 10:45

IFCN

24th IFCN Dairy Conference – Tuesday 13.06.2023

The Special Topic Day

IFCN Dairy Conference 2023

10:45 – 13:15

Energy & dairy market dynamics – an uneasy marriage | Philipp Goetz, Erik Elgersma

NZ position as a key world dairy exporter. What to expect in the future? | Matthew Newman

Situation of the dairy market in UA and its impact on the dairy world | Olga Kozak, Hanna Lavreniuk

Is dairy an option for the future in developing regions? | Ernesto Reyes

Panel: dairy world in times of fast changes. How the regional development may impact the global situation| Philipp Goetz, Erik Elgersma



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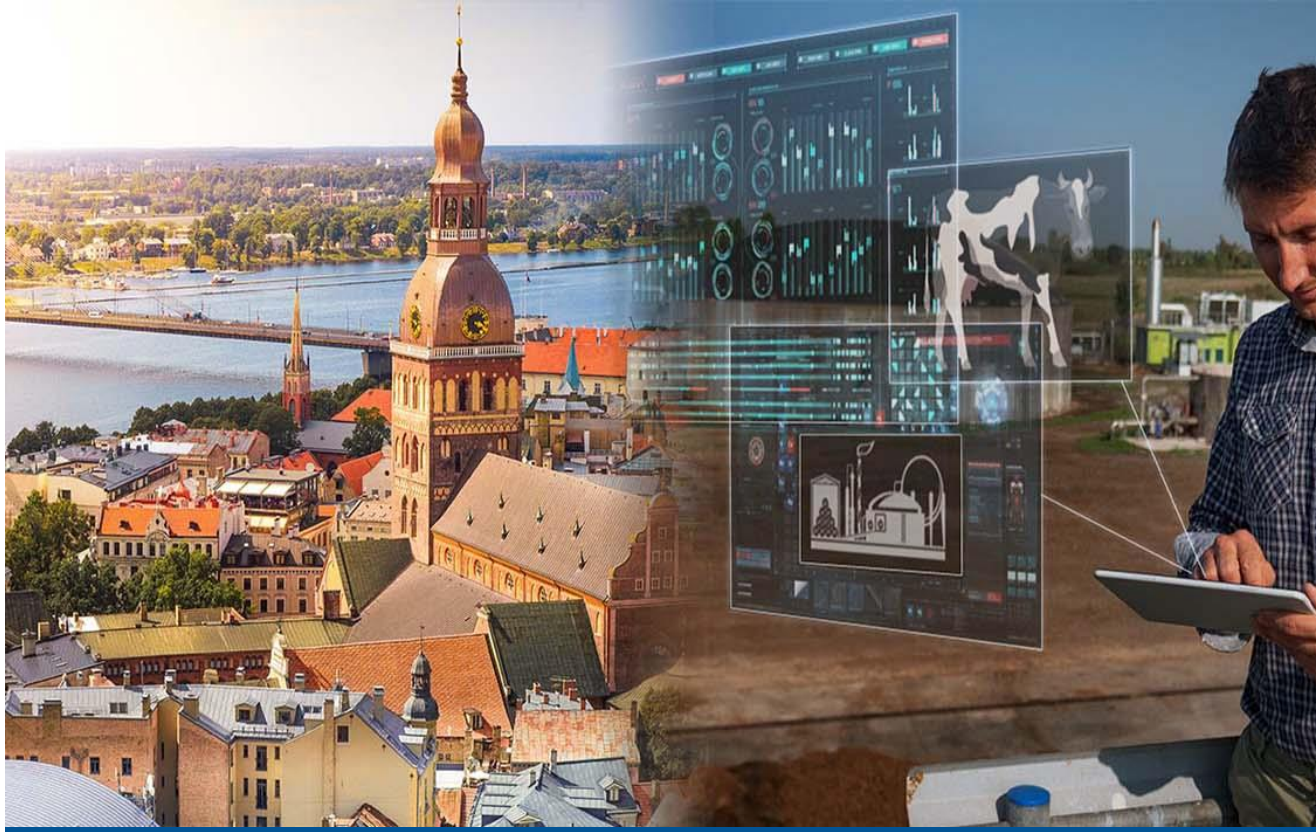
Energy & dairy market dynamics
an uneasy marriage

Philipp Goetz
Lead Product Development
IFCN

Erik Elgersma
Founder & Director
Strategic Analysis Services BV



Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

Why is this topic important?

The dairy industry is an industry of preservation and thus preservation technology.

Raw milk can only be kept 72 hours or so – under ideal conditions.

Anyone not living on or near the farm thus needs an intermediate to process / preserve the raw milk...

...and any preservation technology requires energy:

- **the shipment from farm to factory**
- **the processing at the factory**
- **the shipment from factory to consumer (with all the steps that may entail)**

The cost of such energy are thus critical for offering consumers affordable and secure access to safe milk

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ENERGY CRISIS IN DAIRY
CHALLENGE OR OPPORTUNITY?

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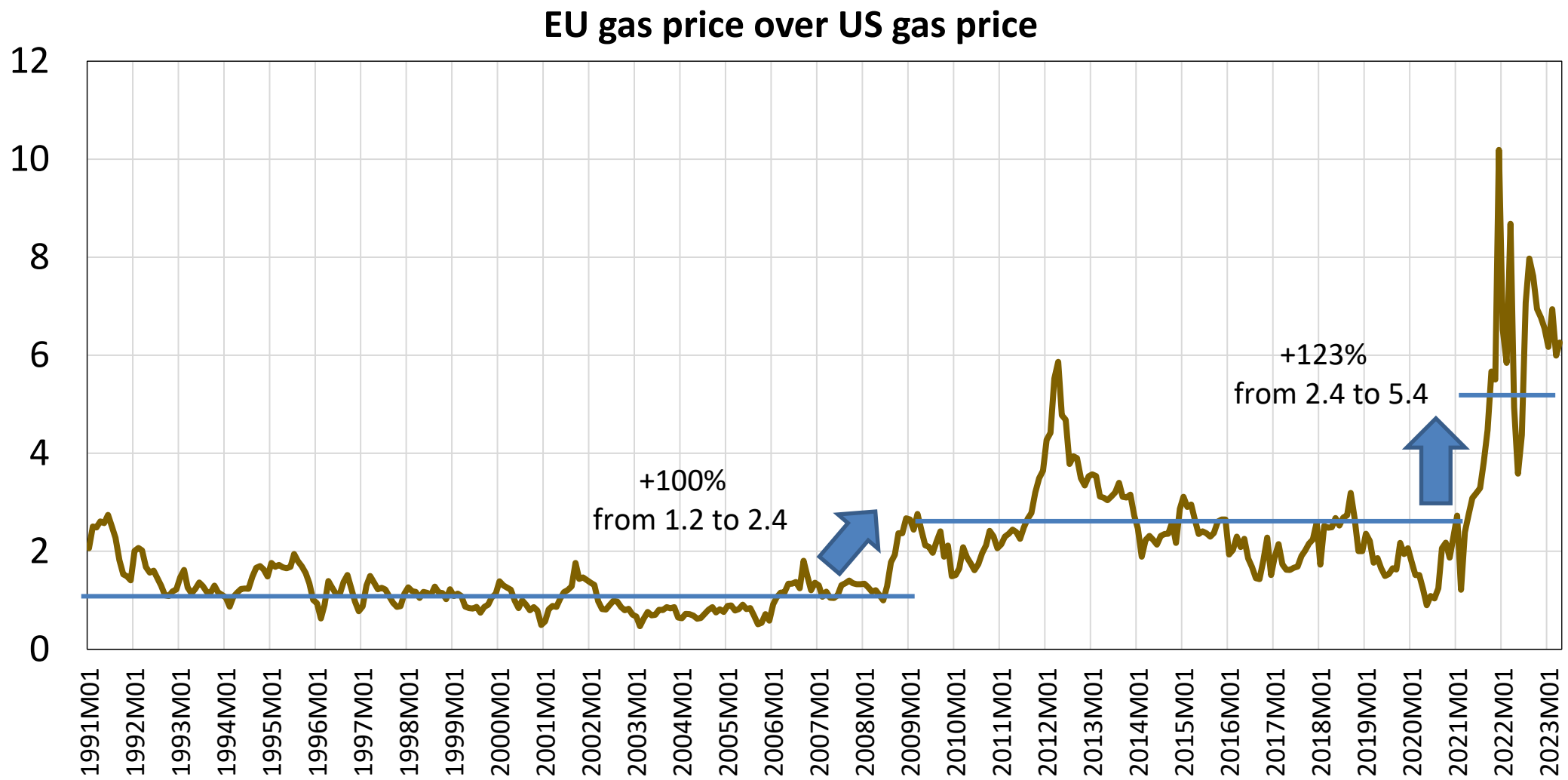
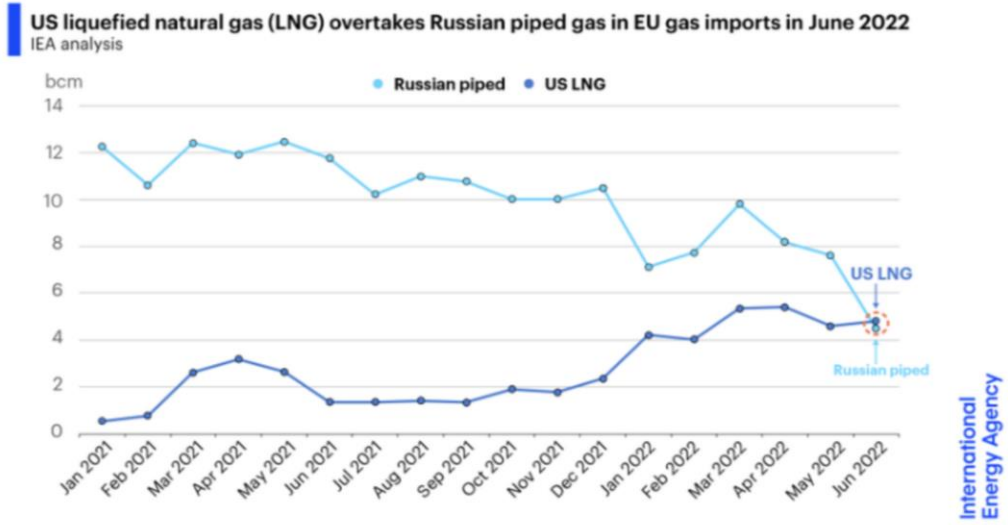
Hybrid event with selected streaming times

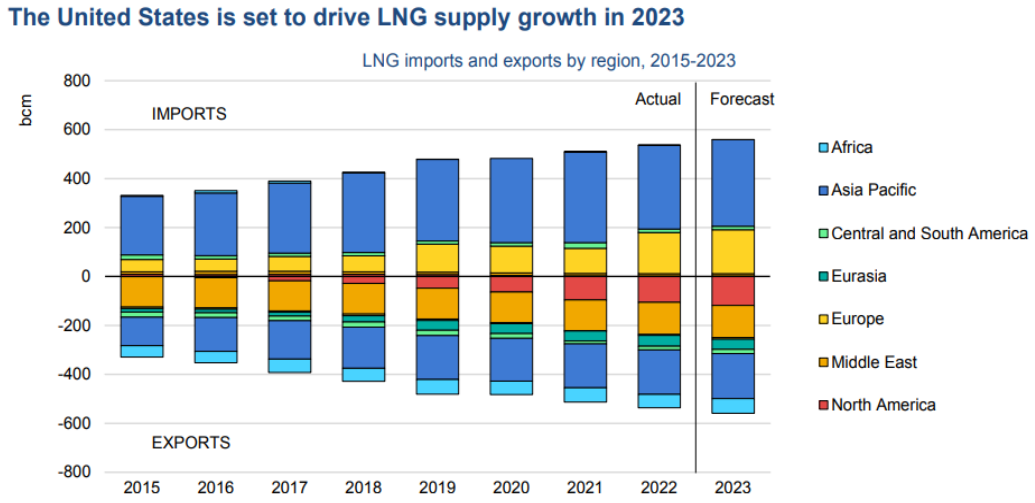
A perfect storm in the global gas market, with prices spiking to record highs - The new age of energy prices



Source: The Hauge Centre for Strategic Studies, World Bank

US: new energy powerhouse “feeding” the world





America is now a big net exporter of energy, while China remains heavily dependent on imports

- largest producer of oil today
- largest overall producer of gas
- largest exporter of LNG

Importer of US energy: India, China, Europe

Shale/LNG is strategic asset for US

Source: The Hauge Centre for Strategic Studies, IEA

Will there be a “new energy order”?

European energy markets are looking for a new normal

- *diversification of energy sources*
- *acceleration of renewable energy sources*
- *concerns about energy security*

The transition can be **long and bumpy**!

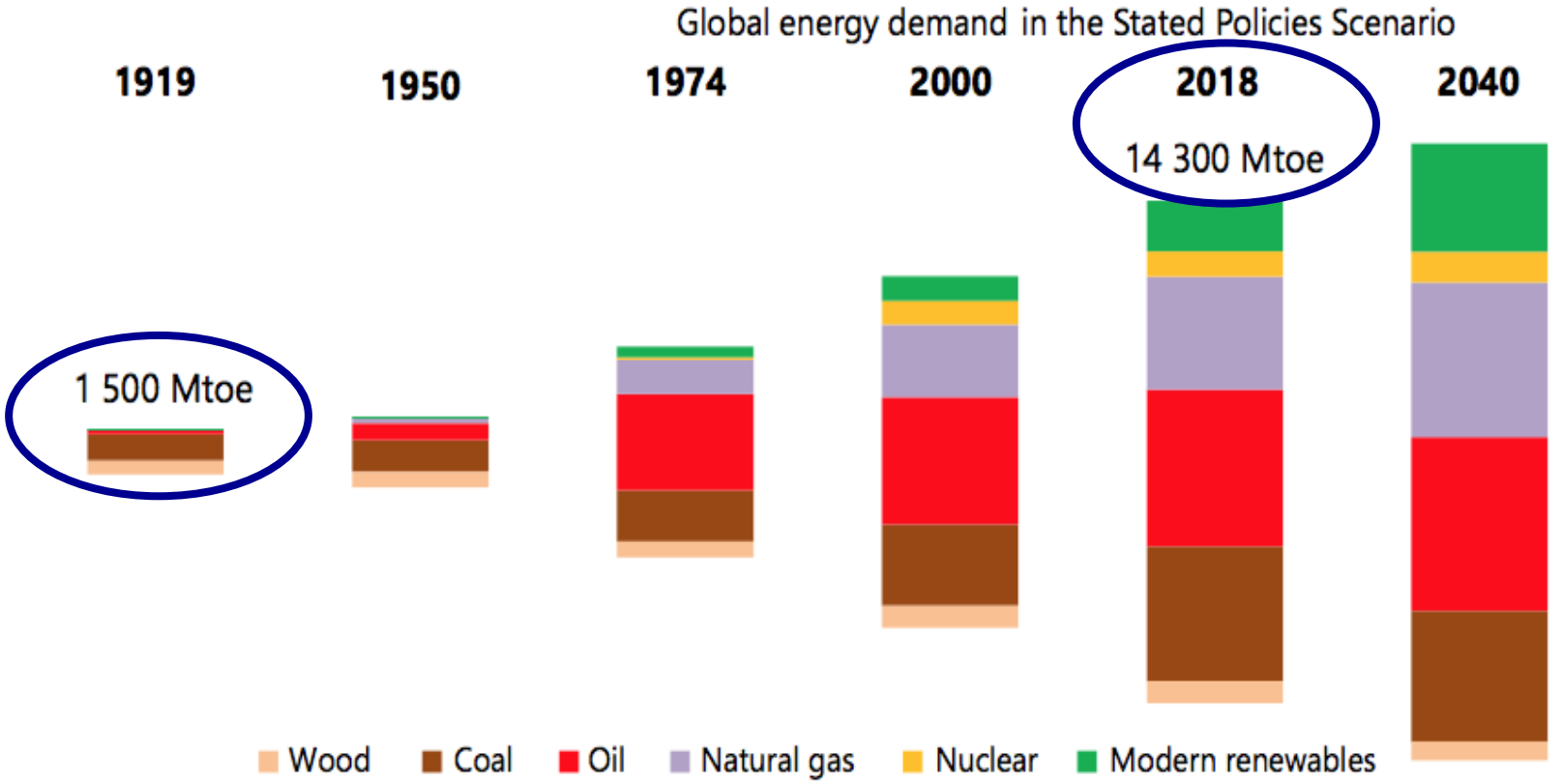
Reality: current energy order is still heavily dependent on hydrocarbons *(oil, gas, coal)* and limits policy options despite ambitions for a rapid energy transition

Energy security remains at the heart of energy policy but is coming at a cost and can derail other objectives

Transition to a new energy order will not be smooth and orderly as frictions between the major players on the world stage increase (US - China, Russia - West, slowing down globalisation)

Source: The Hauge Centre for Strategic Studies, The Economist

International Energy Context - Perspectives from history



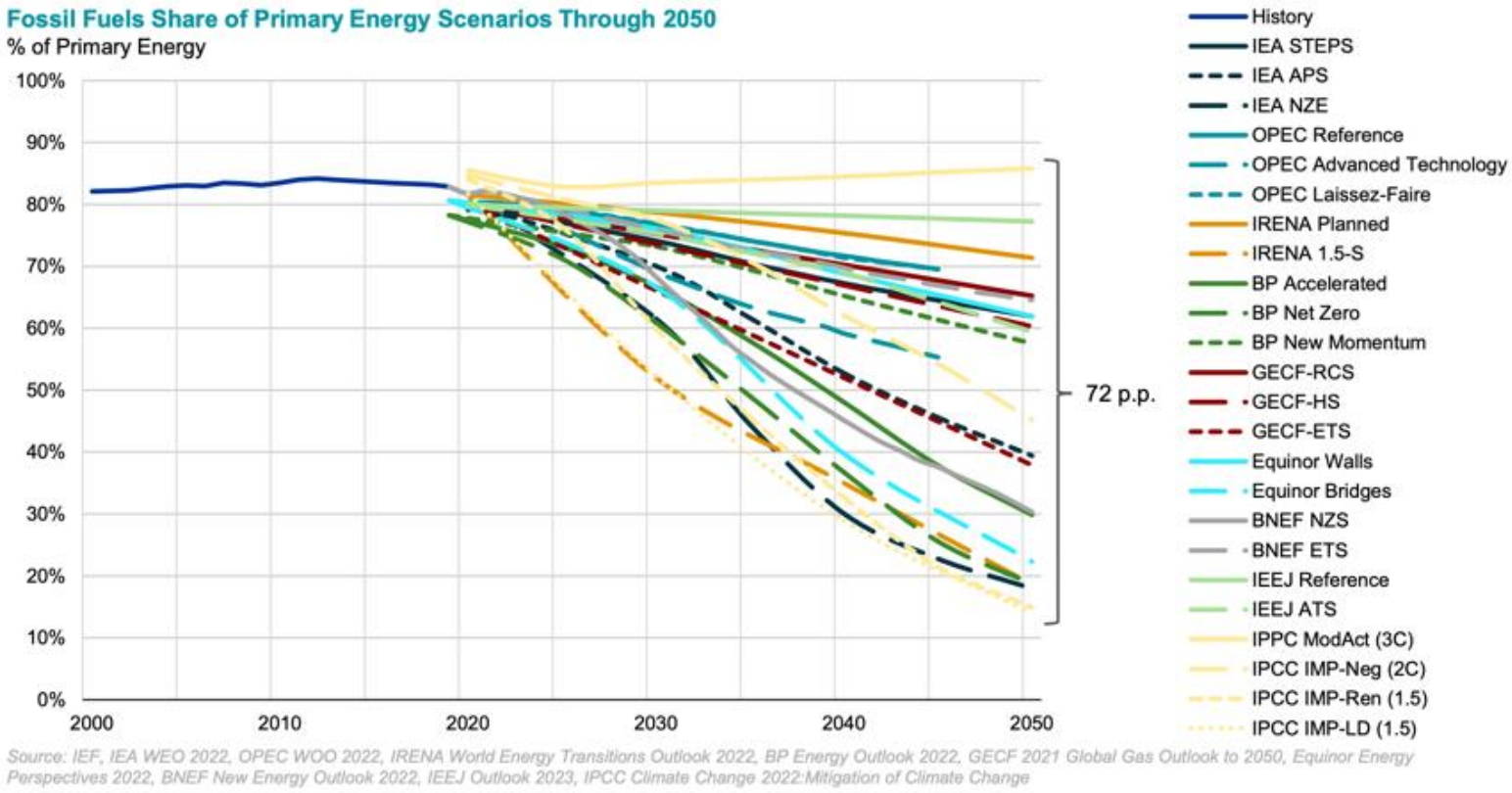
The last century has witnessed ***multiple transitions*** to and from different fuels and technologies

The challenge today is one of ***scale***: global energy use is ***ten times*** higher than in 1919 … and growing

Source: The Hauge Centre for Strategic Studies, IEA WEO 2019

Global energy scenarios - Fossil fuel share of primary energy

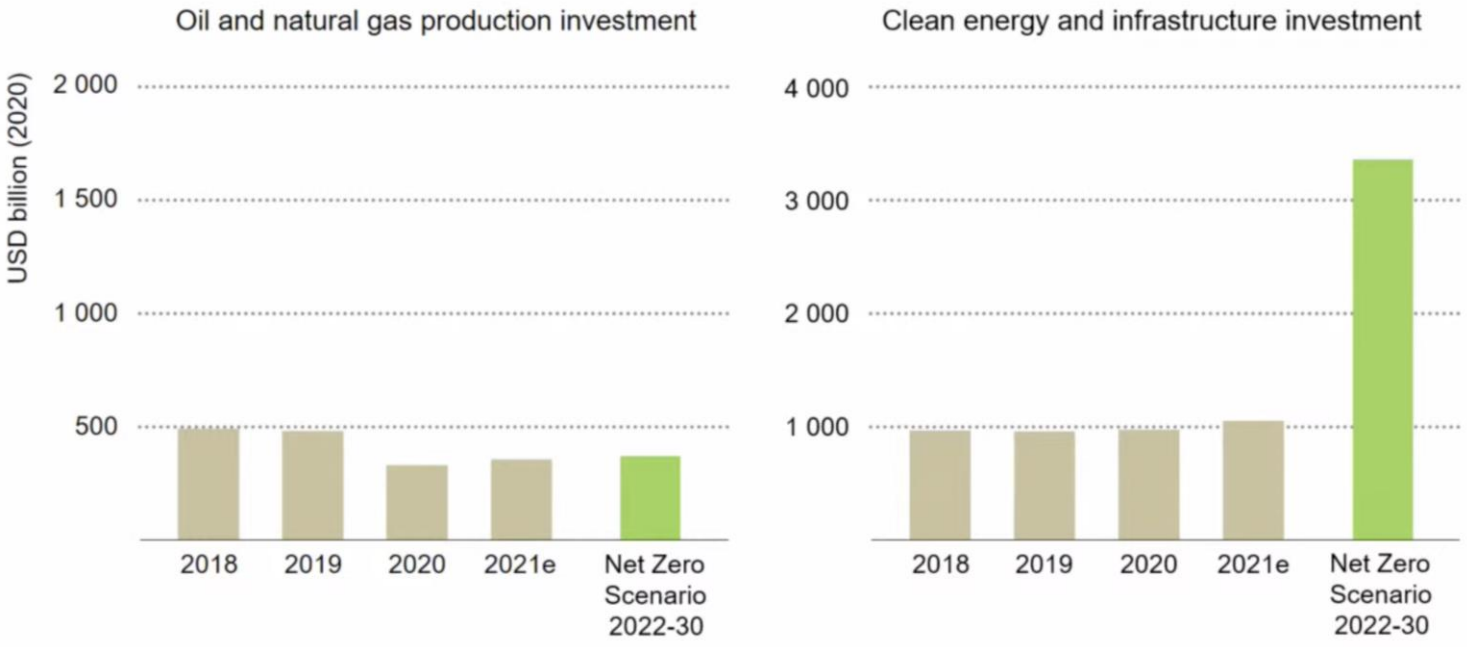
Around half of all scenarios have **fossil fuels accounting for more than 50%** of total primary energy demand in 2050



Source: The Hauge Centre for Strategic Studies, IEF 2023

Looming risk of more turbulence for energy markets - The mismatch between investing in oil and gas

The world is **not investing enough** to **meet** its future **energy needs!**



Energy investments

- A dramatic scale-up of clean energy finance is needed so that it outnumbers fossil fuel investments 9 to 1, rather than today's 1.5 to 1
- In the meantime, underinvestment risks exposing the global community to price spikes, volatility, and greater geopolitical leverage for those countries looking to weaponize their energy exports.
- Oil and gas investment is geared to a world of stagnant or falling demand, while transition-related spending is not rising nearly fast enough.

Source: The Hauge Centre for Strategic Studies, IEA 2021

The global energy transition is unpredictable and takes time – it is “Delayed & Disorderly” and no “one size fits all”

- Global demand for energy continues to rise and fossil fuels remain essential in our lifetime
  The EU will be highly dependent on fossil fuels for another 10-20 years while it hardly produces these itself anymore
- Underinvestment in fossil fuel exploration & production
  a prelude to future price explosions
- Underinvestment in renewable energy
  a prelude to more extreme weather events & climate change
- Energy price volatility continues to reign
  The quiet time with stable, low energy prices, from 2015-2020, will not return
- Geopolitics is back as the driver of the markets
  And will continue to give surprises

*There is **no single story** about the future of global energy; policies and/or events will determine where to go from here*

Source: The Hauge Centre for Strategic Studies

Implications and impacts for the dairy world

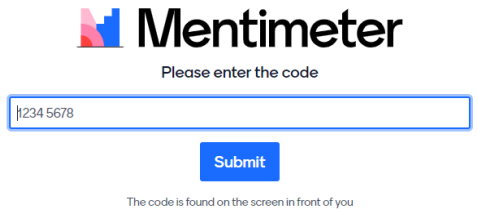
- Availability of land will be challenged: windmills, solar, biofuels, housing as competitors
- Unpredictable energy prices
  - Direct impact on dairy farming / processing via e.g. fuel, feed and fertilizer prices
  - Indirect impact via e.g. scarcity of land, difficult business case to outbid other land use

Knowledge of the crowd

Out of your opinion:

What are the implications and impacts for the dairy world of the energy transition?

1. Go to: **www.menti.com**
2. Type in this code: **2152 9446**
3. Enter **only keywords**, no phrases



Knowledge of the crowd

Out of your opinion:

What are the implications and impacts for the dairy world of the energy transition?

N = 77 people

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Some temporary shocks can contribute to or even turn into megatrends

Shocks	Megatrends
Economy (Stagflation, interest rates)	**Costs of production*** (Buffer capacity, investments)
Price shift (Farm inputs, energy crisis)	**Farm consolidation***
Labour market (Wages, immigration)	**Farm productivity / efficiency*** (Technical Progress)
Environmental policies (Green Deal)	**Demand growth *** (Strong in emerging countries)
Wars / conflicts	**Milk alternatives***
Logistics (Broken supply chain)	**Labour vs. automatization** (Skilled labour)
	(De)globalization (self-sufficiency, bilateral agreements)

* Included in the IFCN Long-term baseline outlook

How will megatrends shape the dairy world?

Climate Change and environment

+ More droughts and floods
+ Loss of agricultural land
+ Environmental policies

Demographics

+ Demographic ageing
+ Lack of successors
+ Lack of labour
+ Growing middle class
+ Population growth
+ Urbanization

Volatile geopolitics and supply chains

+ Increasing cost of energy and feed
+ Political tensions and wars
+ Longing for self-sufficiency
+ Bilateral agreements
+ Trade sanctions and disruptions

Shift in Poductivity

Adaption	Consolidation
Shift from high production volumes and low prices to alternative farming and products	Technologization and Innovation
Resource scarcity + new regulations	Digitalization
Change in demand to more ingredients	Automatization

Will there be enough food? And even enough milk?

IFCN Baseline and Validation of the Outlook

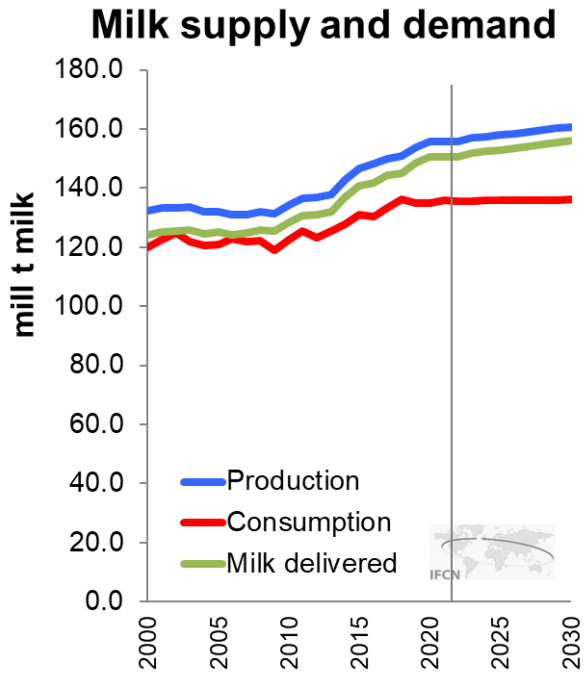
- ✓ Done by IFCN annually since 2013
- ✓ Solid database 1996 - 2022 + forecasts until 2050
- ✓ >200 countries with key dairy variables

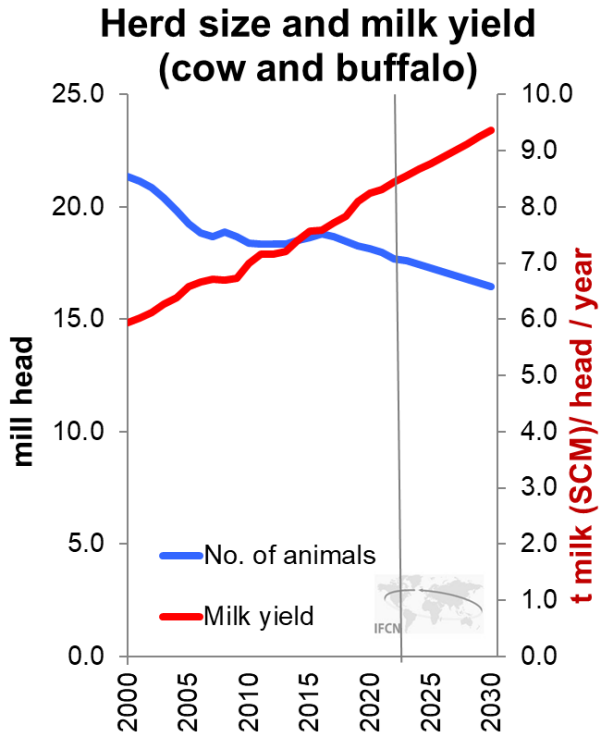
(milk supply and demand, self-sufficiency, various drivers, CO2 emissions)

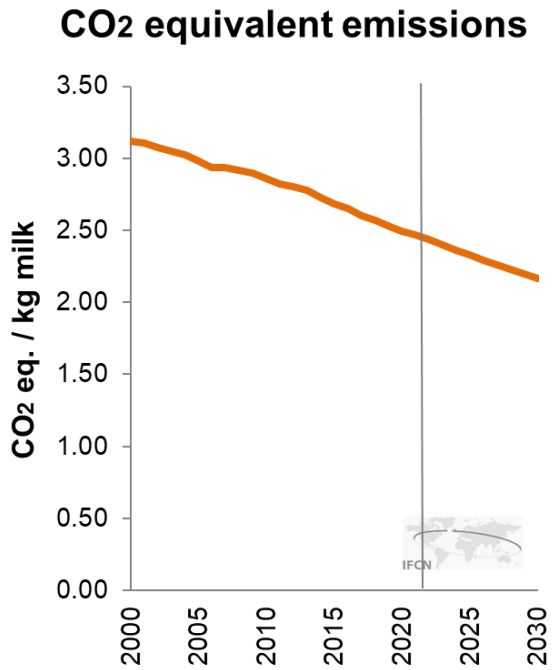
Value:

- \+ Reliable sources
- \+ Comparable data
- \+ Insights from experts

Better decision making

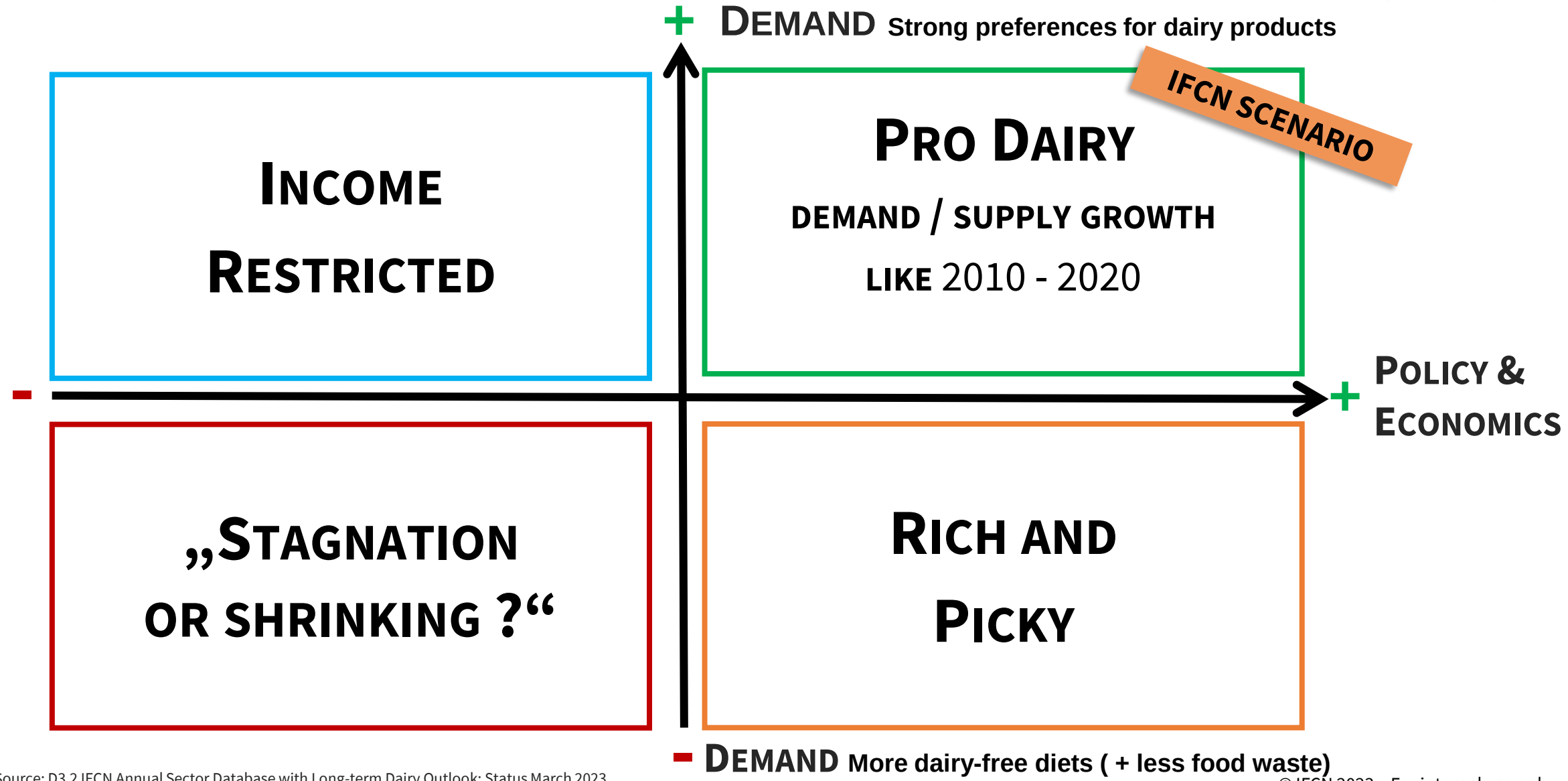






Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2023

Key Scenarios to Predict the Future



Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2023

Key Scenario to imagine the Future

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IFCN SCENARIO

PRO DAIRY

DEMAND / SUPPLY GROWTH

LIKE 2010 - 2020

World Assumptions:

- ✓ GDP (real) → 3.1 - 3.4
  - ✓ Advanced economies → 1.5 - 1.7
  - ✓ Emerging Market, Developing Economies → 4.1 - 4.4
- ✓ Exchange rate USD/EUR → 1.2
- ✓ Oil price USD/bbl → 80 – 85
- ✓ Feed price USD/100kg → 27 – 30
- ✓ Milk price USD/100kg → 45 - 48

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Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2023

The Dairy World in 2030 – growth is slowing down

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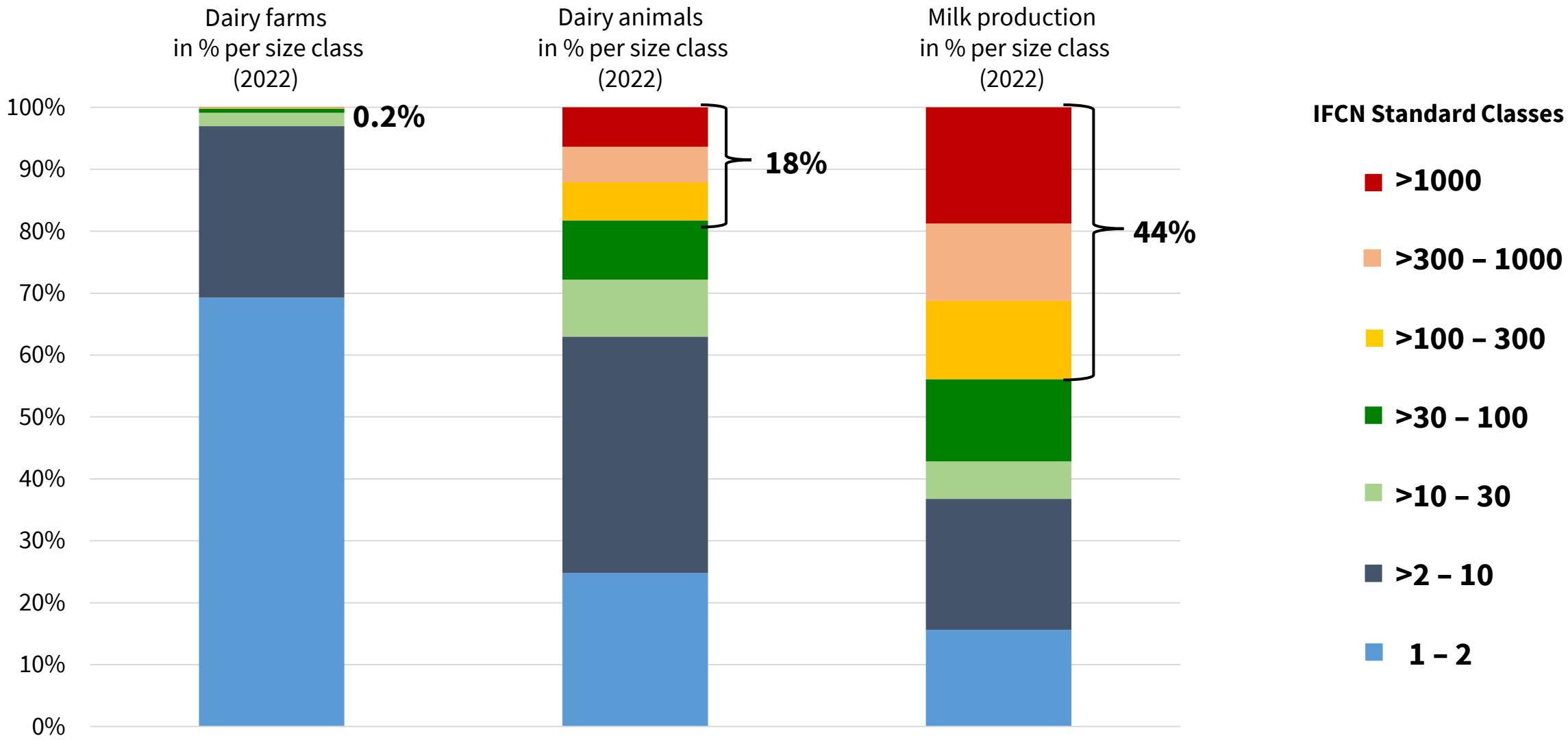
The dairy world in 2010 / 2020 / 2030

	Unit	Annual values			Change 2030 vs 2020		
		2010	2020	2030	Absolute	%	CAGR %/year
Milk supply and demand							
Milk production	*mill t SCM*	722	936	1099	163	17%	1.6%
Milk demand	*mill t SCM*	722	932	1104	172	18%	1.7%
World trade							
Excl. EU-28 intra trade**	*mill t SCM*	44	67	69	3	4%	0.4%
Supply drivers							
Number of milk animals	*mill head*	341	368	362	-6	-2%	-0.2%
Average milk yield	*t / milk animal / year*	2.0	2.4	2.9	0.5	19%	1.8%
Farm number	*mill*	123	115	100	-15	-13%	-1.4%
Average farm size	*head / farm*	2.8	3.2	3.8	0.6	17%	1.6%
Demand drivers							
Population	*billion*	6.9	7.7	8.5	1	9%	0.9%
Dairy consumption per capita	*kg ME/ capita/ year*	104	120	130	10	8%	0.8%

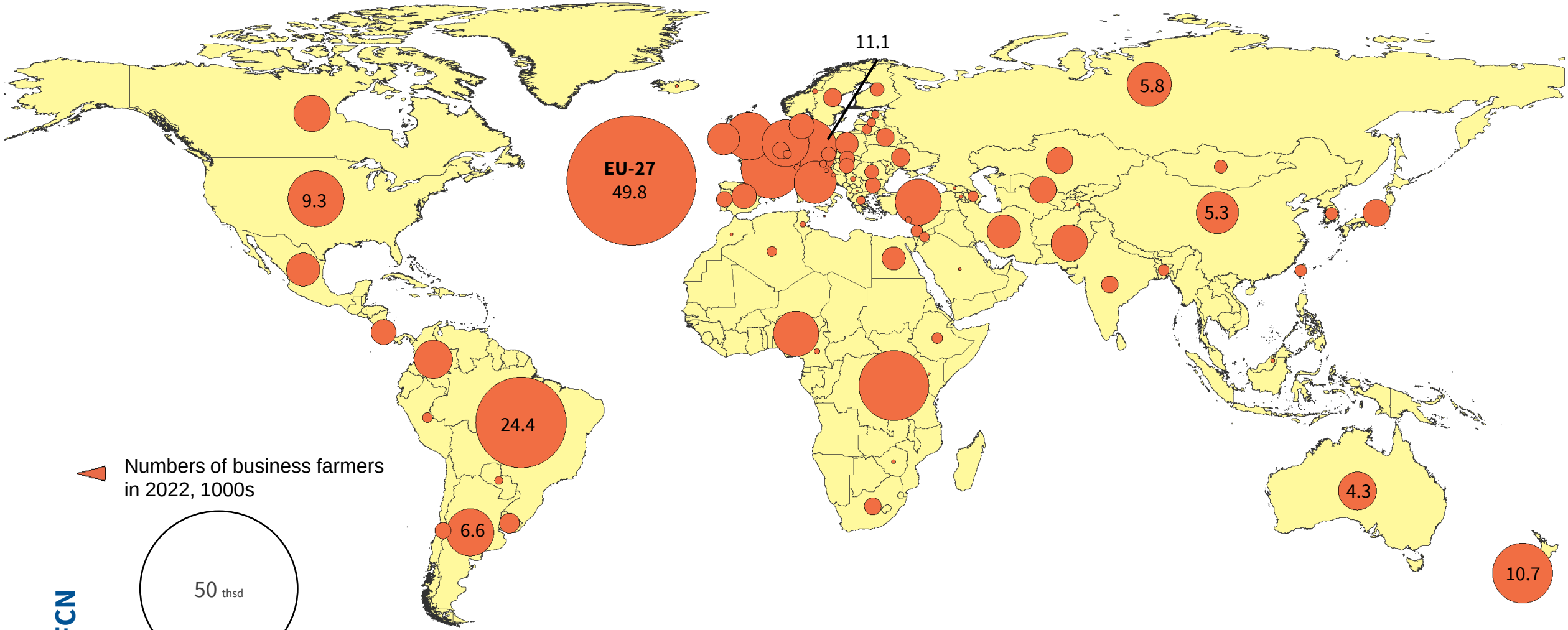
Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2023

Most milk is produced by larger farms and are mainly located in developed dairy regions



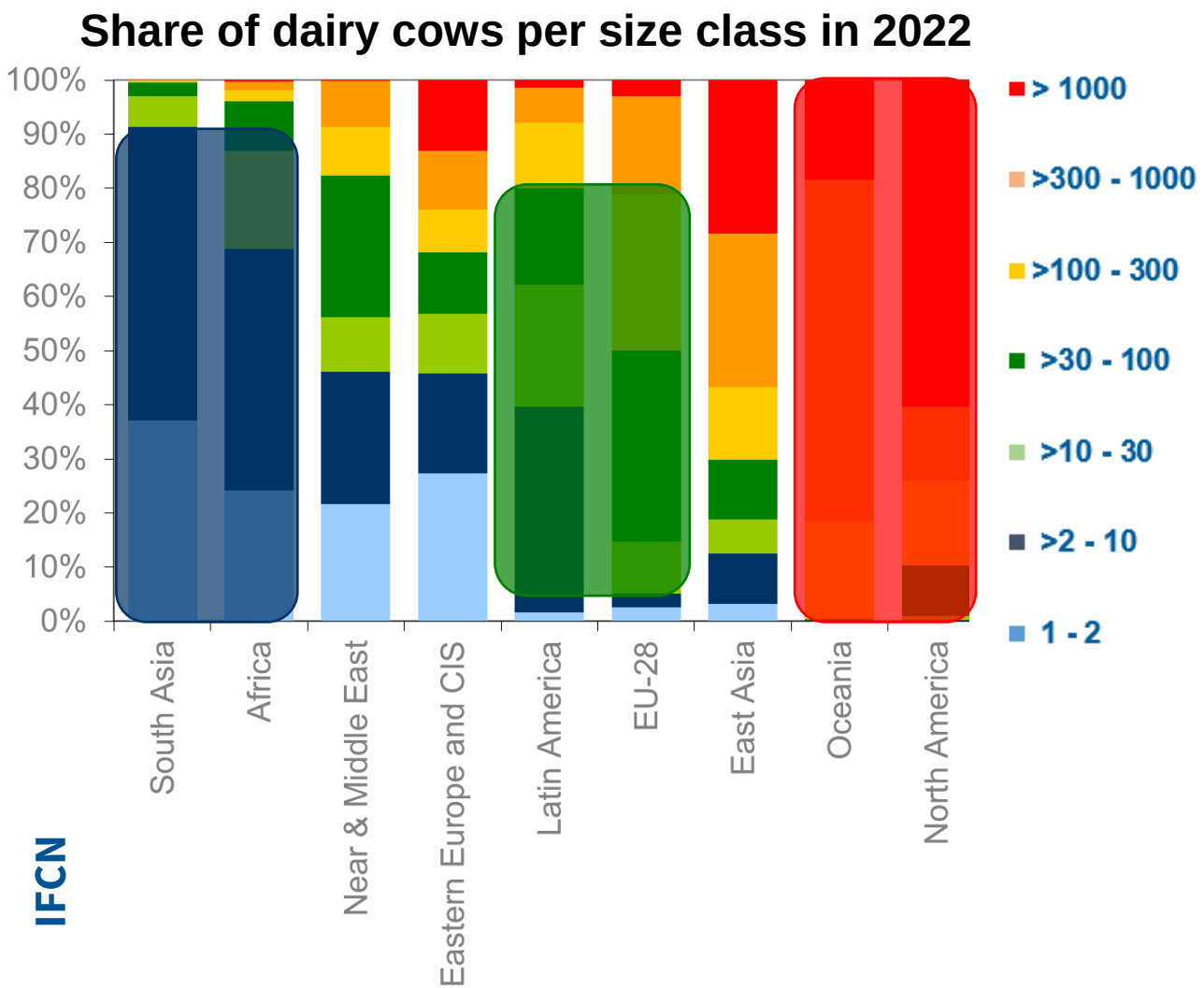
Source: D3.7 IFCN Annual Farm Structure Data with Forecasts; Status March 2023 – covering 90+ countries representing 86% of global farms and 89% of global milk production

Business farms with > 100 Cows are mainly located in developed dairy regions



Source: D3.7 IFCN Annual Farm Structure Data with Forecasts; Status March 2023

Farm Structure depends on Dairy Developments and Speed of Consolidation



Source: D3.7 IFCN Annual Farm Structure Data with Forecasts; Status March 2023

Small / household farms

mainly in India, South Asia and Africa:

- Dairy used for household consumption
- Surplus goes to the market (formal or informal)
- Household usually led by elder

→ Main future issue : access to capital

Medium / family farms

mostly located in Latin America and the EU:

- Work mainly done by family members
- Dairy generates an income
- Farms with or without successor

→ Main future issue: politics, stability, infrastructure

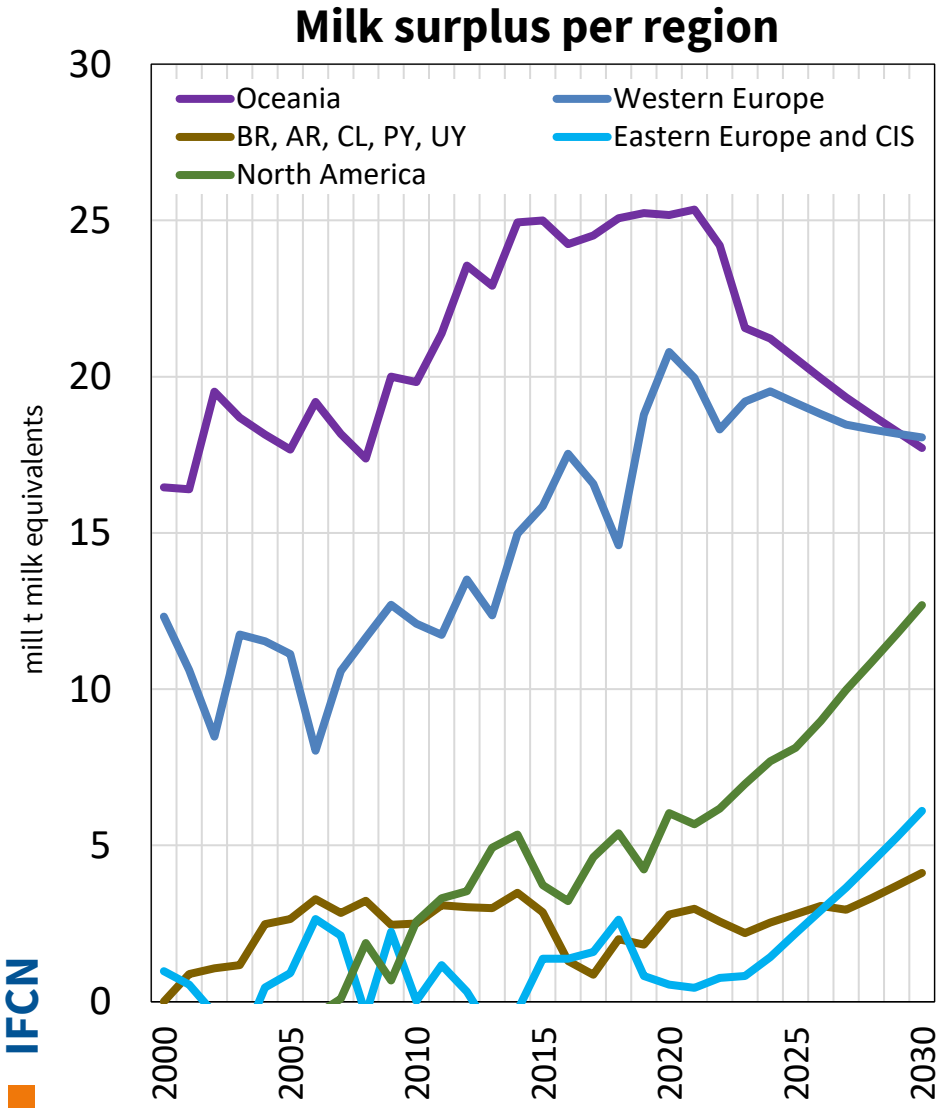
Large/ business farms

located in the USA and Oceania:

- Work done by employees
- Generates the expected ROI
- Led by management

→ Main future issue: environmental restrictions

Major exporters are showing different developments – change in powerhouses after 2030?



Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2023

Oceania – bearish market tone: -18% less surplus vs today
Highly affected by weather conditions/climate change, politics to reduce emissions, shortage of labour → ***-10% less supply***

Western Europe – bearish market tone: -6% less surplus vs today
Higher costs, lack of successors, decrease in farm number, decrease in dairy herd, politics to reduce emissions, restrictive fertiliser usage → ***-5% less supply***

Latin America – stable market tone: +88% more surplus vs today
Natural resource, global competitiveness, farm consolidation, macroeconomic situation/ instability, technology adaptation, high inflation → ***+16% more supply***

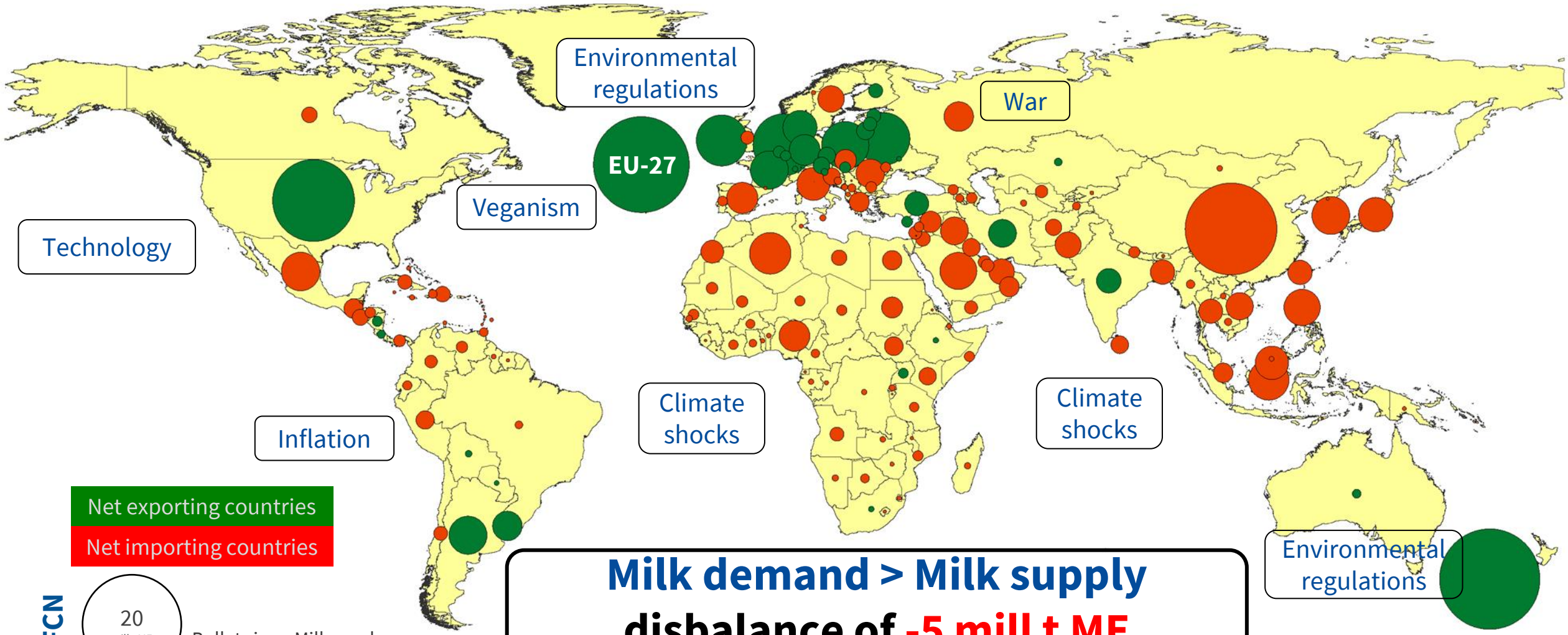
Eastern Europe & CIS – bullish market tone: +640% more surplus vs today
Lower cost level then Western EU, increasing efficiency (farm consolidation), access to natural resources, politics to reduce emissions → ***+10% more supply***

North America – bullish market tone: +82% more surplus vs today
Limited growth due to natural resources and climate change → ***+9% more supply***

How much more milk available for exports?

Or is the share of local for local increasing?

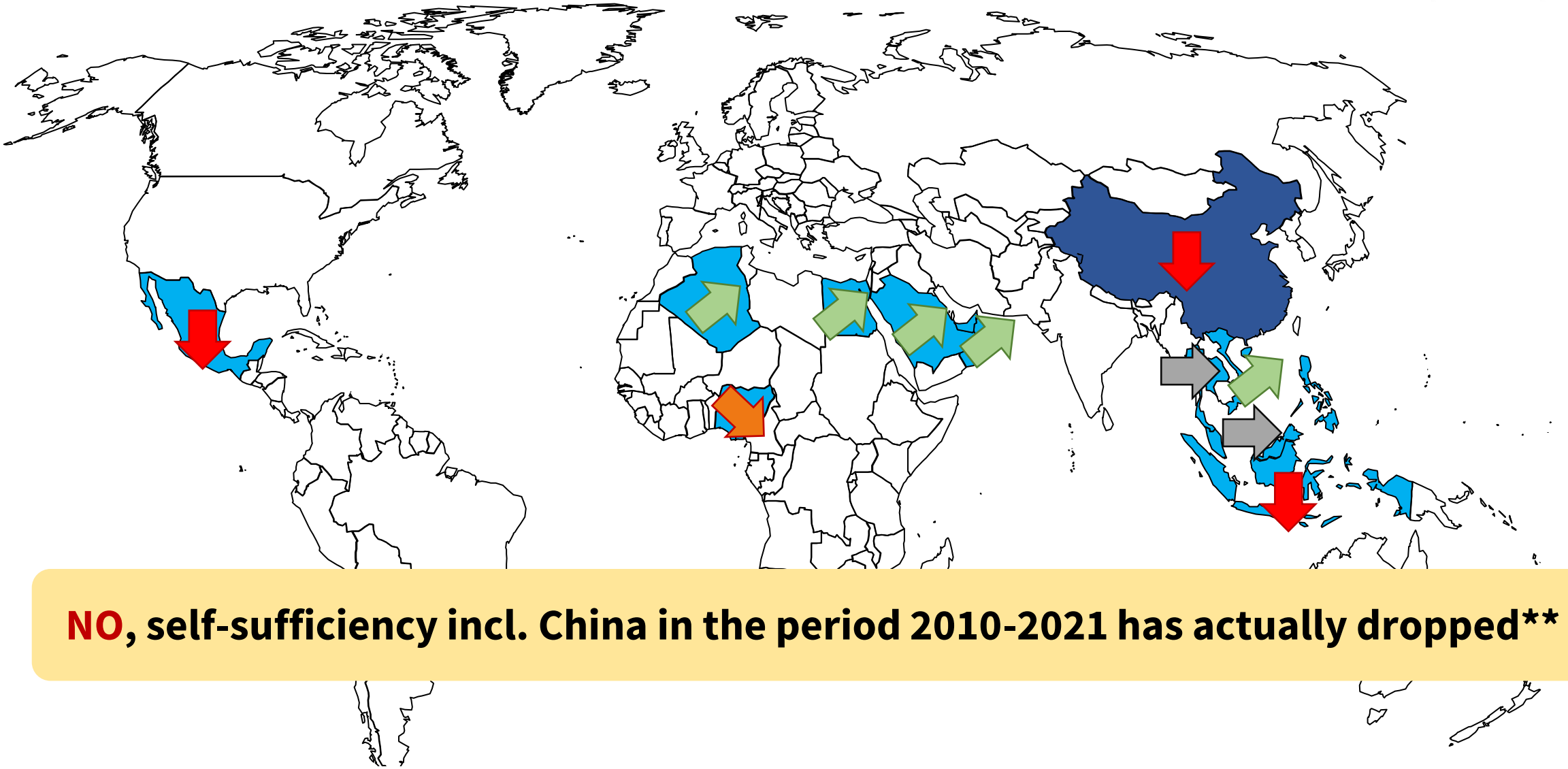
Dairy Surplus & Deficit 2030 and its Game Changers



Milk demand > Milk supply
disbalance of -5 mill t ME

Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2023

In scope: 12 major dairy (net) importers plus China:
Have importers increased their self-sufficiency in?



NO, self-sufficiency incl. China in the period 2010-2021 has actually dropped**

*Weighing factor is the 2021 population of the individual countries. **Self-sufficiency excluding China dropped from 39 to 38% → stable

What does it mean for you & the industry?

Understanding the future path of the dairy world
→ Substitutes may come up but it does not move the global needle.
→ The demand for dairy products is almost unlimited.

Making fact-based decision on globally comparable dairy data
→ There will be a global battle for access to dairy products.
→ FAO acknowledges critical human dietary relevance of animal protein.

Analysing dairy market developments and its impacts
→ Due to inflation, prices will be higher than in the past.
→ Food security is back on the agenda.

Our main goal is to help people make better decision in the dairy world!

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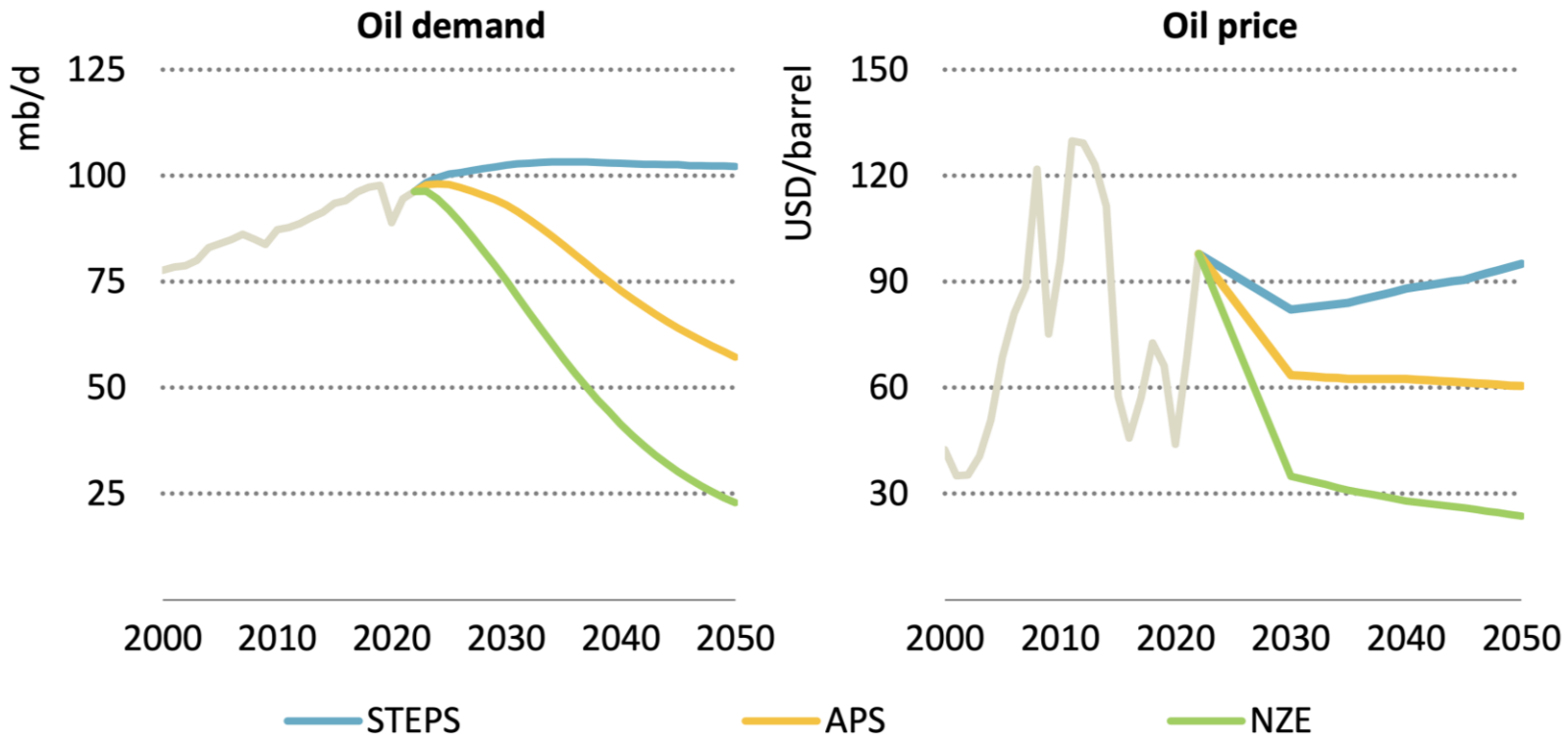
Price volatility can increase and remain on high level – Scenario thinking is important

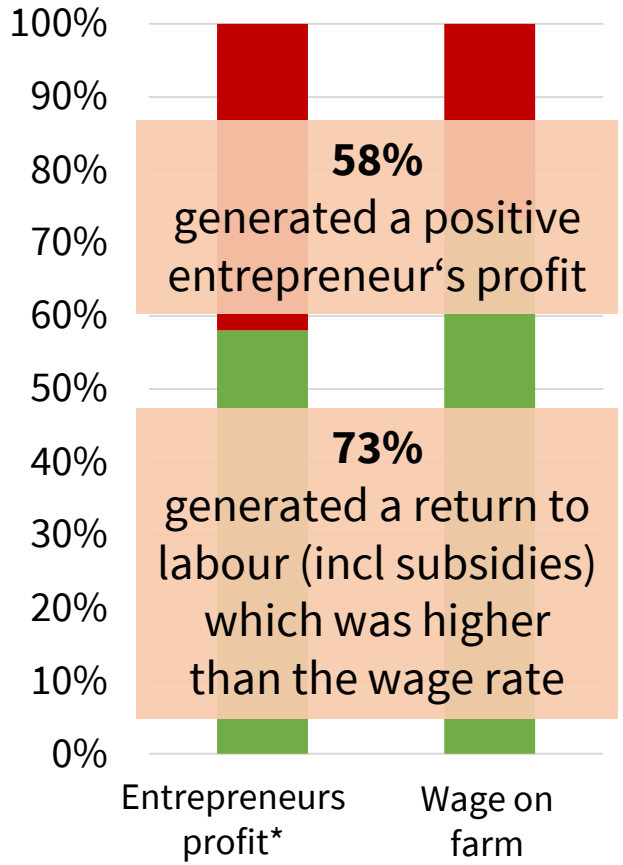
Global oil demand and crude oil price by scenario



"If clean energy investments do not accelerate as in the NZE scenario, higher investments in oil and gas would be needed to prevent further fuel price volatility, but this would also mean that the 1.5C target would be at risk."

Source: The Hauge Centre for Strategic Studies, IEA WEO 2022

More pressure to come on farmers and threat for farmers: income < minimum wage



Greenhouse Gas Emission Reduction

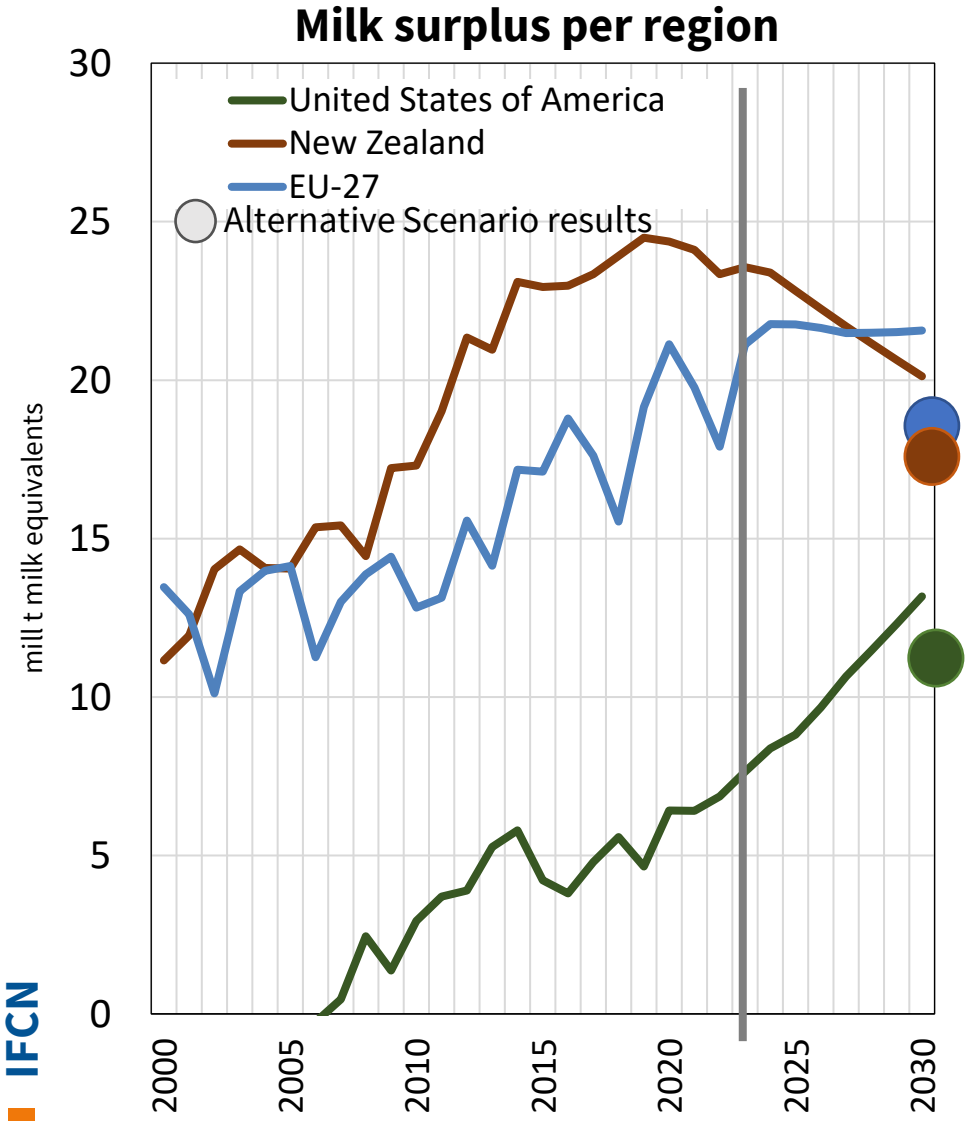
Farm input costs up

Policies & Regulations (e.g. Green deal)

Less milk? How much?

Source: IFCN internal calculations and preliminary data for 2022

Alternative Scenario Results for Key Players



Baseline scenario: results 2030 vs. 2022

More milk from major exporters to satisfy rising global demand, but already a slight disbalance as supply is facing limitations

What-if scenario:

High energy costs will continue and put additional pressure for farmers (continuity of high input costs).

Assuming demand will be not affected by higher prices.

Alternative scenario: results 2030 vs. 2022

only +1.1 mill t more milk to feed the world

→ **More local for local production than local for global**

The dairy market looks to remain a seller's market

Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2023

There is no “crystal ball”, there are just the right tools for strategic planning

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01 How much volume growth for dairy **imports** will be **feasible**, will heavily **depend on supply**.
→ national strategies and policies in net-importing countries are needed to stimulate domestic production

02 **Shortage in milk** supply worldwide with the baseline scenario: **disbalance of -5 mill t** in 2030
→ Affordability issues and increasing unsatisfied demand

03 World market supply and demand together will determine **global and local milk prices.**
→ Global dairy prices likely to rise faster than inflation: Are you ready for **80 USD/100 kg** milk?

Lightspring/Shutterstock.com

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ENERGY CRISIS IN DAIRY
CHALLENGE OR OPPORTUNITY?

24th IFCN Dairy Conference 2023, June 10th – 13th, Riga, Latvia

Hybrid event with selected streaming times

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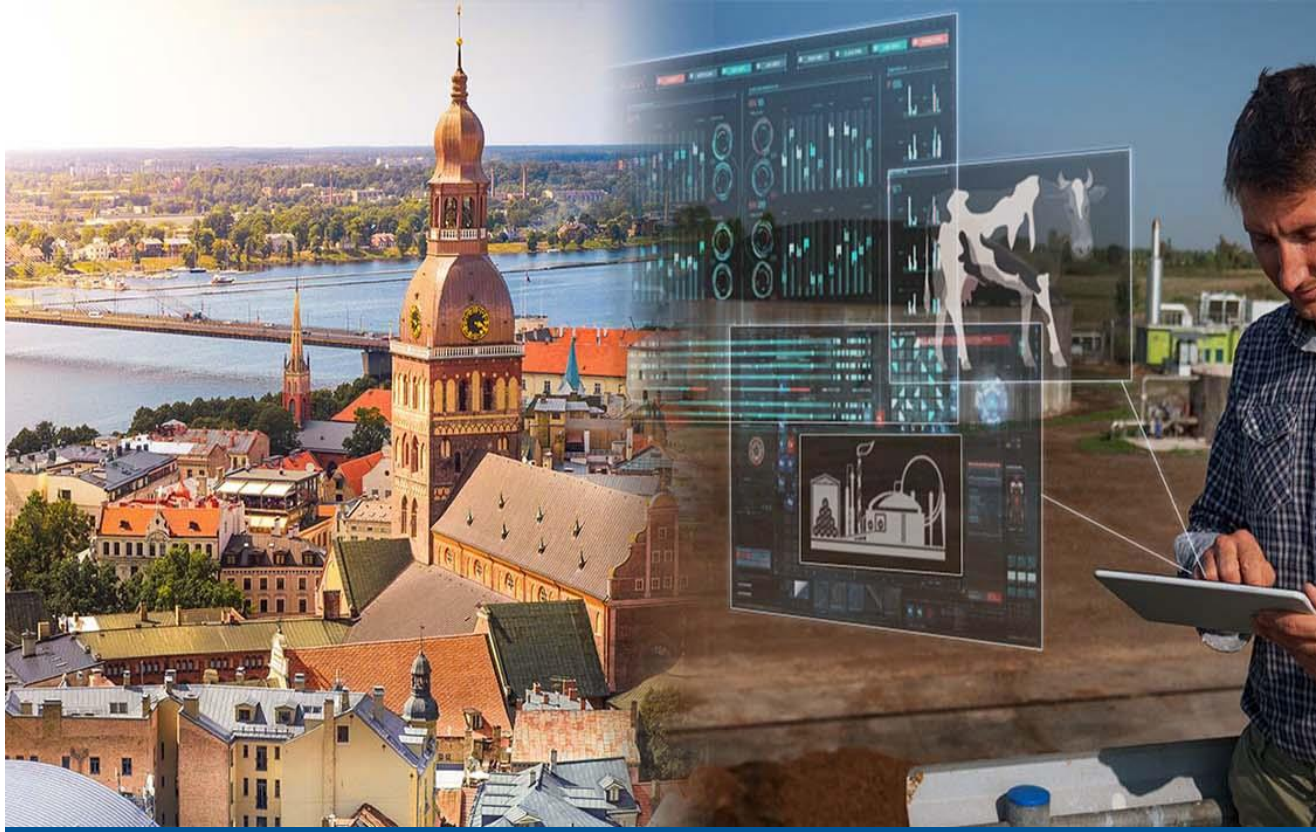
New Zealand position as key world dairy exporter:
What to expect in the future?

Matthew Newman
Private Dairy Specialist – New Zealand



Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

NZ Dairy Farming – What to expect in the future

Matt Newman, June 2023

Success of NZ's primary sector is crucial to the success of the nation

Primary sector exports, technology and tourism represent NZ's predominant source of wealth generation.

Primary businesses facing rapid changes in:
consumer demands, technology, regulation, competition and community expectations,

so it's important that business models and operational practices are aligned to guarantee sustainable growth.

NZ Milk production – Key Drivers

Responds to demand – purchasing power, health and wellness, natural products, environmental

Amount and quality of land available

Public perceptions – license to farm

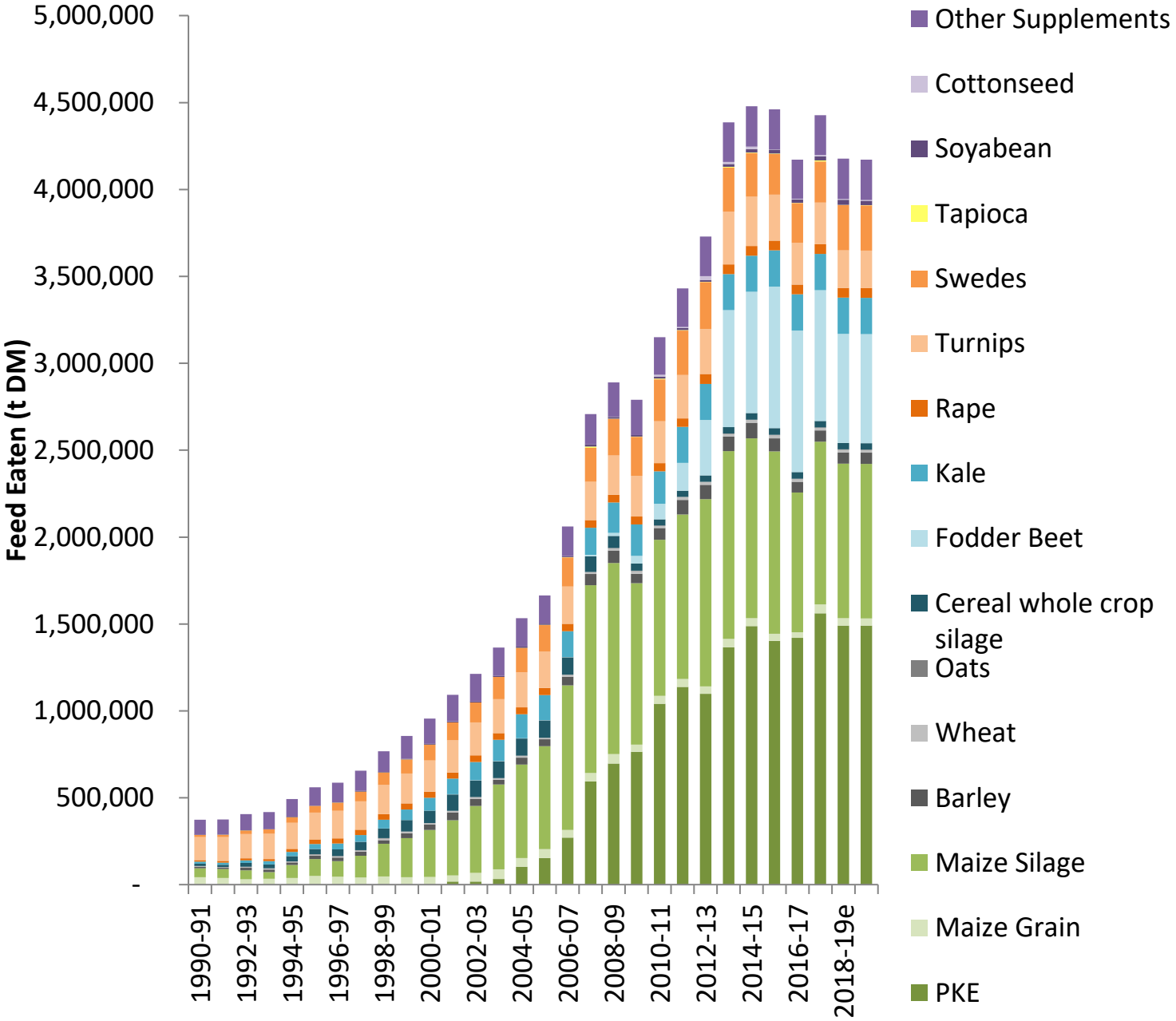
Environmental pressures – water quality, GhG emissions

Milk prices and profits

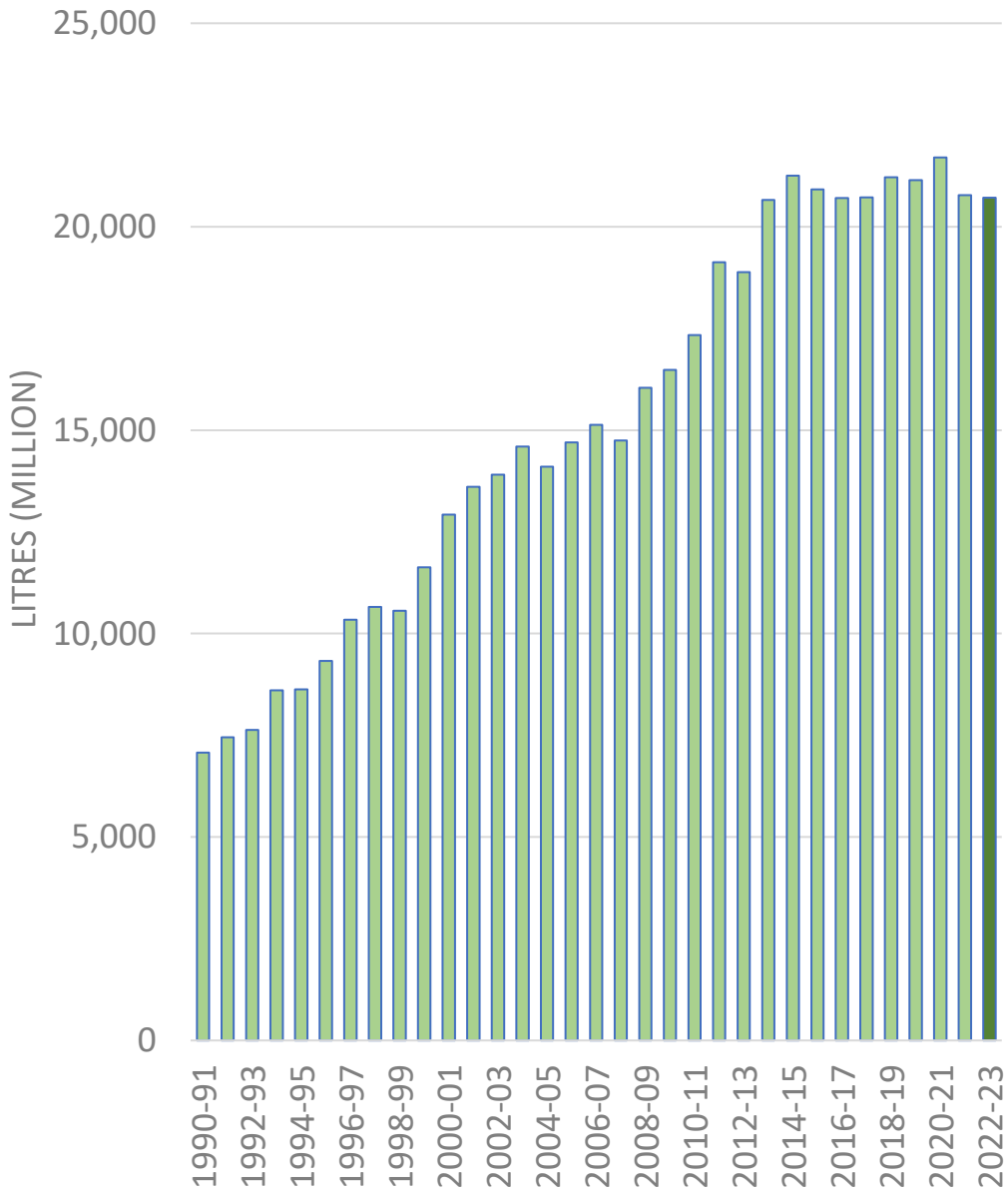
Feed levels – pasture 80-85% grazed, weather conditions

Labour and management shortages – OAD milking

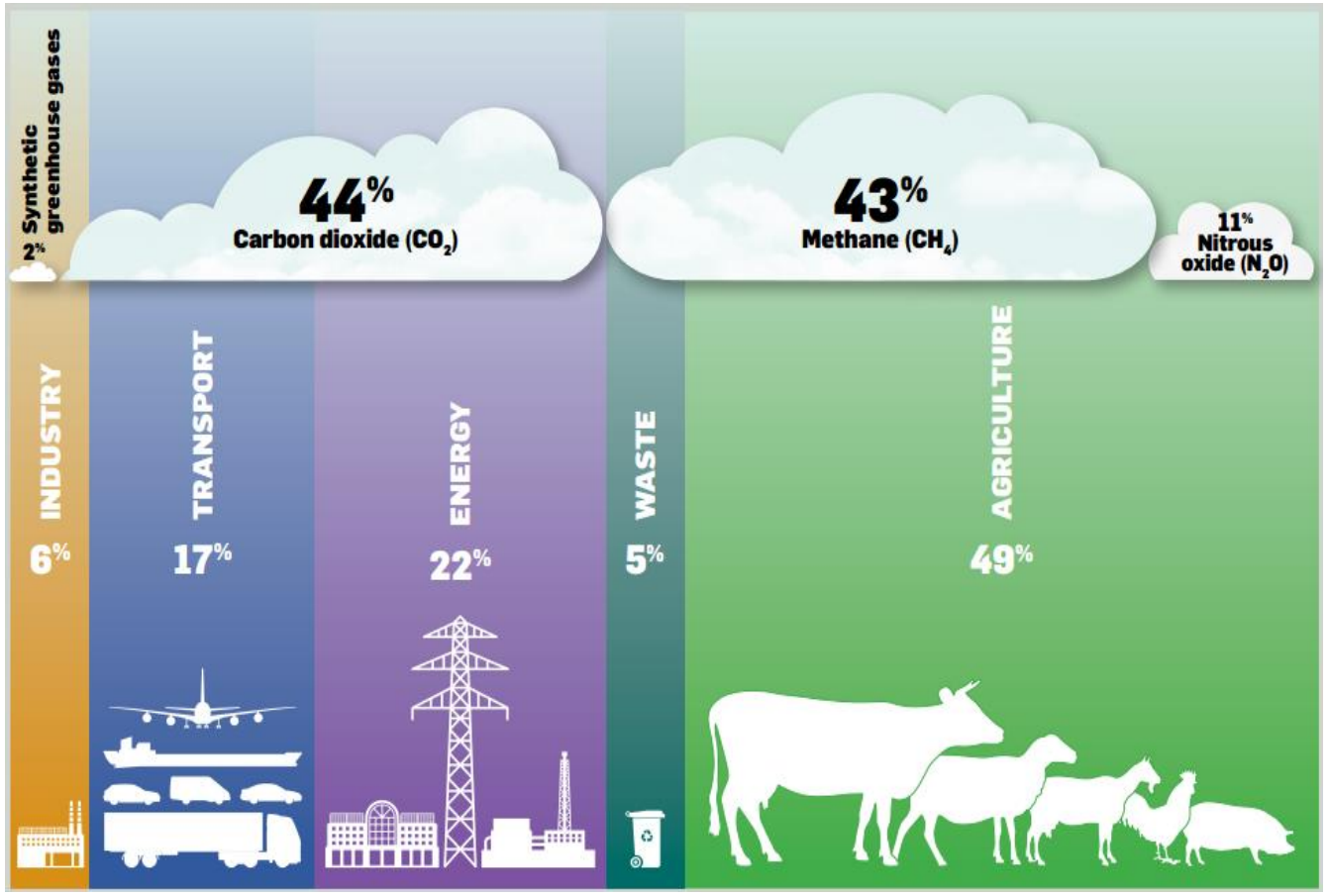
Non-pasture feed trends

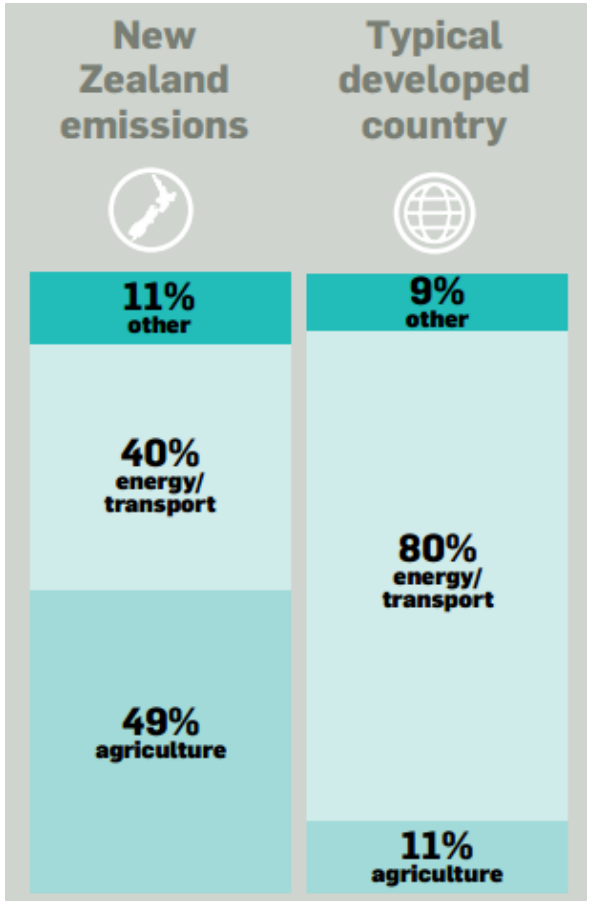


Dairy Production



New Zealand's Emissions Profile





- Dairy accounts for 23% of NZ's GhG emissions
- NZ target to reduce GhG emissions 30% by 2030 (from 2005 levels)

New Zealand's Dairy Split

On-farm	Processing	Transport
		
85%	10%	5%

- 80% dairy emissions from methane

He Wake Eke Noa – Primary Sector Climate Action Partnership

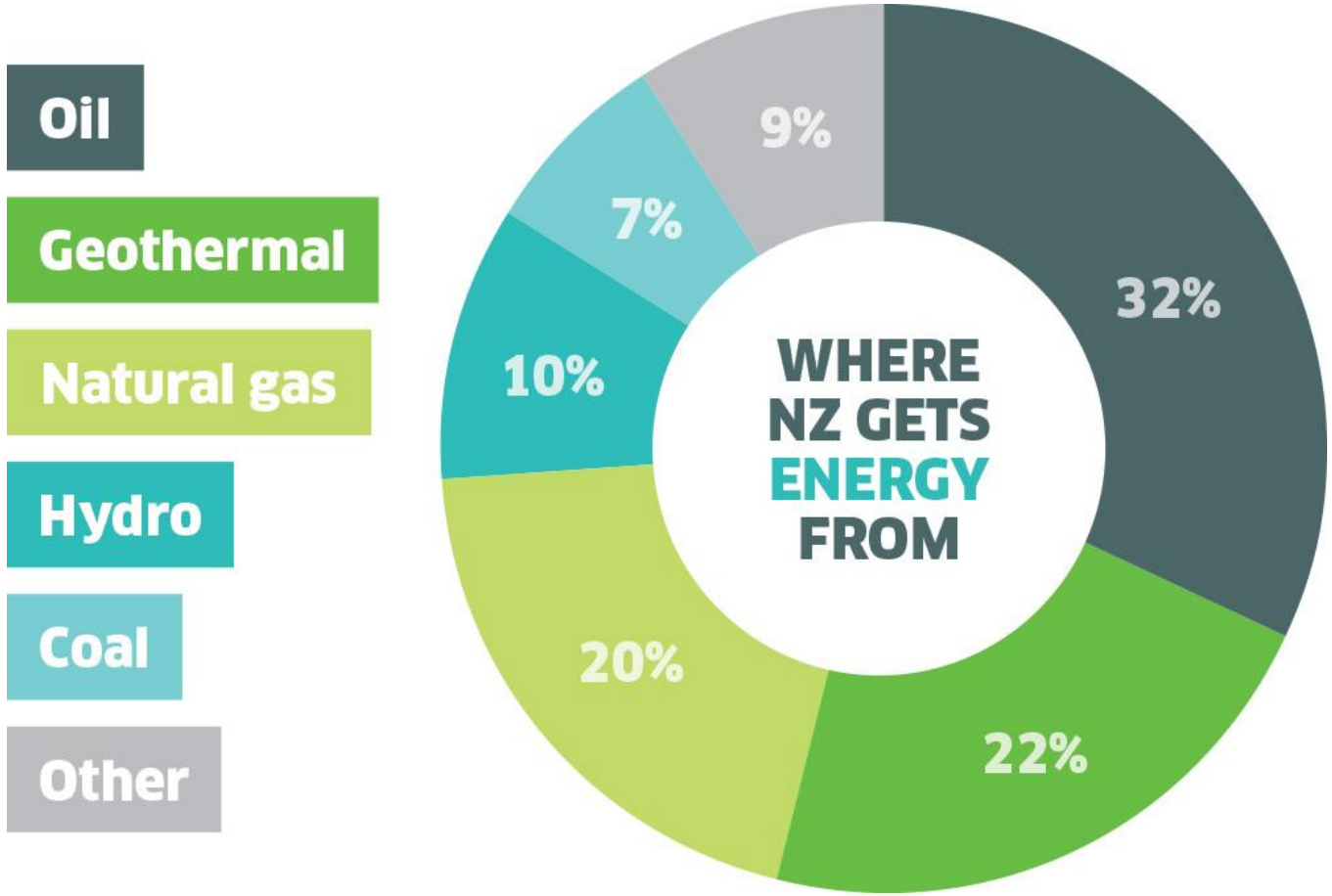
A 5 year programme to empower farmers to measure, manage and reduce GhG emissions and build resilience to climate change

Recommends introducing a farm level split gas levy on agriculture emissions from 2025

Charge for synthetic fertiliser use at point of sale.

On-farm mitigations: system dynamics - genetics, nutrient use (incl effluent), energy use, winter grazing, crop use and management, irrigation type and monitoring, biodiversity, technologies (vaccines, methane inhibitors)

NZ energy use



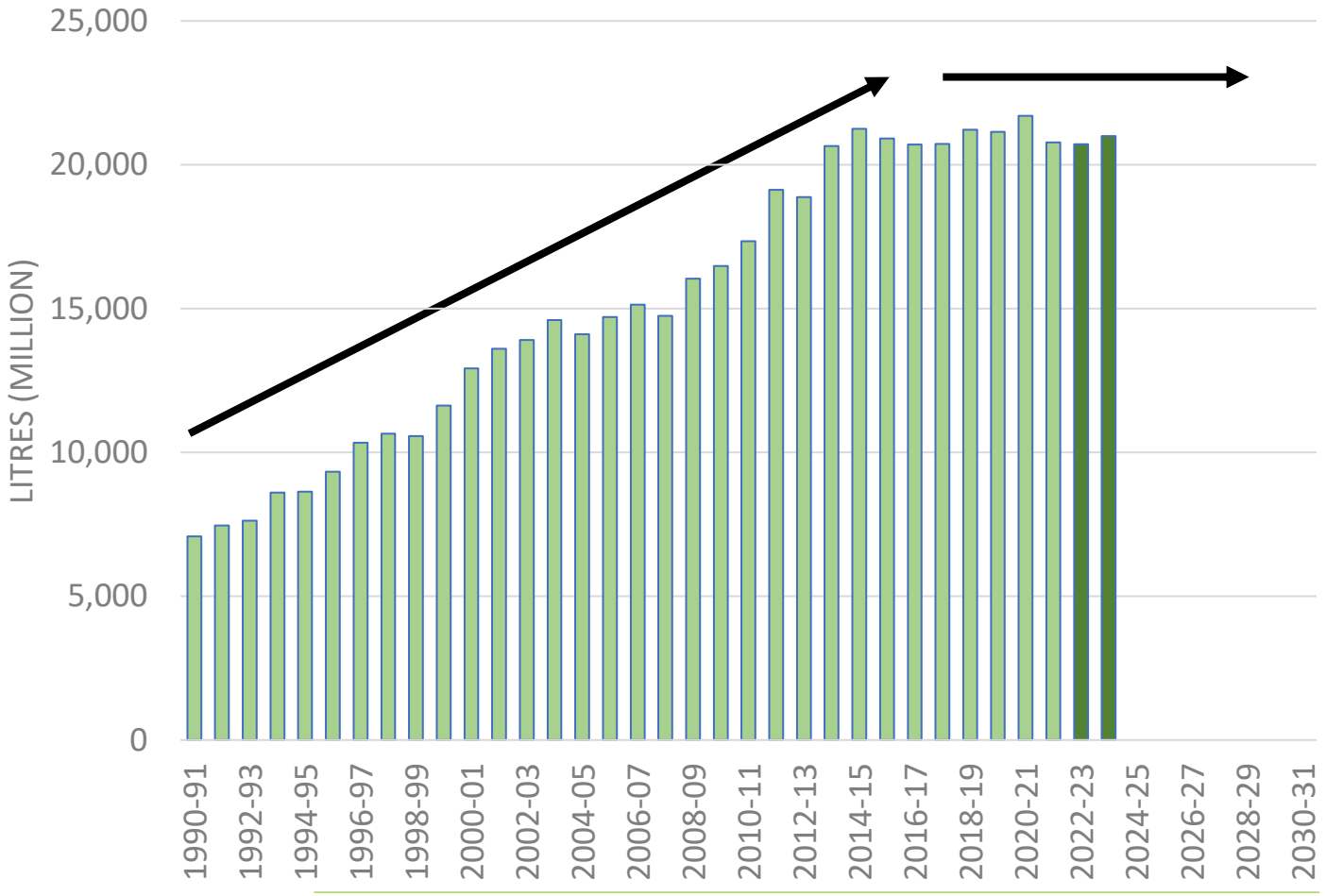
Energy Use - manufacturing

- Fonterra target - 30% reduction in emissions by 2030
- Replace non-renewable energy like coal to generate steam – aim to not use coal by 2037
- Electricity powered heat pump technology to reach 200 degree to dry milk to powder.
- Also investing in wood biomass boilers
- $1 billion investment to convert 6 sites by 2030
- Miraka – geothermal heat for spray drying (94% less C)
- Electric Volvo trucks, aiming for 300 light vehicle electric cars by end of 2023.

Dairying next decade – evolution not revolution

- Large scale corporate farms
- Focus on sustainability and environmental footprint
- Requires more monitoring and data
- Technology enabled productivity – AI, e.g., heat detection, robotic milking, energy efficiency, feeding systems, drone monitoring,
- Processing and transport efficiencies
- Strategy based on higher value products and marketing benefits – not volume. Brand protection!
- Next decade will be evolutional – need to work together and remain resilient

NZ Milk Production



Summary

NZ dairy trade large

Volumes will not grow much concentrate on higher value

Reputation of brand must adapt to consumer and regulatory requirements

Requires more monitoring and data – tell the story

Evolutionary changes 2020s more transformation in the 2030s

Work together across the global supply chain and remain resilient

Questions?

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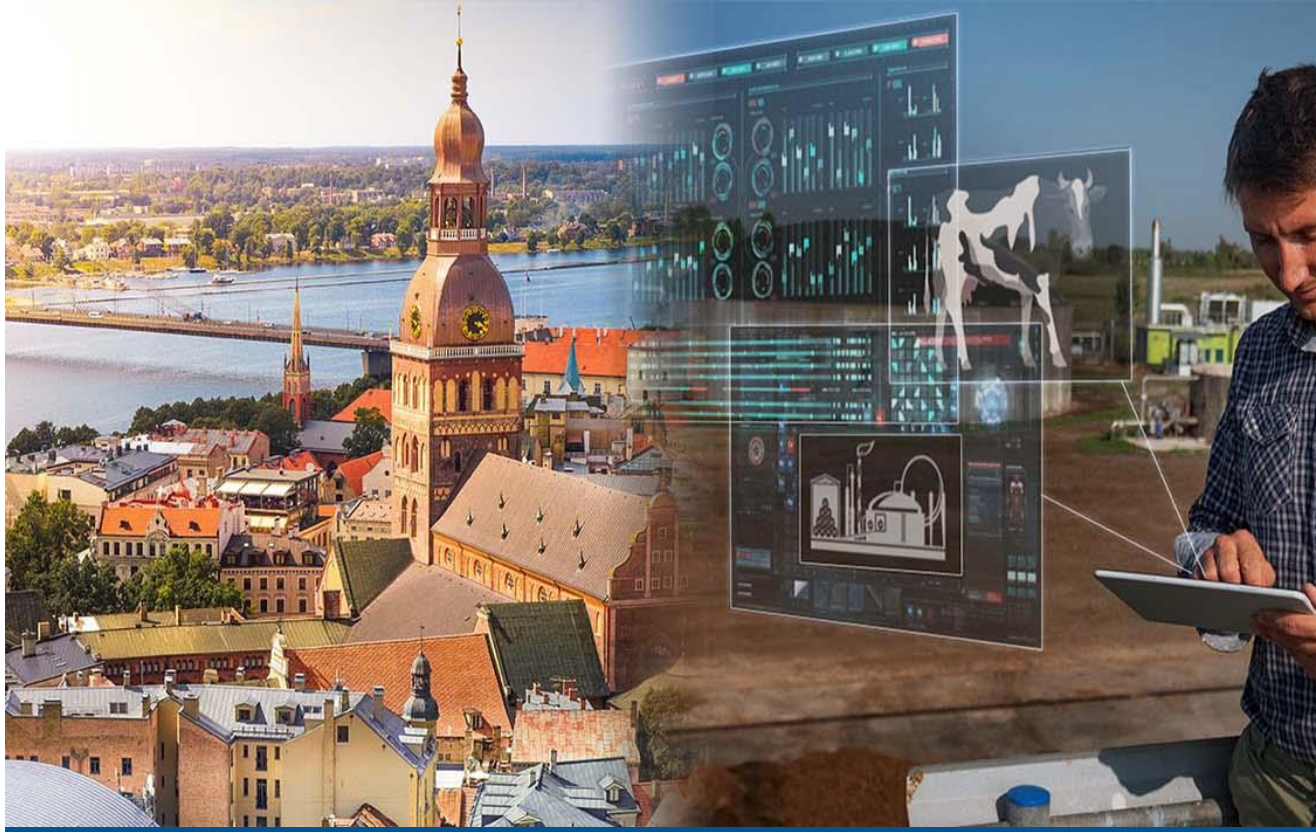
Situation of the dairy market in Ukraine and its impact on the dairy world

Olga Kozak
Agroscope

Hanna Lavreniuk
Director General
Association of Milk Producers (AMP)



Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

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Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs, Education and Research EAER

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Situation of the dairy market in Ukraine and its impact on the dairy world

Olga Kozak
Hanna Lavreniuk

Riga, Tuesday 13th June 2023

24th IFCN Dairy Conference
Energy Crisis in Dairy: Challenge or Opportunity?

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Content

- Who we are?
- Impact of the war
- Ukraine before the war
- Export of agricultural commodities
- Milk production map
- UA dairy sector at war time
  - chronicles of the war
  - export of dairy products
  - profit and production
- Summary

475

days of resistance

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Who we are?

Olga Kozak

Chief research fellow in the National Scientific Centre «Institute of Agrarian Economics» (**Kyiv, Ukraine**).

After the full-scale invasion, research project associate in Research Group Managerial Economics in Agriculture, Research Division “Sustainability Assessment and Agricultural Management” (**Agroscope, Switzerland**).

Scientific partner of IFCN since 2008.

Hanna Lavreniuk

General director of AMP

Association of Milk Producers, AMP, is a non-profit non-governmental organization, that unites farms specialized on dairy farming. AMP was officially registered on April 30, 2009.

AMP already included 150 member-farms from all over Ukraine (average farm size - 400 cows).

The mission of AMP is production of quality milk and development of a competitive dairy industry.


Impact of the war:
disrupted logistics and sales chains
occupation of territories
mined fields
lack of production resources
farmgate milk price decrease
blockade of Black Sea ports
migration
farms and livestock destruction
domestic demand decline
theft of mashinery and grain by invaders
lack of personel

Ukraine before the war

22 000 km of railway tracks

13 seaports

2 200 km navigable waterways
11 river terminals

1378 grain elevators

170 000 km of roads

21 airports

12% of GDP – Agriculture

Employment in agriculture – 17%

Share of agrifood in total export – 41%

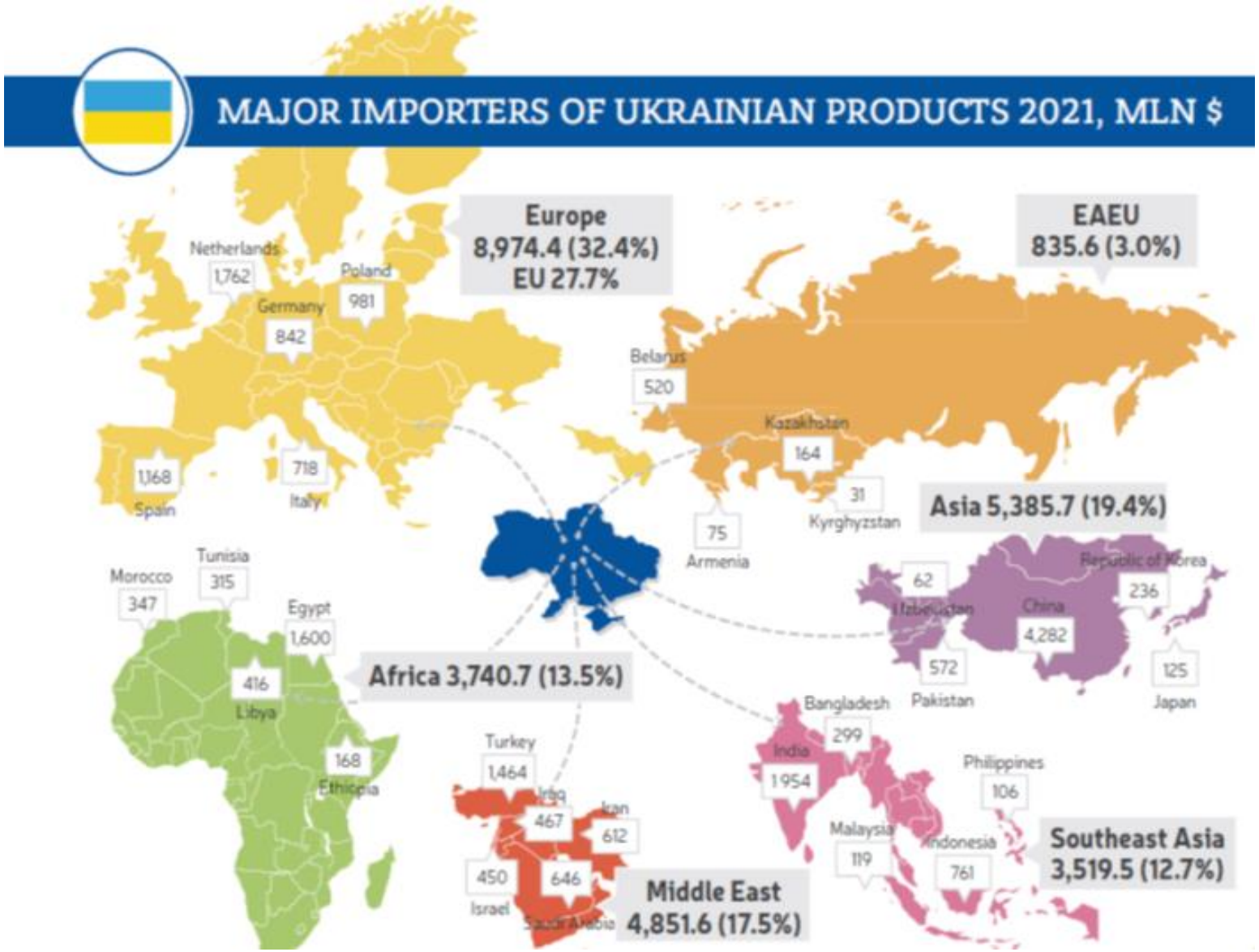
Production of agricultural crops YoY ↑

Agricultural export YoY ↑

Ukraine can feed 400 million people

In 2014 Ukraine and European Union signed the **Association Agreement** where Ukraine committed after reforms to gradually comfort to EU technical and consumer standards.

AgriExport 2021



Principal export route – sea ports (>5 mill t/month)

Year of records

Ukraine's place in world agro-export 2021

1	46% 5,1 mill t	Sunflower oil	
1	45% 4,2 mill t	Oil cake	
1	37% 168,4 thsd t	Millet	
3	13% 5,7 mill t	Barley	
3	13% 24,7 mill t	Corn	
3	10% 2,7 mill t	Rapeseed	
5	10% 20,1 mill t	Wheat	
5	8% 57,8 thsd t	Honey	
5	7% 35,8 thsd t	Walnuts	
6	1% 1,1 mill t	Soybean	

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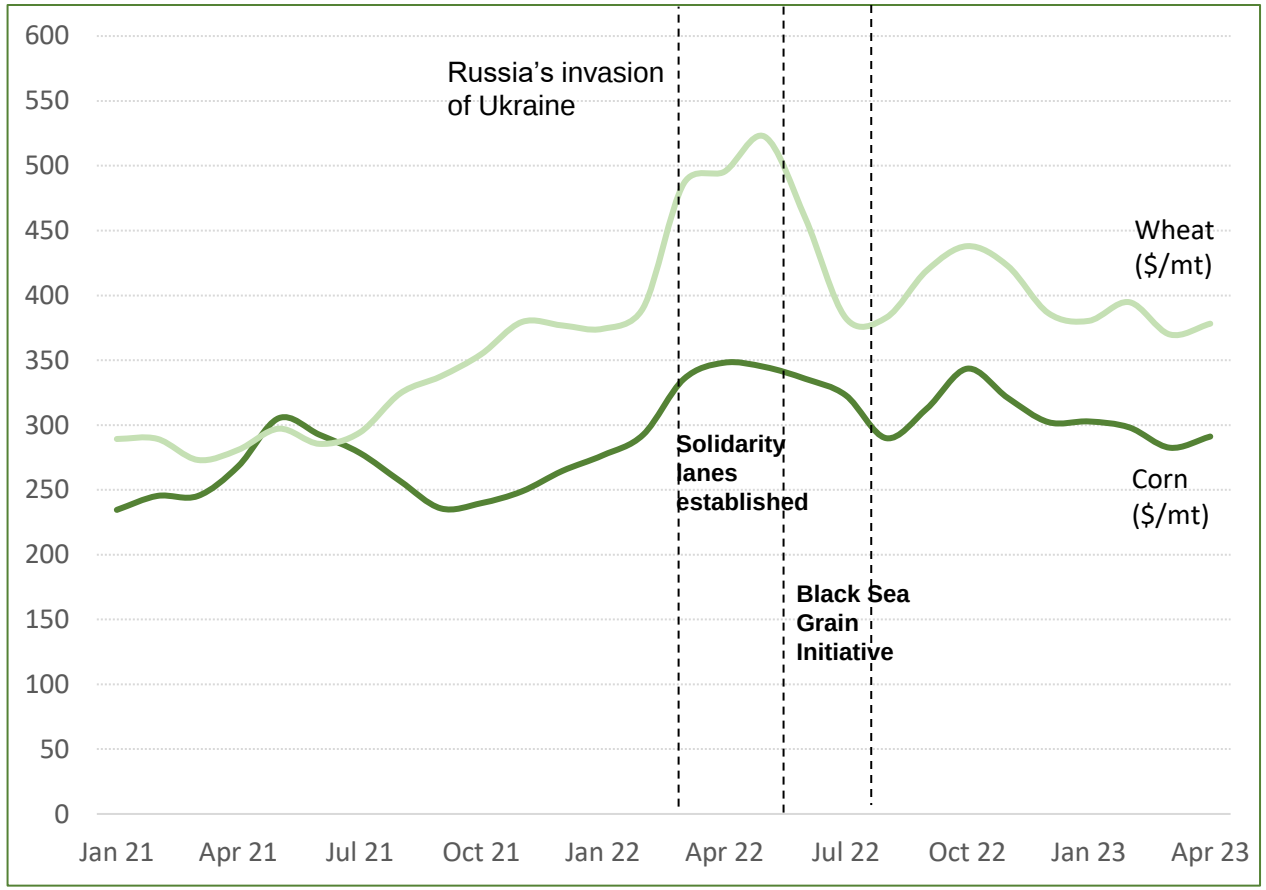
AgriExport 2022

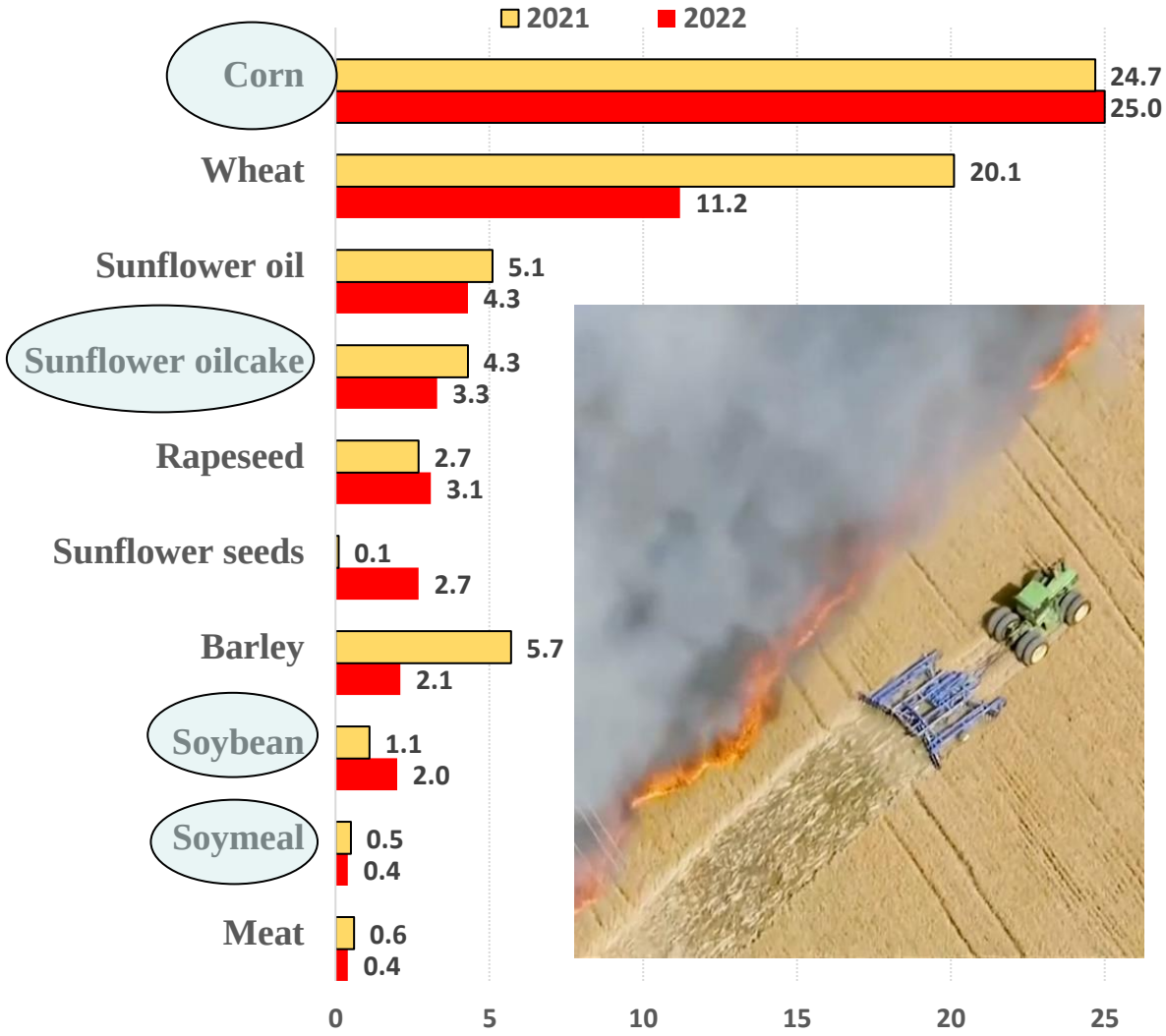
World prices for wheat and corn



Source: **World Bank**

Ukrainian dairy farmers «invested» grain surplus in milk and meat production

TOP-10 agricultural export commodities, mill tons



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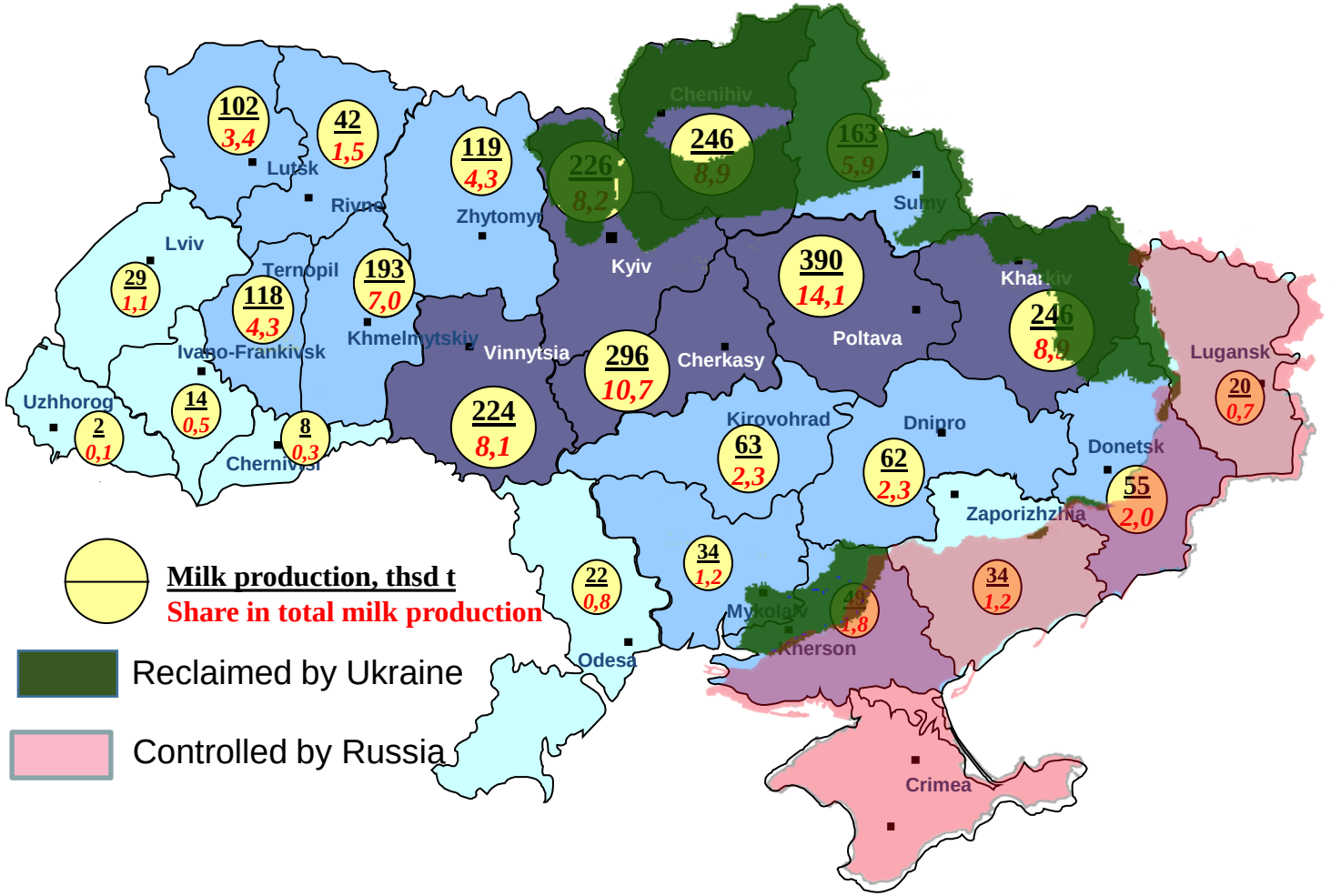
Milk production map of Ukraine



Dairy farms are deliberate shelled by invaders

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Ukrainian dairy sector at war time: the chronicles of 2022

February, 24	March	April	May	June	Autumn
shock	**adjusting the new reality**	**deocupation**	**dairy products storage**	**EU quotas/tariff removal**	**Blackout**
- supply chains disrupted; - many dairy plants stopped; - milk given to locals; - ration optimization	- processors restarted (65%); - migration; - new strategy of processors; - Government program	- restarting of dairy farms and processors; - humanitarian aid from local and international partners; - demining	- migration; - demand fall; - export reqiured	- export of dairy products, - farm gate milk price increase; - farm economics	- generators; - cost increasing

No farmer was willing to slaughter cows.
The farm ceased operation
only if it was completely destroyed.

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70% of Ukraine’s energy infrastructure destroyed by Russian attacks

bombing continues

lack of electricity for milking and processing

cost’s increasing

Blackout

products loss

livestock management disruption

Milking and processing stoppages due to air-raid alert and staff moving to shelters

cold storage stoppages

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Demining

Demining agricultural land after occupation (actual and future) is critically necessary.

5 mill ha of agricultural land

1.5 bill USD

30/70 years

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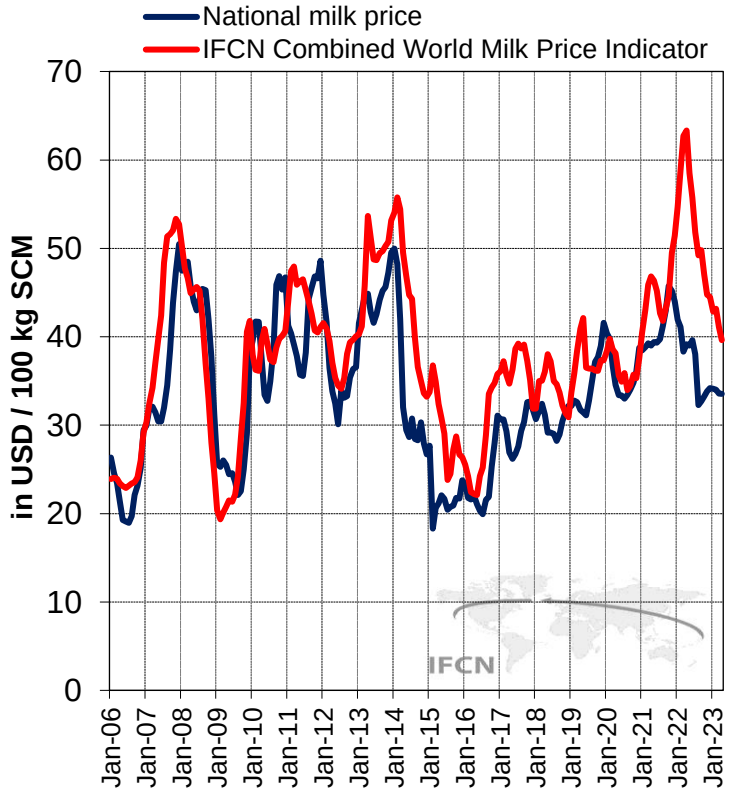
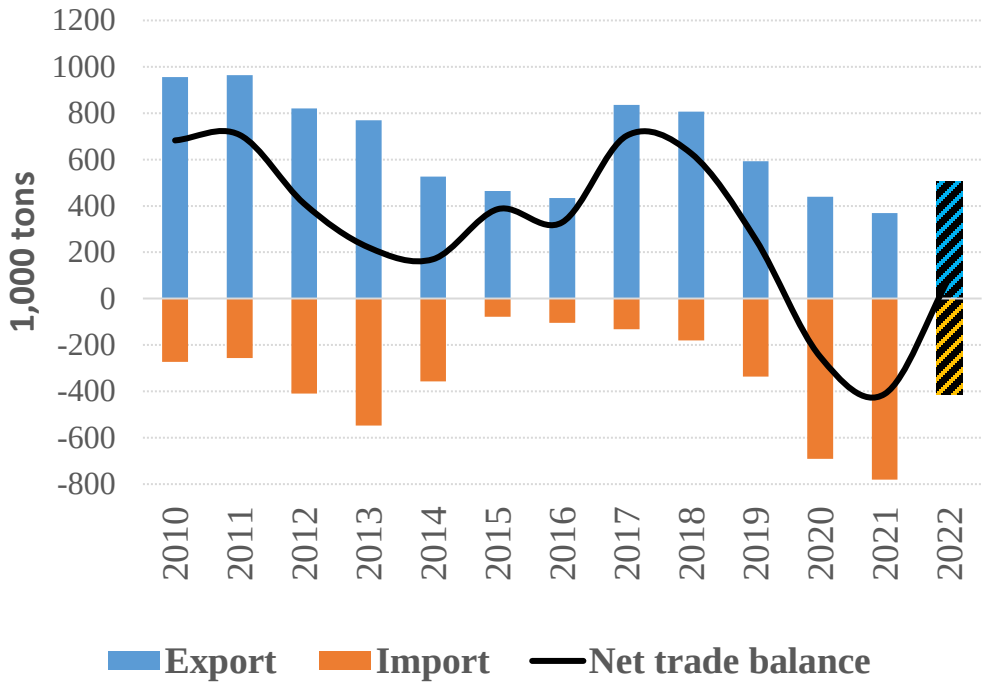
Ukrainian dairy sector at war time (export)





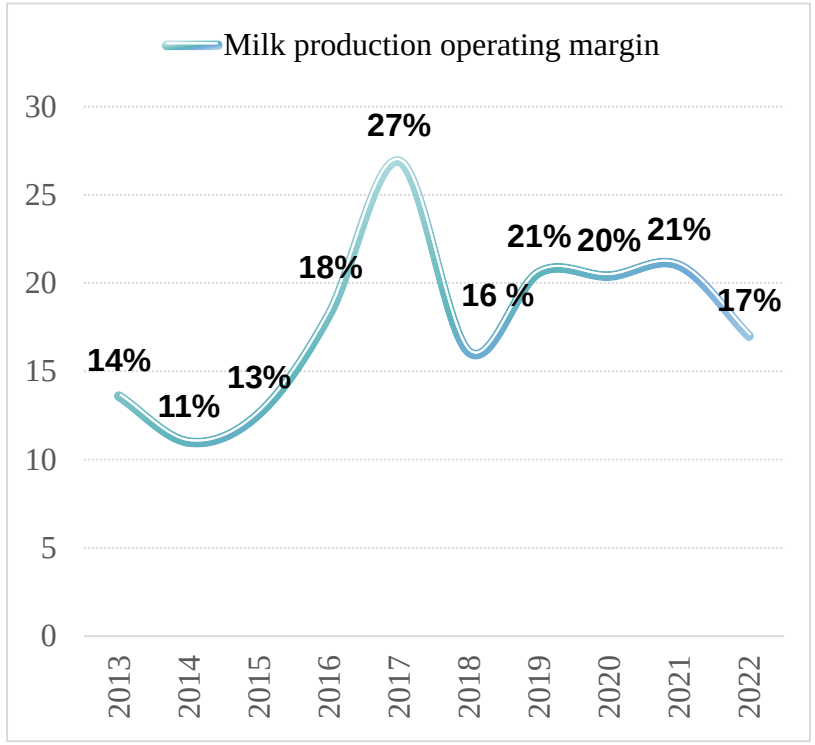
Ukraine exim dairy balance dynamics in milk equivalent

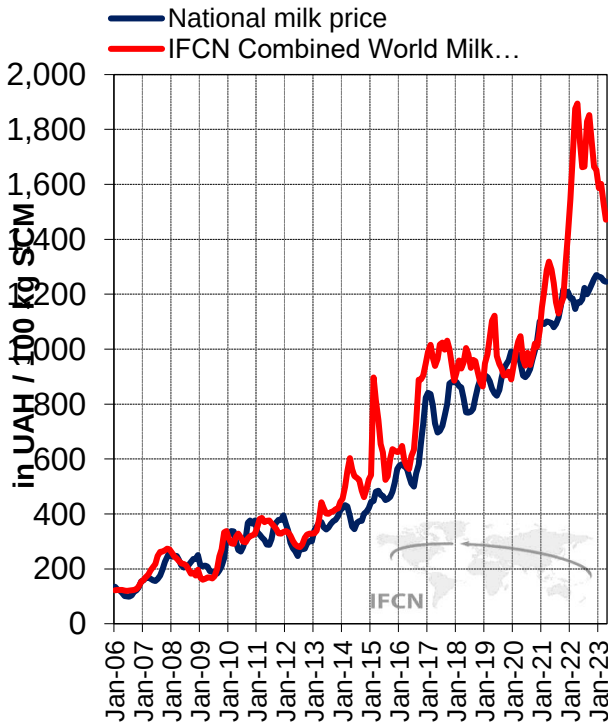
Migration – 8.3 mill people
Inflation - 26.6%
Consumer purchasing power – -3-5%

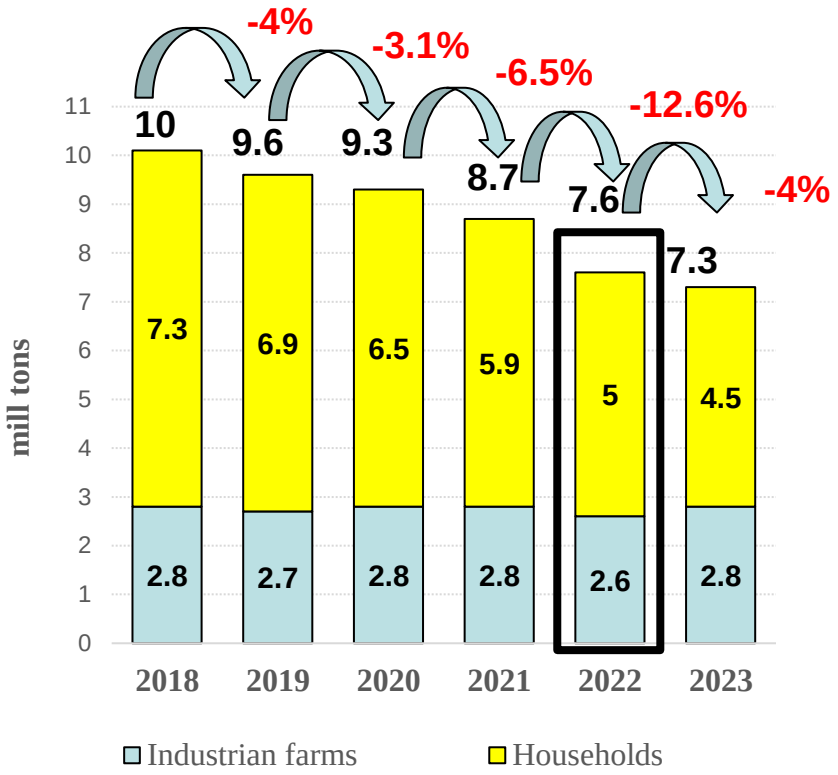
Total reduction of dairy market internal usage/ consumption
-27%

Export products in value, 2022:
Butter – 20%
Casein – 20%
SMP – 17%
Cheese – 9%

Ukrainian dairy sector at war time (profit and production)







Dairy farming remains profitable despite all the challenges

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Dairy farms as invincible points

- *Dairy farmers from all regions provide humanitarian aid to affected colleagues from the affected regions, accept internally displaced persons, and donate to the armed forces of Ukraine.*
- *Farms from the occupied and front-line zones became a factor in the survival of local communities: they provided free milk as long as possible, equipped the simplest milk processing, cereal and bread production.*







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Overcoming challenges

Due to the lack of working capital and the level of destruction, dairy farms from the de-occupied and front-line territories are in dire need of humanitarian support with basic production resources, informational and advisory support to overcome the consequences of russian aggression, funds for survival and rapid recovery.

* ***Swiss government*** *(Switzerland) coordinated by the Embassy of Switzerland in Ukraine)*
* ***Zoetis*** *(directly and through USAID)*
* ***Boehringer*** *(supported by FABU-Germany)*
* ***DeLaval*** *and* ***GEA*** *(directly and through SECO)*
* ***VetLogOne*** *(Germany, collective donation)*
* ***Biochem*** *(Germany)*
* ***Brovafarma*** *(Ukraine)*

* *(Latvia)*
* ***Eesti Maaülikool*** *(Estonia, collective donation)*
* ***Semex*** *(Ukraine))*
* *fund* ***Help-Hilfe zur Selbsthilfe e.V.*** *(Germany)*
* ***The State Service of Food and Veterinary Medicine of Lithuania, the Government and the Ministry of Transport of Lithuania***
* ***BalticAgro*** *company*
* ***VKF "Polius"*** *(Ukraine)*

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Summary

- Ukraine will continue to produce agricultural commodities ensuring national and global food security. Export will be vital for Ukraine's economy.

- Dairy farmers and processors proved their incredible resilience during the war.

- Investment in the dairy sector of Ukraine starts today: existing and new projects of milk production and milk processing.

- Continue to support Ukraine! Our victory is your victory.

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THANK YOU!


- #StandWithUkraine
- #BeBraveLikeUkraine













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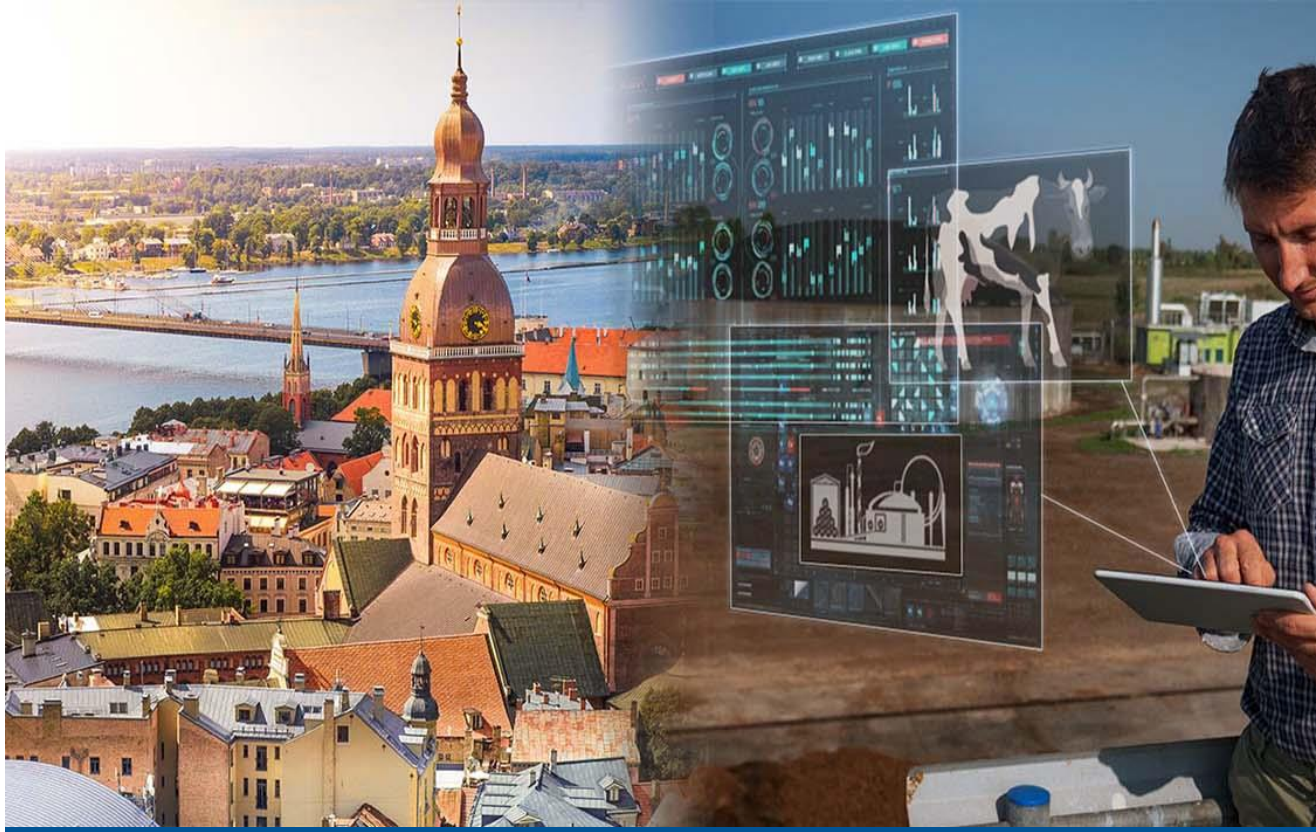
Is dairy an option for the future in developing regions?

Ernesto Reyes
Board member IFCN



Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

Is Dairy an option for the future in developing regions?

Ernesto Reyes

IFCN Dairy Conference

Riga, June 13, 2023

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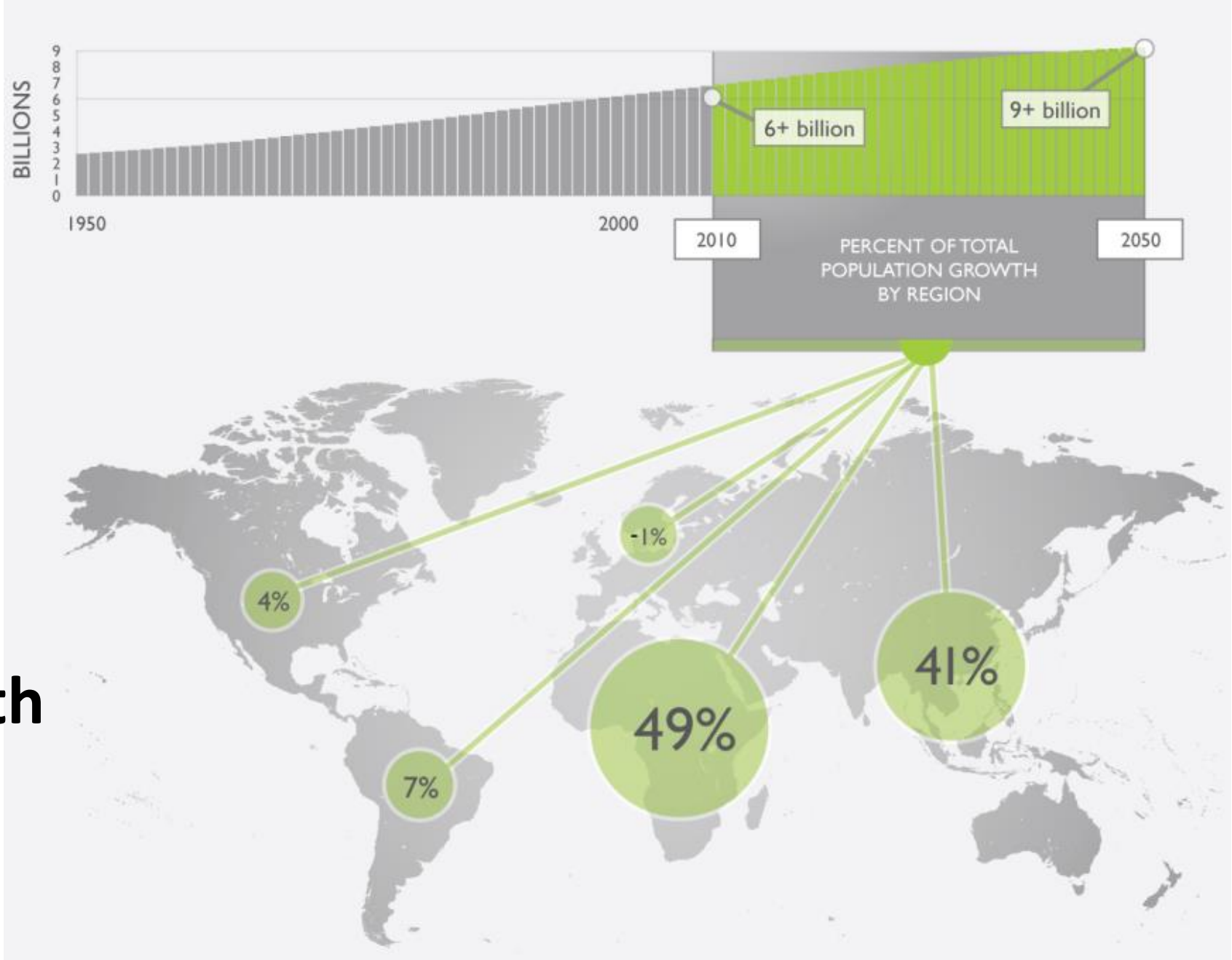
Content

1. What is the scientific evidence telling us?
2. What is the new normality in dairy?
3. Dairy economic trends in emerging regions
4. The new sustainable model (Is this an achievable option?)

The challenge

Expected global population growth by region

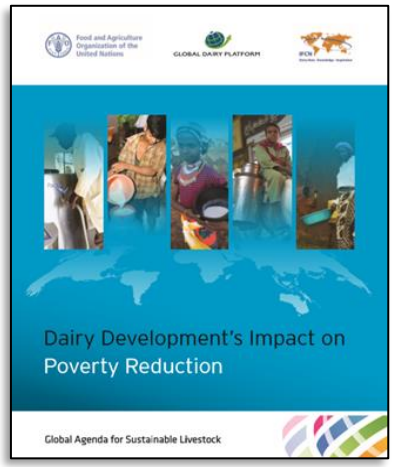


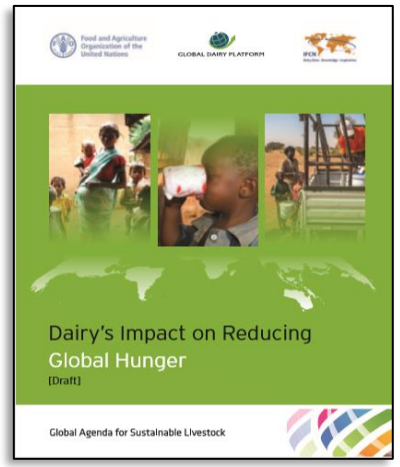
Content

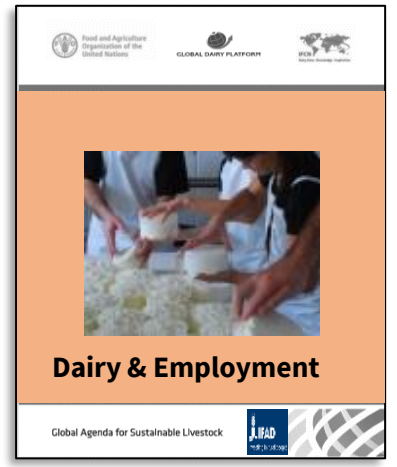
1. **What is the scientific evidence telling us?**

Scientific literature review (last 20 years)
Statistical analysis and control groups (dairy – no dairy)

Work done within the institutional framework of GDP, FAO, IFAD, GASL and IFCN







Dairy makes a significant contribution to poverty reduction

Dairy is associated with improved child linear growth and reduced stunting

Women perceived the impact of dairying in their lives as positive

TB released Q4-2023

Work done within the institutional framework of GDP, FAO, IFAD, GASL and IFCN

Food and Agriculture Organization of the United Nations · GLOBAL DAIRY PLATFORM · IFCN Dairy Data · Knowledge · Inspiration · IFAD Investing in rural people · Global Agenda for Sustainable Livestock

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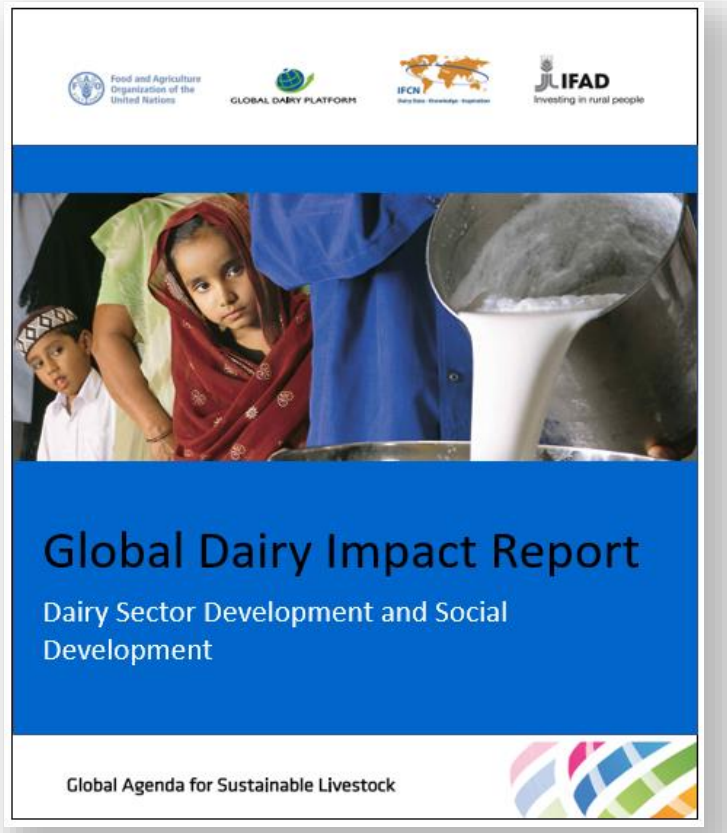
dim dairy impact methodology

IFCN Dairy Data · Knowledge · Inspiration

Asses the linkages between **Dairy Sector Development** and **Social Development**

187 countries

The largest agricultural sector database

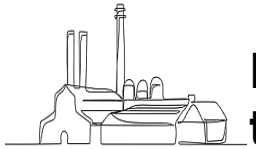


To be released in Q3-2023

Work done within the institutional framework of GDP, FAO, IFAD, GASL and IFCN

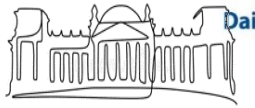
Food and Agriculture Organization of the United Nations · GLOBAL DAIRY PLATFORM · IFCN Dairy Data · Knowledge · Inspiration · IFAD Investing in rural people · Global Agenda for Sustainable Livestock

Farmers' livelihoods

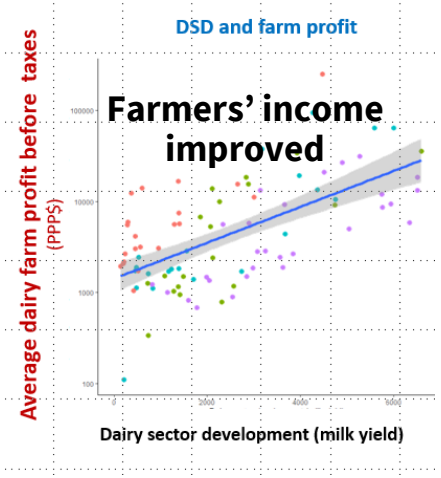


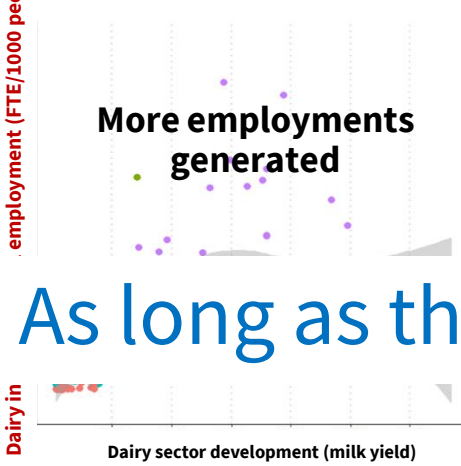
Employment along the value chain

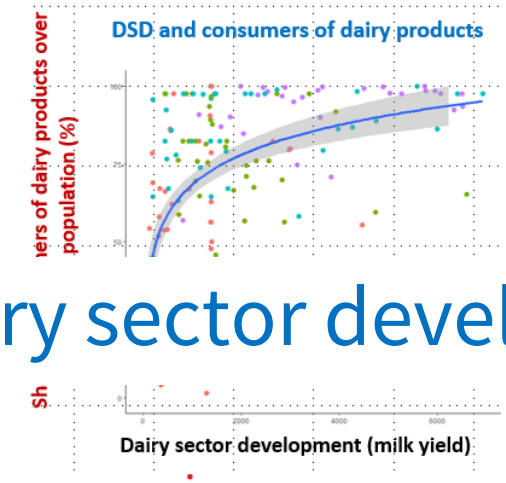
Consumers' benefits

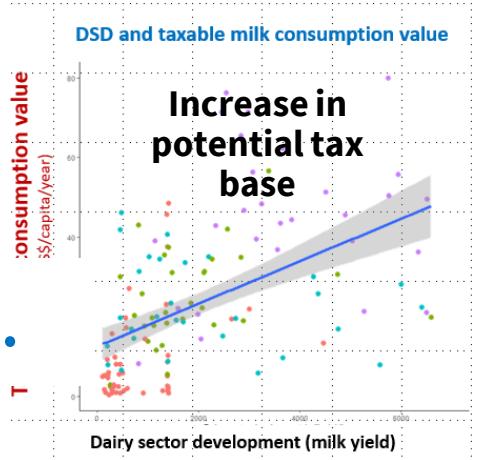


Government's revenue

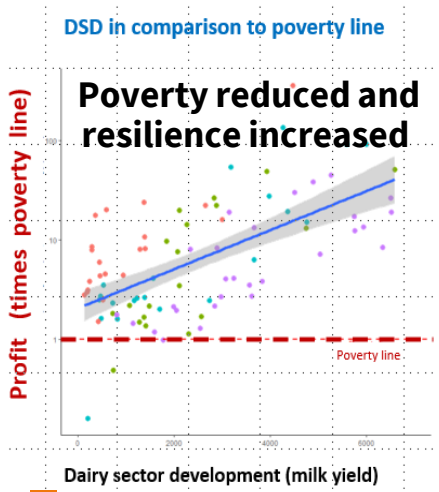


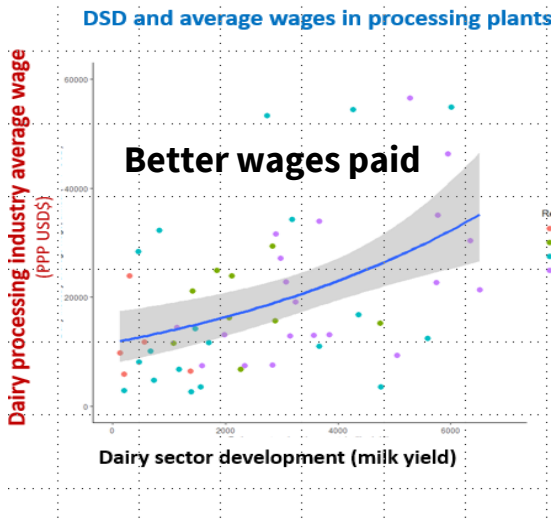


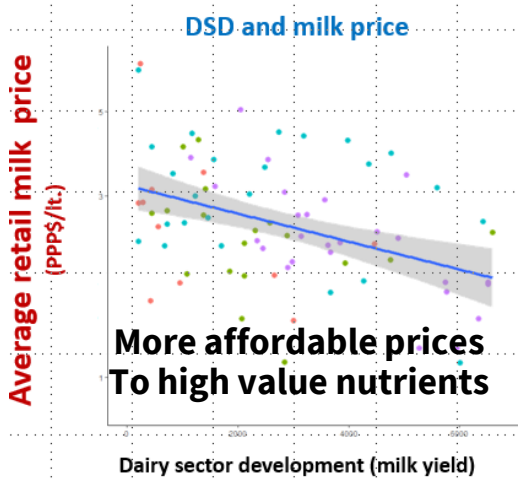


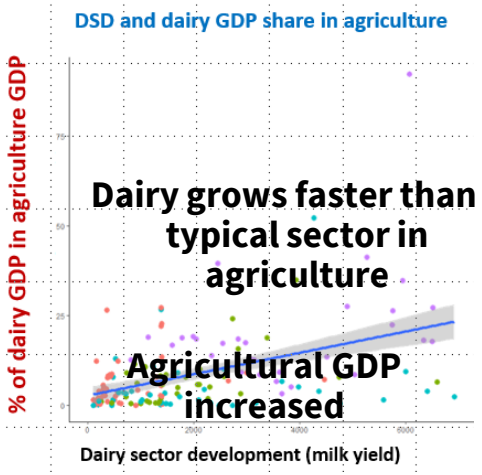


As long as the dairy sector develops…









So, to the question if dairy is an option for developing regions?

Society is expected to benefit from the dairy sector, whose growth and transformation contribute to achieving the social SDGs

Content

1. What is the scientific evidence telling us?

2. **What is the new normality in dairy?**

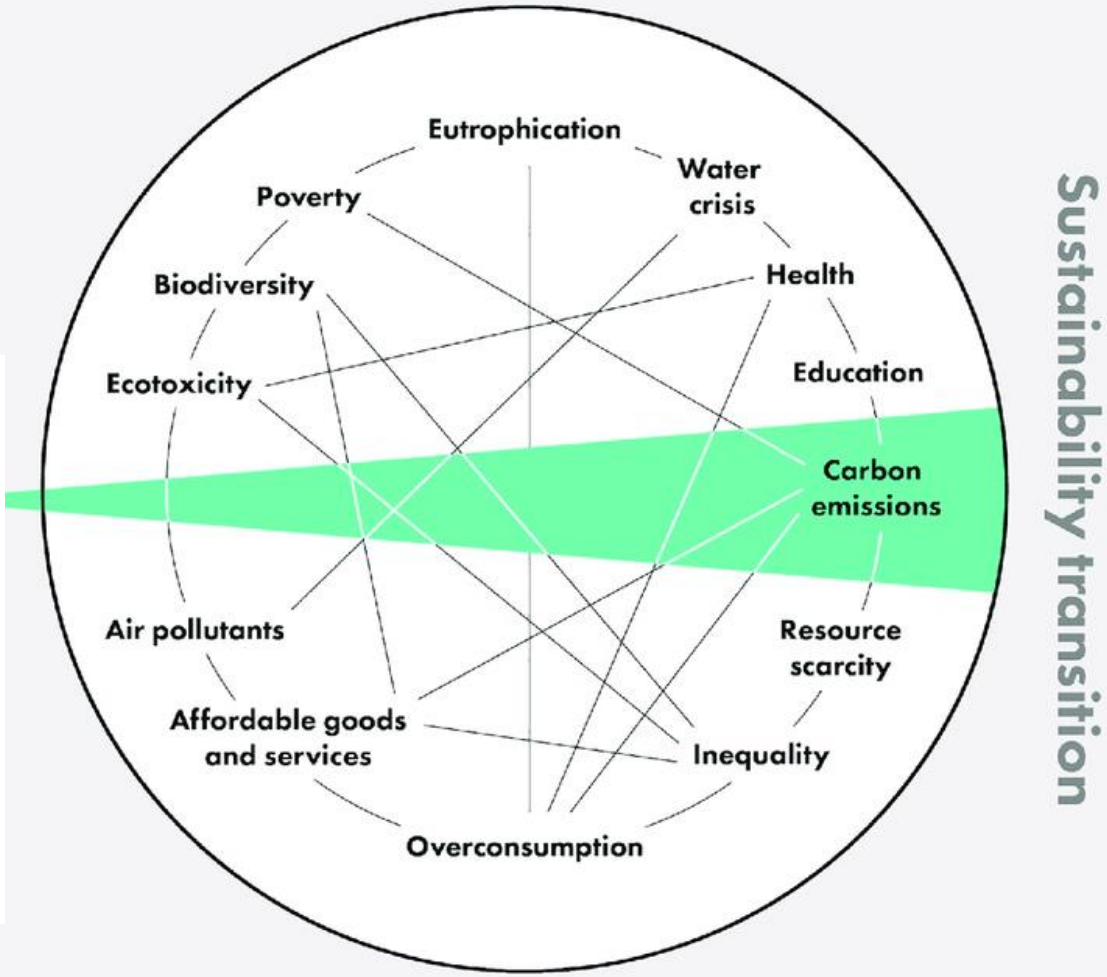
Sustainability approach has been too narrow and now it has expanded

How can we feed a future population of 10 billion people a healthy diet within planetary boundaries?

See the EAT-Lancet UN HQ Launch live from 3pm EST, Feb 5.

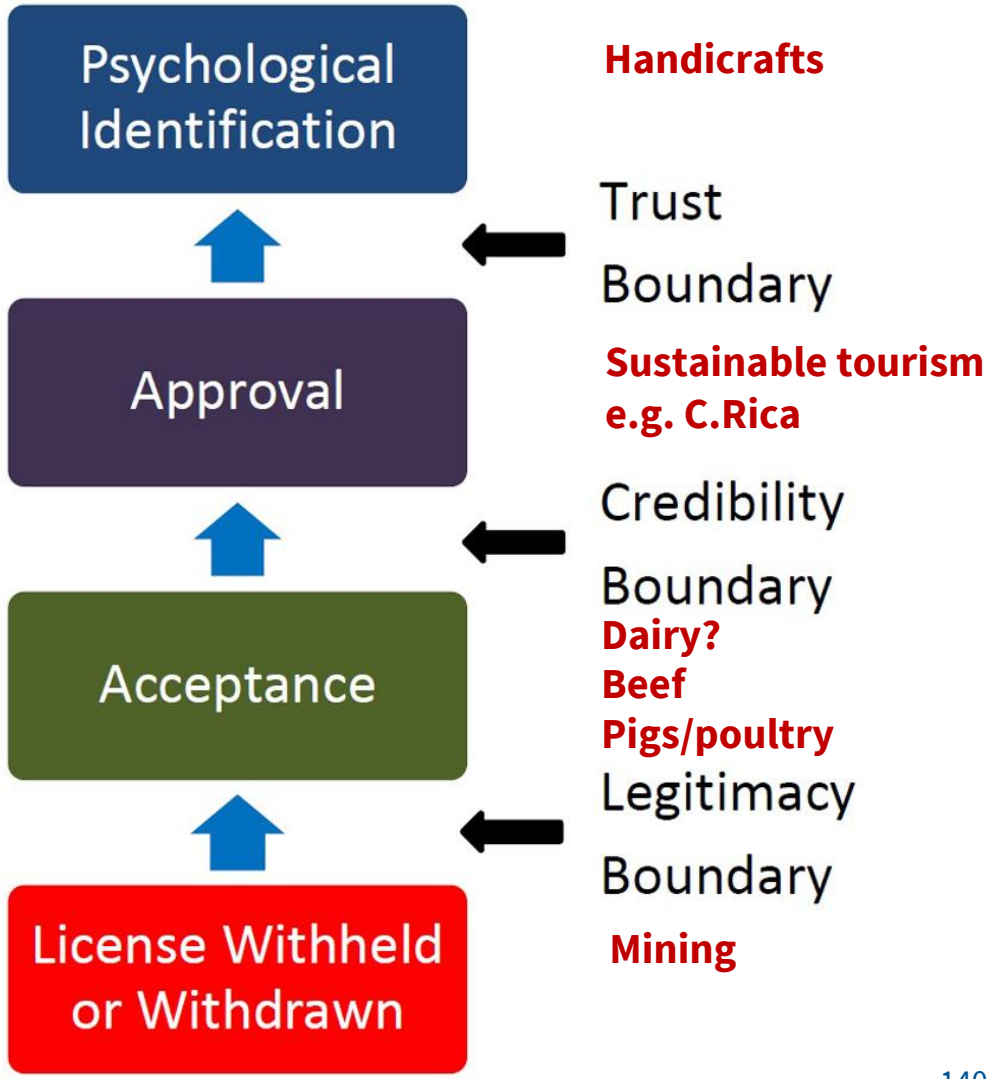
#foodcanfixit #EATLancet

Carbon tunnel vision



Social acceptance to operate certain business

PROTEST TO OPERATE THE LARGEST DAIRY FARM IN EUROPE



Influencers and decision makers

Consumers 

Investors 

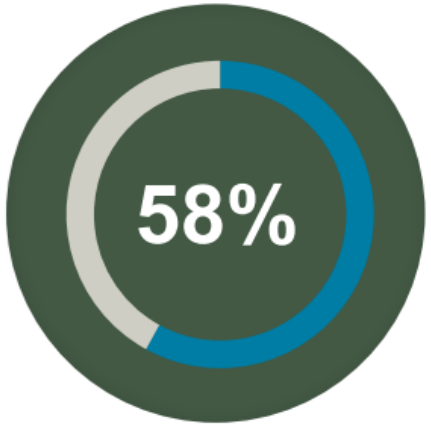
Regulators 

Source: Conferences, GDP marketing meeting, Dublin, Ireland May 2023 - McKinsey & Company

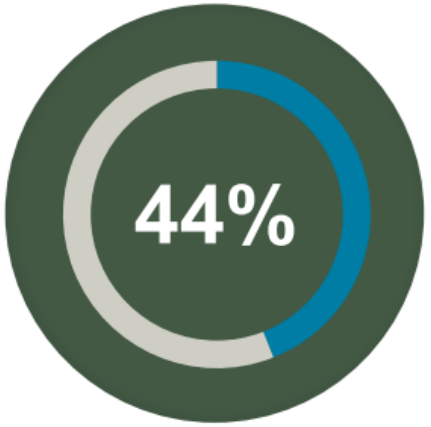
Consumers (USA)

Making A Difference Through Choice

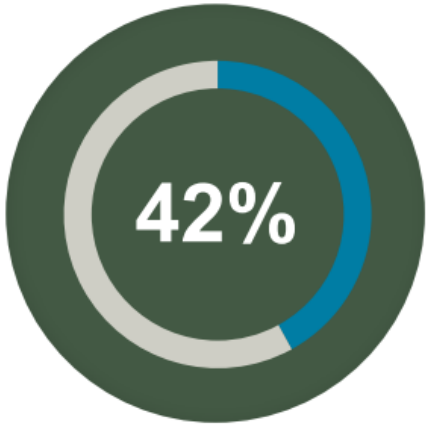
I feel I can make a difference to the world through the choices I make and the actions I take



Buying sustainable products shows others who I am and what I believe in



I am prepared to invest my time and money to support companies that try to do good



Source: Conferences, GDP marketing meeting, Dublin, Ireland May 2023. US Dairy Management Inc.

Pressure is coming from everywhere

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RETAILERS

Increasing scrutiny and asks

Carrefour

LIDL

NEW STRATEGY
Expanding Plant-based
Reducing animal products

INVESTORS

Growing number of questions
About commitments & the HOW

World Benchmarking Alliance

Climate Action 100+
Global Investors Driving Business Transition

GOV & NGOs

Regulation already in process

Legislation to reduce agri GHG (tax NZ, EU)
Methane (US, EU)
Decrease Livestock (NL)
Carbon farming (EU, US, NZ)

Source: Conferences, GDP marketing meeting, Dublin, Ireland May 2023. Danone

Pressure is coming from everywhere

"Sustainability without performance has no impact. Performance without sustainability has no future"

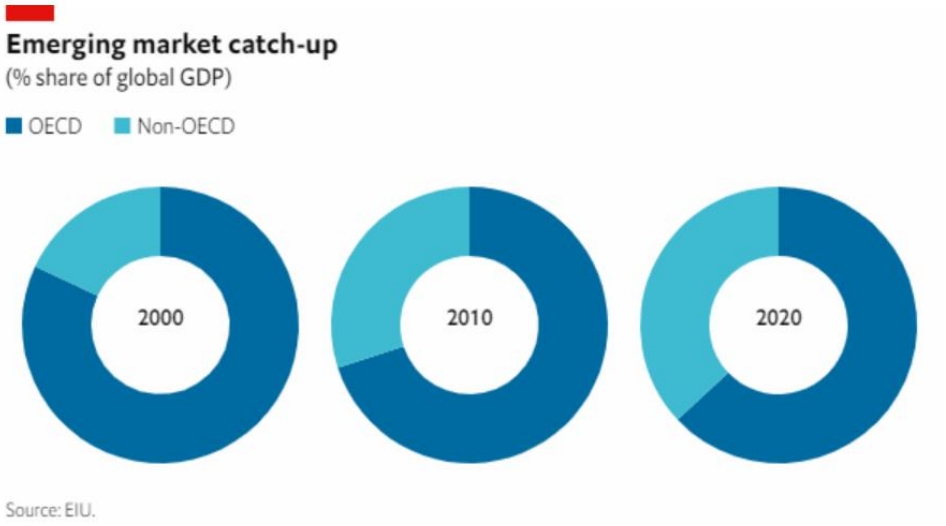
Antoine de Saint-Affrique
Danone CEO

Source: Conferences, GDP marketing meeting, Dublin, Ireland May 2023. Danone

Content

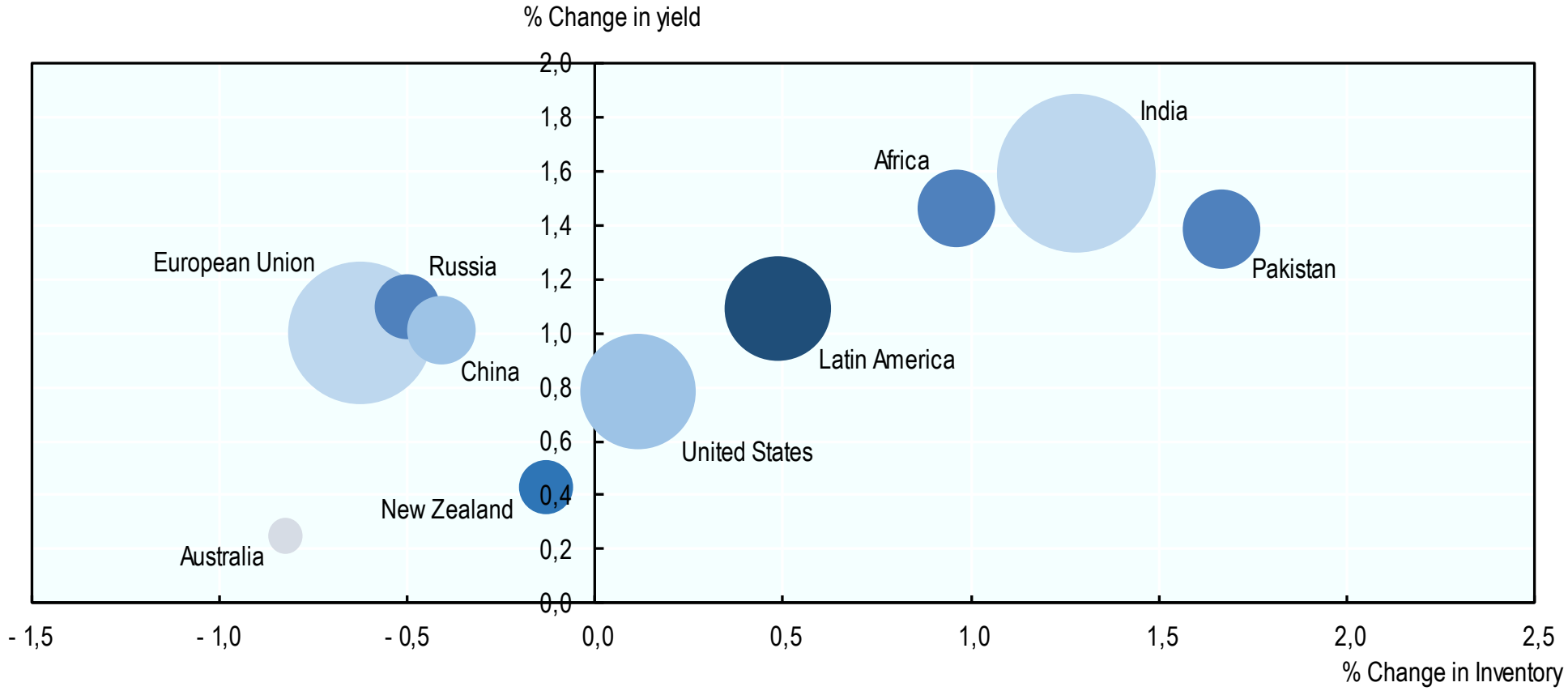
1. What is the scientific evidence telling us?
2. What is the new normality in dairy?
3. **Dairy economic trends in emerging regions**

New emerging economies playing new roles



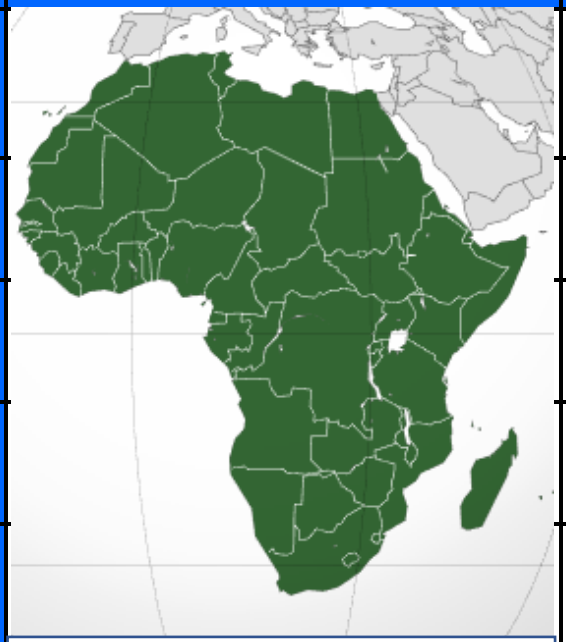
Dairy picture may change

Annual changes in inventories of dairy herd and yields between 2019 and 2029



Source: OECD/FAO (2020), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database)

Overall farm performance (Africa)

		BAU – Baselines			Future farm models		
Indicator	Description	2.400 kg/year	4.500 kg/year	8.000 kg/year	12.000 kg/year	18.000 kg/year	35.000 kg/year
Short/Mid term profit		+	+	+ +	+ + +	+ + +	+ + +
Long term profit		+	+	+	+ +	+ +	+ + +
Opp. Costs (land, labour, capital)		+	+	+	+ +	+ +	+ + +
Operating costs (from P&L)		+ + +	+ + +	+ +	+ +	+ +	+ + +
Return to labour		+	+	+	+ +	+ +	+ + +
Covering family living costs		+	+	+ +	+	+ +	+ + +
Capital (asset structure)		+	+	+	+ +	+ + +	+ + +

+++ Very bad

\+ Not so bad/good

+++ Very good

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Overall farm performance (Asia)

		BAU – Baselines			Future farm models		
Indicator	Description	1.500 kg/year	3.400 kg/year	7.000 kg/year	25.000 kg/year	42.000 kg/year	120.000 kg/year
Short/Mid term profit		+	+	+	+ +	+ + +	+ + +
Long term profit		+	+	+	+	+ +	+ + +
Opp. Costs (land, labour, capital)		+	+ +	+ +	+ +	+ +	+ + +
Operating costs (from P&L)		+	+	+	+ +	+ +	+ + +
Return to labour		+	+	+ + +	+ +	+ +	+ + +
Covering family living costs		+	+	+	+	+ +	+ + +
Capital (asset structure)		+	+	+	+ +	+ +	+ + +

+++ Very bad

\+ Not so bad/good

+++ Very good

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Overall farm performance (LATAM)

	Baselines and Improved farms						Future farm	Future region			
Farms	5.000 kg/year	8.000 kg/year (improved)	14.000 kg/year	18.000 kg/year (improved)	25.000 kg/year	32.000 kg/year (improved)	32.000 kg/year Less concs	38.000 kg/year Less concs	38.000 kg/year Less concs	40.000 kg/year Less concs	40.000 kg/year Less concs
Short/mid term profit (cash flow)	++	+	+	++	+	+++	+++	+	+	++	+++
Long term profit (economic viability)	+++	++	+++	++	++	+	+	+	+	+	++
Opport. costs (land, labour, capital)	+++	++	+++	++	++	+	+	+	+	+	+
Operating costs (from P&L)	+++	++	+	+	+	++	+++	+	+	++	+++
Return to labour (exc. Land costs)	+++	+++	+++	+++	++	+++	+++	+	++	+++	+++
Covering family living costs	+++	+++	++	++	+++	+	+++	++	+	++	+++
Assets structure (capital)	++	++	+++	+++	+++	+++	+++	+++	+++	+++	+++

+++ Very bad

\+ Not so bad/good

+++ Very good

Major drivers for dairy development

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Access to natural resources

Land opportunity costs
Growth/scale
Critical farm size

Access to feed-stuffs & services

Quality and quantity
Efficiency ratios
Balance forages and concs.

Labour Opp. costs

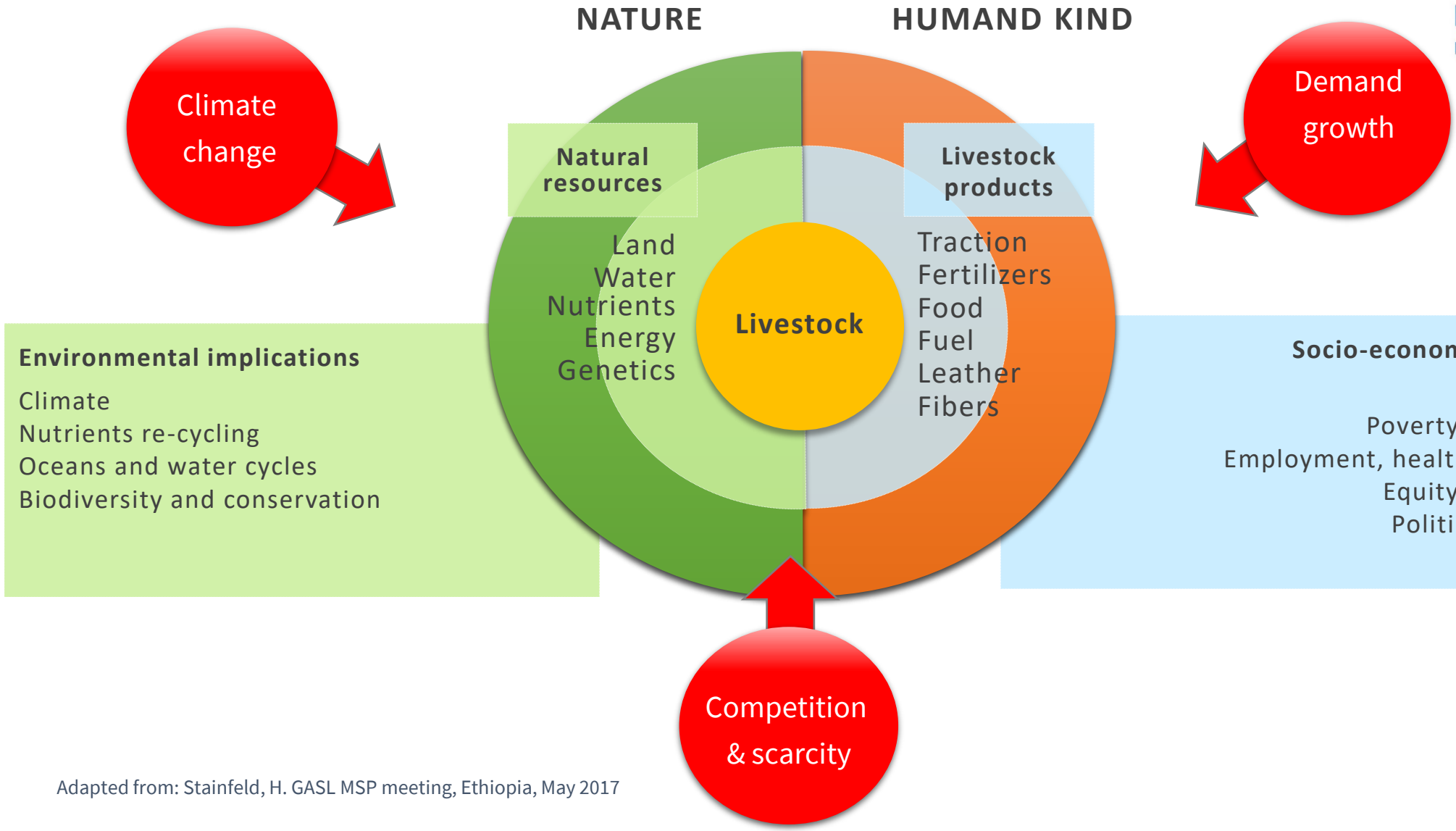
Labour competition
Dairy income
Min.wages
family living cost

Access to formal markets

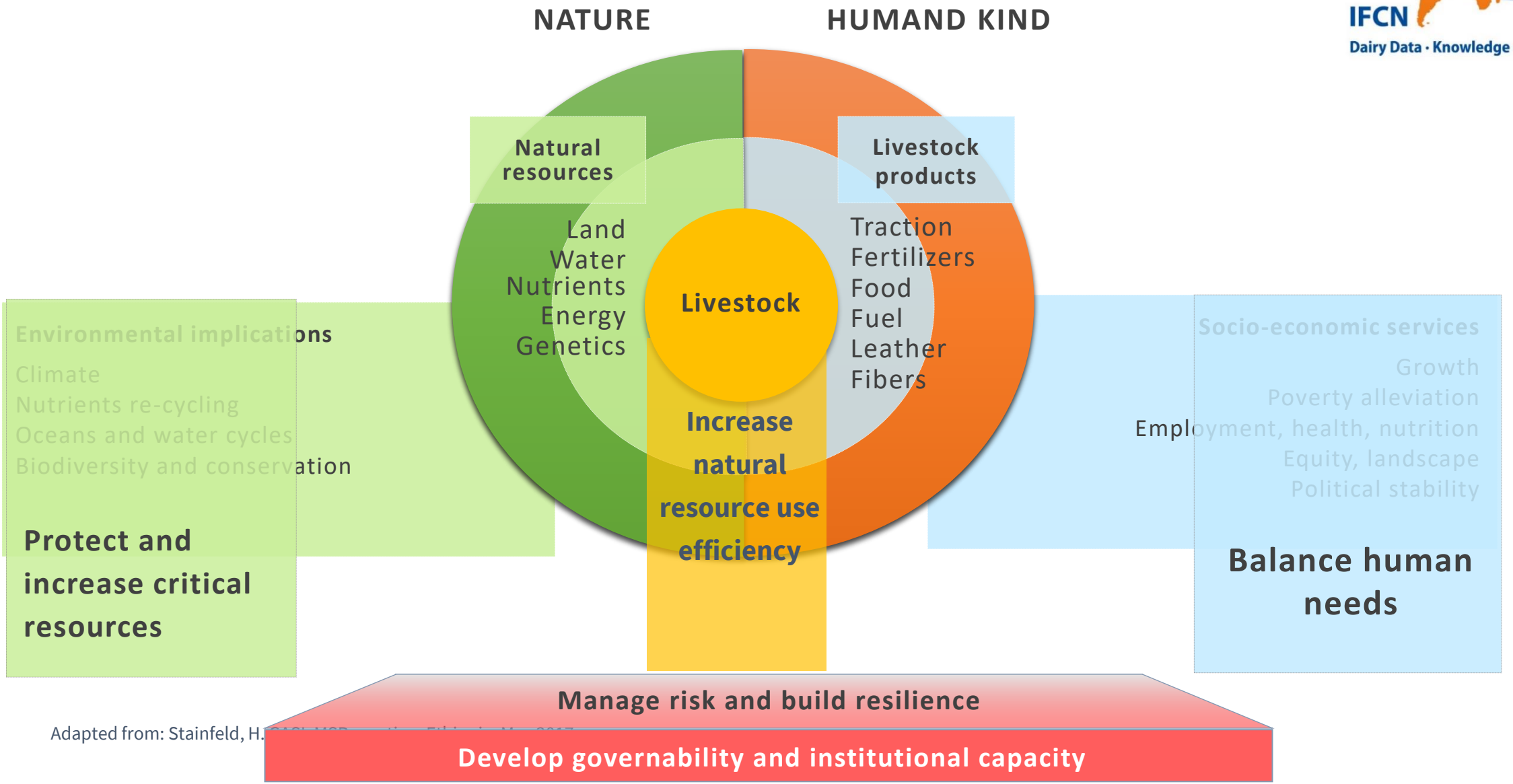
Long-term vision
Development
Promising future

Content

1. What is the scientific evidence telling us?
2. What is the new normality in dairy?
3. Dairy economic trends in emerging regions
4. **The new sustainable model (Is this an achievable option?)**



Adapted from: Stainfeld, H. GASL MSP meeting, Ethiopia, May 2017



Adapted from: Stainfeld, H.

Thanks

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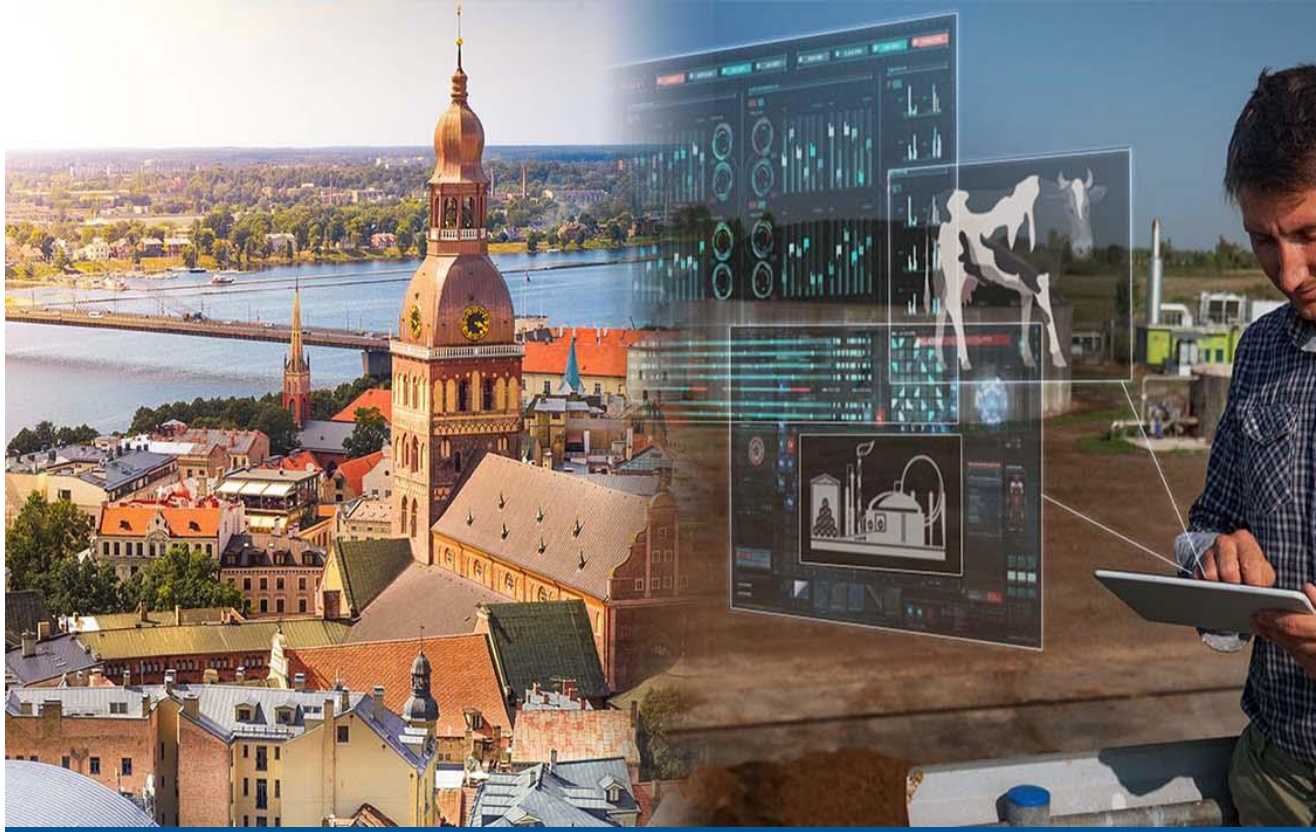
Panel: Dairy World in times of fast changes

How the regional development may impact the global situation

Philipp Goetz
IFCN

Erik Elgersma
Founder & Director
Strategic Analysis Services BV



Energy Crisis in Dairy

Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

Dairy Experts in Panel today

Hanna Lavreniuk

Matthew Newman

Ernesto Reyes

Dairy World in times of fast changes

24th IFCN Dairy Conference

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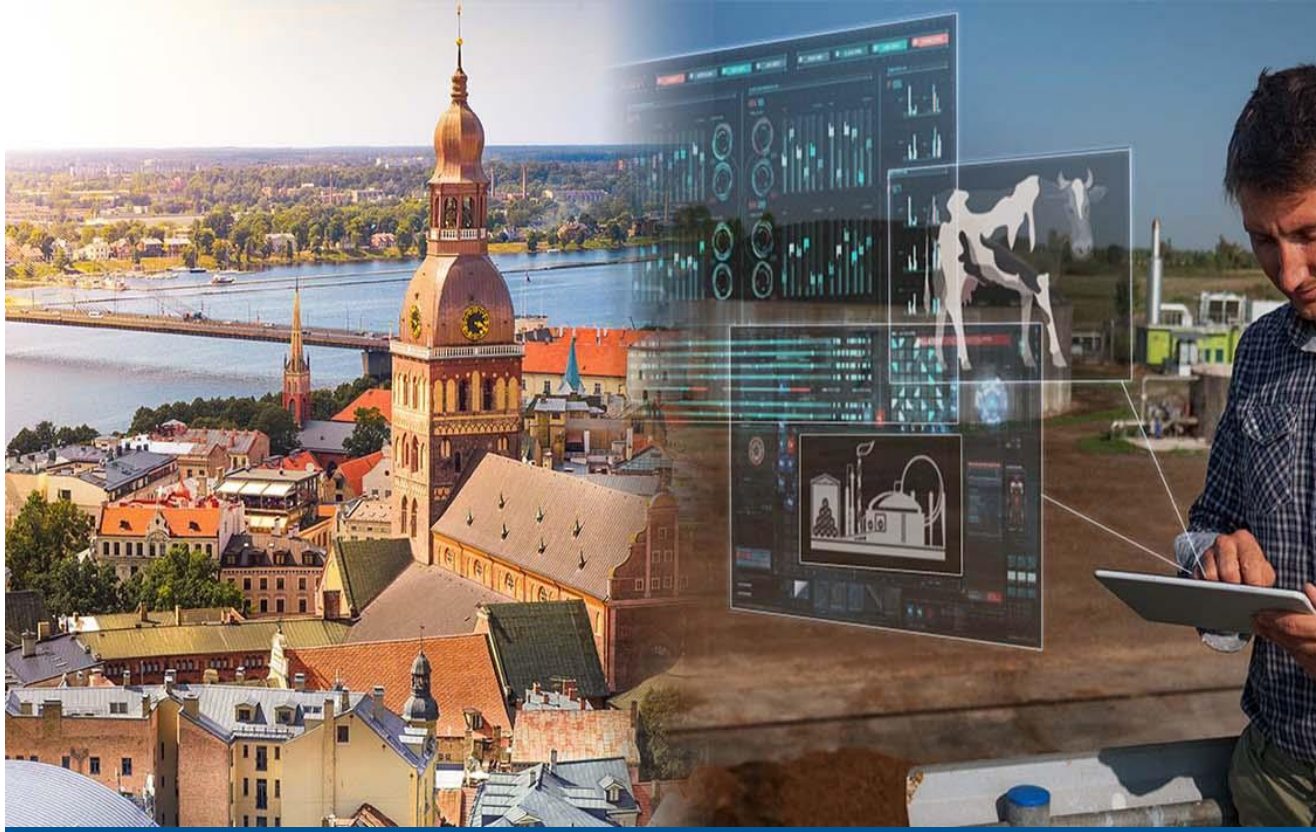

Energy Crisis in Dairy

Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

BREAK until 14:15

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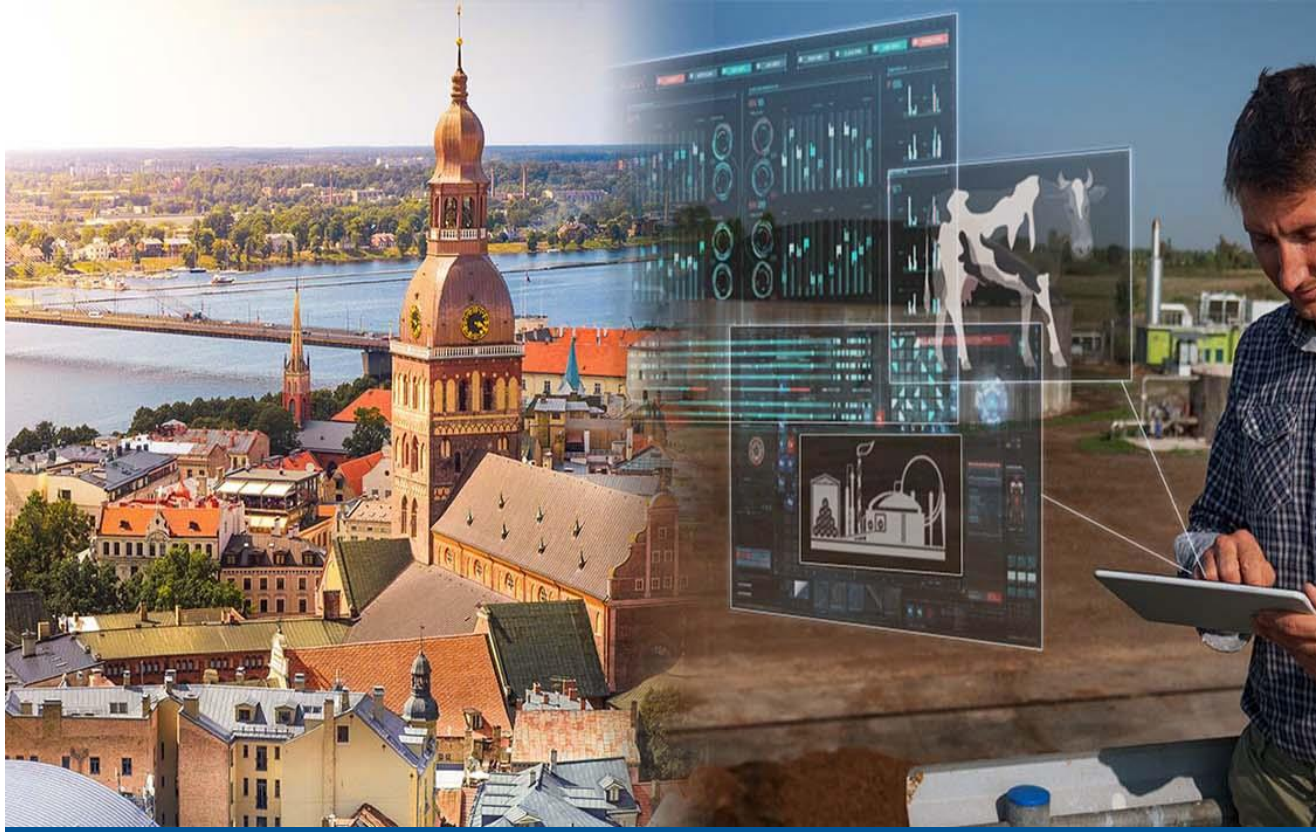

Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

24th IFCN Dairy Conference – Tuesday 13.06.2023

The Special Topic Day

IFCN Dairy Conference 2023

14:15 – 17:15

Energy and feed management on the farms | Dorothee Bölling

Farmers margin as a key indicator for farm sustainability | John Allen

Farmers surviving and making money under high inflation and volatility. What lessons can we learn from Argentina? | Hugo Quattrochi

Dairy Transformation in the Netherlands: Sustainability Challenges and what does it mean for future farming in Europe | Michel de Haan

Panel: dairy farming under pressure. Are we prepared for future challenges? | Torsten Hemme, Dorothee Bölling





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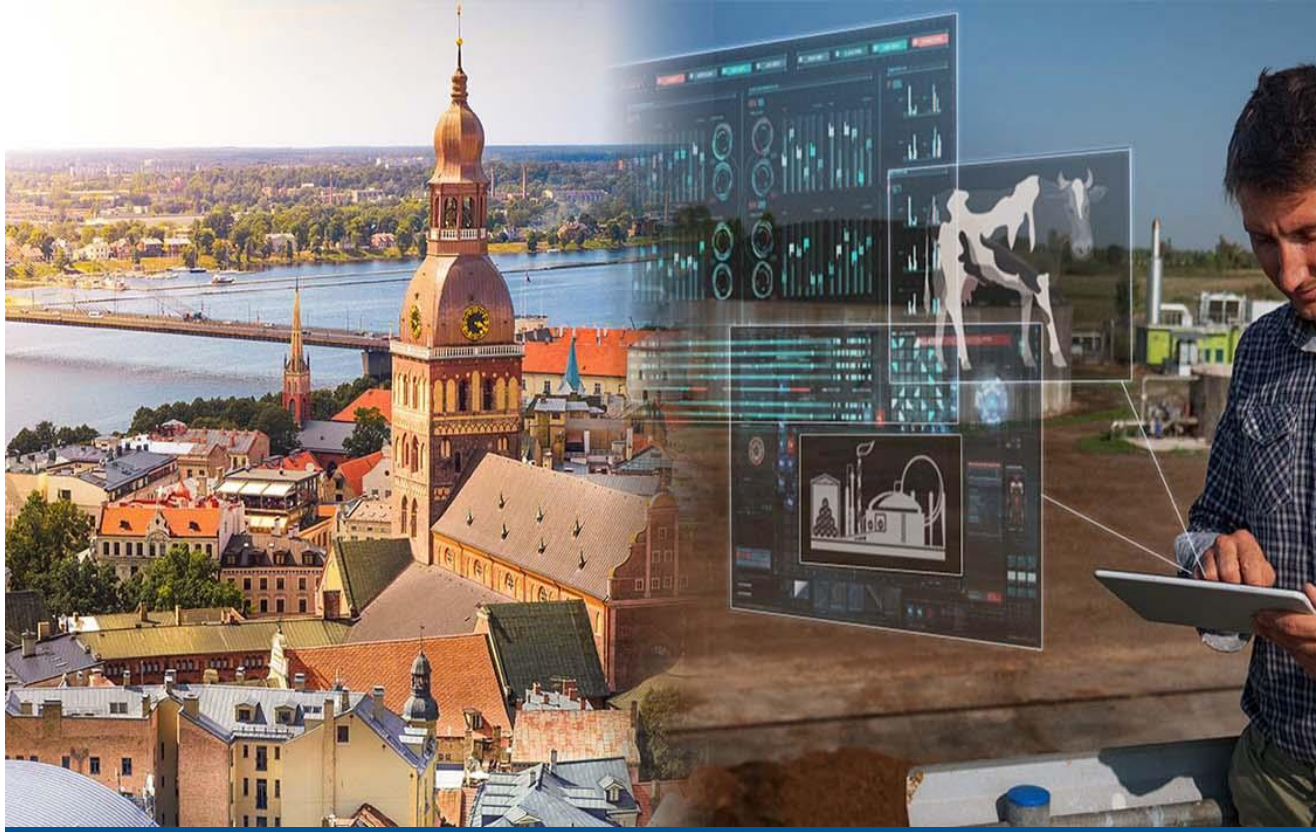
Energy and Feed Management on the farms
Yearbox results

Dorothee Bölling
Senior Dairy Economist IFCN



Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

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Farm economics 2022
A summary

Energy

Feeding

Farm Comparison Analysis 2023

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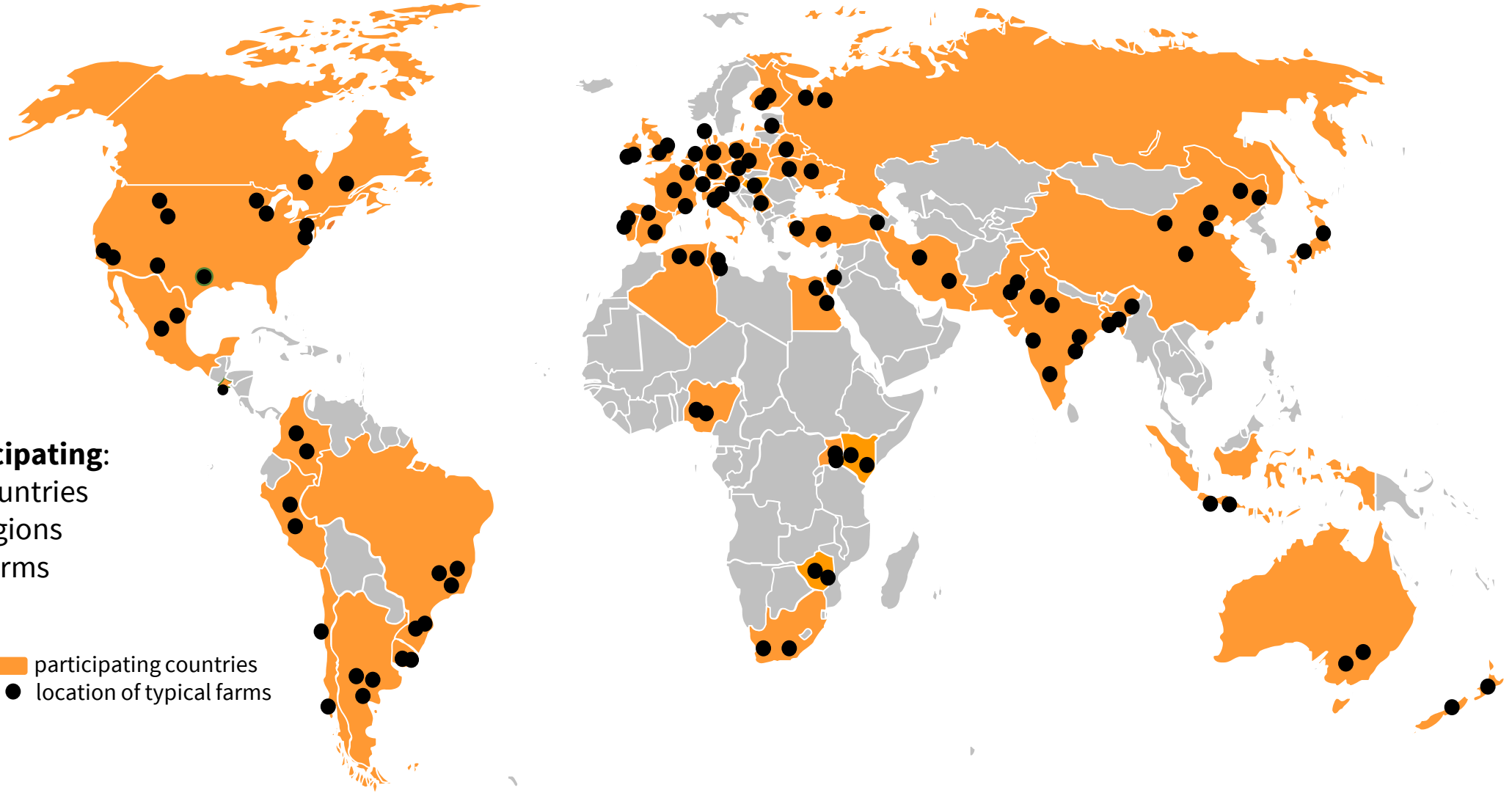

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Positive change in milk price 2022 vs 2021

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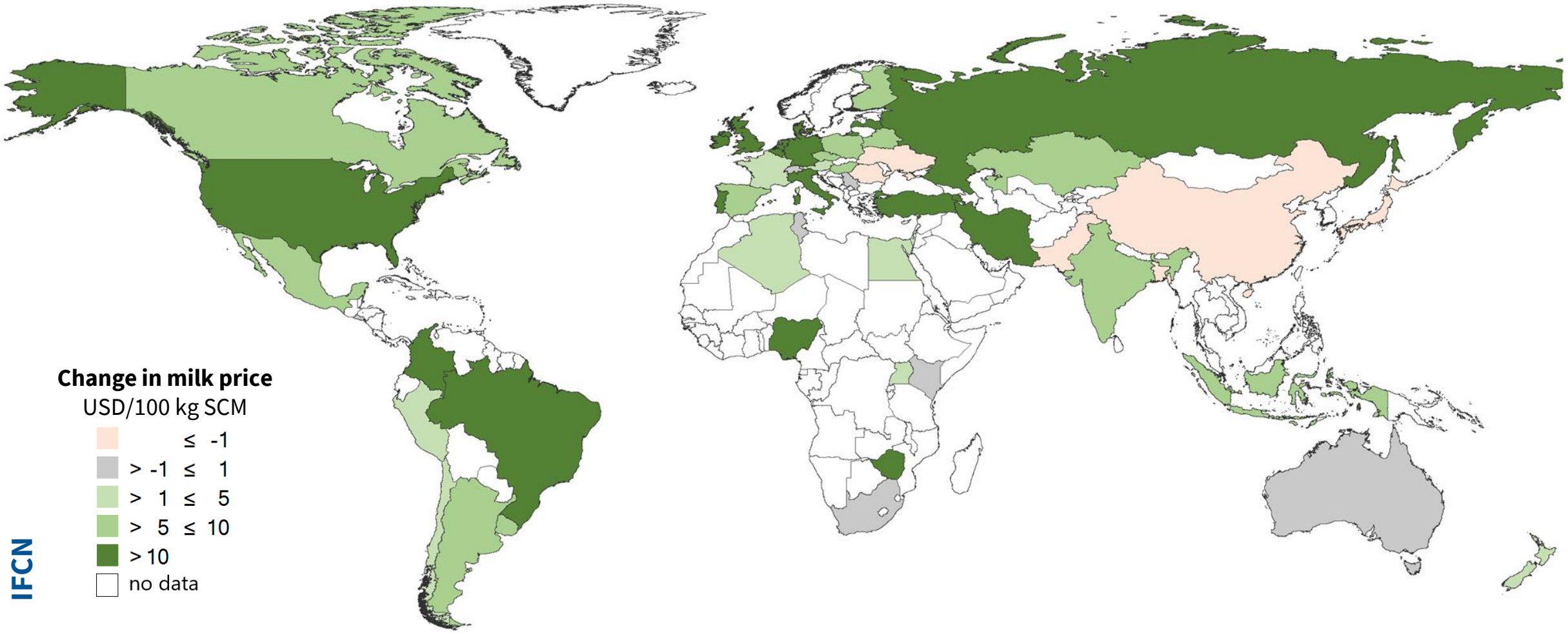
Averaged sized typical farms



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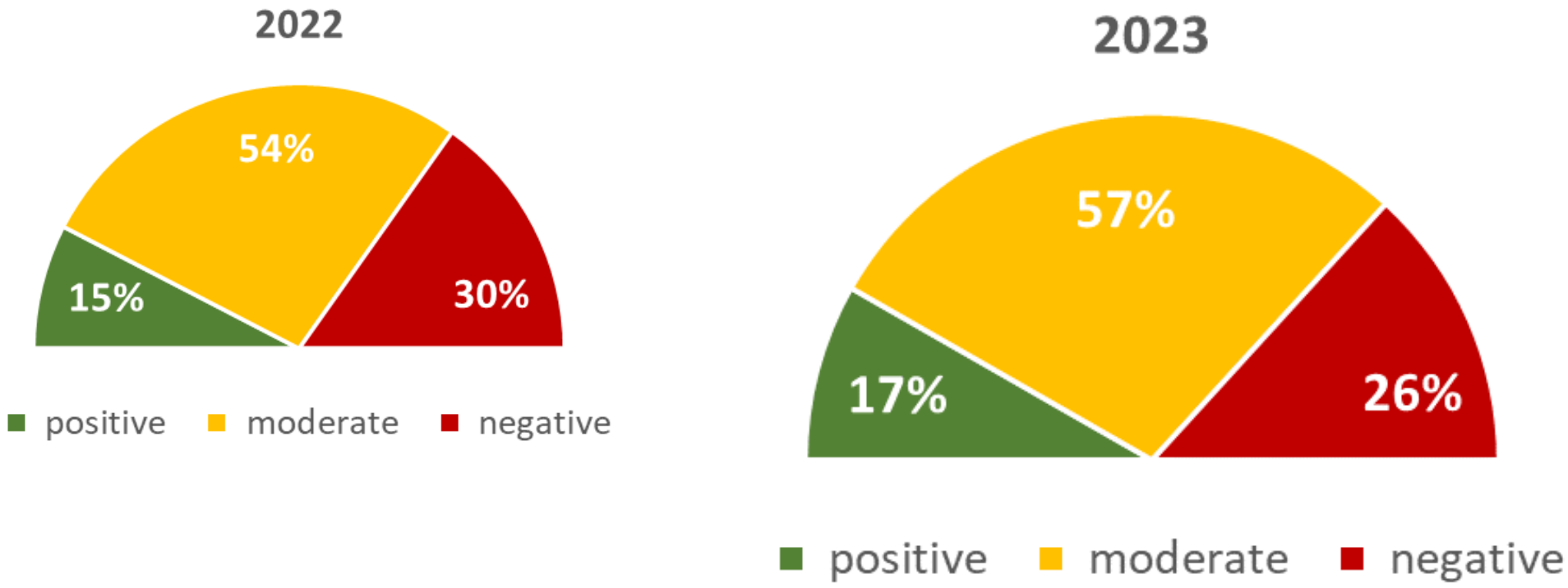
How is currently the mood of dairy farmers?



Record high milk prices and good profits –
but still, dairy farmers are careful

High milk prices and no production growth: Why?

Summary

Chance

- Dairy farmers in many world regions enjoyed a higher farm income than in previous years: the increase in milk price surpassed the increase in production costs.

Change

- The competitiveness at international level was particularly defined by the exchange rate of the national currency to the USD. Especially Europe gained in competitiveness.

Challenge

- Despite the good economic year, farmers expanded their production only minimally due to foreseen challenges: expected additional cost rises, a more „normal“ milk price again, and further (environmental) regulations.

What is „The Year Box“?

- Different questions each year to our partners
- Additional information about the topic of the Dairy Conference, this year „Energy management“
- Questions refer either to country or to farm level

- This year, we gathered information from
  - 47 countries
  - 59 regions
  - 130 farms

The **Year Box** offers the unique chance
to get insights
about a specific topic
from around the world

Topic 2023: Energy and feed management on dairy farms

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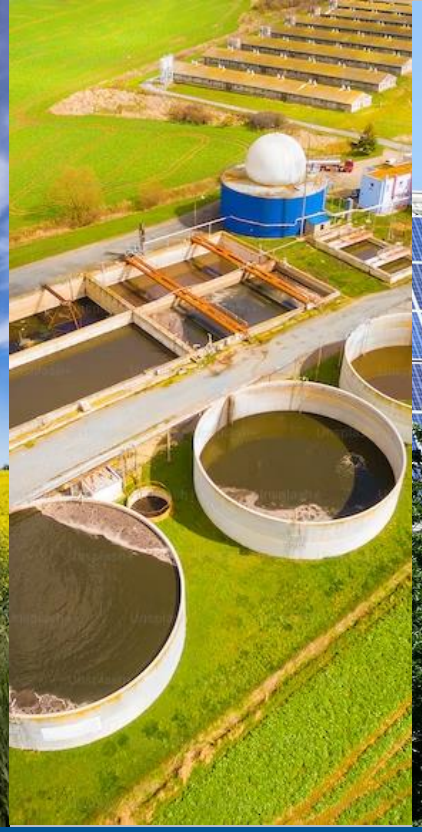


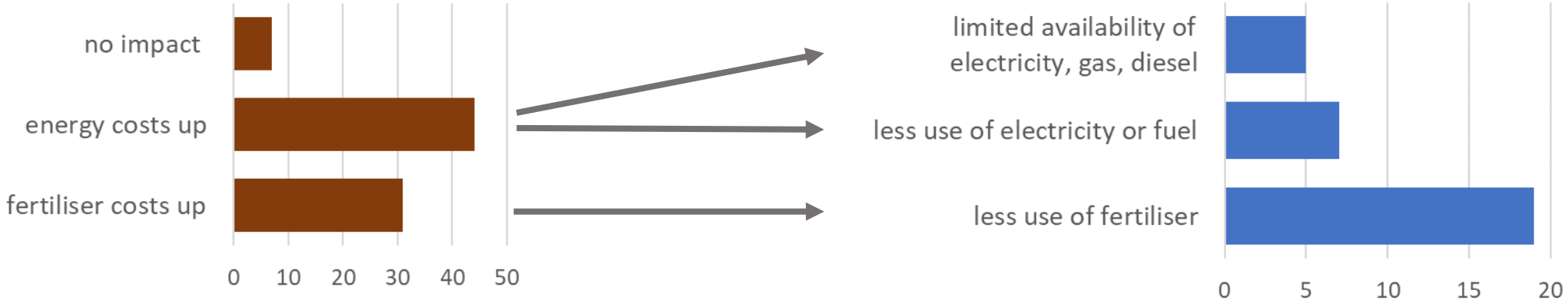
Farm economics 2022
A summary

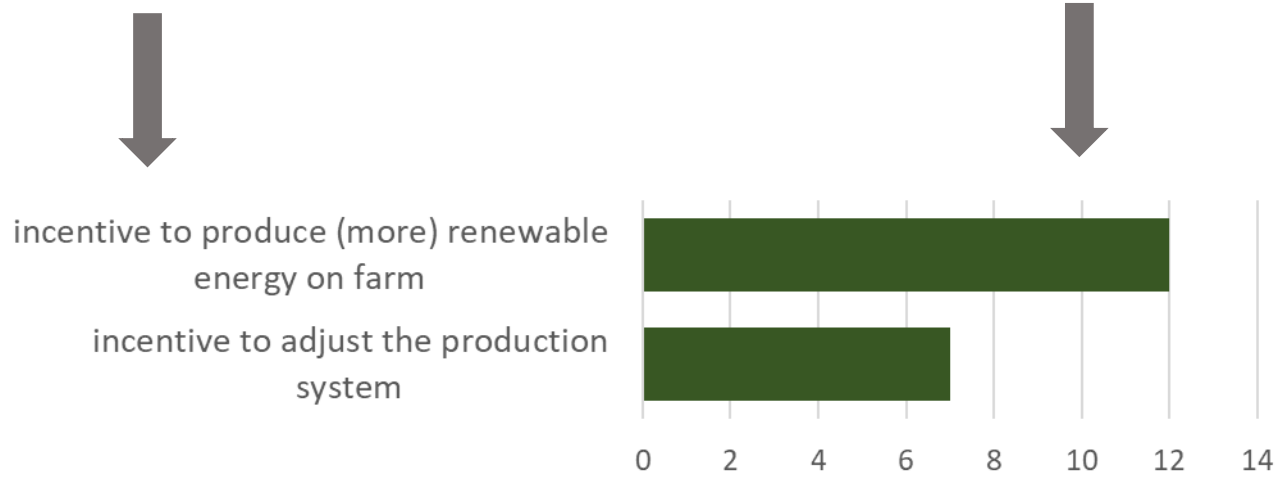
Energy

Feeding

IFCN

How does the energy crisis affect dairy farms?

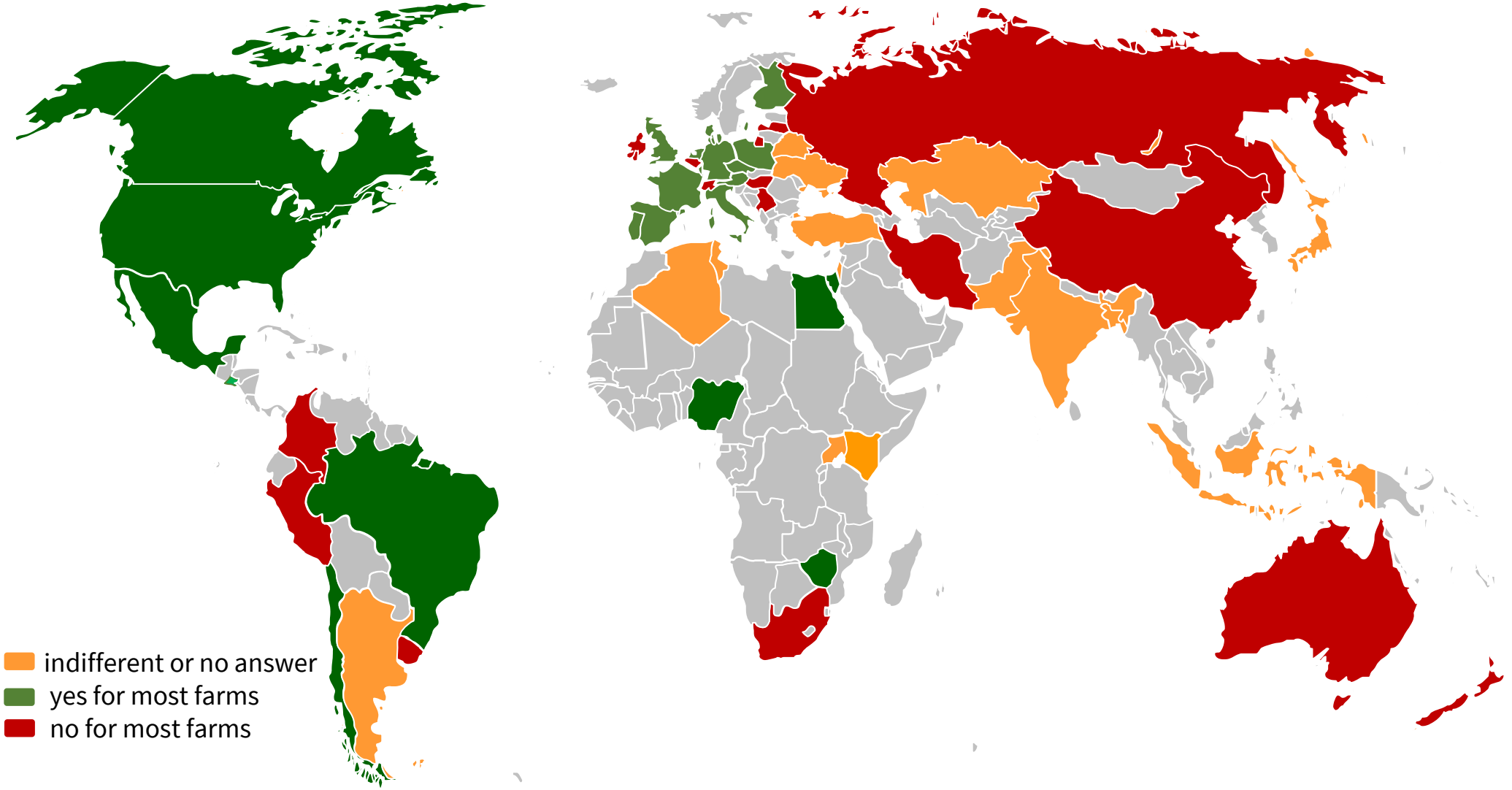




Will we see a permanent change in the set-up of dairy farms?

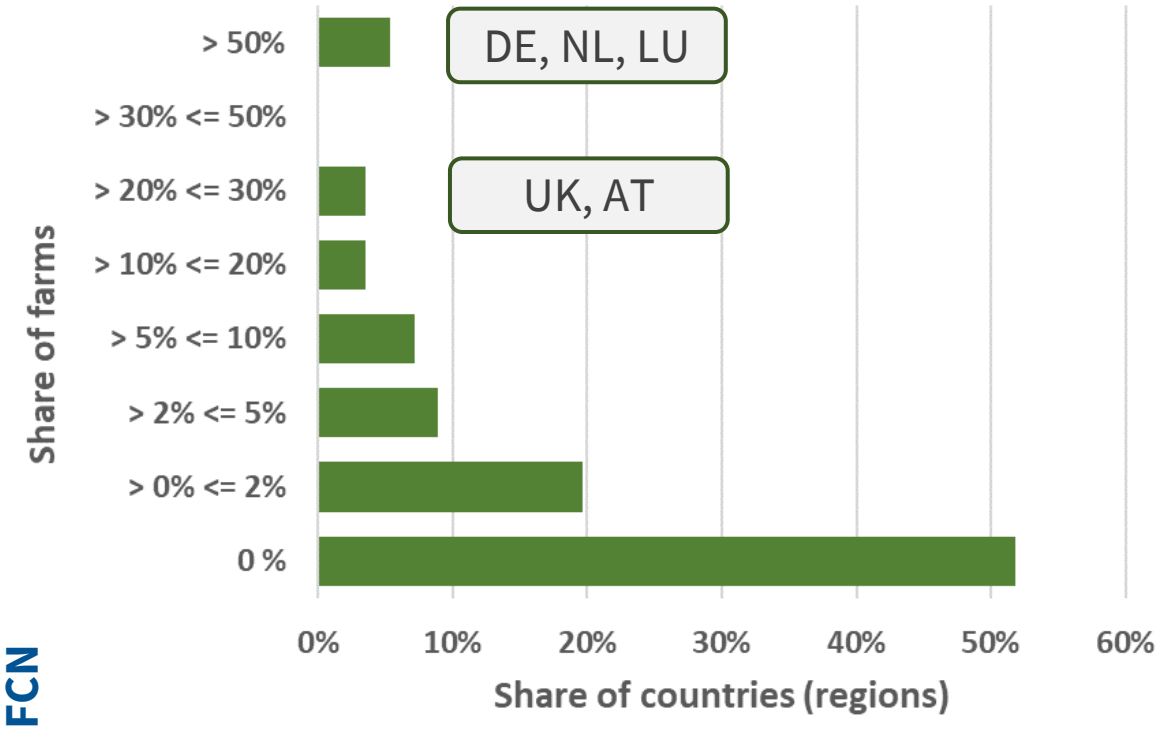
N = 56, multiple answers possible

Is renewable energy a viable income source?



How many dairy farms produce renewable energy?

Share of farms producing renewable energy within a country (region)



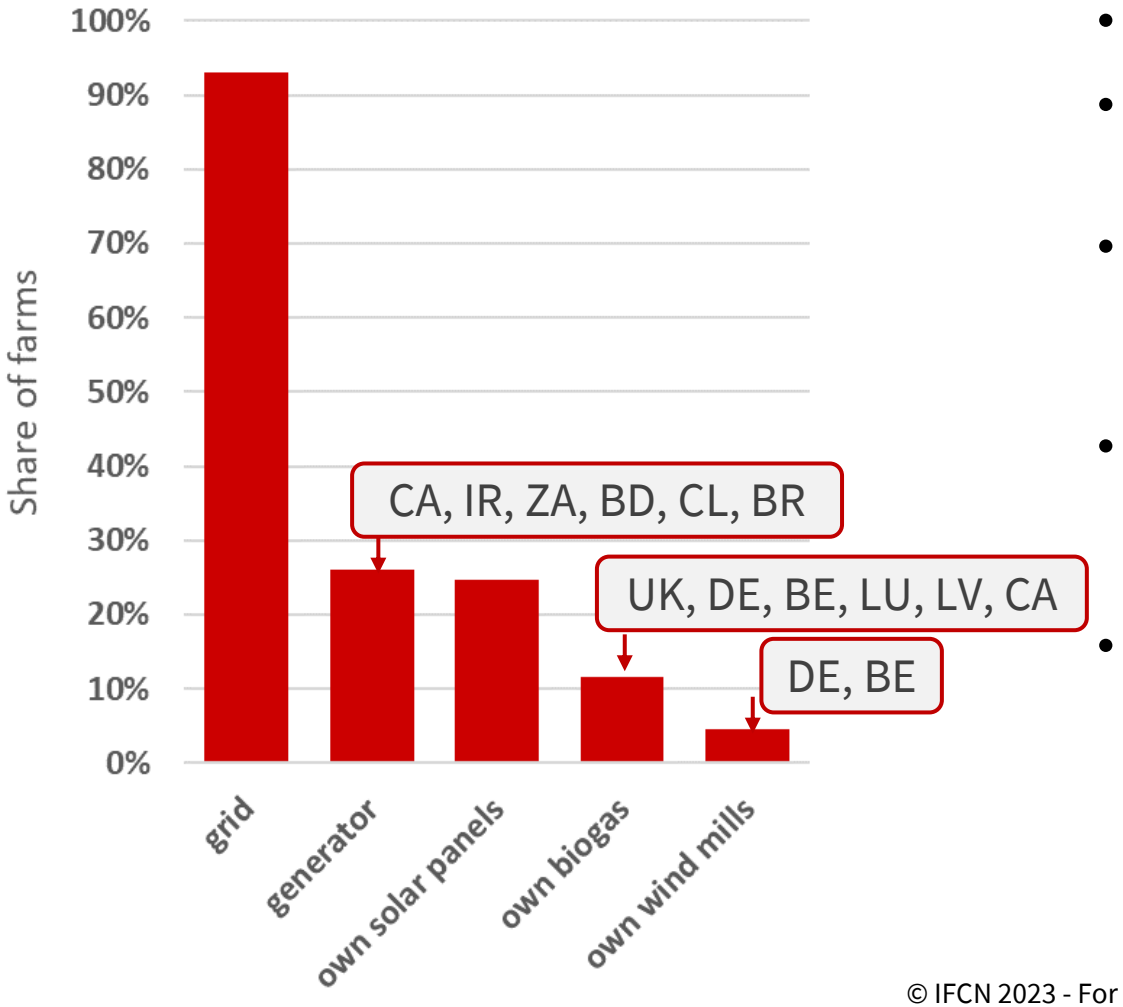
- In >50% of the regions, dairy farms do not produce any renewable energy
- In another 30% of the regions, <5% of dairy farms produce renewable energy
- But: In some countries, every second farm generates income via renewable energy

➢ Dairy farms (can) offer a huge potential to produce renewable energy

N = 56

Where does the electricity come from?

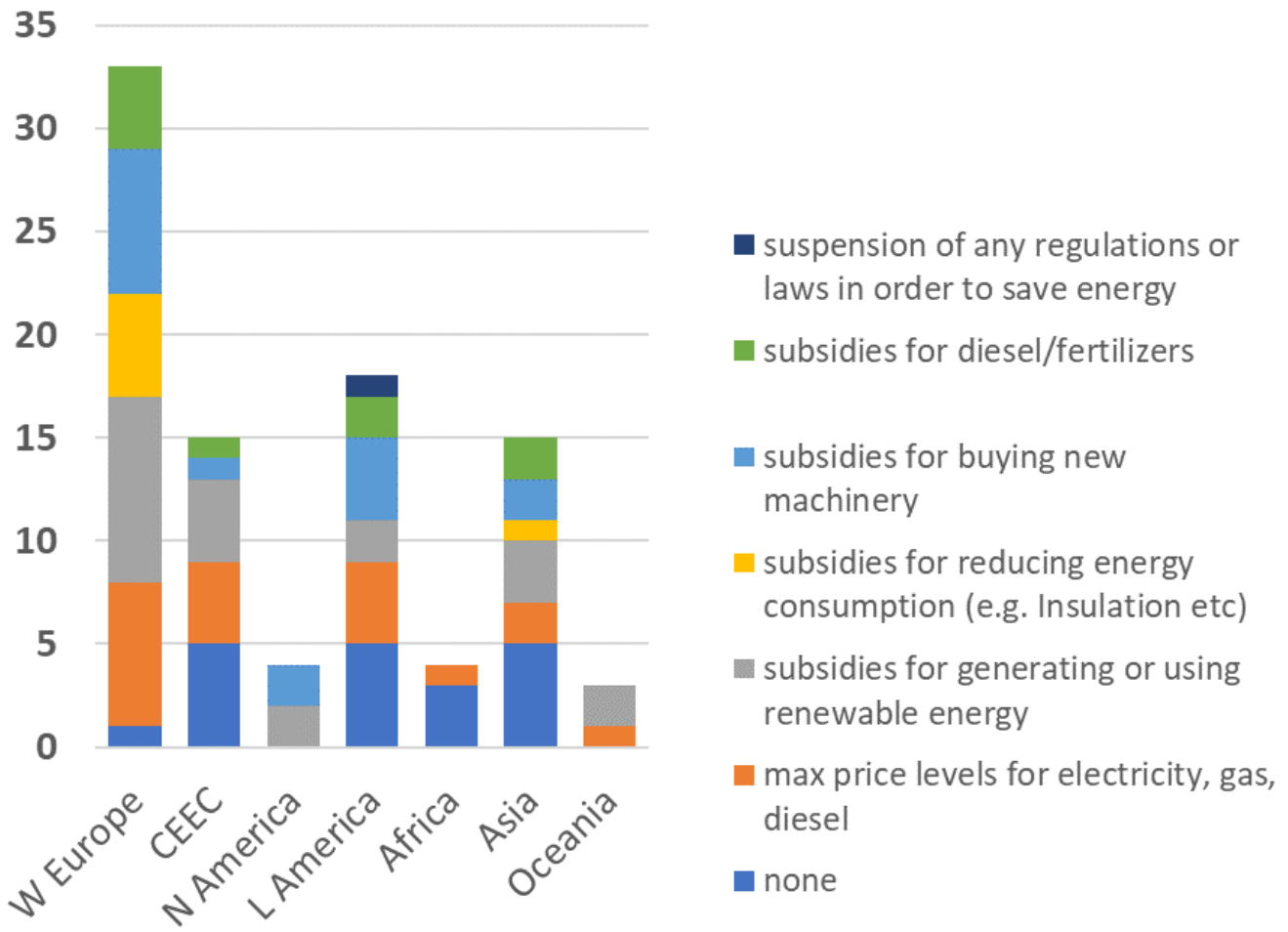
Source of electricity on dairy farms



- Most dairy farms rely on the **public power supply**
- **Generators** are used as a back-up or when no grid is available
- However, more and more farms also use renewable energy produced on farm, especially energy from **solar panels**
- **Biogas** and **wind mills** are still a minor energy source, but might gain in importance (e.g. biogas plants for small scale farms)
- **Windmills** are often large scale production units, designed for supplying the public grid

N = 130, multiple answers possible

Are there any governmental regulations or new policies?

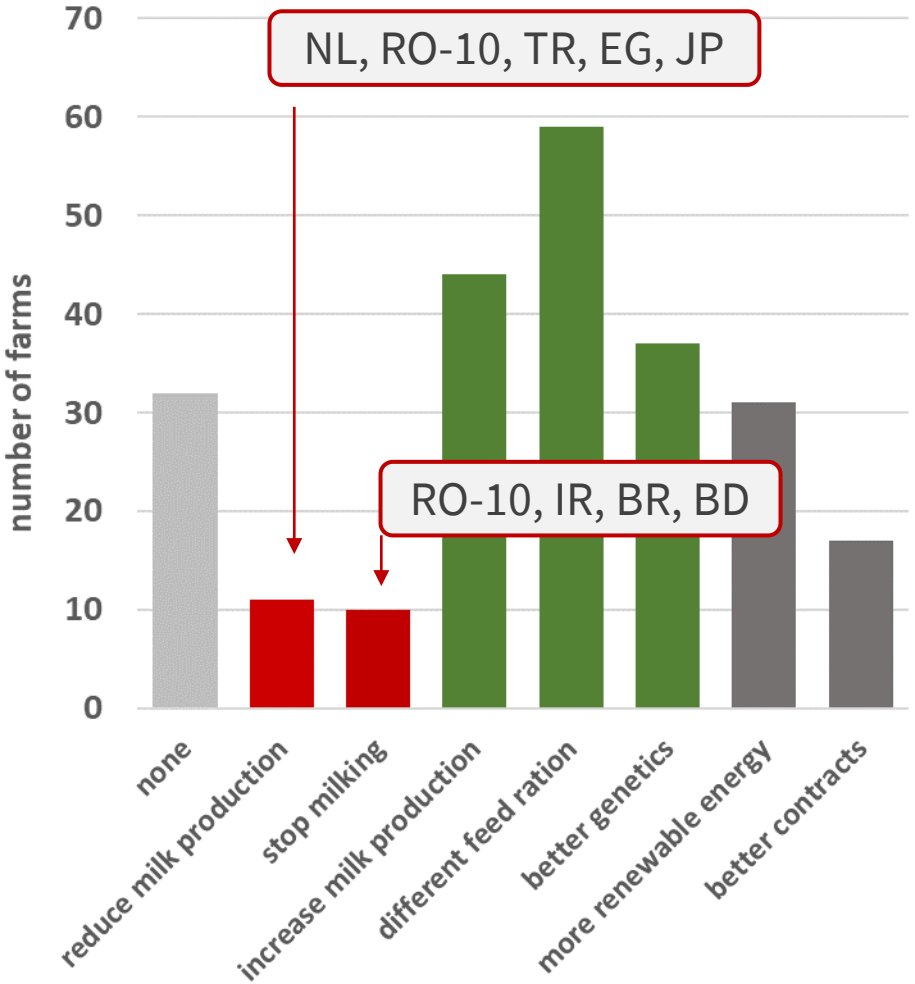


- Western Europe is the world region with a high number of regulations
- Worldwide, **max price levels** for energy and **subsidies** for generating renewable energy are the most common support
- However, in about one third of all countries, no policies were offered by the government

N = 56, multiple answers possible

How to improve risk management?

Advice farmers are given



No advice given
About 25% of the farmers were not given (did not need) any advice

Reduce the milk volume
For some farmers, it might be more beneficial to reduce or even stop dairying (beef cattle might be a more viable option)

Optimise the production system
Still the most common advice, adjust to the conditions and/or increase the production volume

Management or diversification
Adjust the (financial) management of the dairy farm and/or produce renewable energy (no competition with dairy resources)

N = 125, multiple answers possible

Key facts on energy

- The high energy costs and energy shortage makes the famers adjust their production system.
- Many governments try to support by putting max price levels on energy or granting subsidies.
- Renewable energies (solar, wind, biogas) are suitable for production on farm, but are not yet widespread implemented.

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Farm economics 2022
A summary

Energy

Feeding

How to deal with high feed costs?

World
- **Change in feed ration, same milk yield**
- **More homegrown feed**

Europe
- Change in feed ration, same milk yield
- More homegrown feed
- No changes

Africa
- More homegrown feed
- Change in fed ration, same milk yield

Latin America
- More homegrown feed
- Change in feed ration, same milk yield
- Change in feed ration, lower milk yield

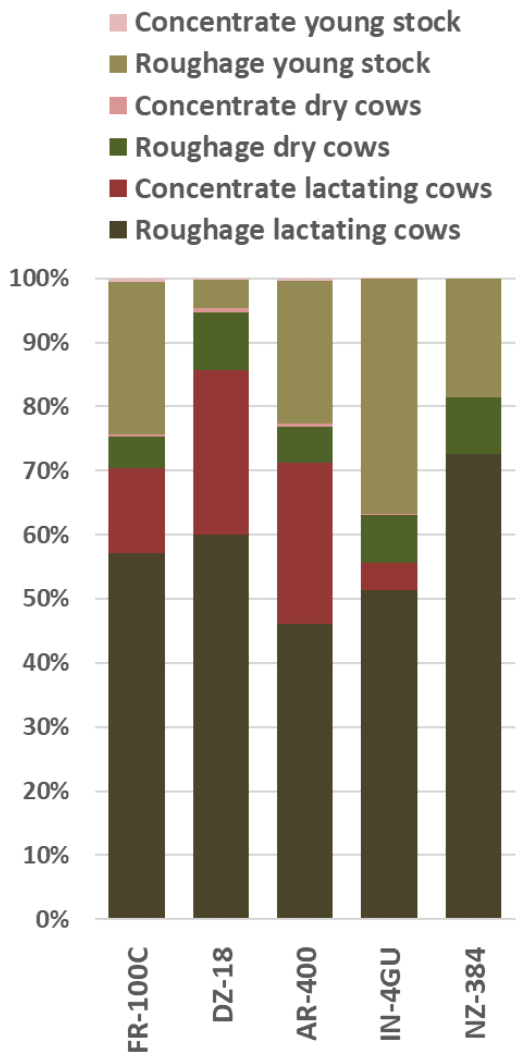
North America
- Change in feed ration, same milk yield

Asia
- Change in feed ration, same milk yield
- Reduction in herd size

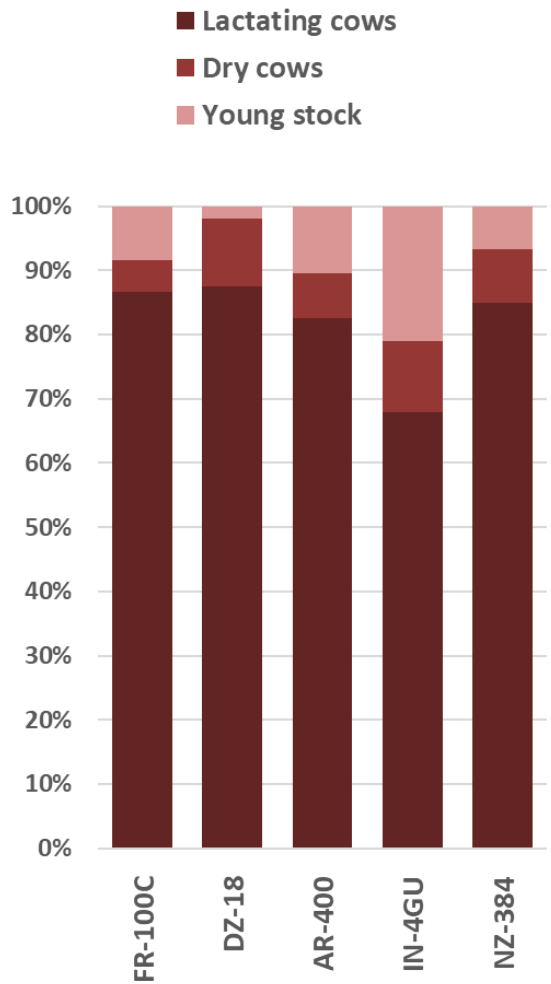
Oceania
- No changes
- More homegrown feed

Distribution of feed and feeding costs

Share of feed in t DM



Share of feed costs



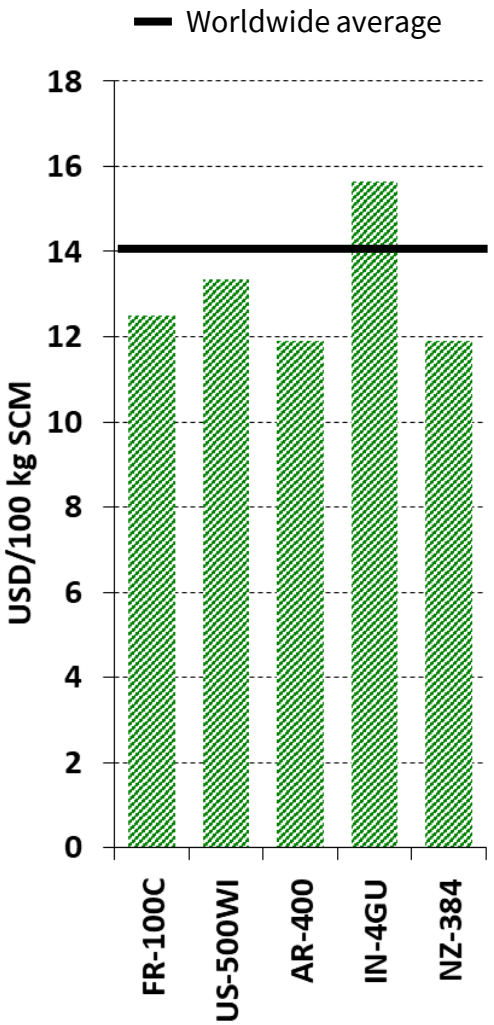
Farm types

- FR: silage and concentrate feeding
- DZ: low number of replacements on farm
- AR: grazing farm with concentrate feeding
- IN: long calving interval + high age 1st calving
- NZ: grazing without concentrate feeding

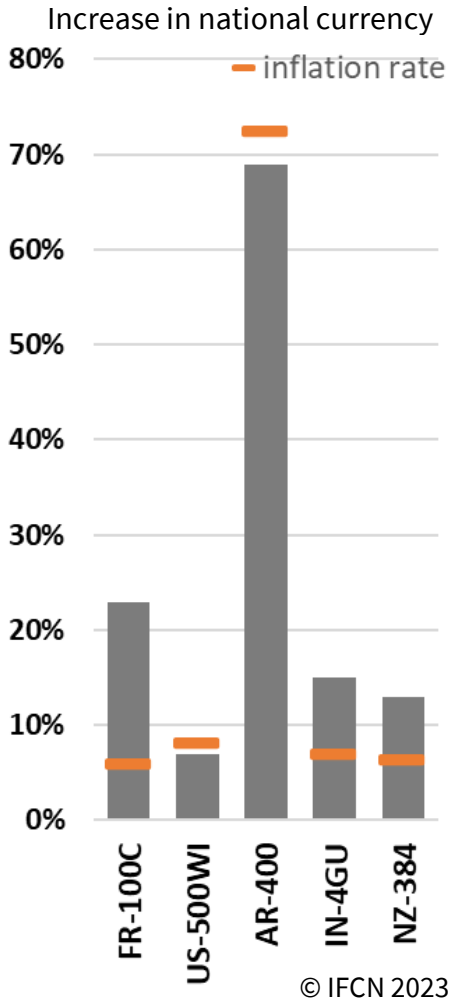
- Lactating cows take up 70 – ~85% of the total feeding costs
- Efficient herd management and calf rearing can lower the costs for feeding for non-lactating animals

Costs for homegrown feed grew worldwide

Costs for homegrown feed



Increase in costs for homegrown feed



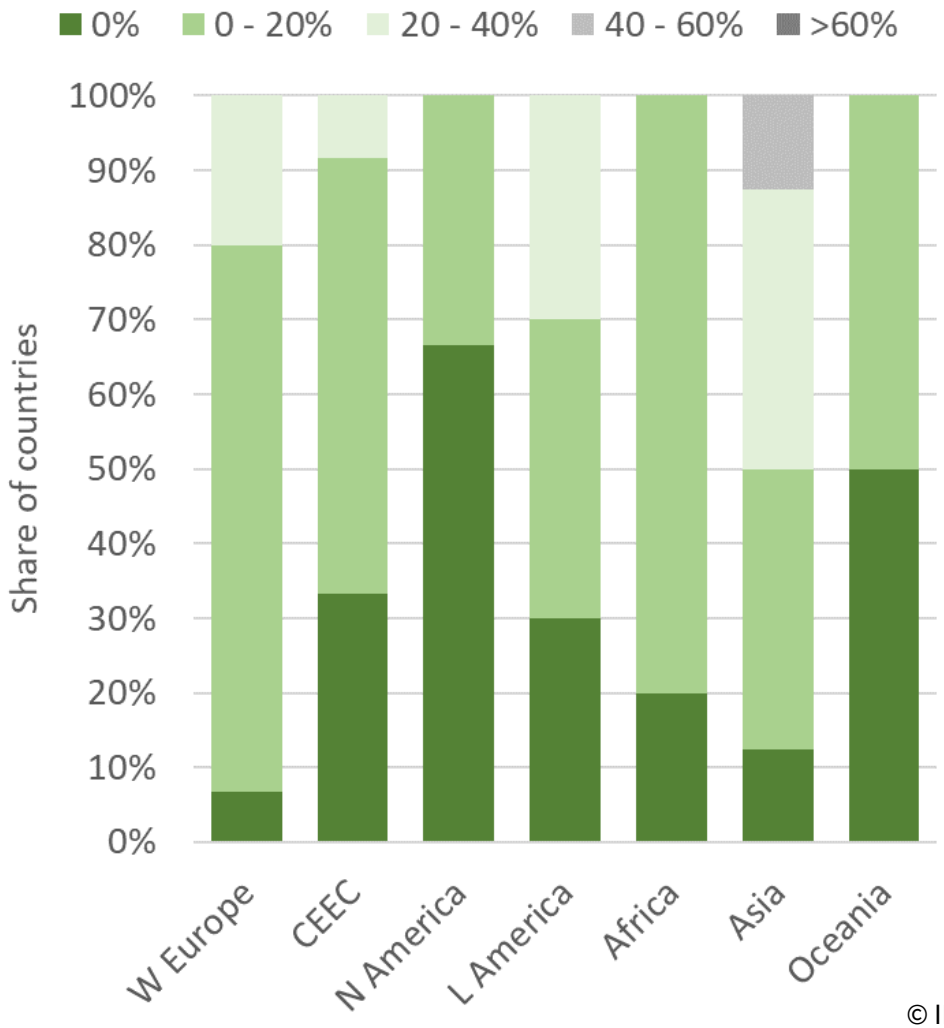
- Many farms rely on **homegrown feed;** especially **roughage** (fresh, hay, silage) is often grown on farm.

- Costs often increased above the national inflation rate, because of the input of
  - Fertiliser
  - Diesel
  - Energy

➢ Homegrown feed is not necessarily cheap anymore and **gains in production efficiency** need to continue.

How much dairy feed is imported?

Share of imported feed



- Only few countries are completely independent and do not import any feed.
- The majority of countries imports up to 20% of the (total) dairy feed, these are usually concentrate or by-products.

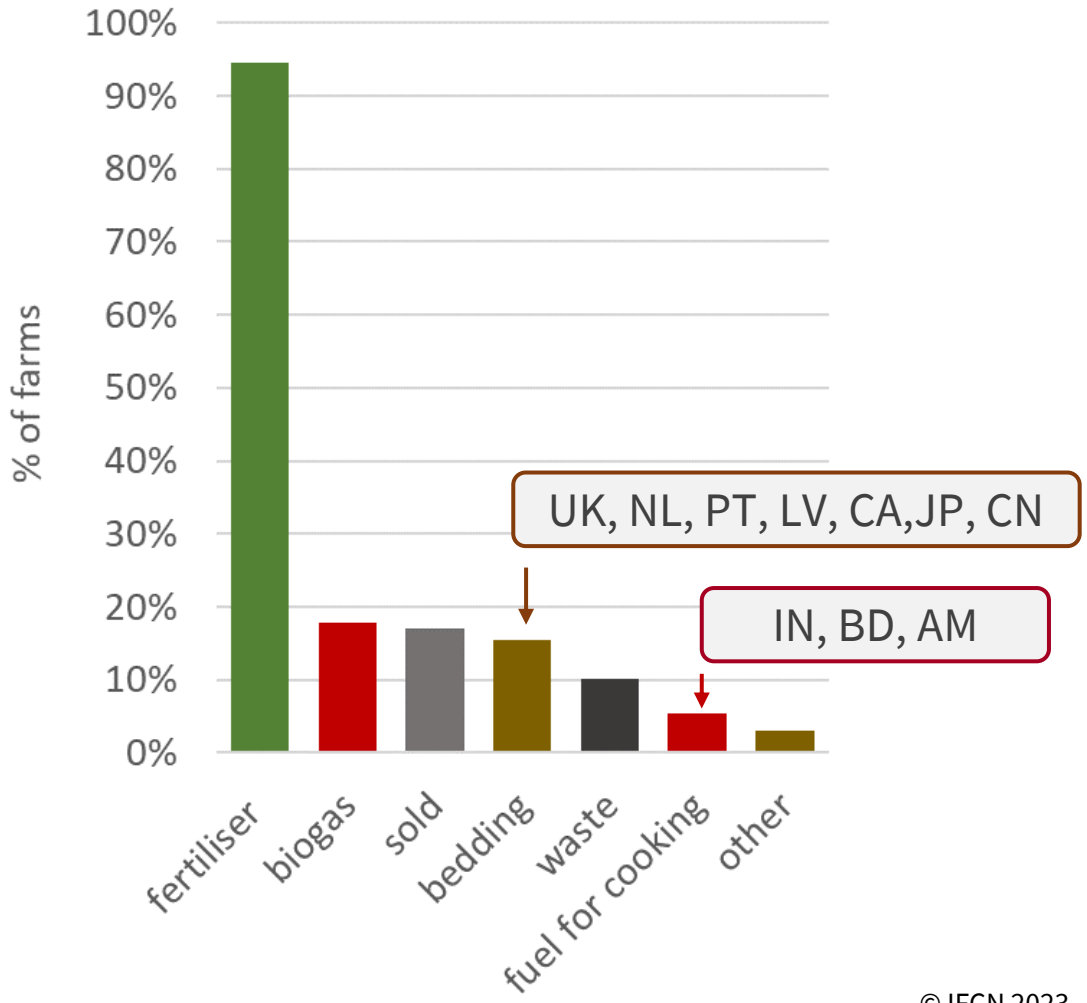
➢ Roughage is usually homegrown

➢ Concentrate feeding relies partly on international trade

N = 56

Manure – a multi-purpose product

What manure is used for



- Most common use of manure is still as fertiliser on farm
- Because of high fertiliser prices, manure has gained in importance
- Alternative usages pick up: biogas or bedding

➢ Manure is a **valuable resource**

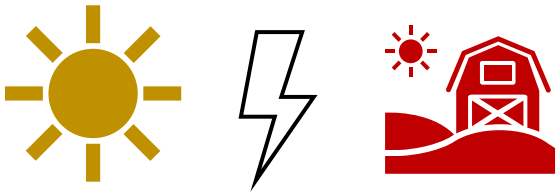
N = 129, multiple answers possible

Key facts on feed

- High feed prices make the farmers adjust the feed rations in order to save costs.
- Although homegrown fodder production also got more expensive, farmers are advised to rely more on their own feed.
- Farmers strive for making full use of manure, as this is a valuable resource with multiple purposes apart from fertiliser.

Summary

Do the last few years make dairy farmers strive for more independence?



Opportunity

Most dairy production systems rely on **energy**. The shortage and the worldwide focus on renewable energy sources offers dairy farms the chance to diversify and use their resources more efficiently by producing **renewable energy**.

Challenge

Feed as the main input (and cost) factor receives special attention. Higher reliance on own fodder production and less dependency on the international feed trade might be some of the consequences.

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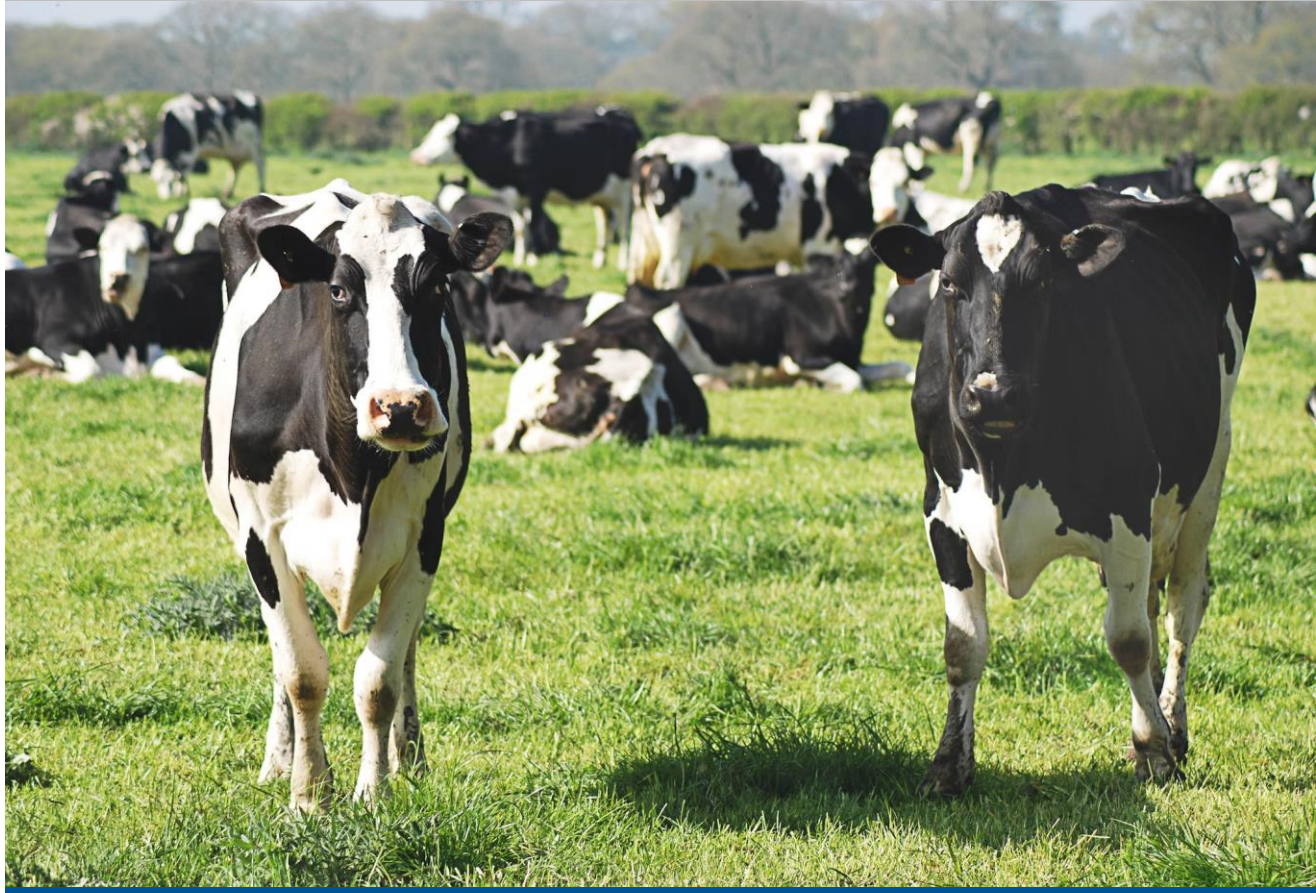
Thank you



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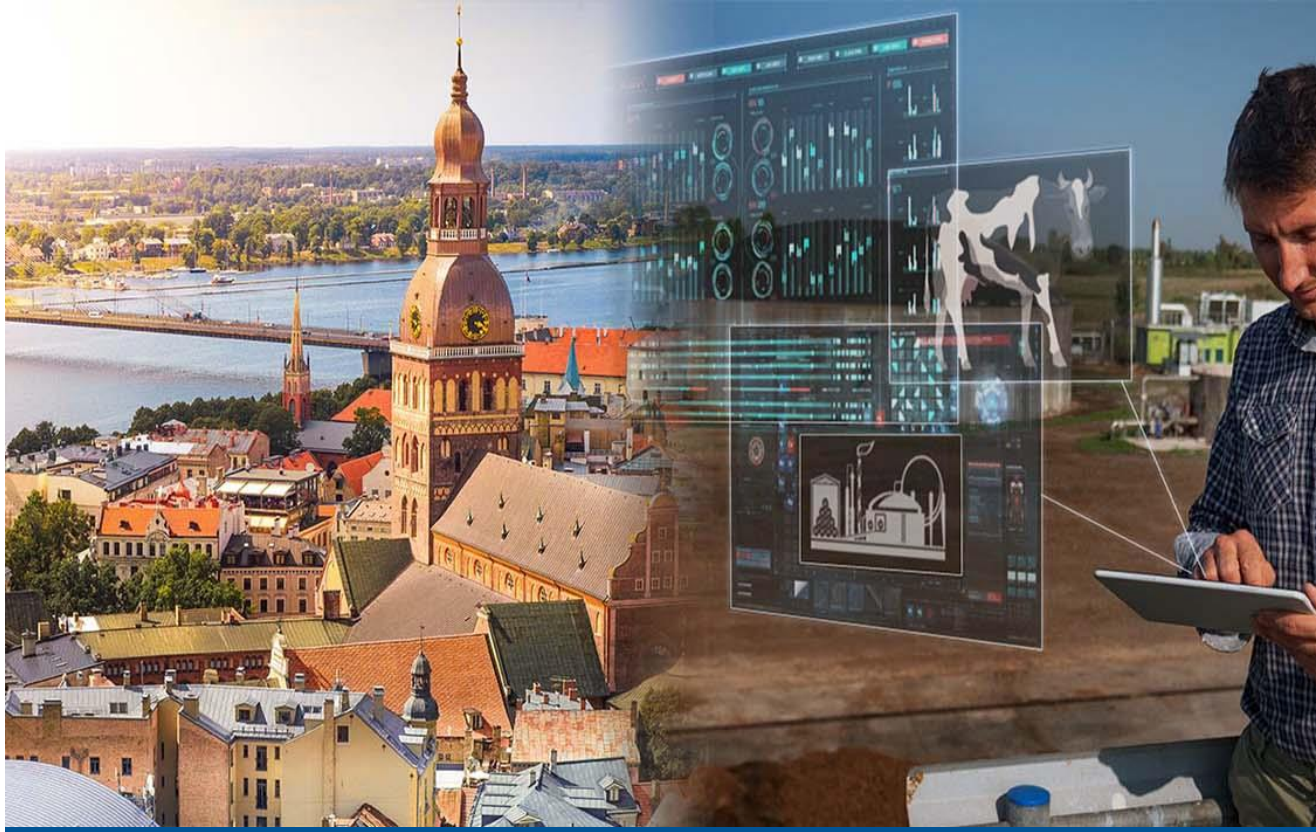
Farmers margin as a key indicator for farm sustainability

John Allen
Director Kite Consulting



Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

How do we monetise sustainability?

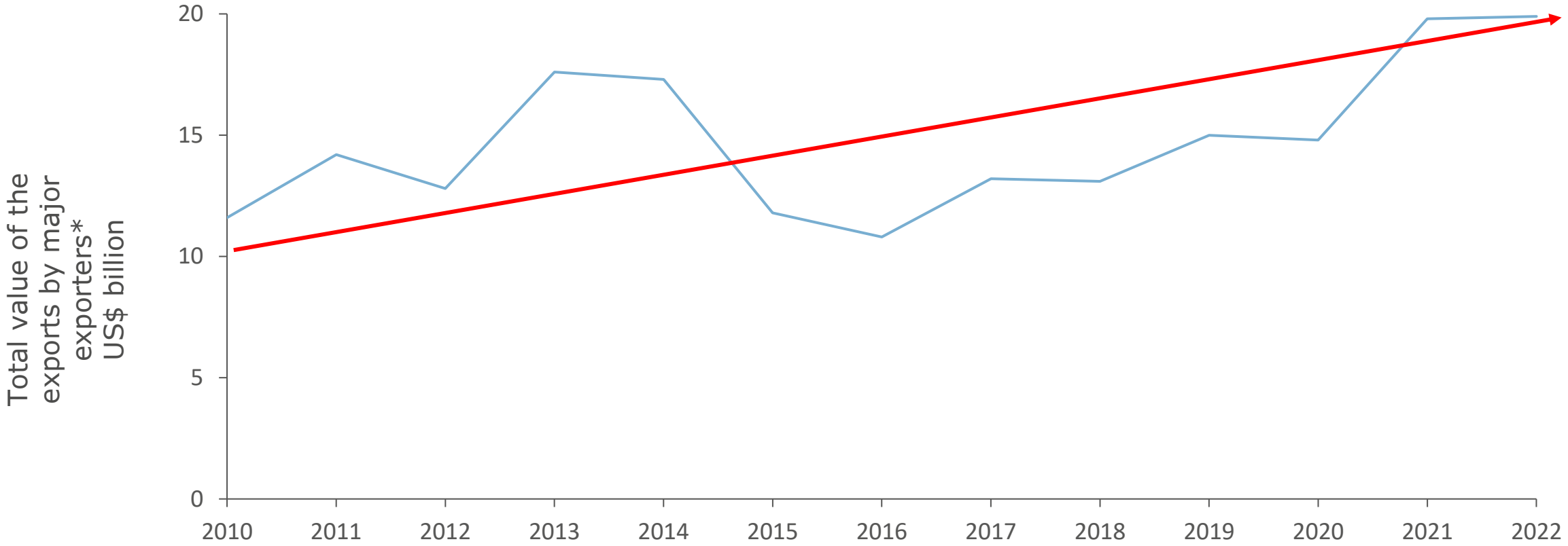
John Allen

Kite Consulting LLP

PEOPLE PLANET PROFIT

World market export value# per year 2010-2022

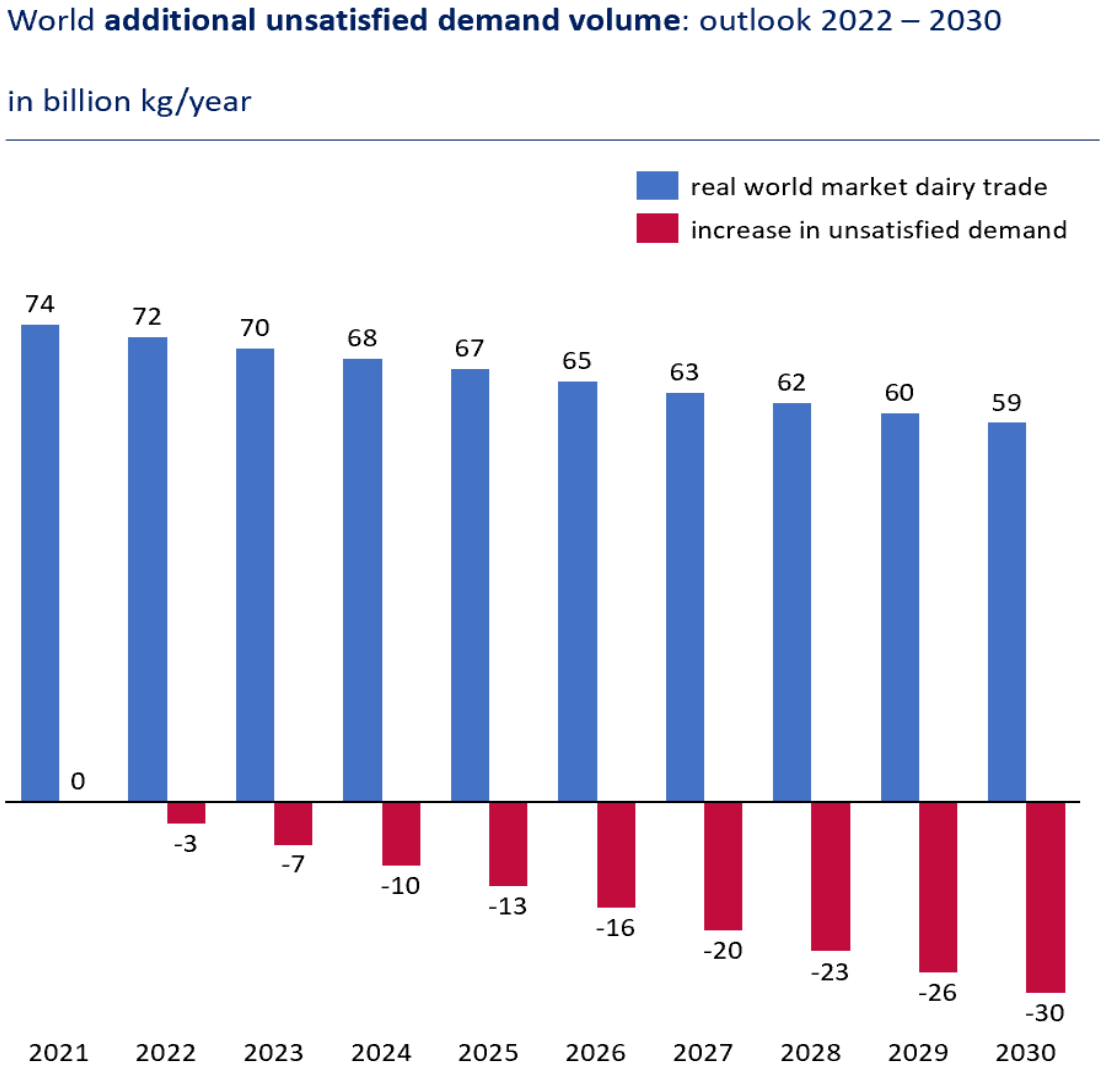
Upward trend 8.4% CAGR



#Export value is the sum of the multiples of SMP resp WMP resp Butter price times SMP resp WMP resp Butter volume exported. *Major exporters include: US, NZ, EU-27, UK, AUS, ARG, BY

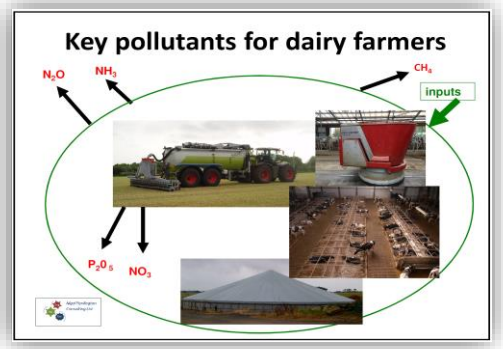
Future markets

- Imbalance likely to increase prices and restrict demand
- Demand in developing nations
- Rationing via price?

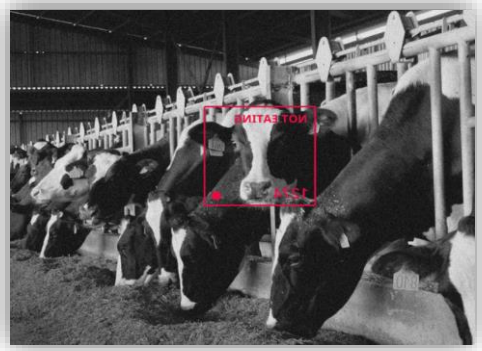


The challenges

GB	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4
Externalities								
BPS Changes	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.5
Clean Air Act	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1
Water Regs	0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3
Carbon Influence	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Labour supply	-3	-3	-3	-3	-3	-3	-3	-3
Forage Quality	-1	-0.5	0	0	0	0	0	0
MPFP Ratio	0	0.5	0.5	0.5	1	1	1	1
Cost inflation	-1.25	-1.75	-1.25	-0.75	-0.45	-0.35	-0.25	-0.25
Heifer supply	0	0.5	0.5	0.5	0.5	0	1	0.5
Milk price (weighting versus Q3 av of 31.25ppl)	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25



Environmental Reset…… but with Food Security



Animal welfare

Scope 3 reporting

Licence to operate

Environmental responsibility

Legislation

Price drives market

UK Future proofing project

- 850 farms
- Av 236 cows
- Av 8455 litres
- Av 236 ha

Silage pits

Clean Air Act

N limits

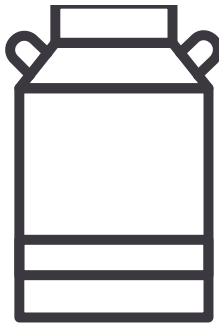
Slurry storage

Net zero?

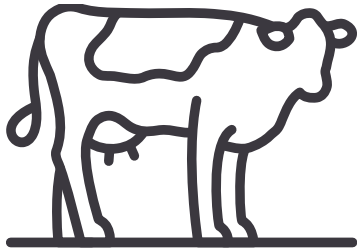
UK Future proofing project

Investment for UK dairy (and EU?)

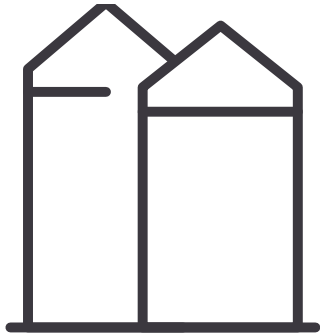
€260,000
CAPITAL



€48,000
ANNUAL



€200/
COW/YEAR



2.5 €
cents/litre

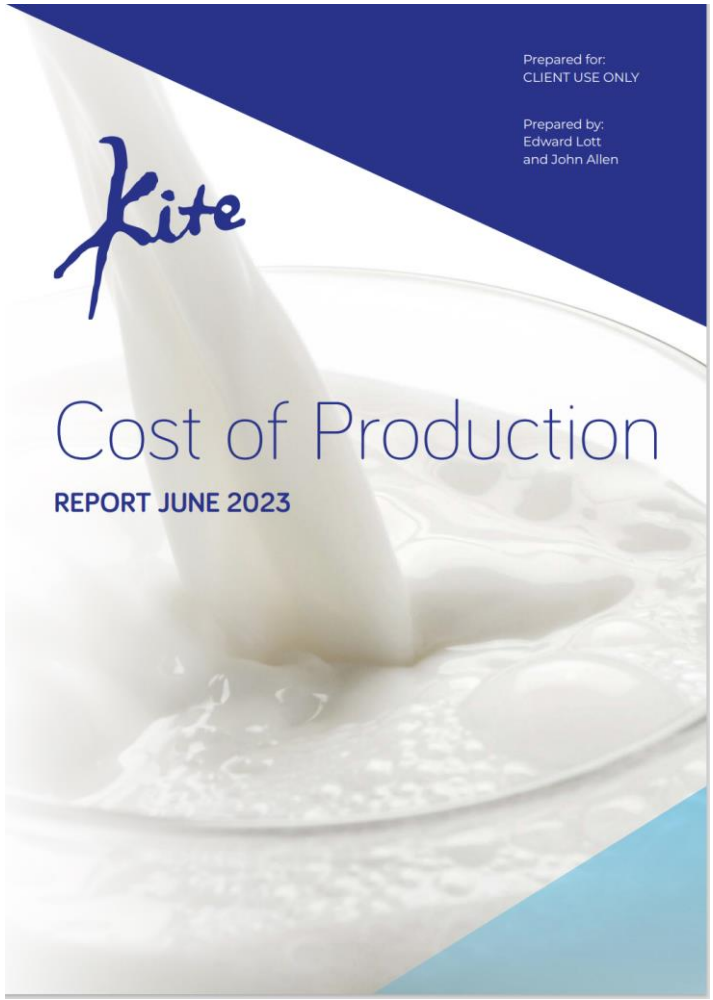
€2BN for UK industry. €15-20BN if similar across EU!

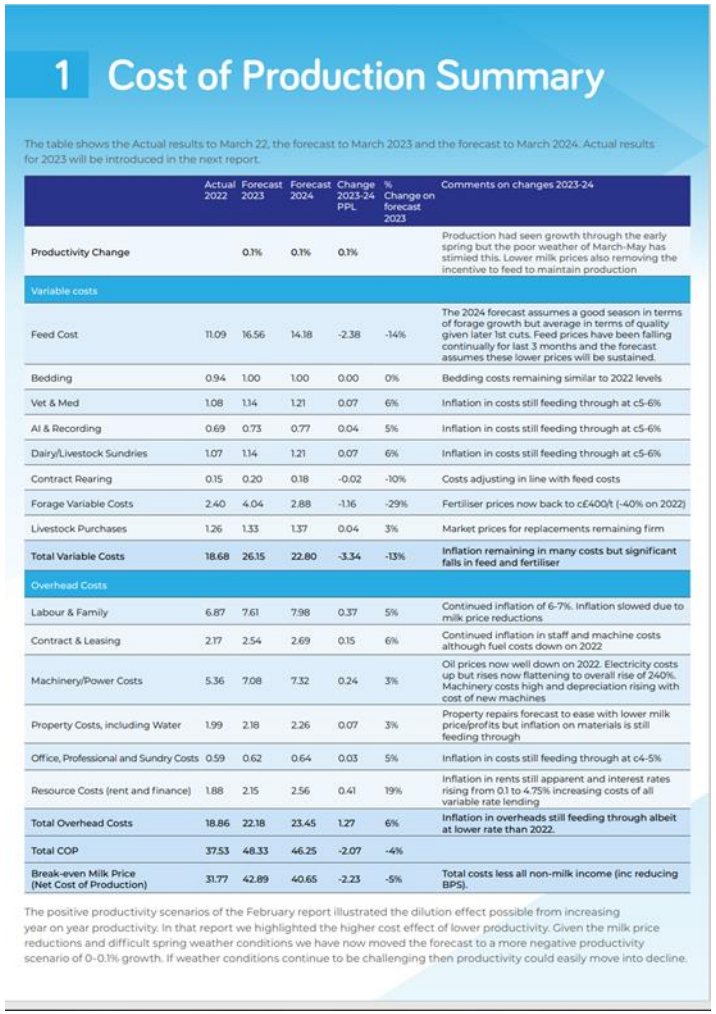
Easier NOT to be a dairy farmer in the future?

- Environmental options
- Selling farms to Government
- Carbon offsetting
- Renting out land
- Trees

Provision of information

- Quarterly
- Based on a representative sample
- Historic costings plus forecast





1 Cost of Production Summary

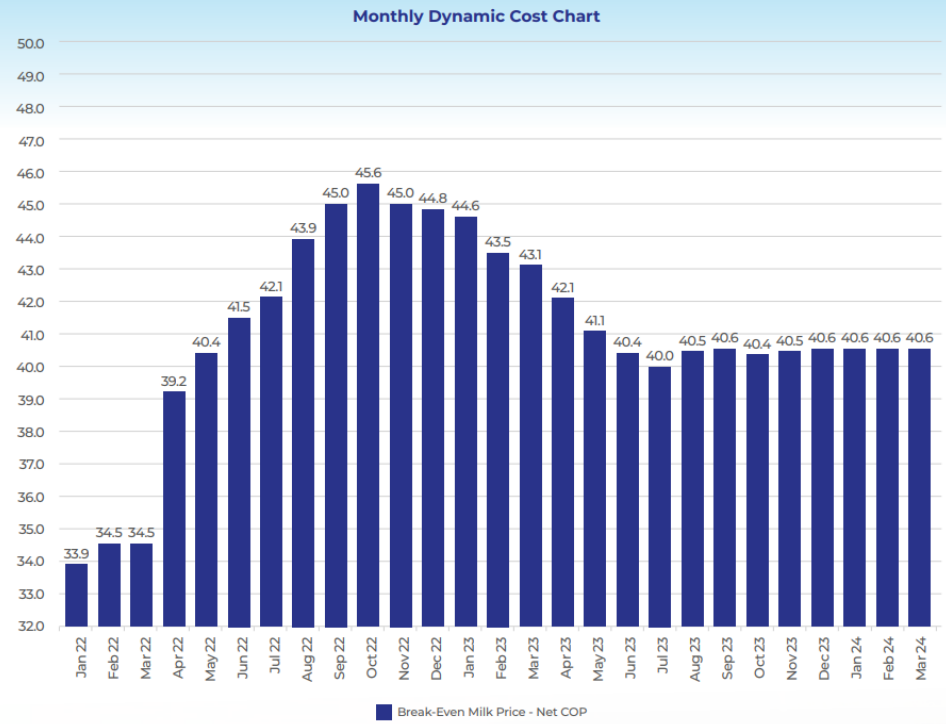
The table shows the Actual results to March 22, the forecast to March 2023 and the forecast to March 2024. Actual results for 2023 will be introduced in the next report.

	Actual 2022	Forecast 2023	Forecast 2024	Change 2023-24 PPL	% Change on forecast 2023	Comments on changes 2023-24
Productivity Change		**0.1%**	**0.1%**	**0.1%**		Production had seen growth through the early spring but the poor weather of March-May has stimied this. Lower milk prices also removing the incentive to feed to maintain production
Variable costs						
Feed Cost	11.09	16.56	14.18	-2.38	-14%	The 2024 forecast assumes a good season in terms of forage growth but average in terms of quality given later 1st cuts. Feed prices have been falling continually for last 3 months and the forecast assumes these lower prices will be sustained.
Bedding	0.94	1.00	1.00	0.00	0%	Bedding costs remaining similar to 2022 levels
Vet & Med	1.08	1.14	1.21	0.07	6%	Inflation in costs still feeding through at c5-6%
AI & Recording	0.69	0.73	0.77	0.04	5%	Inflation in costs still feeding through at c5-6%
Dairy/Livestock Sundries	1.07	1.14	1.21	0.07	6%	Inflation in costs still feeding through at c5-6%
Contract Rearing	0.15	0.20	0.18	-0.02	-10%	Costs adjusting in line with feed costs
Forage Variable Costs	2.40	4.04	2.88	-1.16	-29%	Fertiliser prices now back to c£400/t (-40% on 2022)
Livestock Purchases	1.26	1.33	1.37	0.04	3%	Market prices for replacements remaining firm
Total Variable Costs	**18.68**	**26.15**	**22.80**	**-3.34**	**-13%**	**Inflation remaining in many costs but significant falls in feed and fertiliser**
Overhead Costs						
Labour & Family	6.87	7.61	7.98	0.37	5%	Continued inflation of 6-7%. Inflation slowed due to milk price reductions
Contract & Leasing	2.17	2.54	2.69	0.15	6%	Continued inflation in staff and machine costs although fuel costs down on 2022
Machinery/Power Costs	5.36	7.08	7.32	0.24	3%	Oil prices now well down on 2022. Electricity costs up but rises now flattening to overall rise of 240%. Machinery costs high and depreciation rising with cost of new machines
Property Costs, including Water	1.99	2.18	2.26	0.07	3%	Property repairs forecast to ease with lower milk price/profits but inflation on materials is still feeding through
Office, Professional and Sundry Costs	0.59	0.62	0.64	0.03	5%	Inflation in costs still feeding through at c4-5%
Resource Costs (rent and finance)	1.88	2.15	2.56	0.41	19%	Inflation in rents still apparent and interest rates rising from 0.1 to 4.75% increasing costs of all variable rate lending
Total Overhead Costs	**18.86**	**22.18**	**23.45**	**1.27**	**6%**	**Inflation in overheads still feeding through albeit at lower rate than 2022.**
Total COP	**37.53**	**48.33**	**46.25**	**-2.07**	**-4%**	
Break-even Milk Price (Net Cost of Production)	**31.77**	**42.89**	**40.65**	**-2.23**	**-5%**	**Total costs less all non-milk income (inc reducing BPS).**

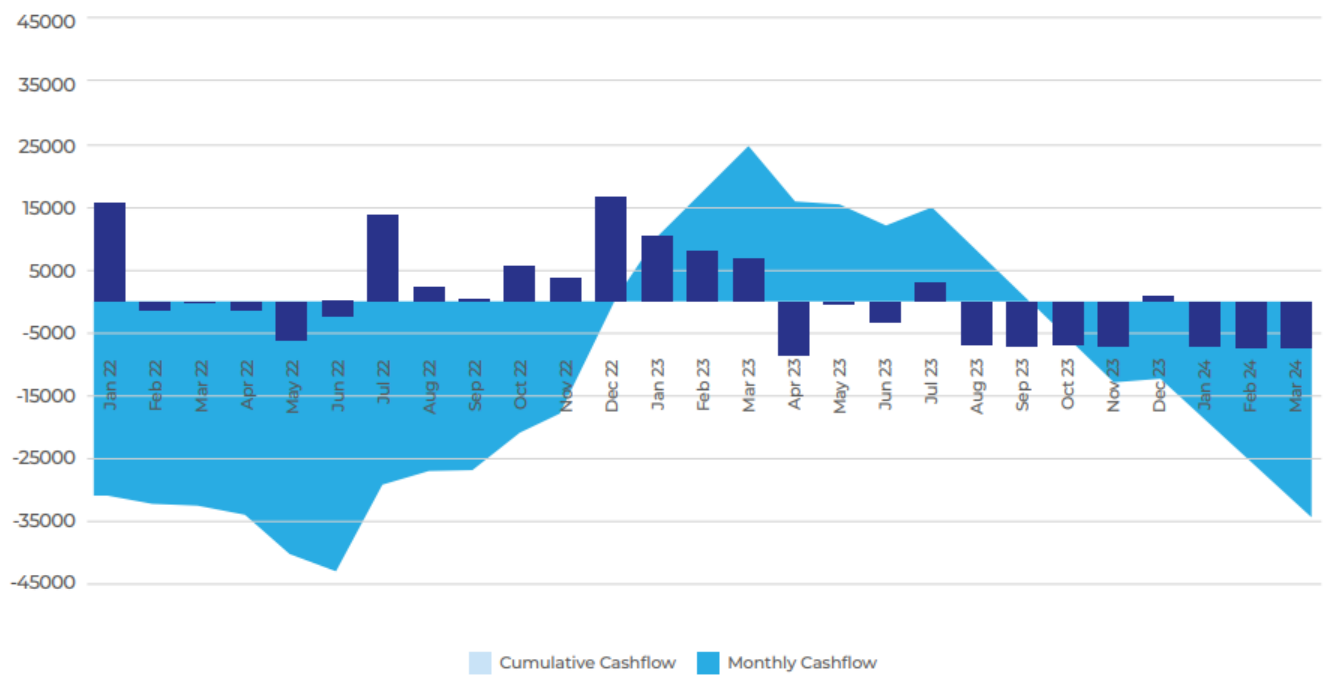
The positive productivity scenarios of the February report illustrated the dilution effect possible from increasing year on year productivity. In that report we highlighted the higher cost effect of lower productivity. Given the milk price reductions and difficult spring weather conditions we have now moved the forecast to a more negative productivity scenario of 0-0.1% growth. If weather conditions continue to be challenging then productivity could easily move into decline.

2 Monthly Dynamic Cost

The charts below model the monthly break-even milk price (ppl- Net Cost)



This chart shows the modelling of monthly break-even milk price from Jan 22 through the period of maximum inflation through to the forecast for 2023-24. The peak was around 45ppl and the current trend is for the profit break-even milk price to ease down (due to reduced feed, fuel, fertiliser) to around 40-41ppl this spring/summer.



Summary

- Produce more nutrition sustainably
- Secure returns for sustainability
- Information is key to moving to a “secure milk price”

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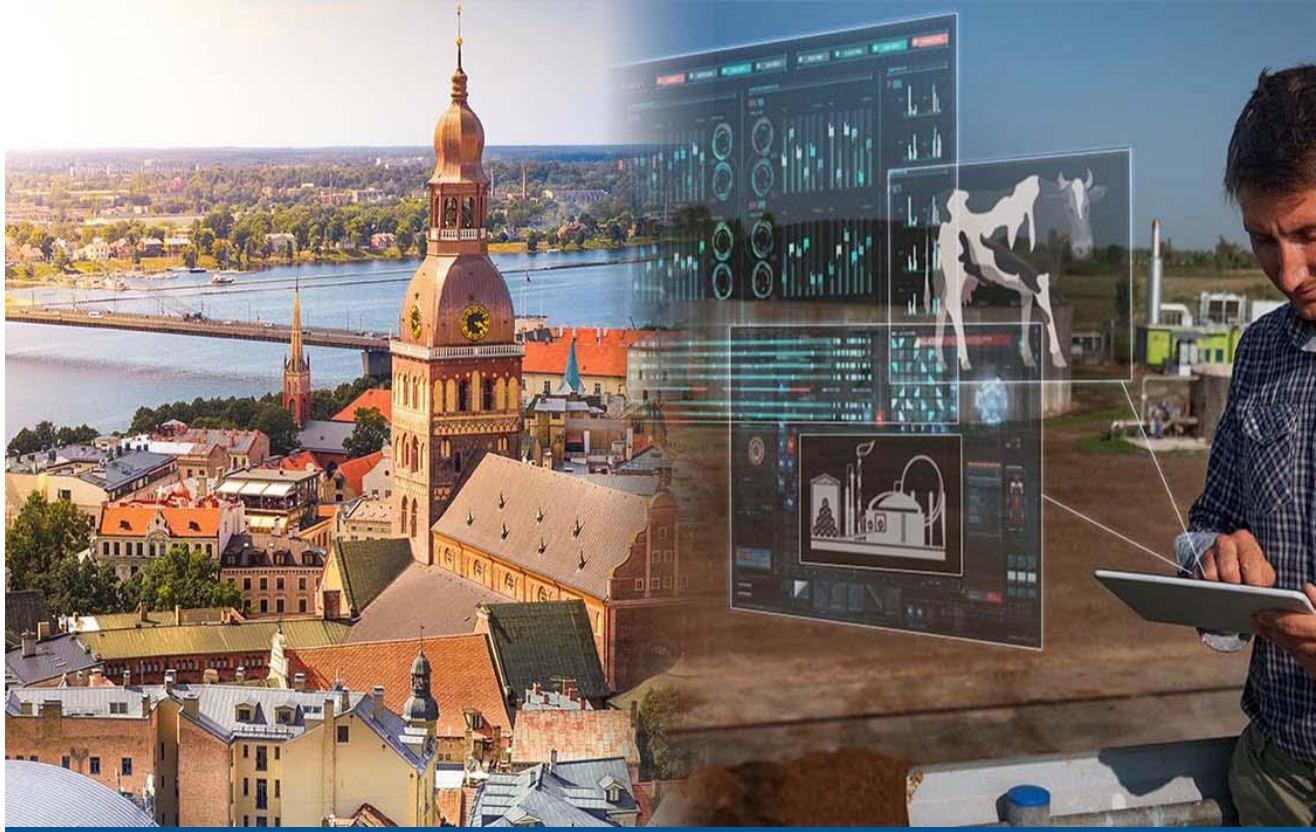
Farmers surviving and making money under high inflation and volatility

What can we learn from Argentina?

Hugo Quattrochi
Dairy Consultant

IFCN



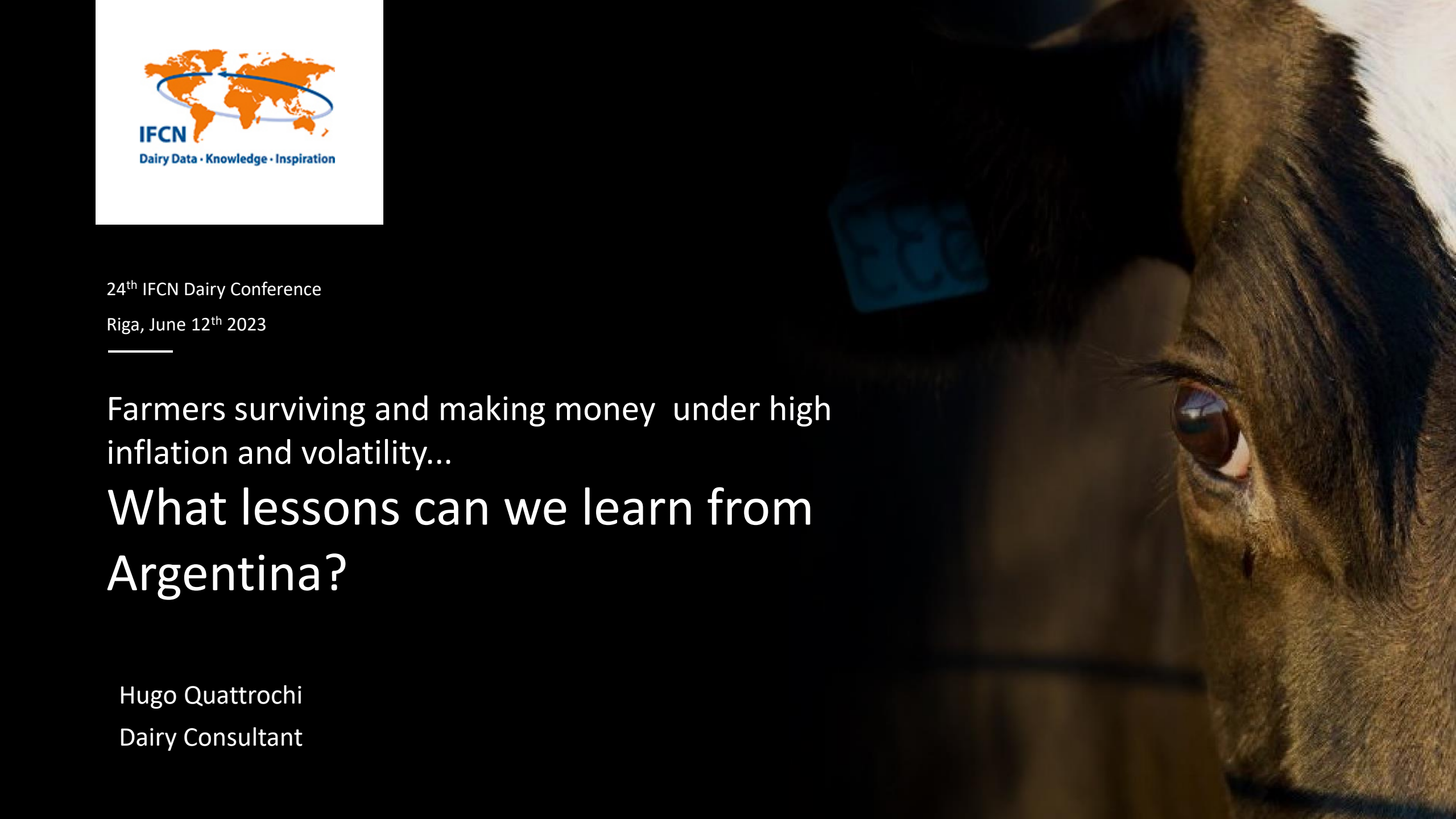
Energy Crisis in Dairy

Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia



24th IFCN Dairy Conference

Riga, June 12th 2023

Farmers surviving and making money under high inflation and volatility...

What lessons can we learn from Argentina?

Hugo Quattrochi

Dairy Consultant

What do we call inflation and volatility in Argentina business environment?

Tyrannus savana

CRISIS…?
This is what we call a crisis…

Since 1975,
1 crisis with name & surname each 5 years…

Rodrigazo, Tablita, Plan Austral, Plan Primavera, Hiperinflación, Plan Bonex, Tequila, 2001

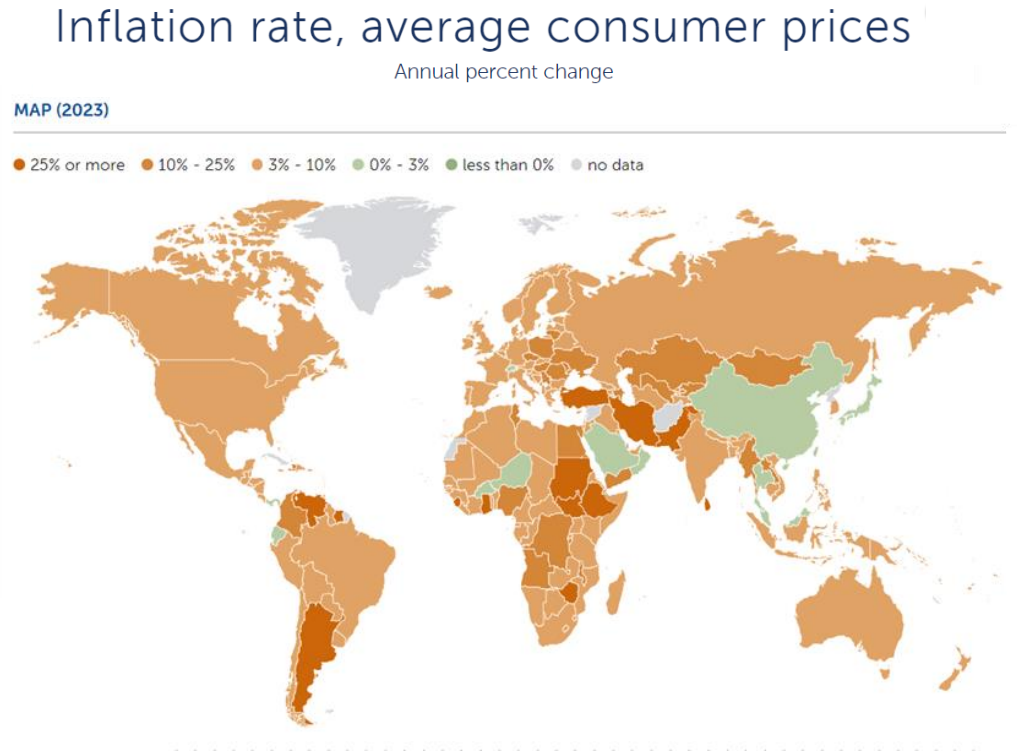
Adapted from Lousteau, 2012

INFLATION in Argentina

Different meaning, different origin…

- **WORLD ⇨ Monetary emission during COVID + Supply challenges + Energy/food crisis Ukraine war**
- **ARGENTINA ⇨ ++Monetary emission + Fiscal deficit + Capital flight**

SELECTION	2019	2020	2021	2022	2023
Emerging market and developing economies	5.1	5.2	5.9	9.8	8.6
Argentina	53.5	42	48.4	72.4	98.6
United States	1.8	1.3	4.7	8	4.5
Germany	1.4	0.4	3.2	8.7	6.2
New Zealand	1.6	1.7	3.9	7.2	5.5
Brazil	3.7	3.2	8.3	9.3	5
Chile	2.2	3	4.5	11.6	7.9
Uruguay	7.9	9.8	7.7	9.1	7.6



International Money Fund 2023

INFLATION & friends

Financial combo to look at...

DEVALUATION RATE

- FX currency control
- US$ clamp
- Exchange rate delay and inflation in US$ terms

INFLATION

FINANCIAL COST

- AR$ or US$ convenience
- Inflation, devaluation and credits wash out

Access to FINANCING

When you need to grow from your own pockets…

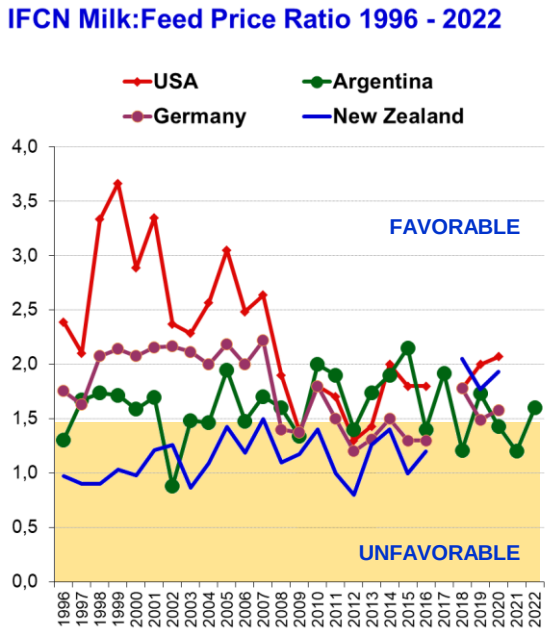
Debt ratio on total assets including land … (“reference” or typical situation)

25-40%	50%	22-38%	30-35%	17%
Mark Stephenson USA	Matthew Newman NEW ZEALAND	Jon Hausser AUSTRALIA	Michel De Hann NETHERLANDS	Mark Topliff UNITED KINGDOM
				

VOLATILITY in Argentina

Different meaning, different origin…

MILK:INPUTS



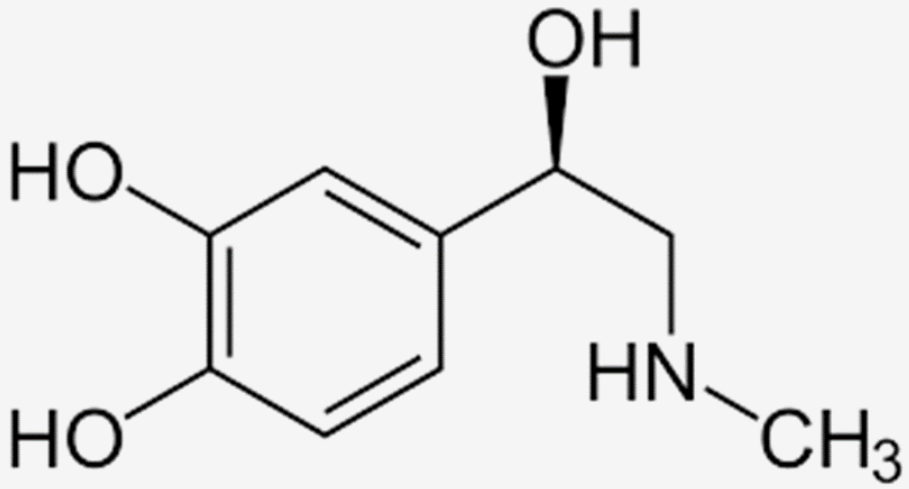
- Concentrates @45% OPEX

EXCHANGE RATE

- @70% OPEX directly linked to US$

GOVERNMENT POLICY

The formula for making business in Argentina…



ADRENALINE

hormone that participates in the fight or flight reaction of the (nervous) system …

Adapted from Zorraquín & Meneses, 2020

Dairy management under high inflation and volatility...

How to manage inflation...?

What is the particular set of skills and abilities required... ?

Furnarius rufus

Living with daily
INFLATION

THE PROBLEM

Systematic and widespread increase in the prices of the economy

THE CONSEQUENCES

- Uncertainty, prices no longer a reference…
- Potential financial losses
- Profits/losses in short time
- Resources allocation in financial an not operational
- Modified behaviors
- Commercial relations creak

THE TARGETS

- Not loosing profits created in the efficiency of production, because financial mismanagement
- Anticipate the destination of each peso before collecting it
- Change them quickly for something or stay in hard currency
- Capture opportunities, many of them

Dairy MANAGEMENT under daily INFLATION

"during times of inflation you better travel by taxi than bus..."

01 FINANCIAL TIMING

- Fit Inflows & outflows timing balance
- Anticipate purchase of inputs, delay sales?
- Accelerate rotation of goods so reducing timeline between inputs purchase and product sales
- *"Pay as late as possible and be paid/collect the sooner"*

02 RELATIVE PRICES

- Not all at the same rate, so relative prices are key to decide

03 DEFENSIVE or OFFENSIVE

- Not loose purchasing power and keep the value of your stocks
- Potential negative interests rates in loans

04 DON´T PANIC, JUST ADAPT

RESILIENCE

The ability to FACE with challenge or adversity and quickly ADAPT to disruptions while MANTAINING consistency in results

01 Buffer capacity

02 Adaptive capacity

03 Transformability

- From 1 to 3 depending rate or degree of change in the environment

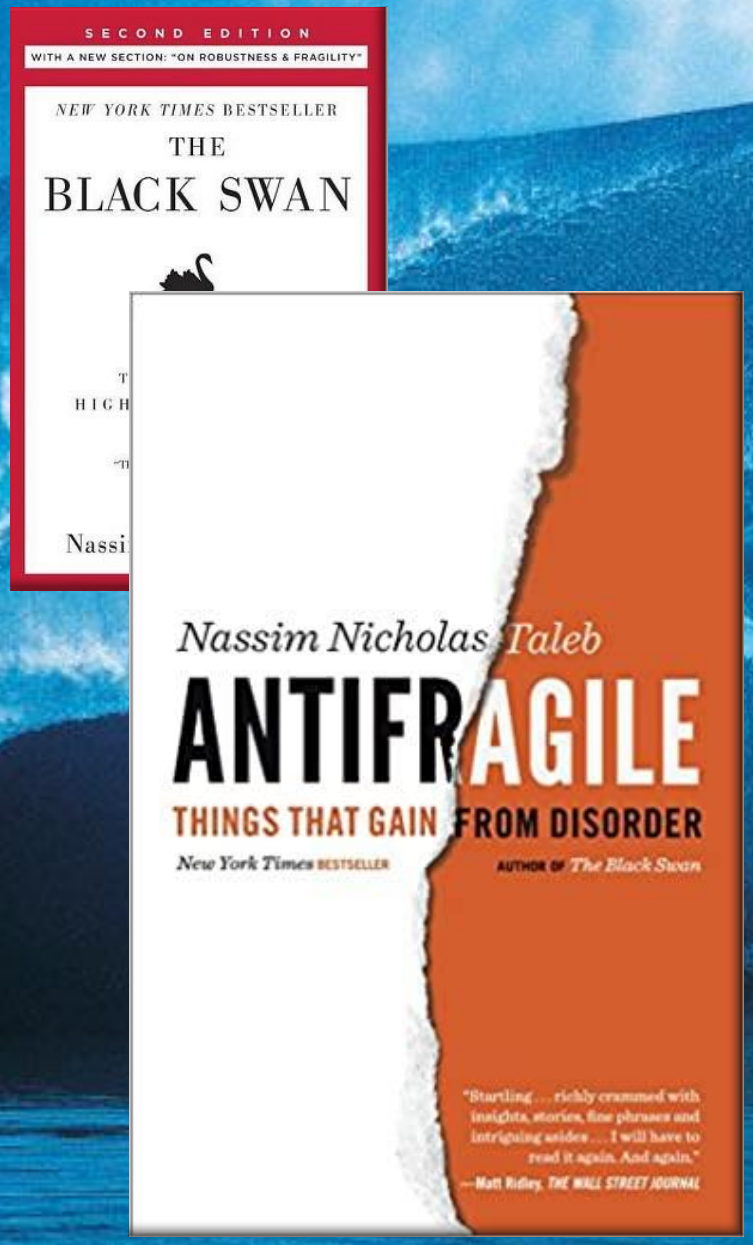
RESILIENCE

To bounce without breaking...

"Resilient farms are therefore reliant on the resilient **qualities** of human beings - flexibility, motivation, perseverance and optimism—because one cannot separate the business from the **people** forming and operating them..."

Prof. Nicola Shadbolt

Massey University



ANTIFRAGILITY, the beneficial stress

Is beyond the resilient or robust…

The resilient resists shocks and stays the same, the antifragile gets better and better…

•

A dairyfarmer in Argentina …?

… a processor?

… an input supplier?

ARG National soccer team (0 – 1 Saudi Arabia)?

Laird Hamilton

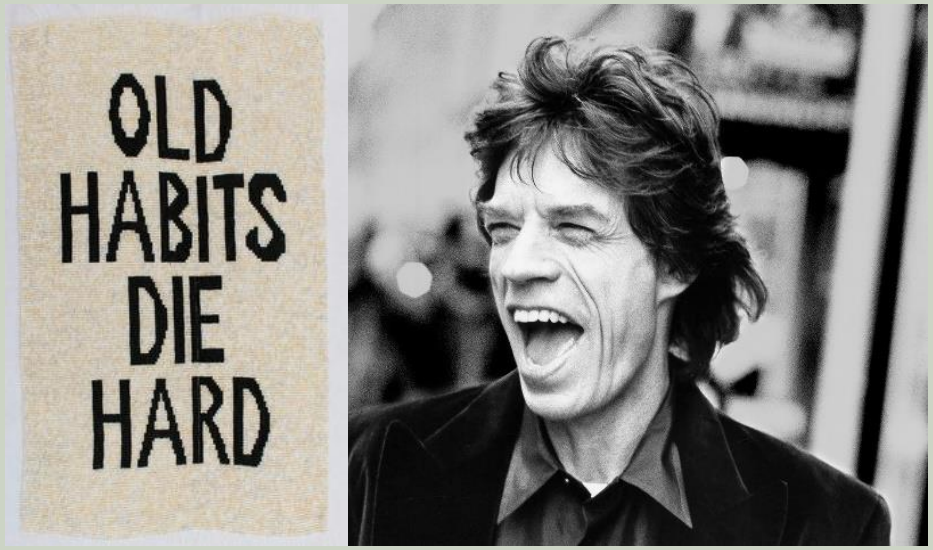
Teahupoo, Tahiti

FLEXIBILITY

Strategy under review, all the time…

Many times holding a business health means being willing to CHANGE something ...

"Pampa Grass" - Cortadeira selloana



Sometimes it is necessary to learn new things and other "DE - LEARN" something of a long time ...

FLEXIBILITY

Design of farm Debt level & Liquidity

Debt = Waterline

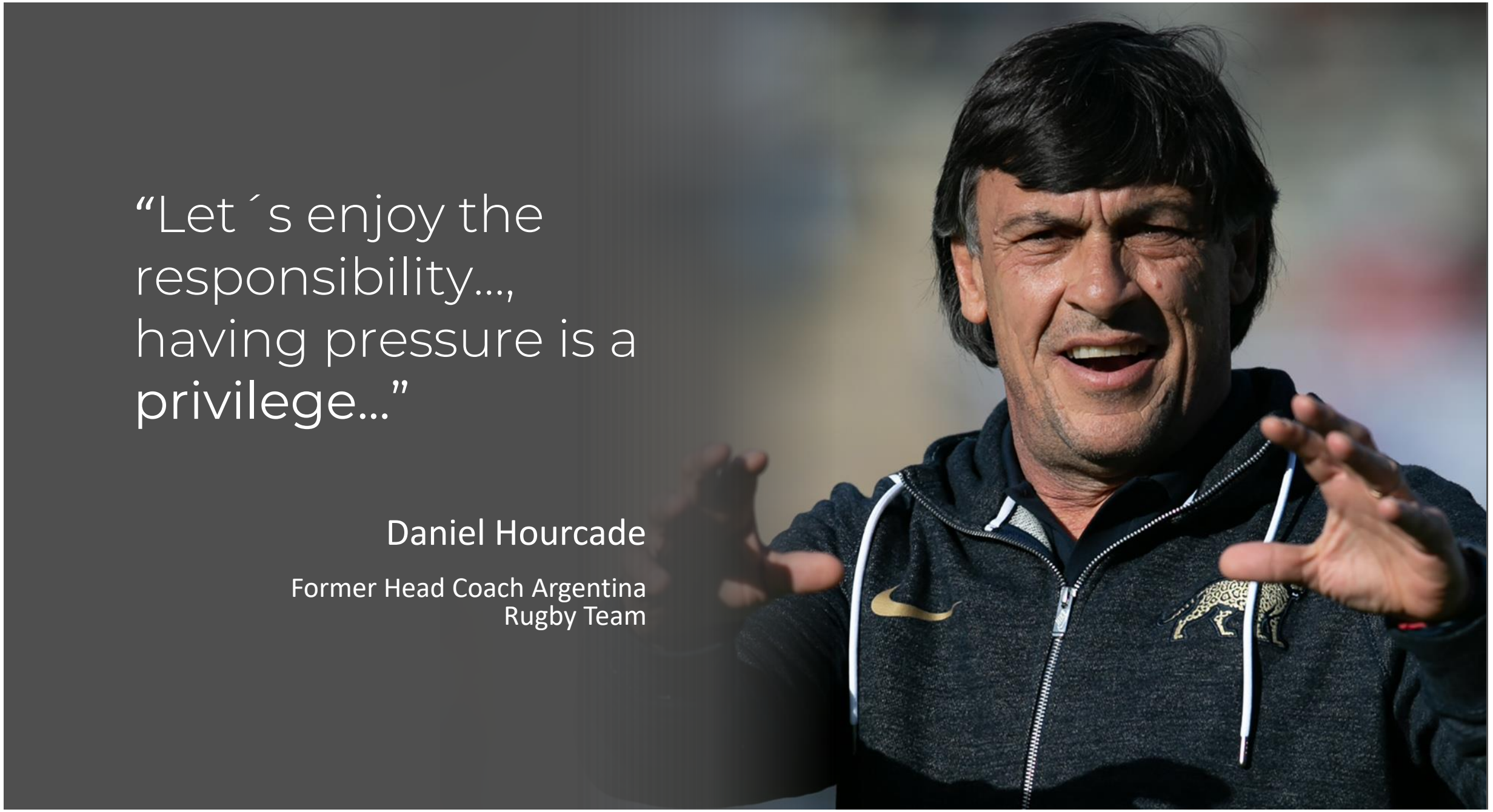
Cash is King…

FLEXIBILITY

Flexible production systems

- Half way between NZ + USA, come and go depending on ratios
- Maximize homegrown feed production and utilization
- Combine with concentrates for exploring cow potential

"…production systems that let us to make money in good years and appear in end of year picture in bad ones…"


“Let´s enjoy the responsibility…, having pressure is a privilege…”
Daniel Hourcade
Former Head Coach Argentina Rugby Team

Farmers surviving and making money under high inflation and volatility... What lessons can we learn from Argentina?

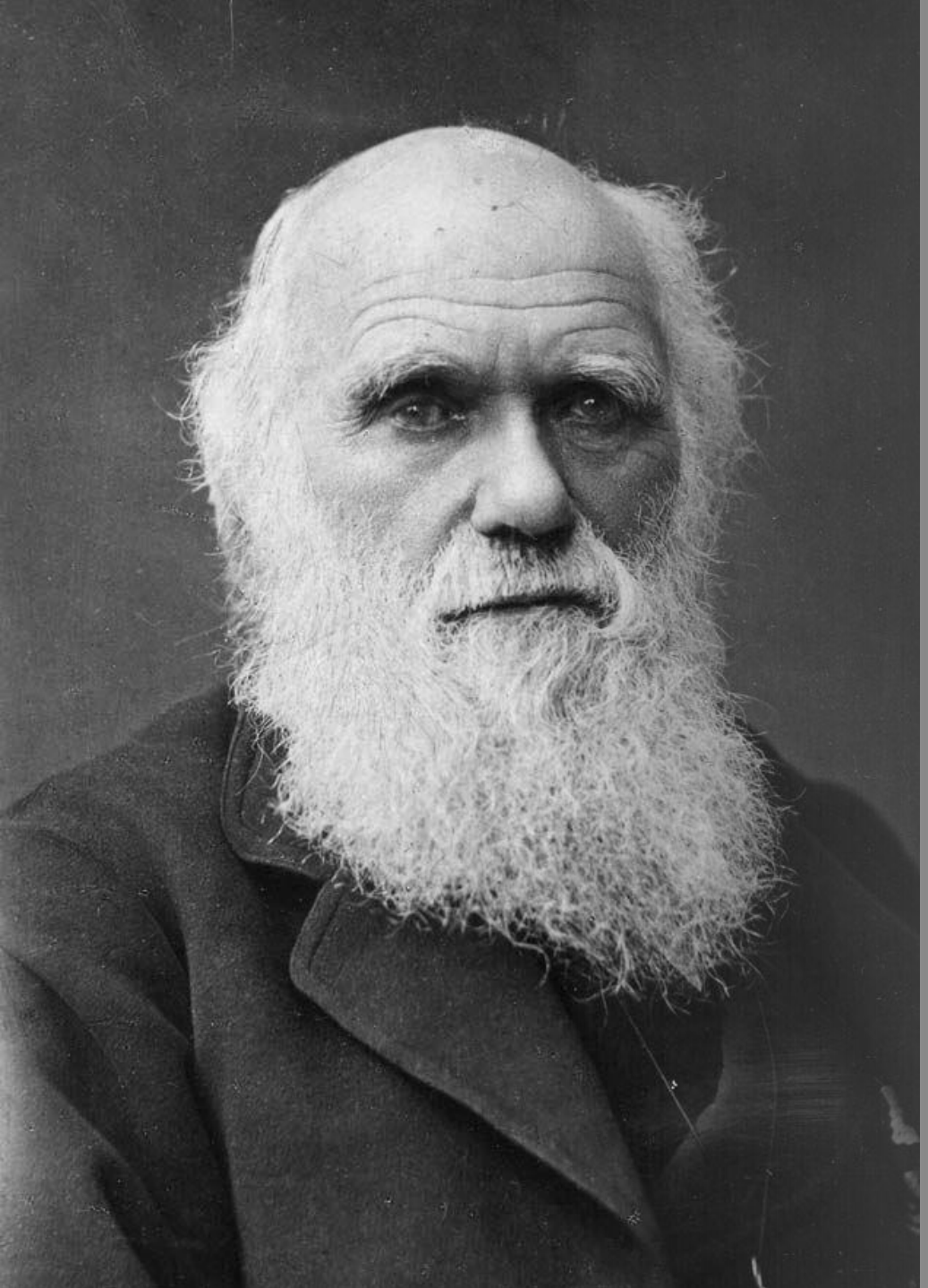
Conclusions & Take Home Messages

Paroaria coronata

"After the storm..."
Marcos Snyder

Take home messages

- Being in business implies to takes risks, inflation and volatility are facts of that…, unless your government decides otherwise…
- Keeping flexible, resilient and creative became a must under volatile conditions… (Lion in the zoo or lion in the forest?)
- Even in a unfavorable or scary scenario, there are always solutions to stay in business and make a profit…, but you need to develop as many versions of yourself as necessary over time. Argentine producers are a great example of this.



“‘It is not the strongest or most intelligent which survive change, but those species which are most **adaptable**…”

Charles Darwin (1799 - 1882)

(…key finding when travel to Argentina on Beagle boat during 1831..)

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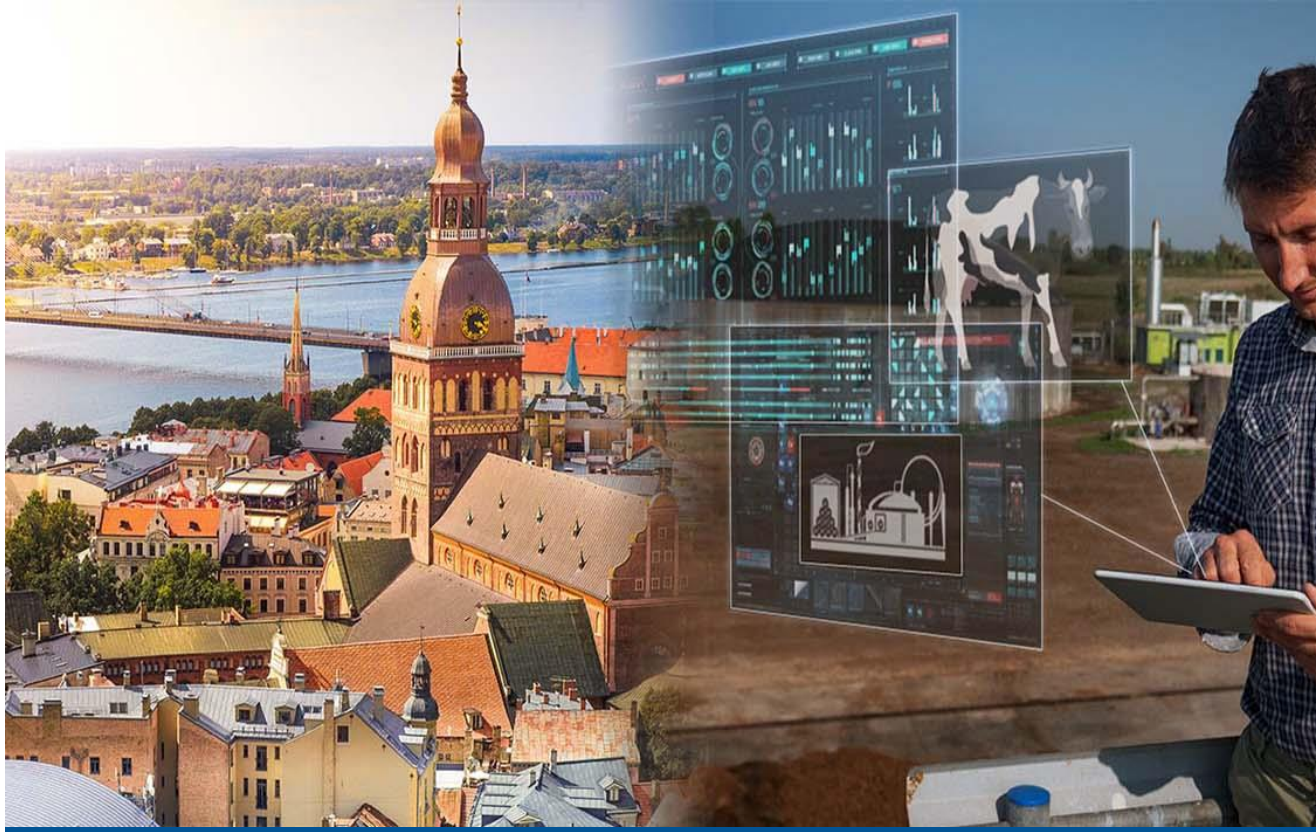
Dairy Transformation in the Netherlands

Sustainability Challenges and what does it mean for future farming in Europe

Michel de Haan
Wageningen Livestock Research



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Riga, Latvia

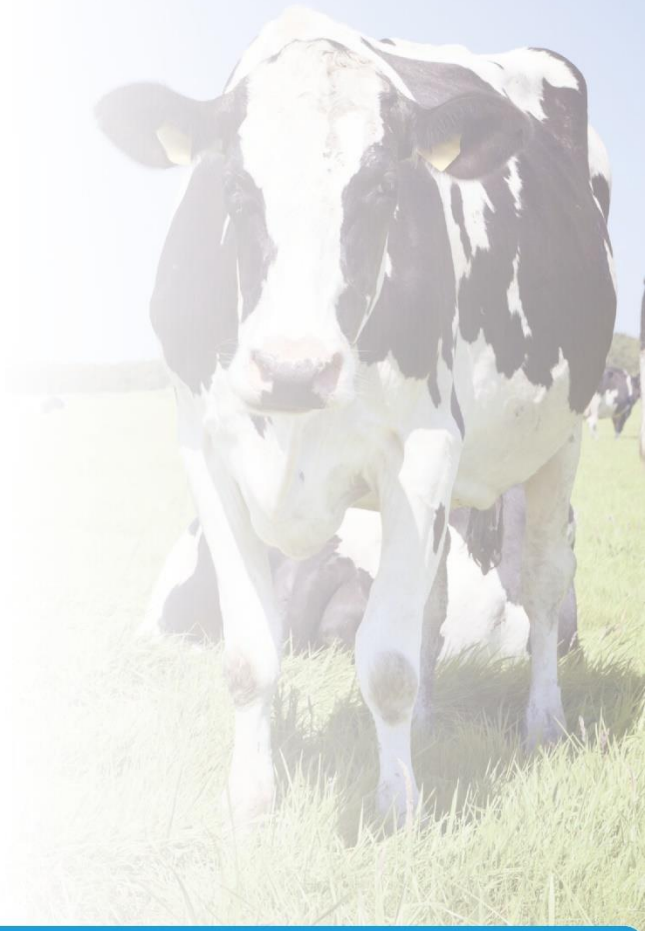
Challenges for dairy sector in the Netherlands

Michel de Haan

WAGENINGEN
UNIVERSITY & RESEARCH

content

- Dutch dairy sector
- Challenges
- Environment, nature <-> agriculture
- Results and conclusions



The Dutch dairy sector

- 65% of agriculture area is used for dairy farming
- Mainly specialised dairy farms
- Land price: 70.000 > 100.000 €/ha
- 14.700 dairy farms
- Tradition of family farms
- Farm area: 66 ha; 0 – 20 % maize; ca 110 cows
- Yield: ca 8950 kg/cow; > 1.000.000 kg/ farm
- Intensive: ca 16.000 kg milk/ha

WAGENINGEN
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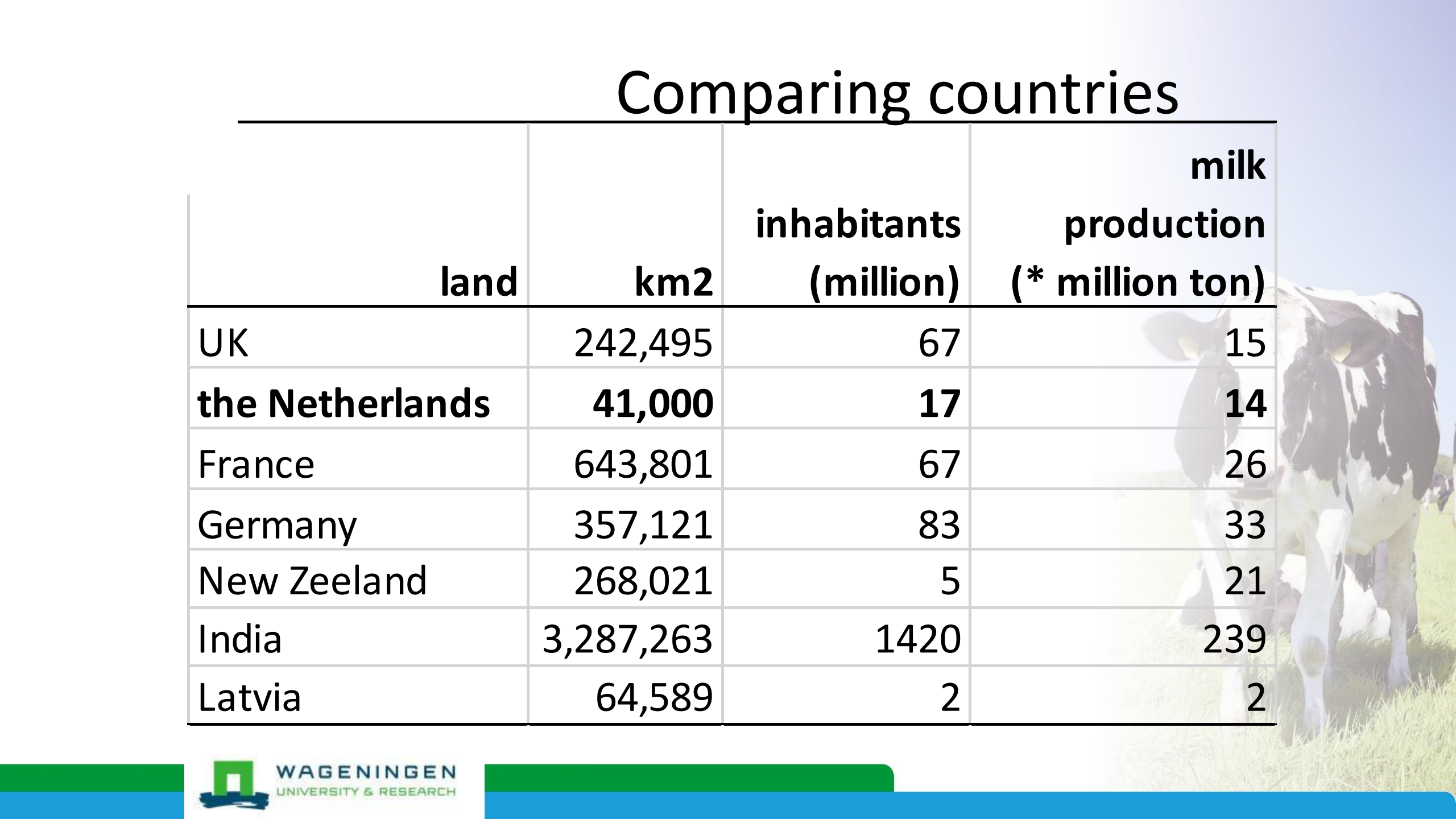
Netherlands = Dairy farming

- Small
- flat
- Green
- Water
- Pasture grazing
- Other crops

Comparing countries

land	km2	inhabitants (million)	milk production (* million ton)
UK	242,495	67	15
the Netherlands	**41,000**	**17**	**14**
France	643,801	67	26
Germany	357,121	83	33
New Zeeland	268,021	5	21
India	3,287,263	1420	239
Latvia	64,589	2	2



Comparing countries

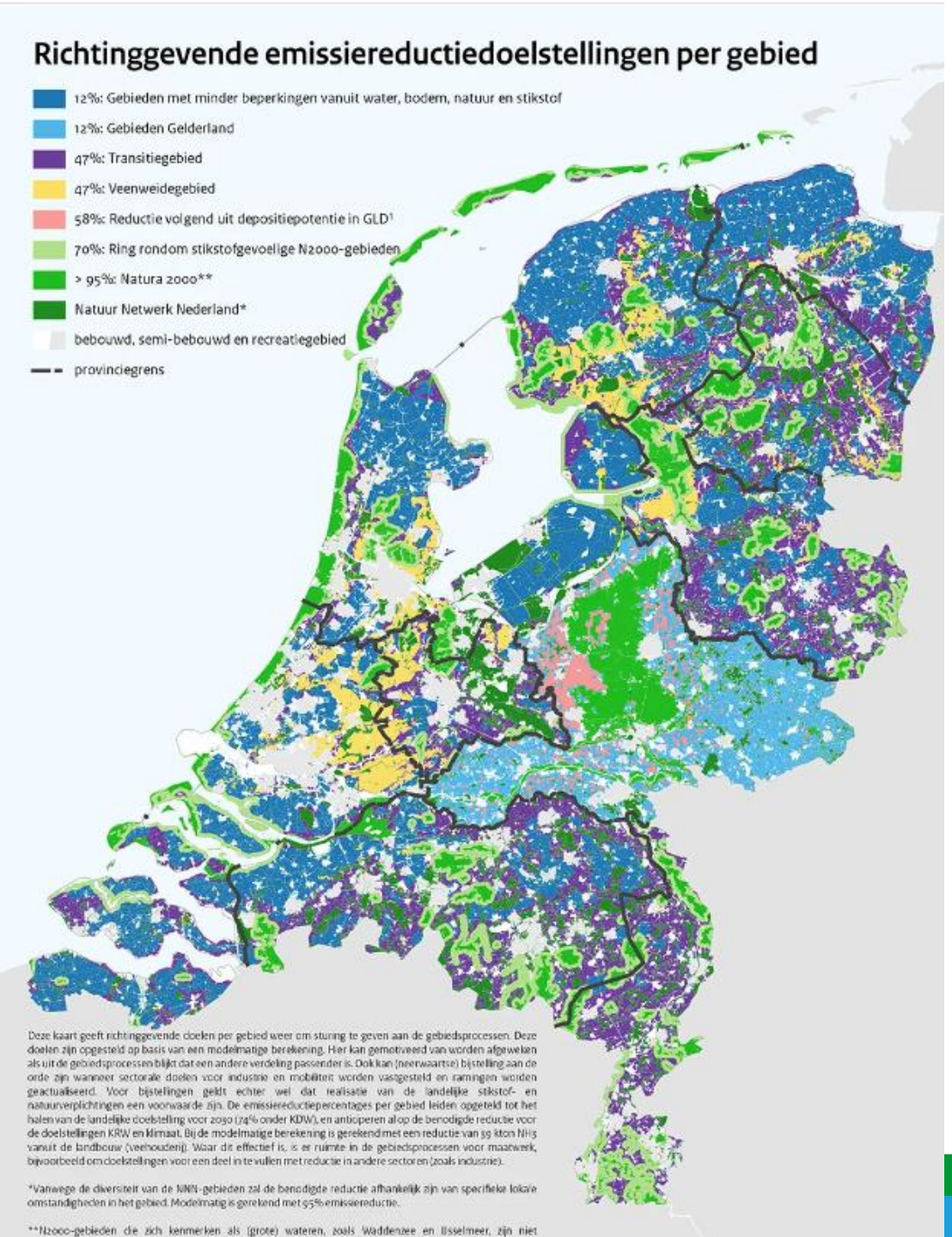
	Km2	People/km2	t milk/km2
UK	242,495	276	62
the Netherlands	**41,000**	415	**341**
France	643,801	104	40
Germany	357,121	232	92
New Zeeland	268,021	19	78
India	3,287,263	**432**	72
Latvia	64,589	31	31

Many environmental challenges

- 41% reduction NH3 by agriculture in 2030
- 55% less green house gases in 2030 vs 1990
- This means less methane, less nitrous oxide, carbon sequestration
- Water quality: low nitrogen and phosphate application; 3 m without application along ditches
- Nitrate directive: No more derogation on manure -> max 43 t manure / ha
- Biodiversity
- Front runner in circularity
- Climate neutral in 2050
- …

“Cut down number of livestock by 50%”

Nitrogen map



Farmer protests in June 2022

Politics

BOERBURGERBEWEGING.NL

Agricultural Agreement

- Government tries to organise an ‘agricultural agreement’
- Together with organisations representing farmers (>5)
- Retail
- Nature organisations
- About when to reach goals, how to reach goals and how to gain sufficient income

Agricultural Agreement

- So far: no agreement reached

My expectations

- Less NH3, less CH4, less N2O, less CO2, more biodiversity
- More than a little
- Purchase complete farms (close nature areas)
- Stimulus to keep less animals
- Extensive and organic dairy farming
- Measures (manure, barns, storage, …)
- Sensor technology (measuring emissions)
- Certified calculating system / mineral accounting system
- Urge to society and retail for higher agricultural prices
- Extra money for grassland with restrictions in use

Conclusions

- In NL and Europa increasing attention for climate and ammonia
- Society has an opinion, a voice and influence
- Society is not fond of ‘industrial’ dairy farming
- EU legislation has large impact on NL agriculture
- As well for other EU countries
- Debate about animal numbers? More farmer protests?
- Avoiding losses and being efficient will pay off
- There will be room for all kinds of dairy farmers, even in NL

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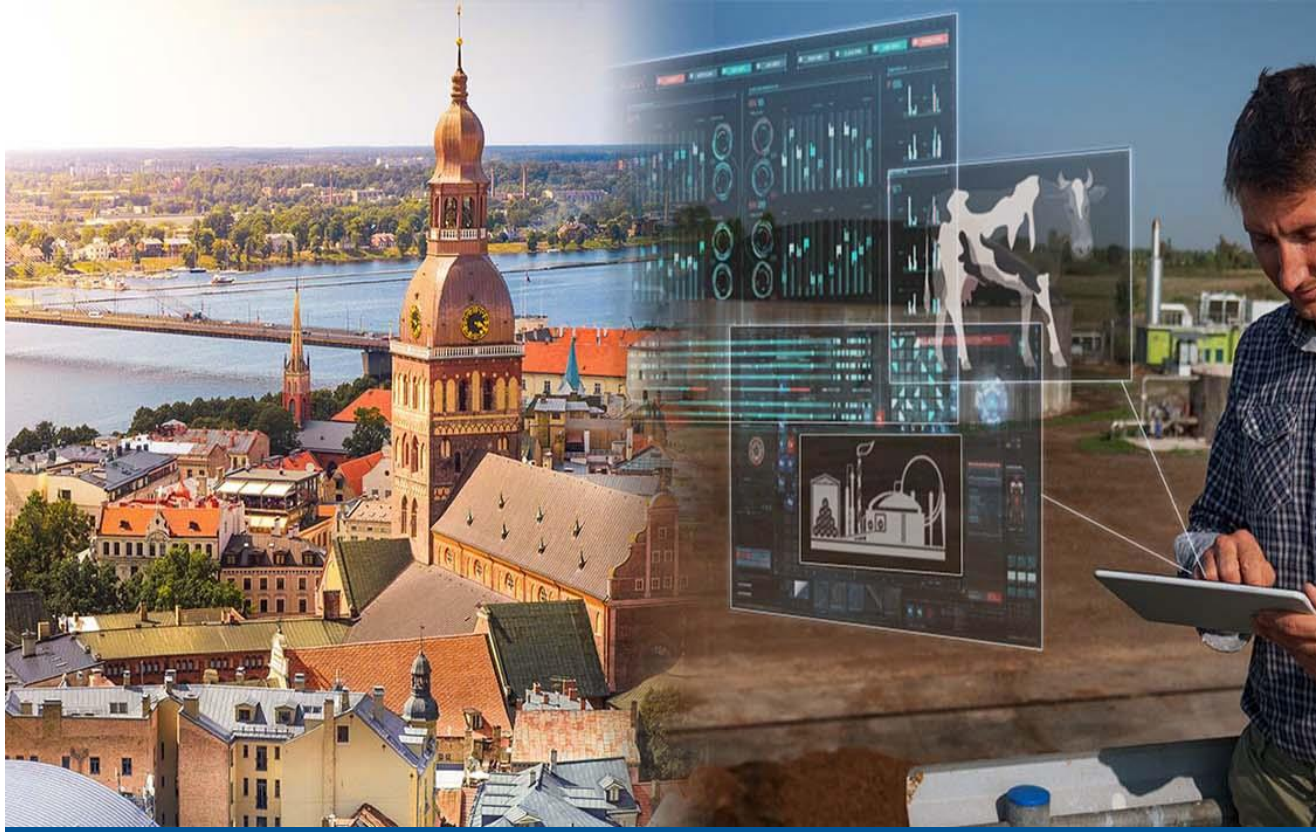
Dairy Data · Knowledge · Inspiration

Panel: Dairy farming under pressure
Are we prepared for future challenges?

Dorothee Bölling
Senior Dairy Consultant IFCN

Torsten Hemme
Chairman of the Board
IFCN



Energy Crisis in Dairy
Challenge or Opportunity

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

Dairy Experts in Panel today

Michel de Haan

Hugo Quattrochi

John Allen

Dairy farming under pressure

24th IFCN Dairy Conference

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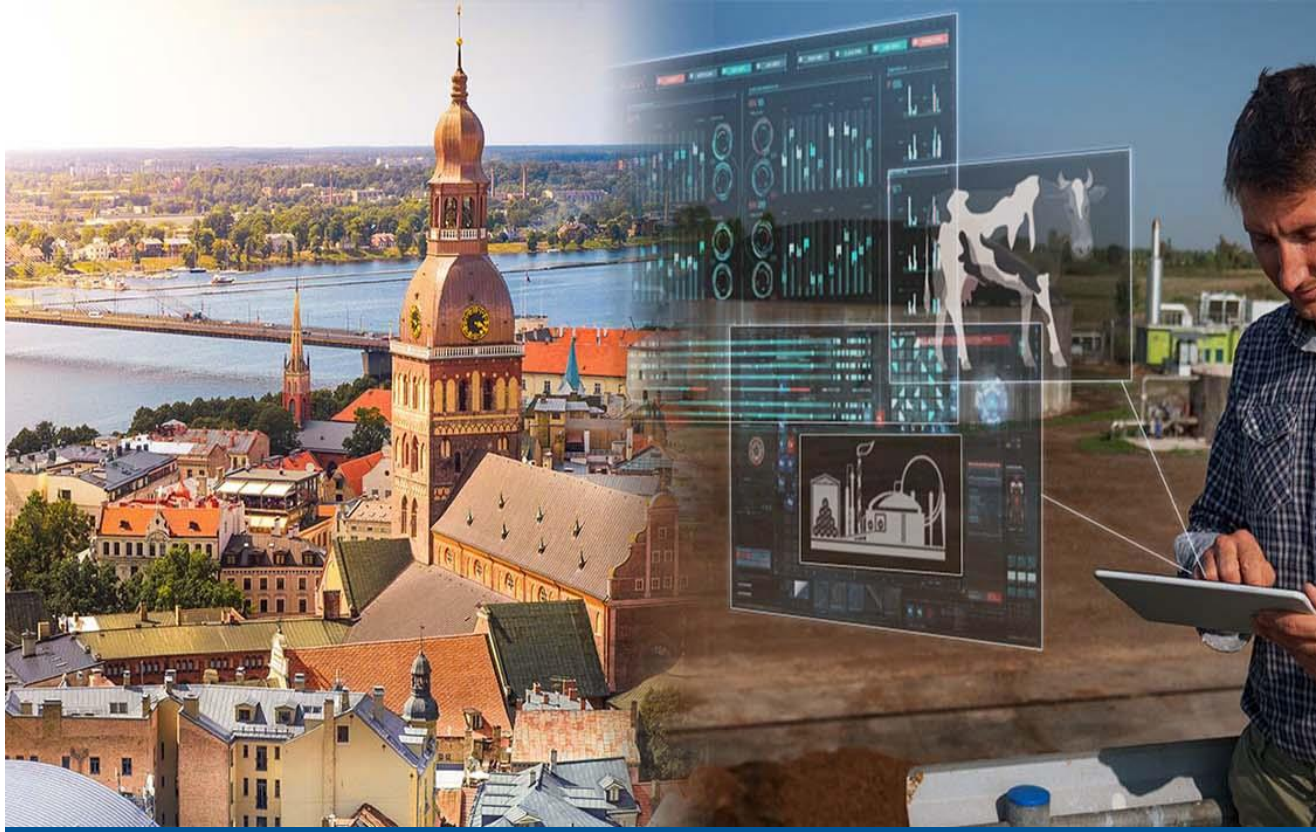

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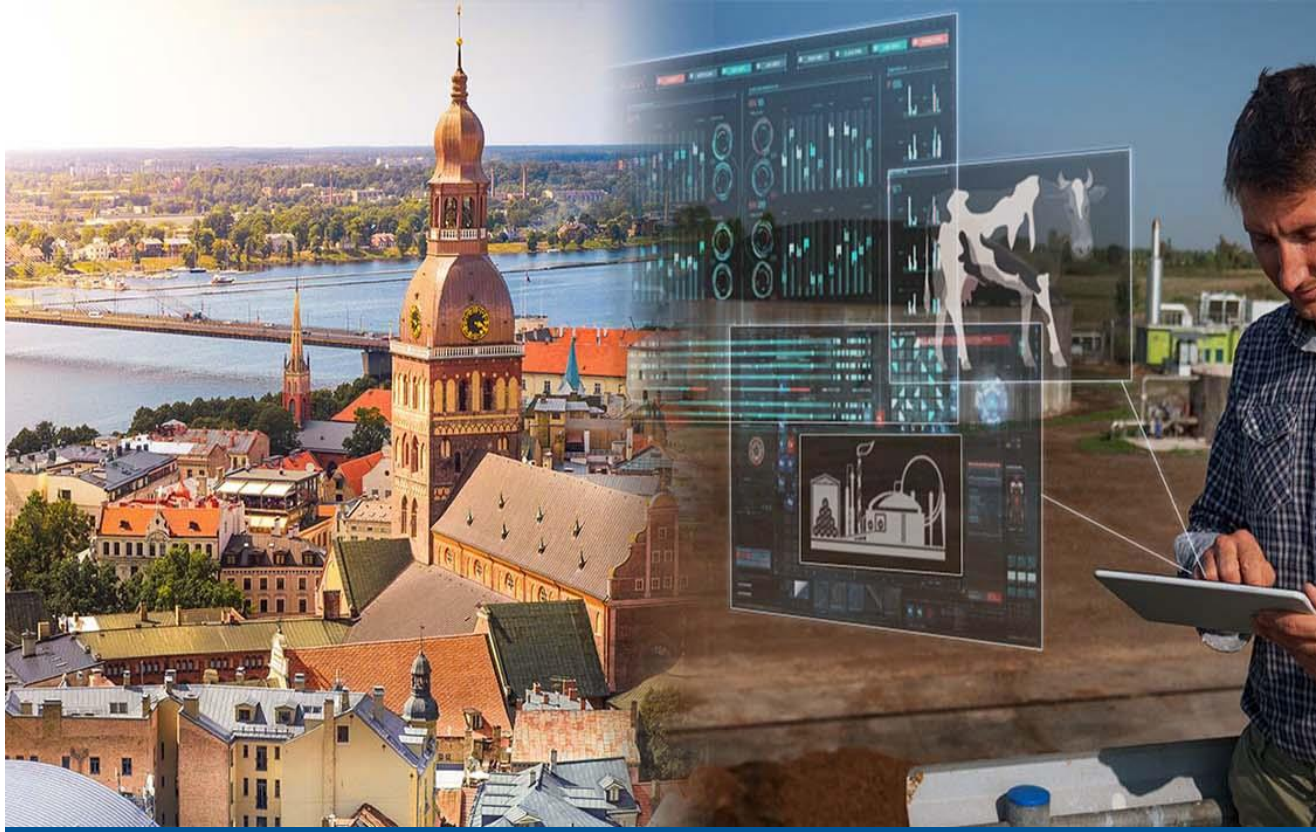
Conclusions on 24th IFCN Dairy Conference 2023

Łukasz Wyrzykowski
General Manager IFCN

Torsten Hemme
CEO IFCN



Energy Crisis in Dairy
Challenge or Opportunity

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Hearing

What is the key take home message for you after this event?

It‘s time for feedback

Let us know how you enjoyed the conference

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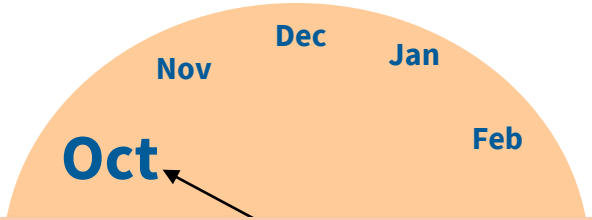
Next steps…

IFCN Data Collection process



Please make the final adjustments and data quality check
until 19th of June 2023

Data validation & final adjustments by partners

IFCN Dairy Conference

Next steps...

Safe travels back home...

Press Release & Presentations for live participants will be available at the end of the week...

Attend the IFCN webinars to stay updated...

Join us at the 21st IFCN Supporter Conference in UK!

Together we can do it: the transformation of dairy

21st IFCN Supporter Conference 2023

September 25th – 28th, Chester, UK

For more information and details of the conference, please contact us!

AMELIE.KOELBL@IFCNDAIRY.ORG

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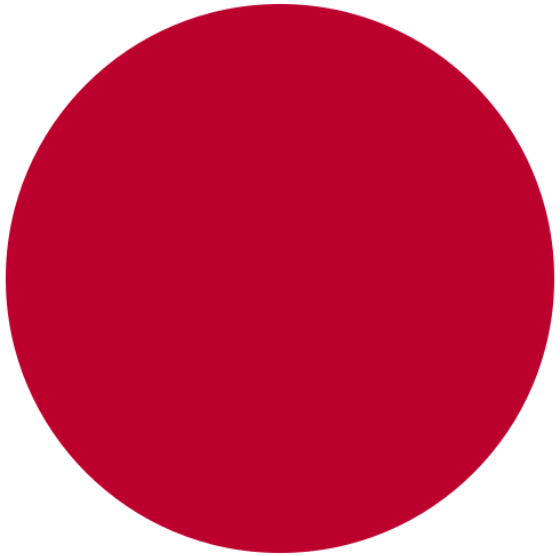
Why do you want to organize IFCN conference in Japan?



Why must you come to Japan as IFCN Dairy Research Partner?

West meets East

Asian Dairies – standing on locally, thinking of globally

25th IFCN Dairy Conference 2024

Hokkaido, Japan

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THANK YOU

To all our Research Partners

To all of our sponsors

To all of our panellists and speakers

To the whole IFCN team

See you next time!

HOW TO CONTACT US

For further information about the **IFCN Dairy Research Network**, please contact us using the contact data provided below:

0431 / 530 240 0

INFO@IFCNDAIRY.ORG

Data Protection | Terms of Service

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18:00

Departure for Farewell Party at Ozo Golf Club

Meeting Point: Hotel Lobby at 17:45

19:00

Opening Farewell Party

22:30

Bus shuttle back to hotel

23:30

Bus shuttle back to hotel

00:30

Last Shuttle back to Hotel

IFCN Farewell Party 2023

24th IFCN Dairy Conference 2023

10th -13th of June

Riga, Latvia

THANK YOU FOR YOUR ATTENTION!

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