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Trends in the Global Dairy Industry - Drivers and Prospects

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IFCN

AqAltyn
2nd Central Asian Congress

dia

November 26th – 27th, Turkistan, Kazakhstan

Status of the IFCN Researcher Network

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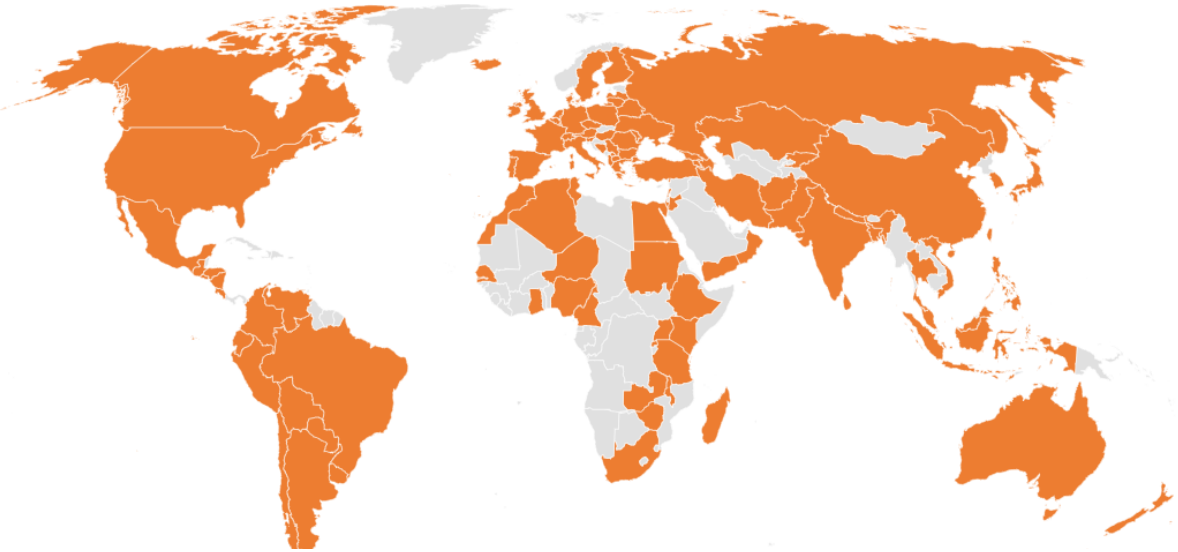
IFCN RESEARCHERS ARE THE BACKBONE OF THE IFCN KNOWLEDGE

Research partners in over 100 countries



>110 dairy experts globally

>125 countries with macro level data

>175 typical farm types in 52 countries

Research partners / participating organisations

These research partners provide information about their countries in 2023 and use the IFCN knowledge and data for their research, teaching and farm advisory work:

Dairy Expert Afghanistan · Albania · Dairy Expert Algeria · Argentina · Armenia · Australia · Austria · Azerbaijan · Bangladesh · Belarus · Belgium · Dairy Farmer Bolivia · Bosnia and Herzegovina · Brazil · Brazil · Bulgaria · Canada · Chile · Dairy Consultant China · China · China · Colombia · Costa Rica · Czech Republic · Denmark · Ecuador · Egypt · El Salvador · Dairy Expert Ethiopia · Finland · France · Dairy Expert Ghana · Gambia · Georgia · Germany · Guatemala · Greece · Honduras · Hungary · Iceland · India · India · Dairy Expert India · India · Indonesia · Iran · Iran · Ireland · Israel · Italy · Japan · Dairy Expert Jordan · Dairy Consultant Kazakhstan · Dairy Expert Kyrgyzstan · Kenya · Kosovo · Latvia · Latvia · Lebanon · Lithuania · Luxembourg · Malawi · Malaysia · Dairy Expert Malta · Mexico · Mexico · Moldova · Morocco · Nepal · New Zealand · Nicaragua · Nigeria · Dairy Expert North Macedonia · Dairy Expert Oman · Pakistan · Paraguay · Peru · Philippines · Poland · Portugal · Portugal · Romania · Romania · Russian Federation · Russian Federation · Rwanda · Senegal · Serbia · Serbia · Slovenia · South Africa · Spain · Sudan · Switzerland · Taiwan · Tanzania · Thailand · Tunisia · Turkey · The Netherlands · Uganda · Ukraine · USA · USA · USA · United Kingdom · Uruguay · Venezuela · Vietnam · Yemen · Zambia · Zimbabwe · Zimbabwe

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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, Danone, Agropur Dairy Cooperative, müller, dmk, Savencia Fromage & Dairy, Sodiaal Union, Leprino Foods, Emmi, Unilever, Mondelēz International Snacking Made Right, Milcobel, TINE, Brazzale, Vreugdenhil Dairy Foods, Hochland, Zott, hochwald, Hilmar, Dale Farm, Lakeland Dairies, Clover, Pınar, KDD, Aurora Dairies, i-milk, Diageo

Milking and Barn Equipment

GEA, DeLaval, Lely, BouMatic For the life of your dairy, Madero Dairy Systems, milkrite InterPuls, VES-Artex, TOPCOOL, Serap, Animat, spinder Dairy Housing Concepts, Holm & Laue

Feed and Feed Additives

Cargill, abagri, dsm-firmenich, Alltech ...naturally, Phibro, Lallemand, Josera, Evonik Leading Beyond Chemistry, trouw nutrition a Nutreco company, Novus, de heus powering progress, Kemin, Nutribio Precision Nutrition, Perdue AgriBusiness, UBM, Berg+Schmidt Functional Lipids, agolin, Adisseo A Bluestar Company, Inatega, Ferraroni Mangini, Leiber Excellence in Yeast, iff Danisco Animal Nutrition & Health, serval, agrifirm

Health and Hygiene

MSD Animal Health, Elanco, Ceva, vetoquinol Achieve More Together, Hipra, Ecolab, kersia, Calier, Abbott, Huvepharma, Univet, Neogen

Farm Machinery

John Deere, Krone, Kuhn, Pottinger, Faresin, Weidemann, Siloking

Milk Processing and Packaging Technologies

Tetra Pak, Elopak, SIG, FOSS

Finance Institutions

IFC International Finance Corporation, Rabobank, StoneX, VR Bank Nord eG

Agriculture Technology Companies

MADCAP Dairy Supply Chain Software, milc group, MooMe, Topcon Agriculture, nedap, smaXtec, MuuMap

Genetics for Animals & Plants

URUS, SEMEX, Select Sires, Genus, Synetics, cogent

Dairy Farming

Ekoniva Экониva, Landmolkerei Hagenow, mooh

Consulting and other Companies

kite, promar, Deloitte. デロイトトーマツ

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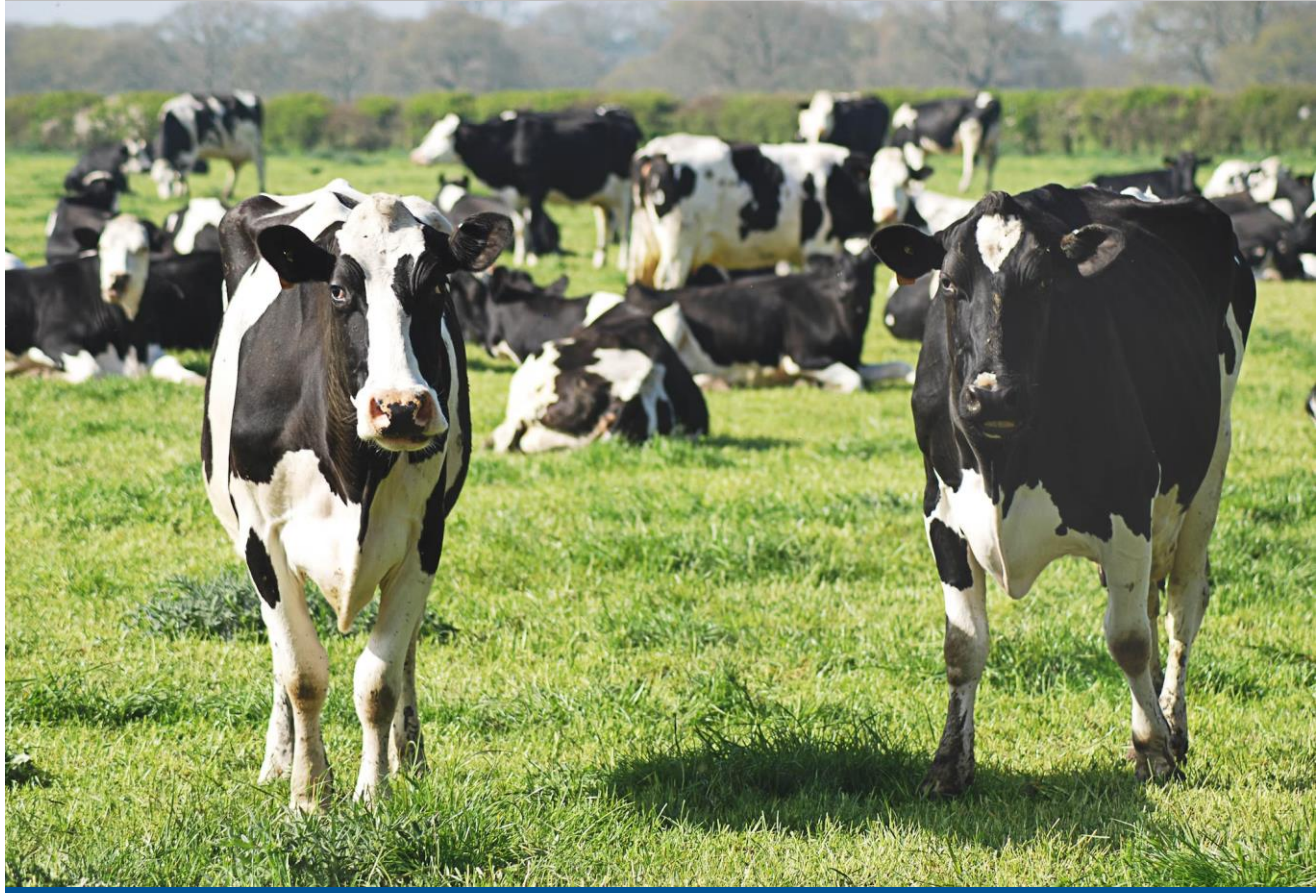
1. Global dairy market trends and challenges

2. Long-term perspective of dairy market



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Challenges of the dairy sector

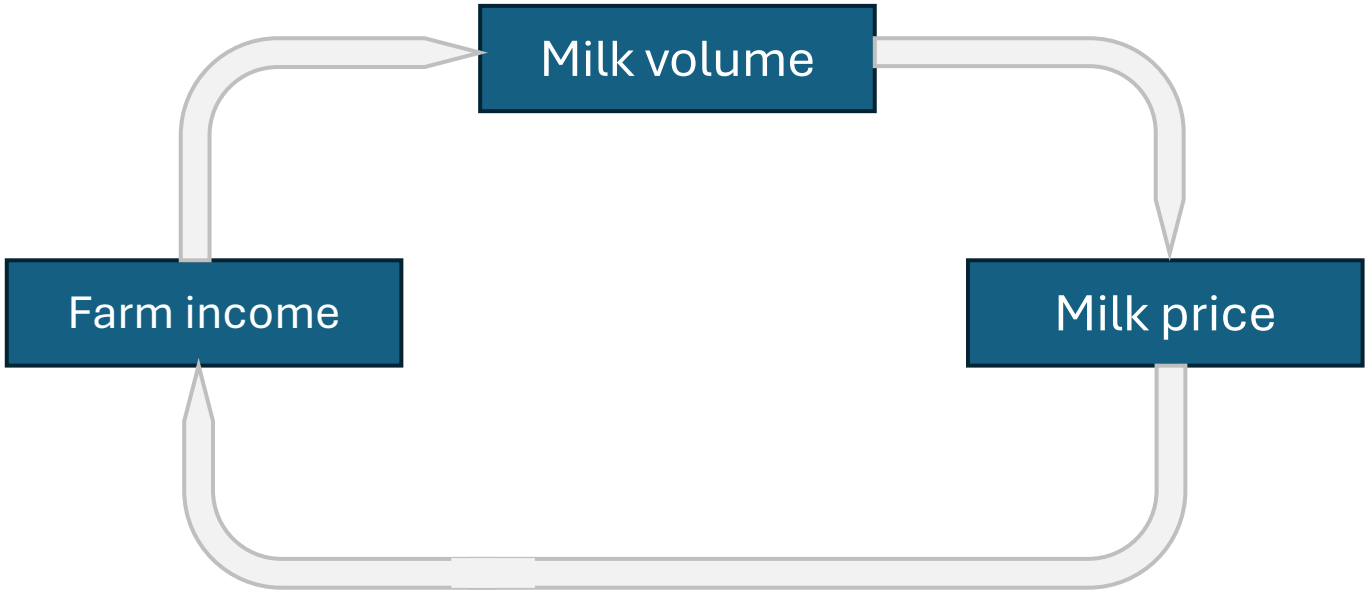
Uncertainties and drivers for milk supply and demand

Uncertainty / challenge	Impact* on ...		Main impacted world region
	Supply	Demand	
Farm consolidation and lack of farm successors	↘	→	
Environmental regulations & sustainability goals	↘	→	
Weather constrains and water scarcity	↘	→	
Labour shortage, supply chain disruptions, etc.	↘	↘	
Importance of food security and self-sufficiency	↗	→	

These challenges seem to have a greater impact on the supply side → could cause an imbalance in the market.

* Arrows represent the direction of the impact: Yellow: no impact or stable / Red: Negative impact – decrease / Green: positive impact – increase

Dairy market dynamics are cyclical; the entire cycle is in scope



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When milk volumes go up (faster than demand), milk prices go down and farm income goes down.
When farm income goes down, milk volumes tend to go down, demand will exceed supply… and milk prices will go up again, triggering the cycle to restart again.

Note: throughout this outlook analysis, IFCN's definition of standardized milk content (SCM) will be used.
The solid-corrected-milk basis is defined as follows: SCM = (milk production * (% fat + % protein) / 7.3)

Source: IFCN Short-Term Dairy Outlook; Status June 2024

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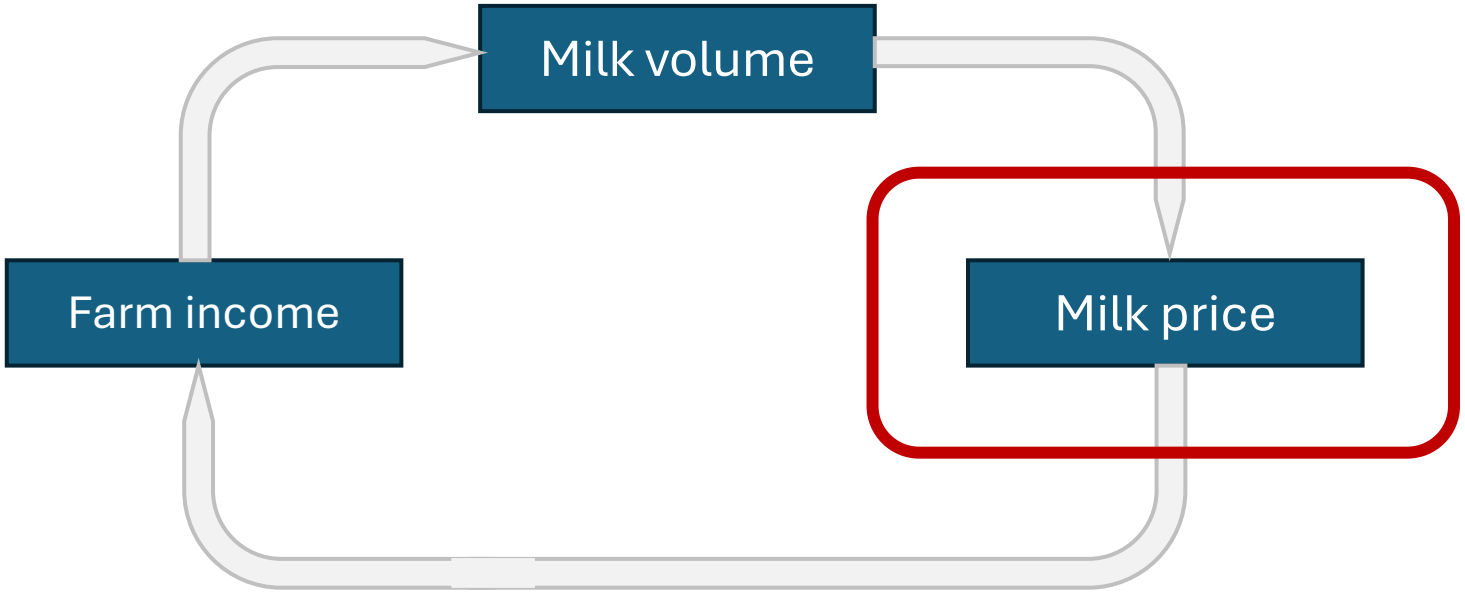

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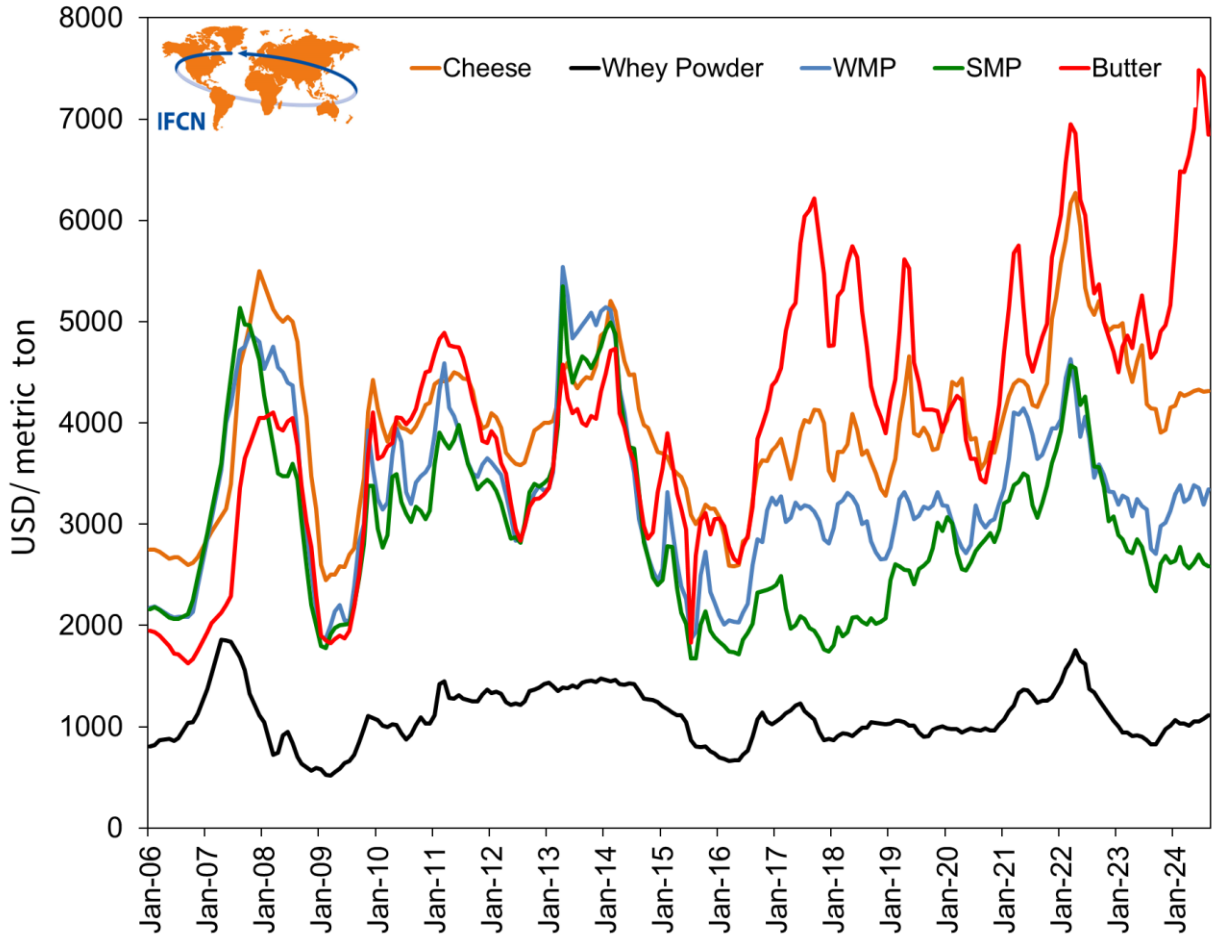
Tight supply keeping fat prices at high levels, especially for butter

World Market Price* for Dairy Products



*SMP/WMP/Butter/Cheese: monthly weighted average of bi-weekly Oceania export prices;
Whey Powder: monthly average of weekly German Whey powder prices

Late 2021 & early 2022:

- Increasing prices for all commodities.
- Especially cheese and butter, due to rising demand.

In 2022 & 2023:

- Downward trend for all commodities.
- Butter fluctuating at a higher level.

In 2024:

- Stable powders and cheese prices.
- Butter prices surged dramatically, due to tight supply.

Source: D3.4 IFCN Monthly Real-Time Database for 65 countries; Status Sept 2024

2024: World milk prices didn't show the dramatic decline of the past

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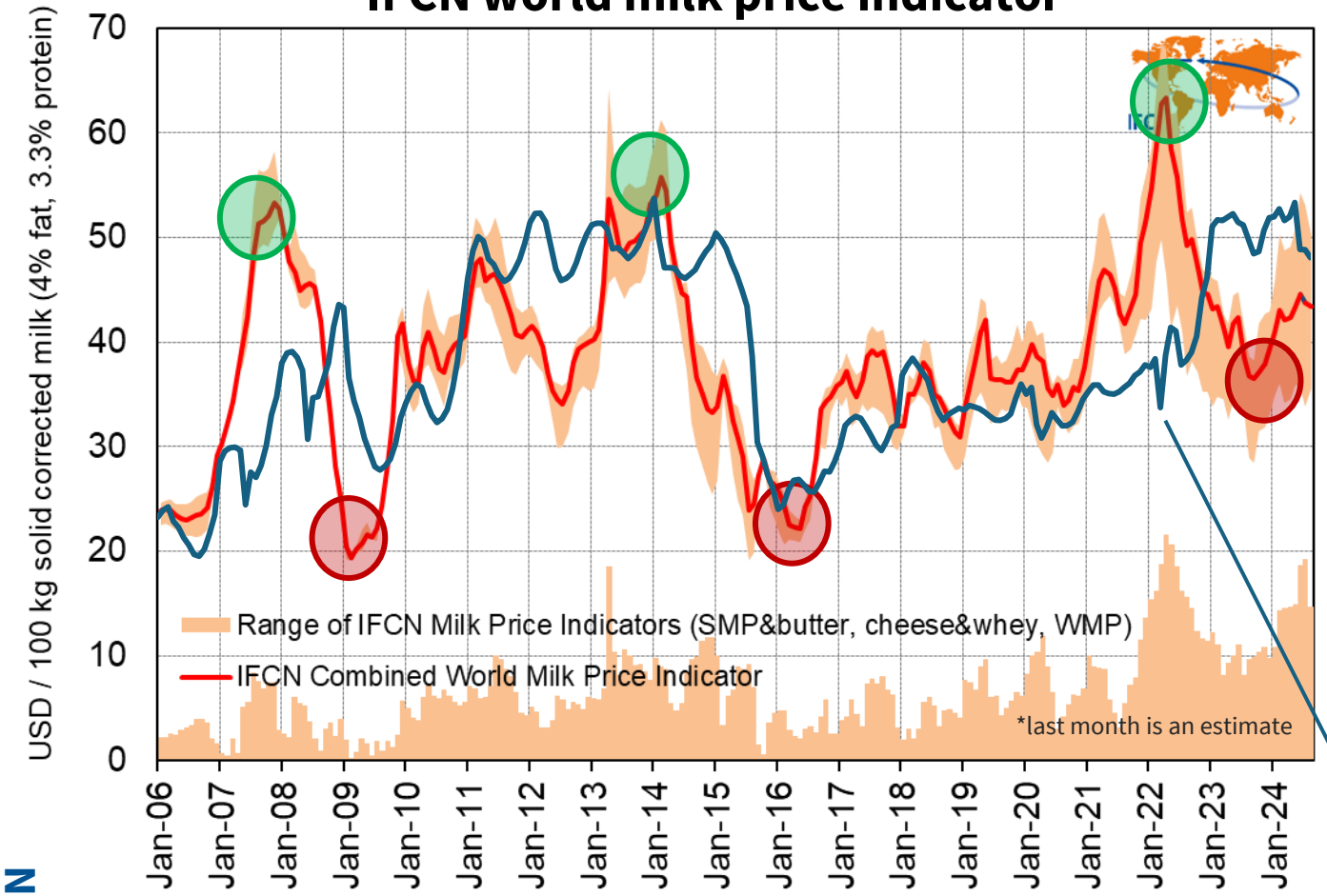
IFCN world milk price indicator *



*IFCN world milk price is based on the dairy commodity prices for butter/SMP, cheese/whey and whole milk powder; mainly Oceanian prices; inflation source: OECD

Decreased by -25% in 2023 vs 2022 to a level of 39.8 USD / 100 kg SCM:

- Lowest level in September 2023 (36.5 USD/100 kg SCM).
- In 2024 remains above 40 USD/100 kg SCM and relatively stable.

Roller coaster effect:

- 2007-2009 → from 53.3 USD to 19.3 USD.
- 2013-2016 → from 55.8 USD to 22.1 USD.
- This time → remained > 36.5 USD.

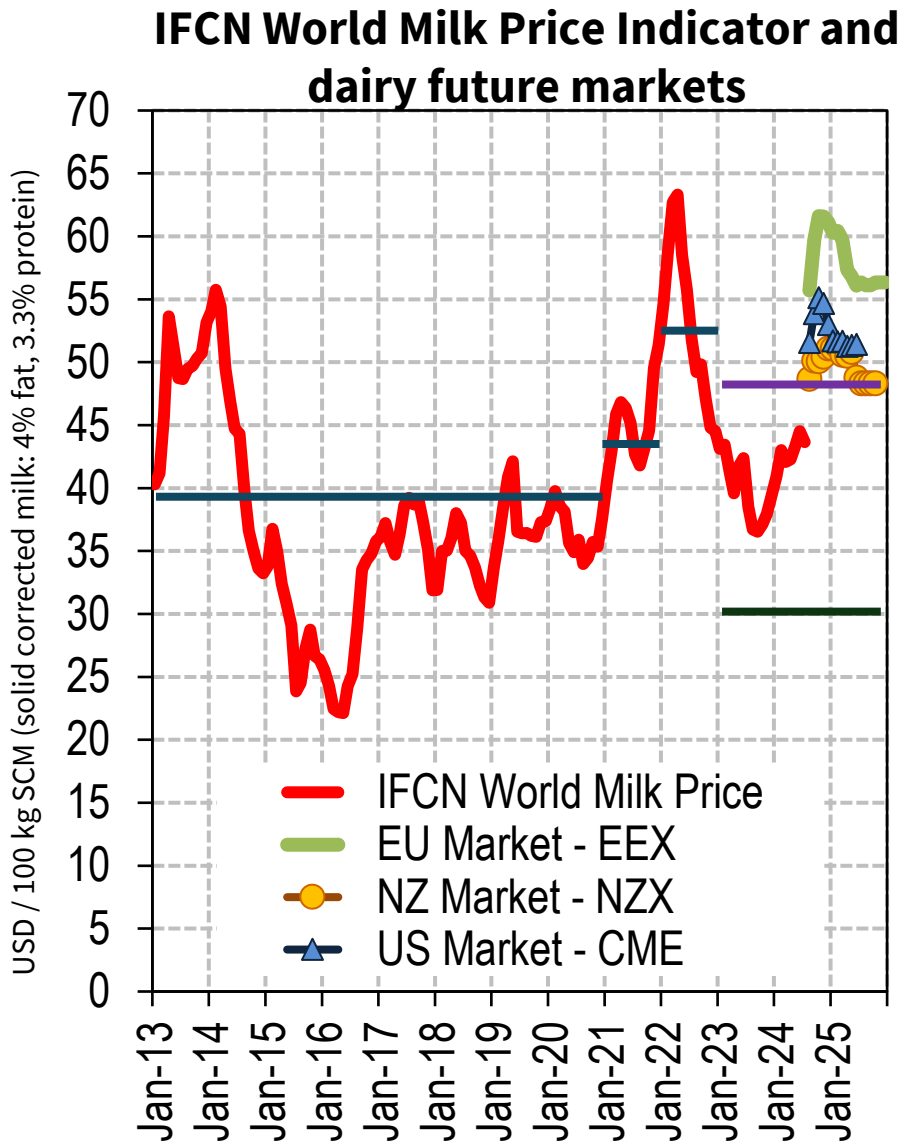
Why didn't the price go further down?

- Demand was improving due to a slight recovery in the overall economic.
- Modest recovery of milk production

Kazakhstan farm gate milk price

Source: D3.4 IFCN Monthly Real-Time Database for 65 countries; Status August 2024

The world milk price is foreseen to stay above old average level of 40 USD (future prices from 06.09.2024)



Scenario 1: New Price Levels

New average level of ~45 USD / 100 kg SCM

Scenario 2: Rollercoaster like 2013-2016

Low prices in 2024/25 (~30 USD) and a price recovery in 2026

Higher probability for scenario 1 due to global shortage of supply especially in dairy exporting countries.

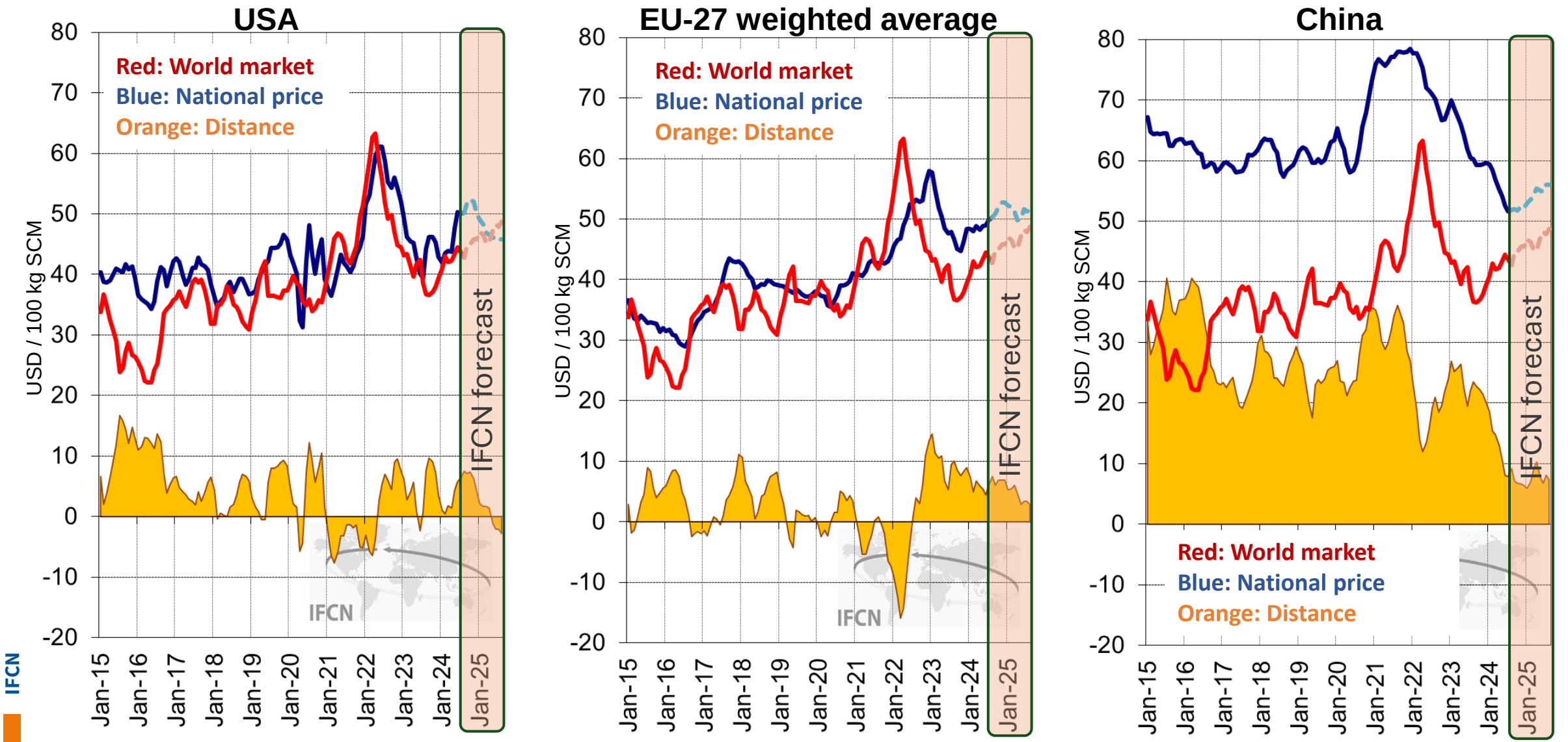
The world is „connected“ – national milk prices are derived from the world milk price (with only some exceptions)

Therefore, it is important to follow the monthly developments on the global and national markets.

Future market prices taken from 6th September 2024
EEX = European Energy Exchange
CME = Chicago Mercantile Exchange
NZX = New Zealand Stock Exchange

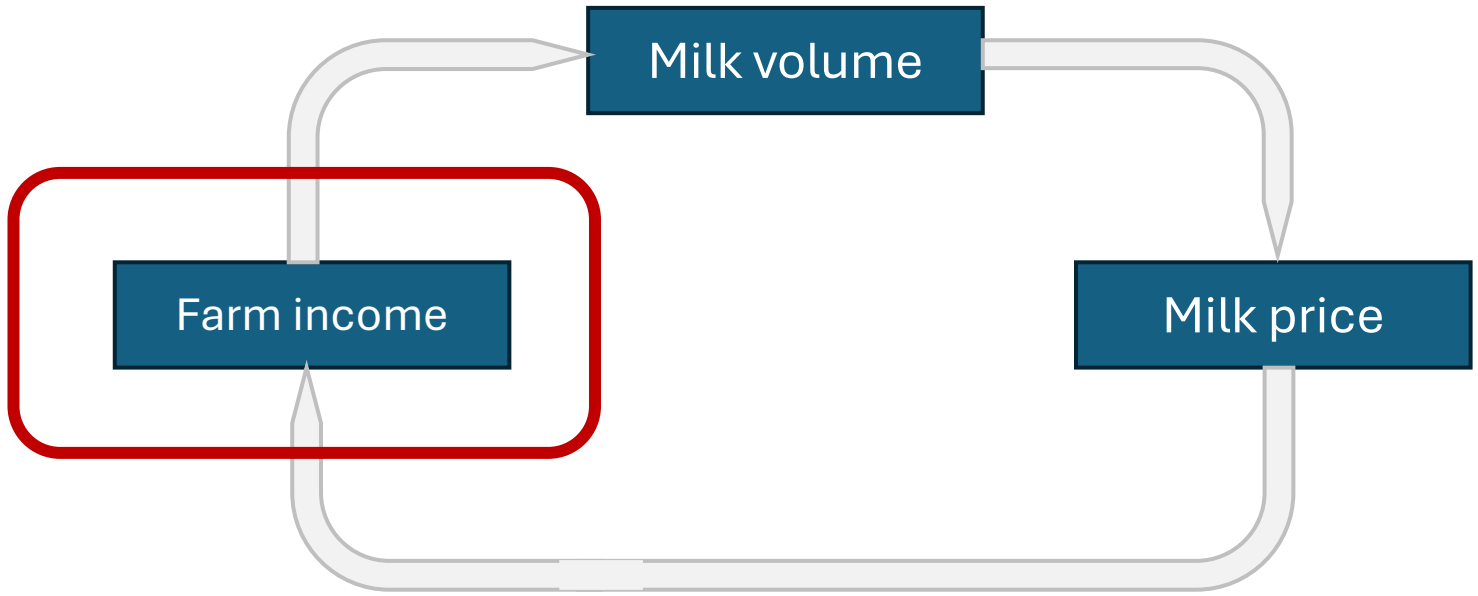
Source: IFCN Monthly Real-Time Database for 65 countries, Status August 2024; IFCN Outlook Service, Futures prices based on SMP and Butter only

The world is "connected" – the world milk price drives national raw milk prices



Source: IFCN Monthly Real-Time Database for 65 countries, Status August 2024; IFCN Outlook Service

Dairy market dynamics are cyclical; the entire cycle is in scope



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Source: IFCN Short-Term Dairy Outlook; Status June 2024

Farm income mostly positive across the global farms, but dropped highest in the US

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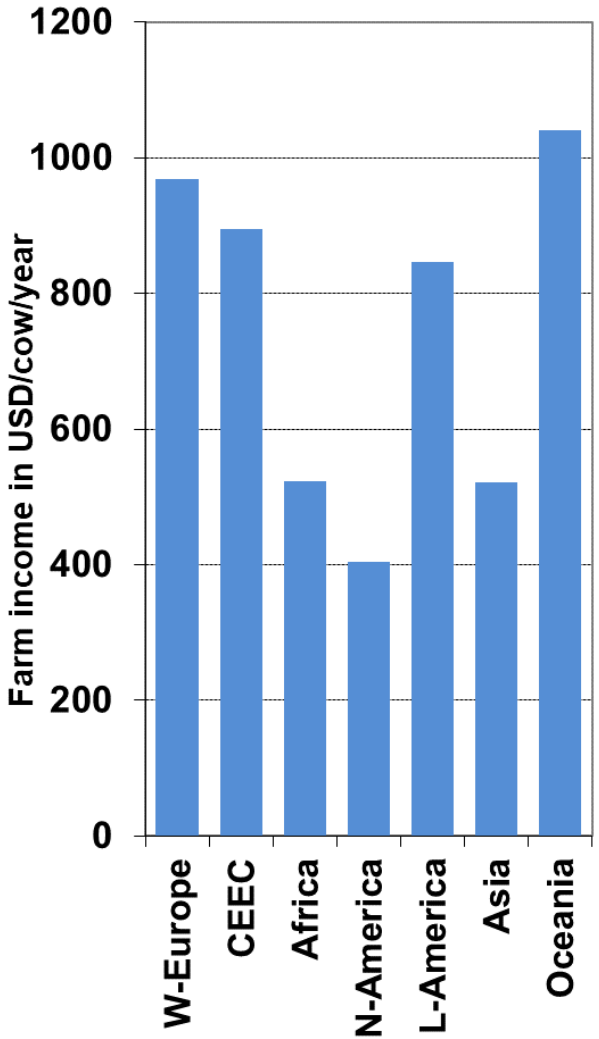
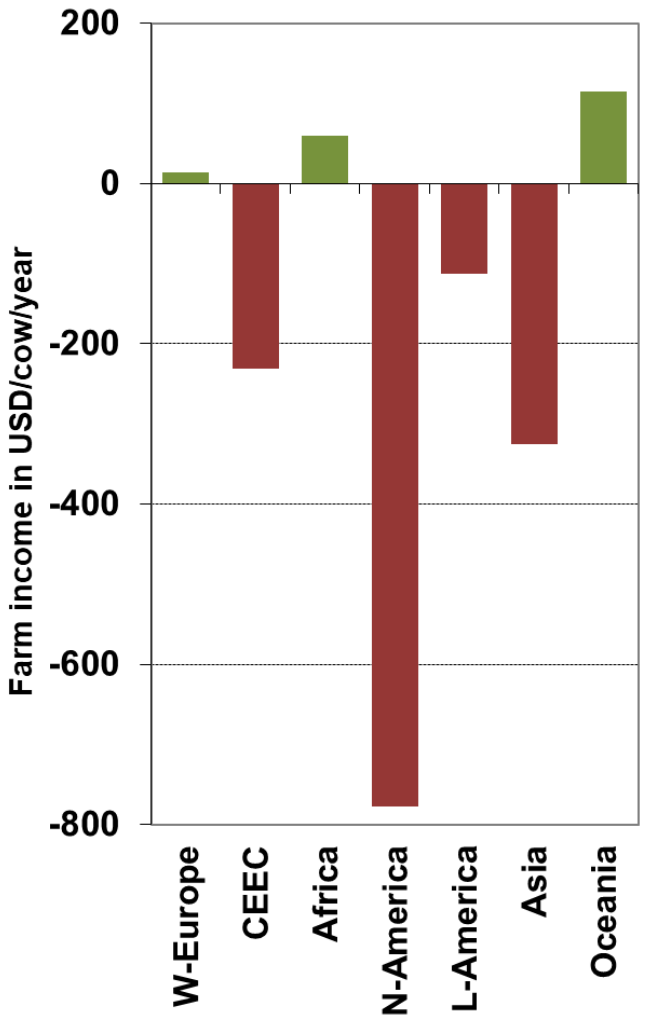
Farm income per cow and year 2023



Change in farm income per cow and year



- **Farm income** per cow varied between 400 and ~1000 USD/cow.
- The regions with the highest or the lowest milk yield/cow (N-America and Africa) had the lowest cow income in 2023.
- N-America experienced the highest drop in farm income per cow.
- Some regions even had a slight increase in farm income per cow.

➔ Apart form the costs, farm income is also dependent on the returns, especially on the **milk price transmission** from world milk price to national milk price.

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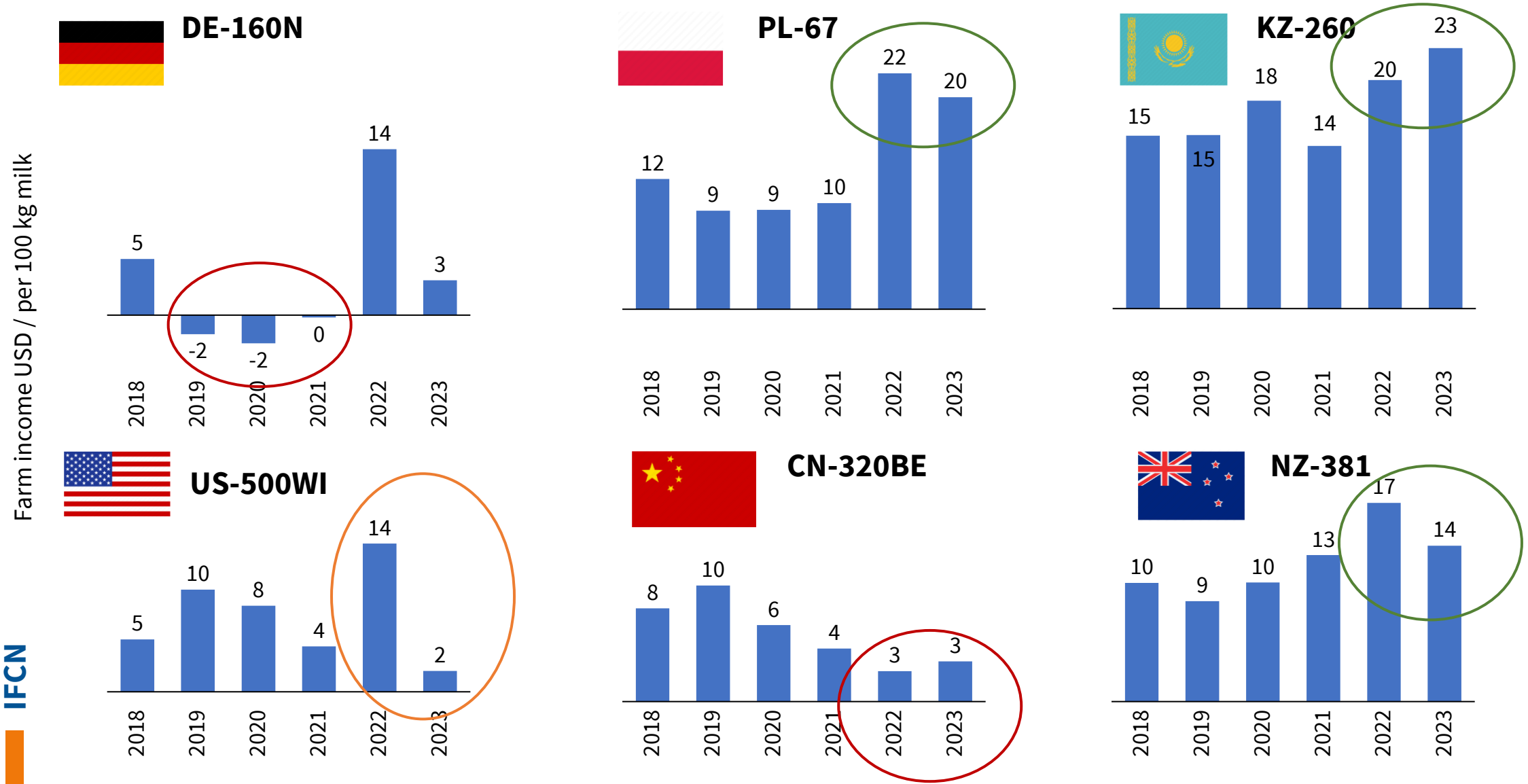
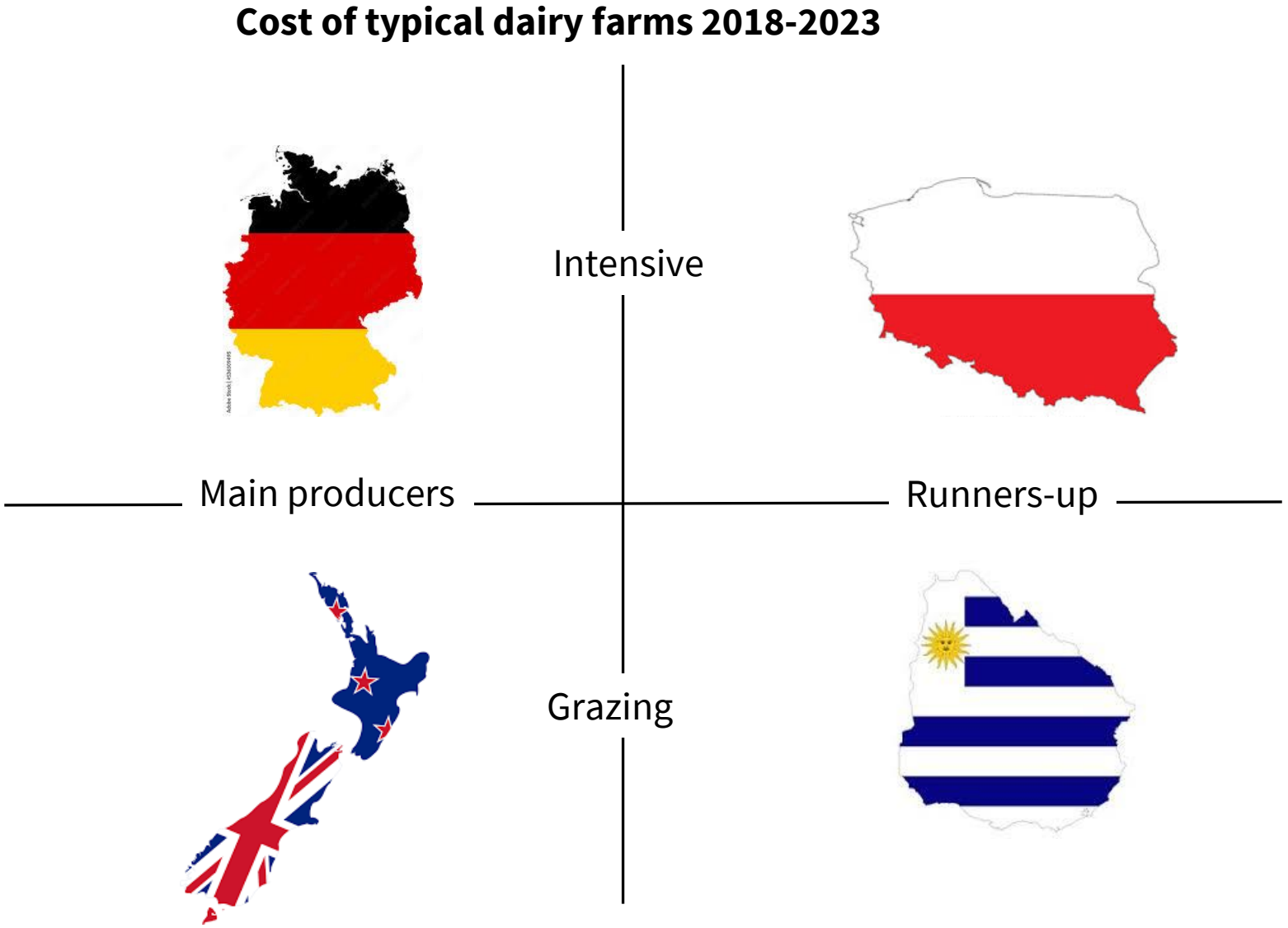
Short-Term Milk Price Gains: The Illusion of Sustainable Farm Income

Farm income on typical farms 2018-2023



Structural change in costs: most of the costs on upward trend despite the farming system



What is same?

- Feed, energy, and fertilisers impacted by the market
- Share of feed covers 1/3 of the costs

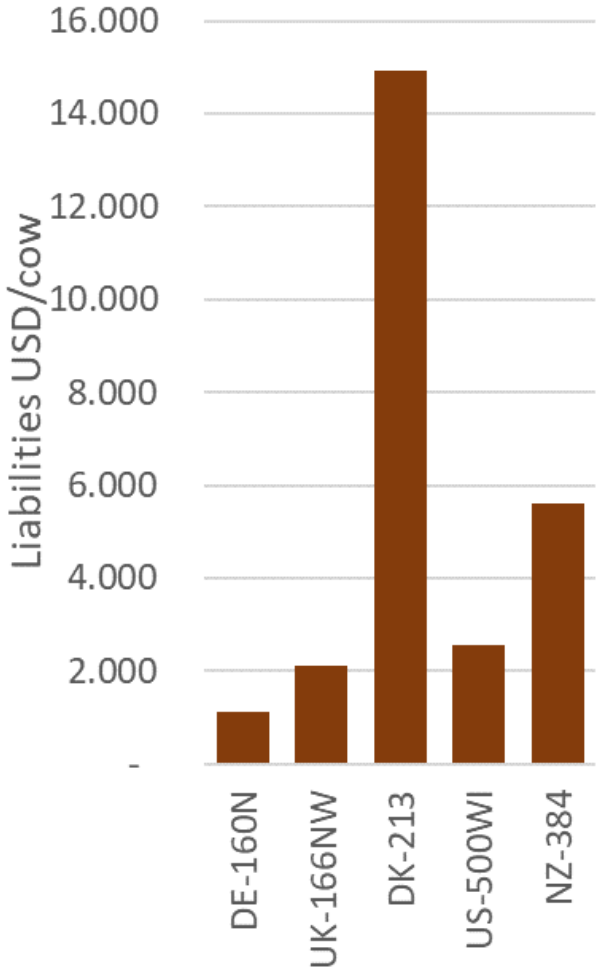
What is different?

- Low wages countries losing labour as cost competitive component
- Lower machinery costs are compensated by labour in PL and UY
- Other dairy inputs on more intensive farms are higher
- Land has higher share on grazing farms than on intensive farms

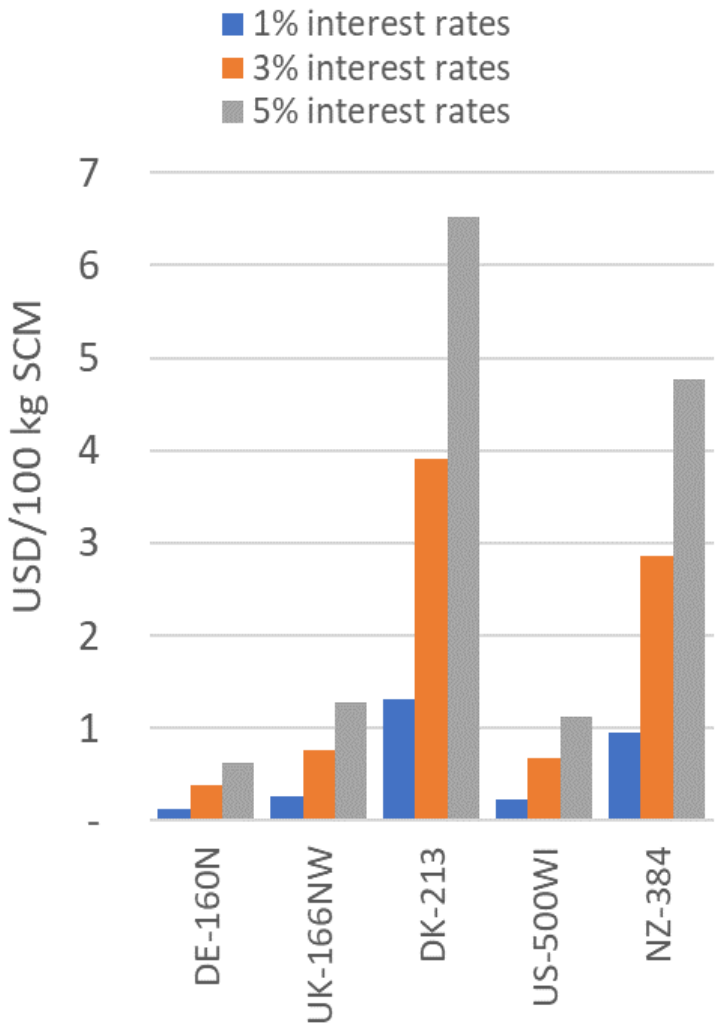
*IFCN Typical farms: e.g. DE-160 stands for 160 dariy cow farm in Germany

Rising interest rates – a challenge?

Liabilities per cow



Interest payments per 100 kg SCM

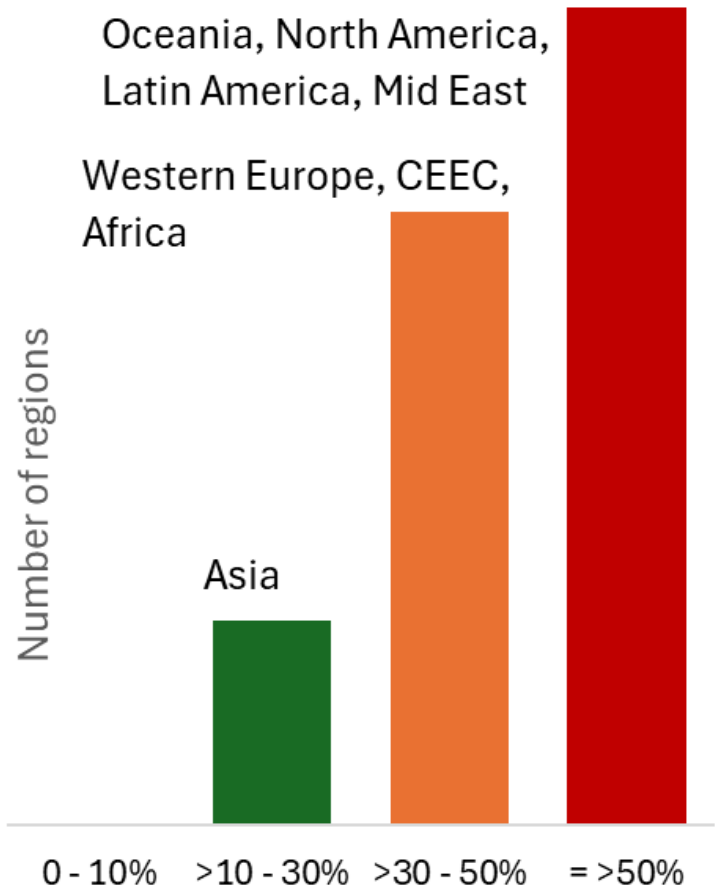


- Many farms do not have any liabilities (Latin America, Africa, Asia)
- Especially farms which kept investing and growing, show liabilities of >4000 USD/cow.
- Increasing interest rates as recently seen worldwide, might develop into a substantial cost factor.

➢ The influence of the interest rate will aggravate with decreasing milk price.

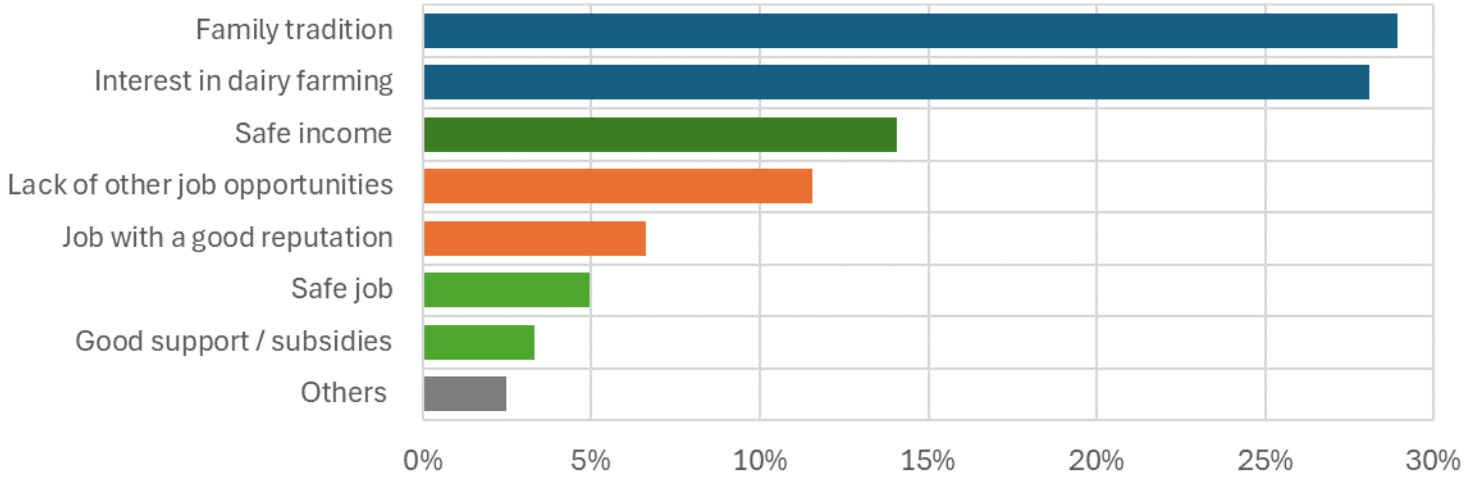
Aging Population in Dairy: Can Tradition Sustain the Next Generation of Farmers?

How high is the share of farmers >55 years of age?



- Regions like the Americas, Oceania, but also W-Europe may face challenges in the coming decade to find successors.
- Asia is the continent with the lowest share of farmers >55 years of age.
- Dairy farming is still more a lifestyle than a profession – tradition and interest are the most important reasons to take over a farm.

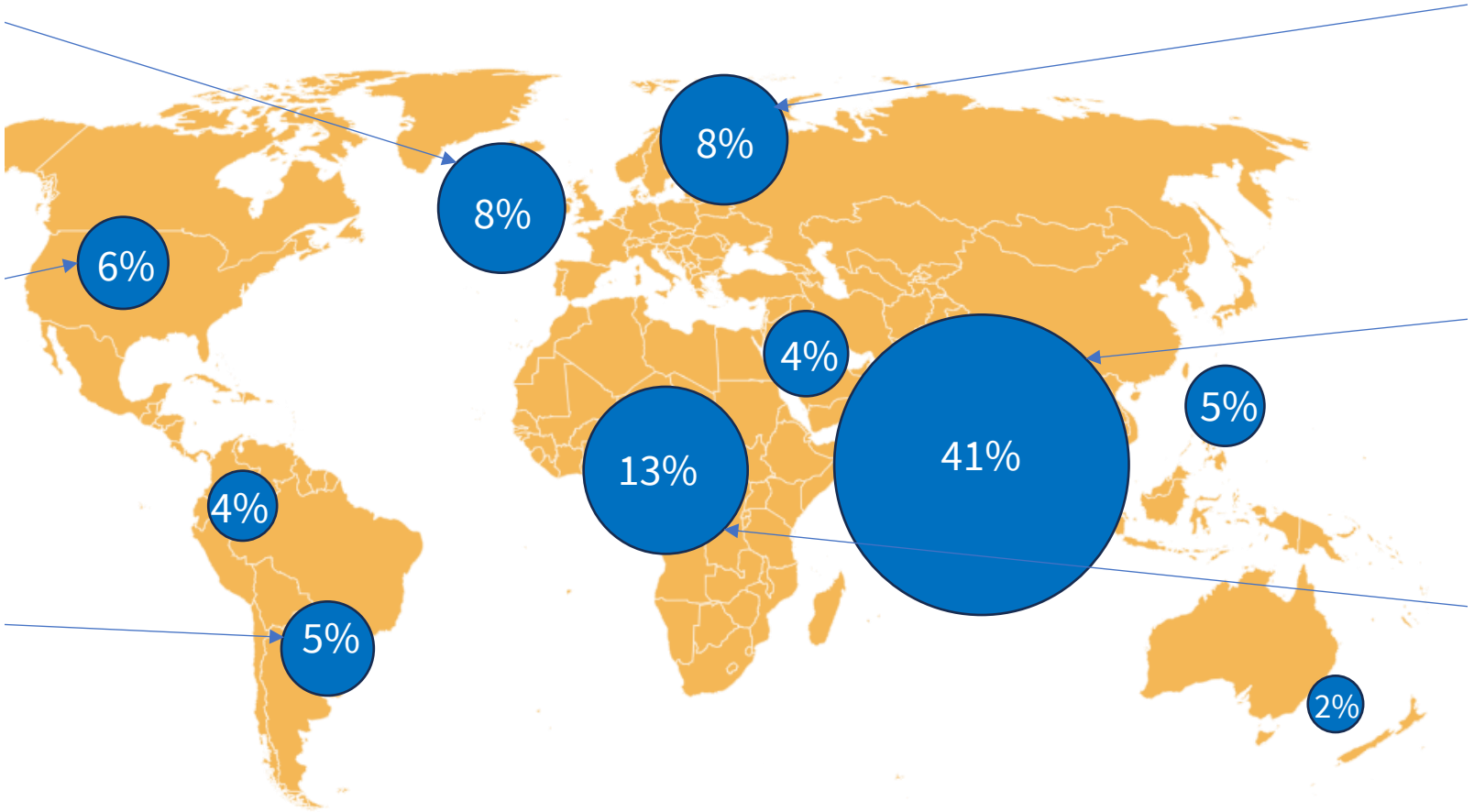
Why do young farmers take over a dairy farm?



Potential of reducing the global GHG emissions: emerging regions and efficiency on large farms

Charts: Share of dairy farms

Map: Estimated CO_2eq. emissions per world region



*CO2eq. emissions based on regression function between milk yield and Co2eq. Emissions. Data for CO2eq. Emissions on a farm from IFCN comparable data from dairy farming systems in 52 countries. Model using partial life cycle assessment until farm gate to estimate CO2eq./kg milk.

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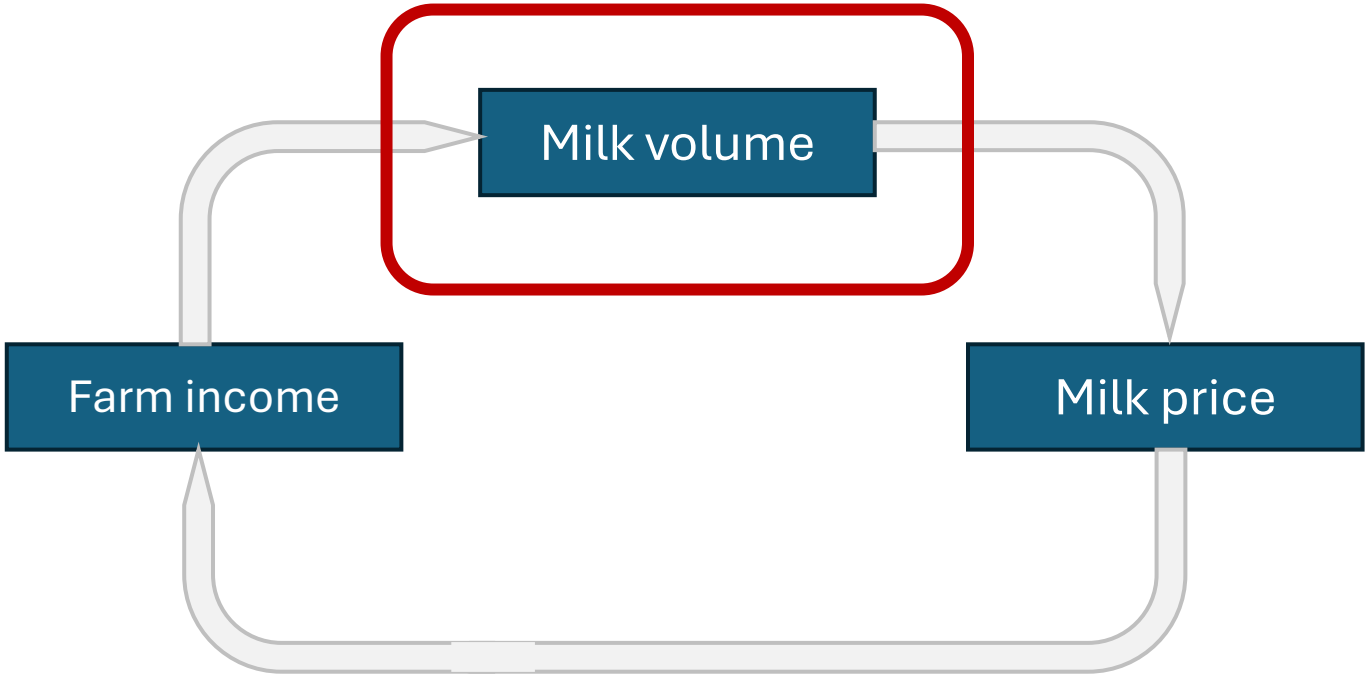

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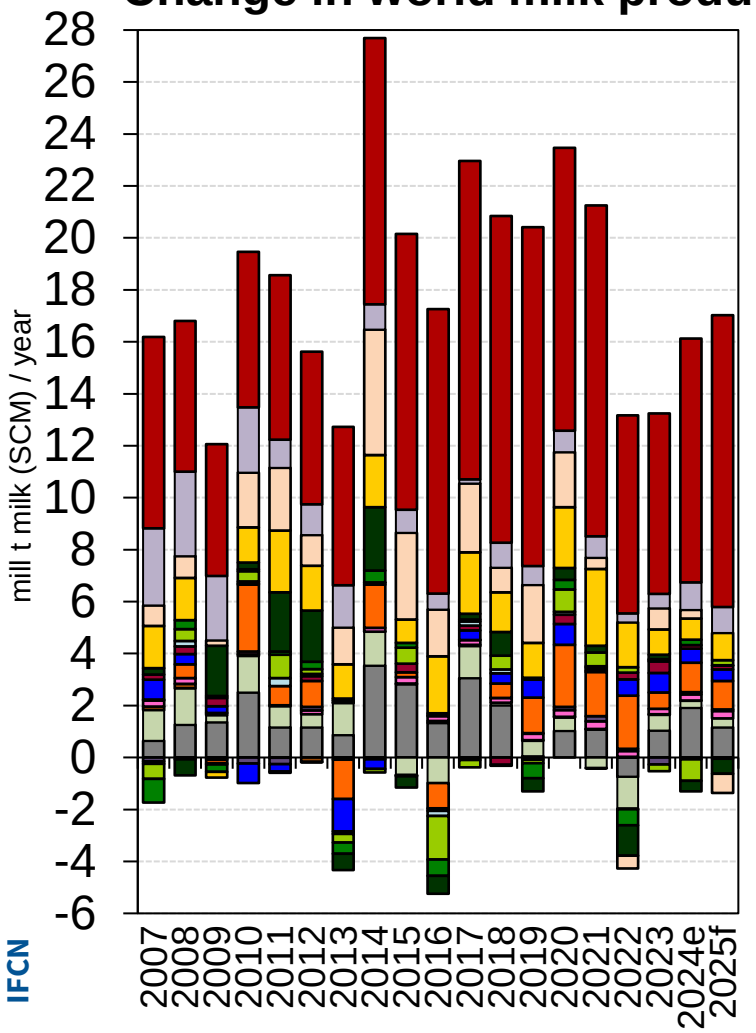
Source: IFCN Short-Term Dairy Outlook; Status June 2024

Milk Supply Forecast 2023&2024: slight recovery

Coverage: 65 countries representing 92% of total world milk production

Change in world milk production



	2016-2021	2022-2023	2024e	2025f
India	5.9%	2.9%	3.5%	4.1%
Pakistan	1.3%	0.8%	2.0%	1.8%
EU-27	1.2%	0.1%	0.2%	-0.5%
USA	2.3%	1.3%	0.8%	1.0%
New Zealand	0.4%	-1.8%	-1.6%	-2.3%
Australia	-1.3%	-3.1%	2.3%	-0.5%
Argentina	0.0%	-0.2%	-7.2%	1.8%
Uruguay	1.9%	0.7%	-3.3%	0.7%
Belarus	1.3%	4.8%	1.7%	1.8%
Russia	1.3%	2.3%	1.7%	1.4%
China	2.6%	3.7%	3.0%	2.8%
Japan	0.7%	-1.2%	1.1%	0.8%
Mexico	2.0%	1.8%	1.9%	2.3%
Indonesia	3.4%	2.2%	2.4%	2.1%
Brazil	0.8%	-1.2%	1.1%	1.4%
Rest of the world	1.5%	0.1%	1.9%	1.1%

2016-2021 *average*
World excl. IN&PK:
+7.2 mill t or **+1.5%**

2023
World excl. IN&PK:
+5.2 mill t or **+1.0%**

2024 *estimate*
World excl. IN&PK:
+4.4 mill t or **+0.8%**

2025 *forecast*
World excl. IN&PK:
+3.4 mill t or **+0.7%**

Source: IFCN Monthly Real-Time Database for 65 countries, Status August 2024; IFCN Outlook Service

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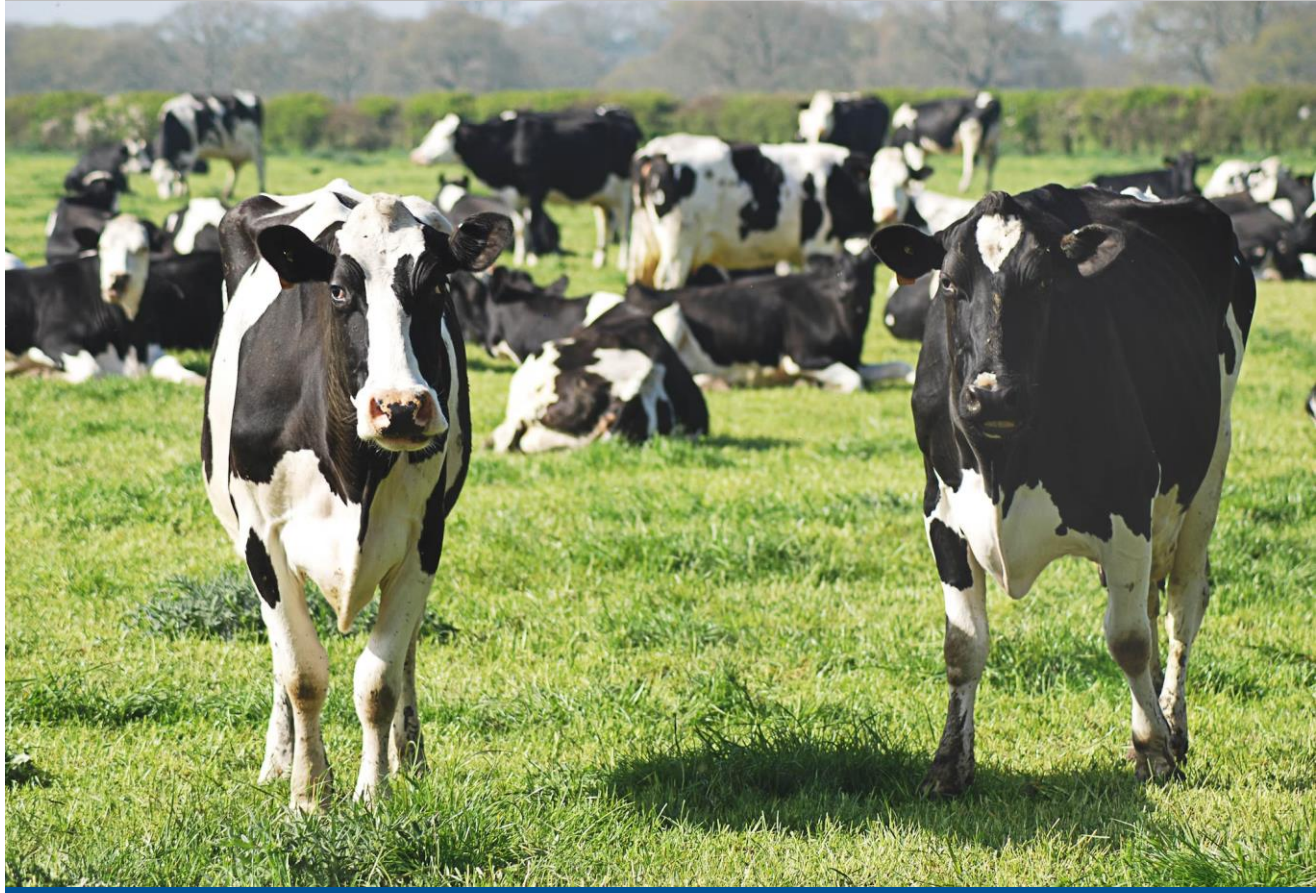

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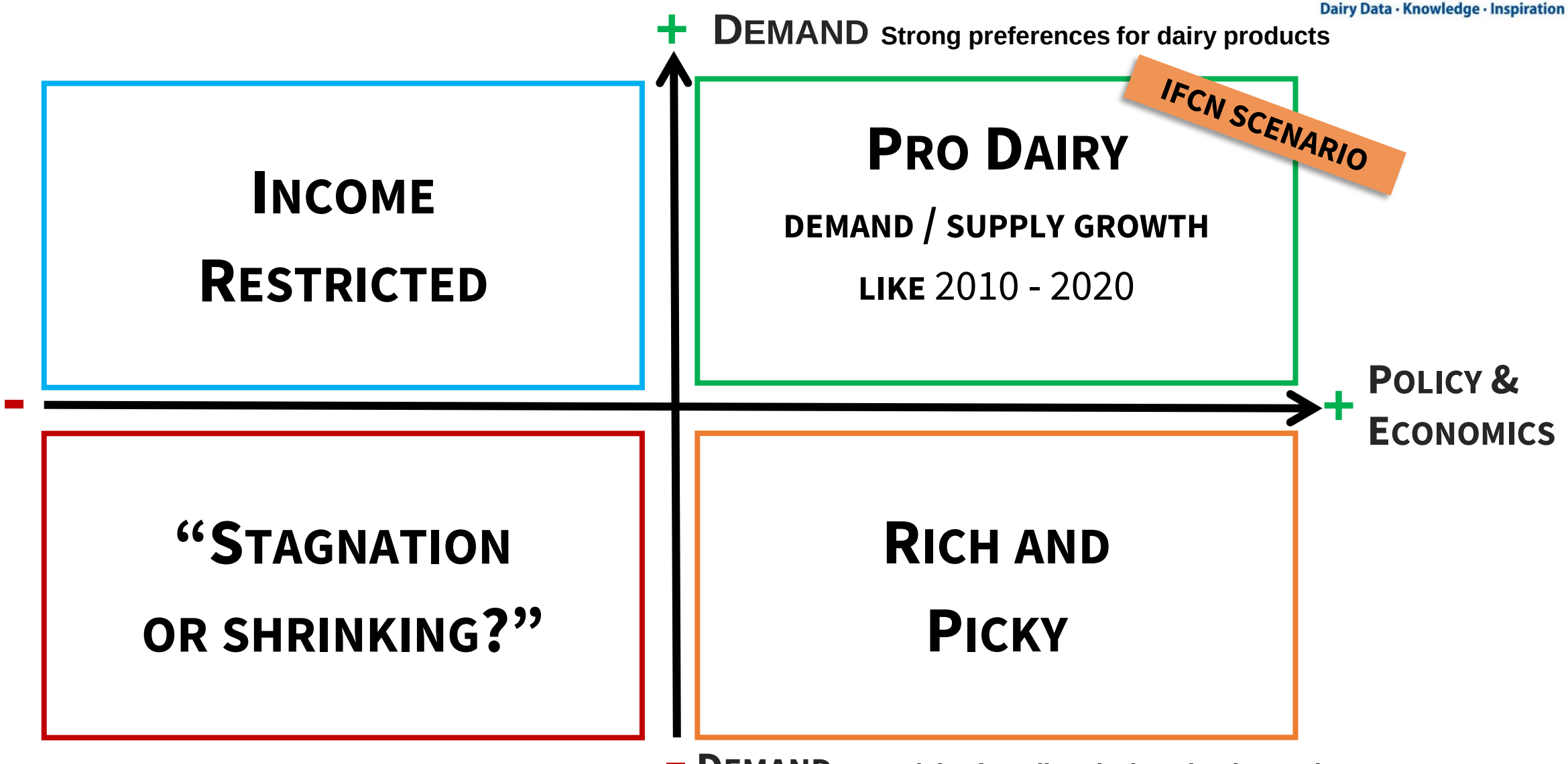
Key scenarios to predict the future



Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2024

Key scenarios to predict 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 → 1.7 - 1.9%
  - ✓ Emerging Market, Developing Economies → 3.9 - 4.2%
- ✓ Exchange rate USD/EUR → 1.1
- ✓ Oil price USD/bbl → 85 – 90
- ✓ 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 2024

Dairy World in 2030 vs. 2023*

8.5 billion people
+6.5%, +0.5 bill

132 kg “milk” consumed
+5.5%, +7 kg ME/capita

-10.3 mill t ME deficit
unsatisfied demand

65 mill t ME traded*
+6.6%, +4 mill t ME

370 mill dairy “cows”
-3.2%, -12 mill heads
+15% in milk yield

100 mill dairy farms
-10%, -11 mill farms

+11% more milk produced and consumed

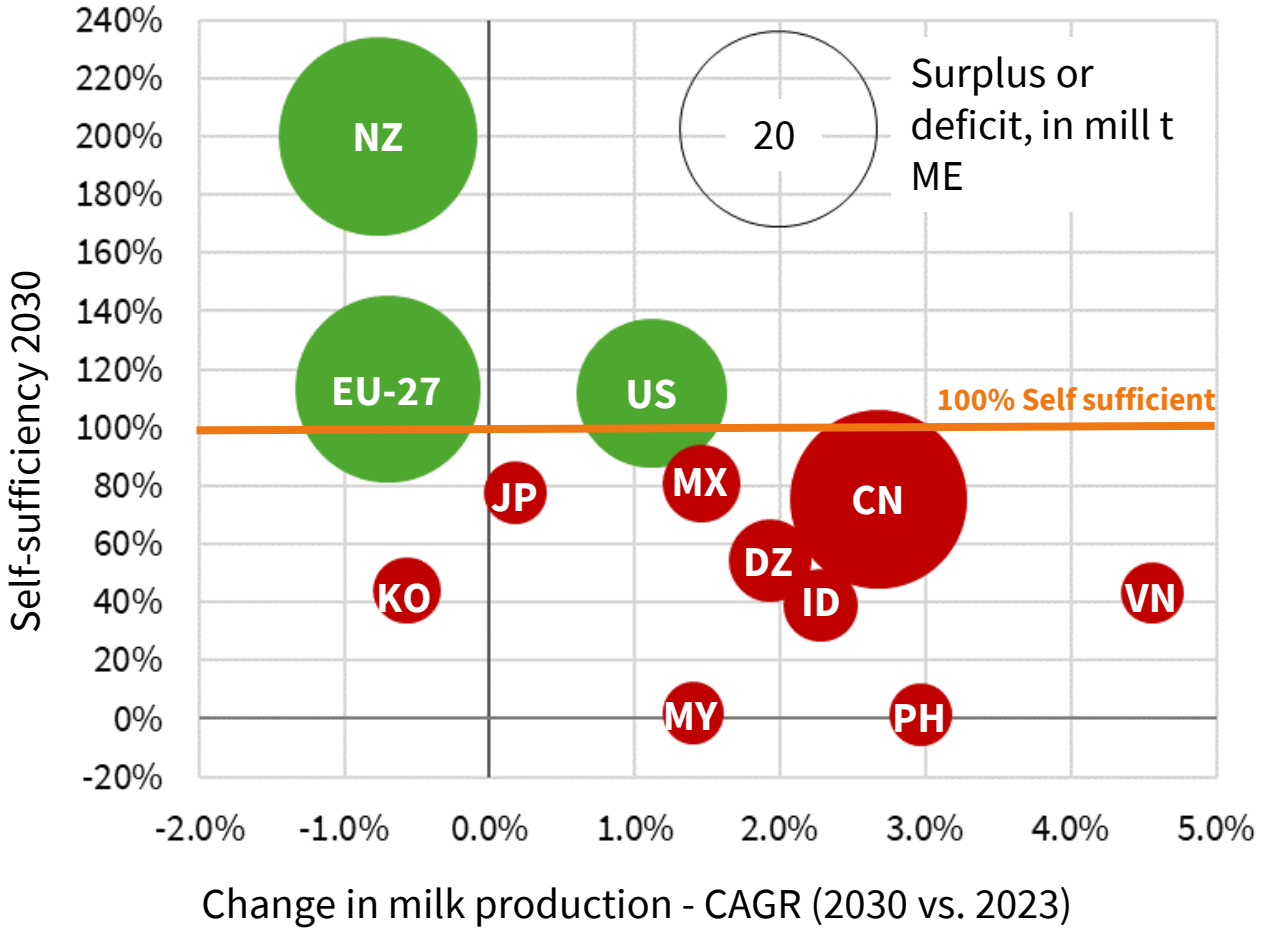
+113 mill t milk SCM = 1.1x USA today

*IFCN Baseline Scenario - “Pro-Dairy”
Based on the most likely economic and milk price scenario and does not include latest price volatility and market shocks.
Published in March 2024

Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2024

Many countries increasing in per capita demand will not reach self-sufficiency

Dynamics of Self Sufficiency & milk production growth



China → milk deficit about 16.6 mill t ME

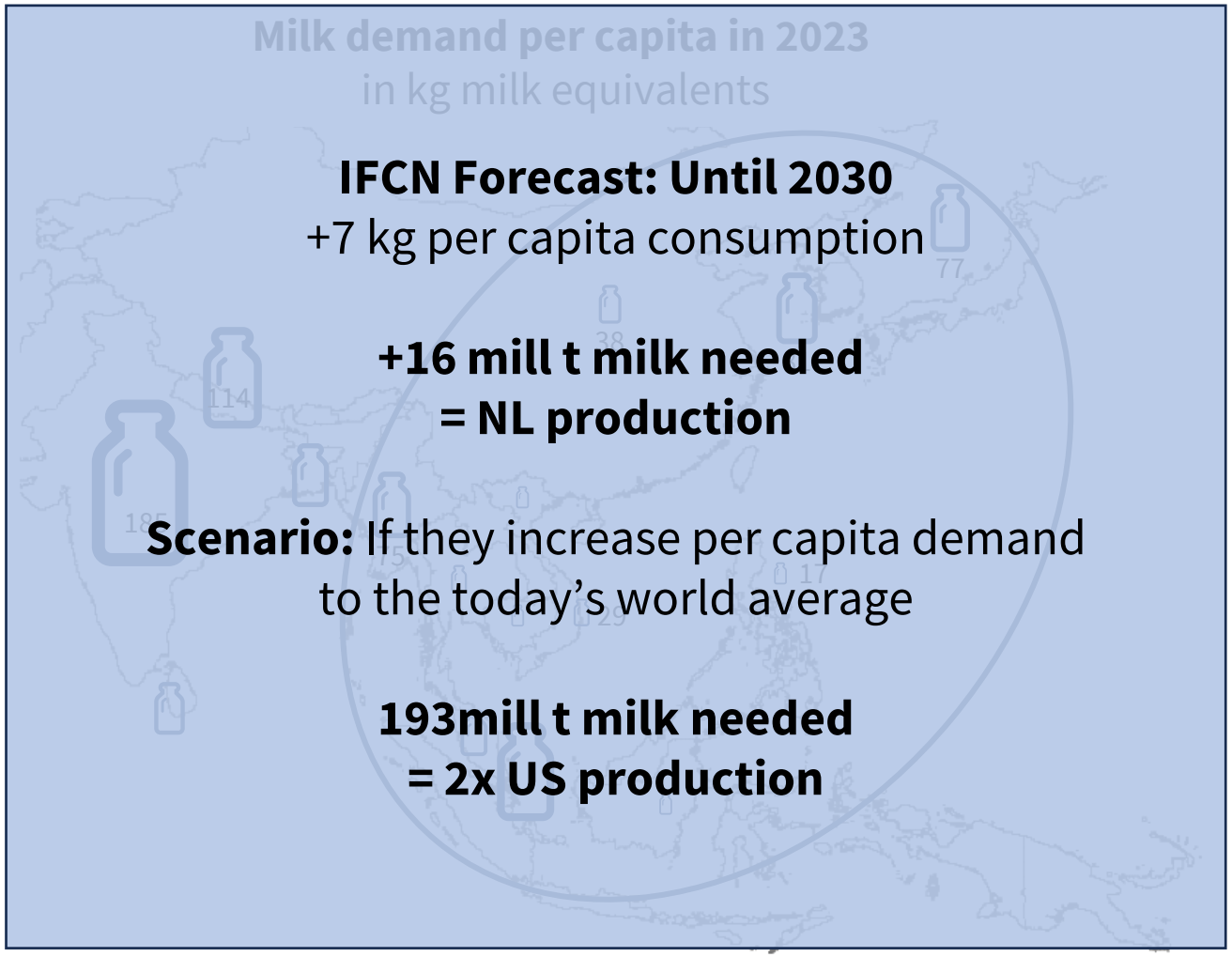
Philippines & Malaysia → very low self-sufficiency (1.4% and 2.1%)

Japan & Korea → very low or negative production growth (**+0.2%** and **-0.6%**)

Self-sufficient countries → very low or negative production growth (between **-0.8** and **+1.1**)

Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2024

Dairy consumption in South-East Asia is less than 1 glass of milk per day per capita



South-East Asia
38 kg
per capita

World average
125 kg
per capita

EU-27
318 kg
per capita

Who is typical dairy consumer in Asia?

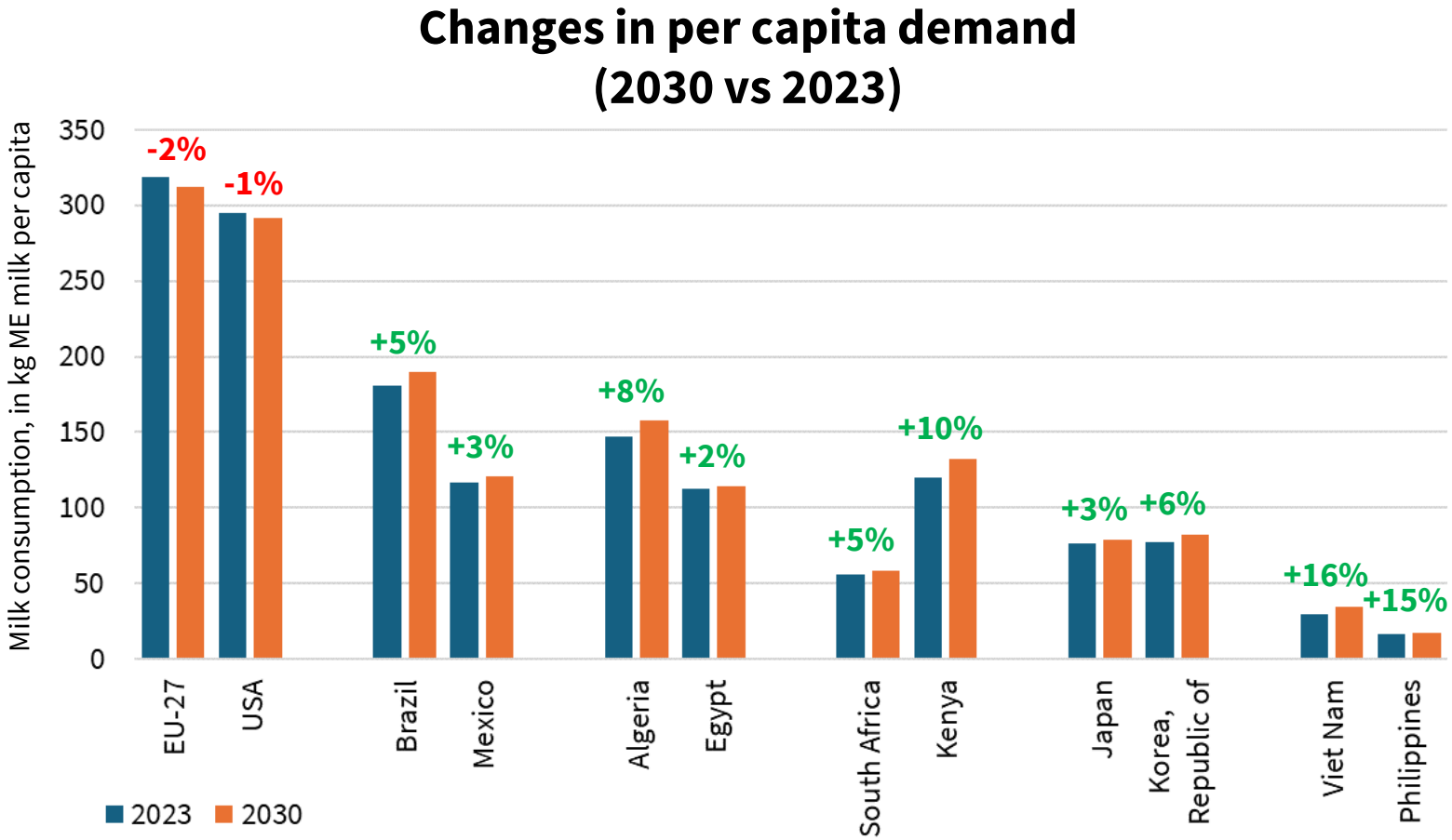
Traditional dairy consumption:
India, Bangladesh, Nepal, etc.

Westernizing dairy diets:
Japan, South Korea, China, Singapore

Rising dairy consumption:
Vietnam, Thailand, Indonesia, etc.

*East and South-East Asia: Cambodia, China, Hong Kong, Indonesia, Japan, South Korea, DPR Korea, Laos, Malaysia, Myanmar, Philippines, Singapore, Taiwan, Thailand, Vietnam

Strong growing dairy consumption per capita in Asia



World demand is estimated to grow by +1.5% per year until 2030

→Per capita consumption will increase by **+5.5%** vs. 2023 (+6.8 kg ME / capita / year)

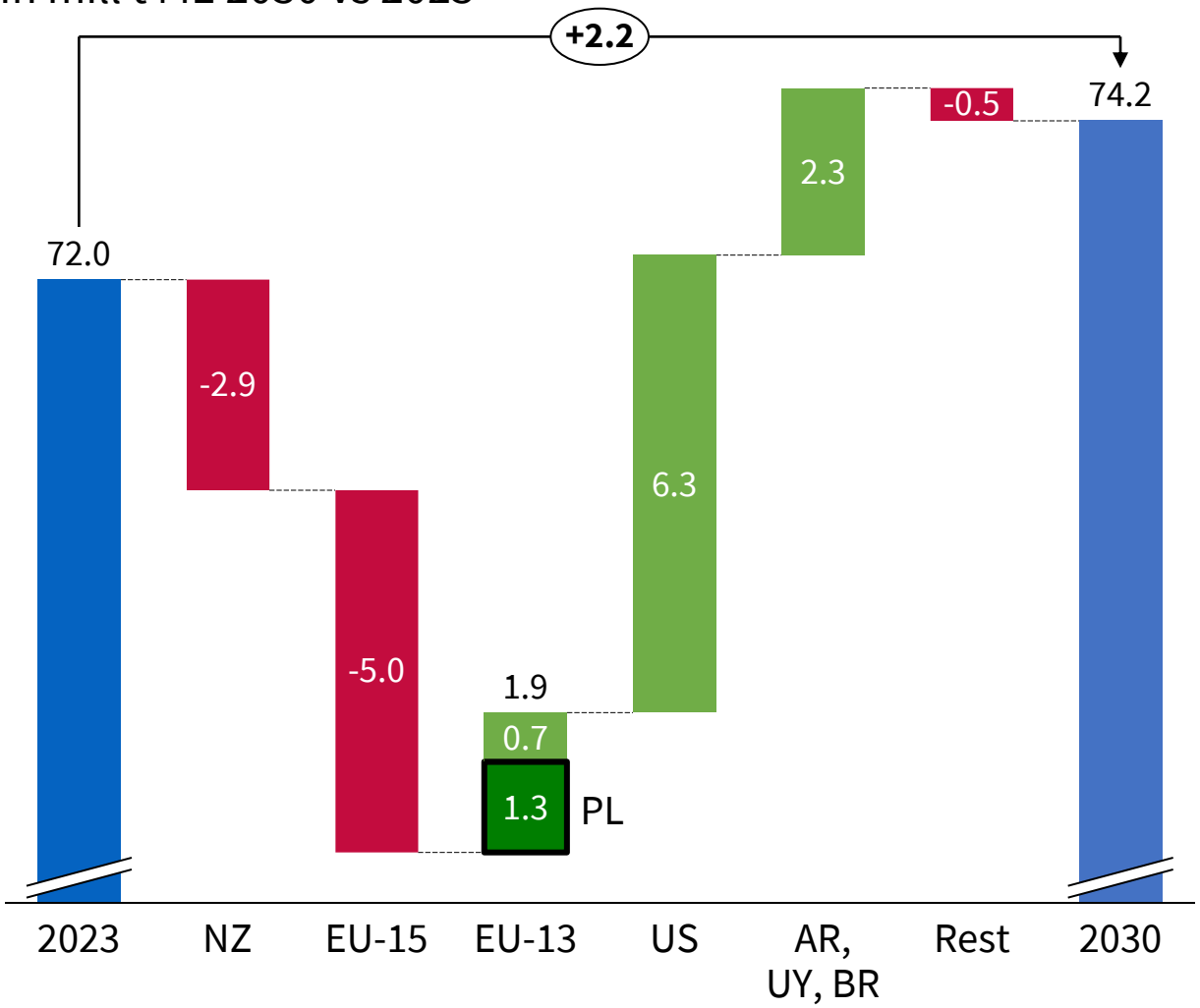
✓ East & South-East Asian aggregate will increase by **+20%** vs. 2023 (+7.4 kg ME / capita / year)

✓ South Asia aggregate will increase by **+13%** vs. 2023 (+22.4 kg ME / capita / year)

Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; Status March 2024

Competition for exports is decreasing

Change in net surplus from main exporting regions
In mill t ME 2030 vs 2023



New Zealand	• Focus on powders due to seasonality in production • Limited milk production growth • Environmental constrains
Western Europe	• Decreasing milk production • Squeezed margins for farmers
USA	• Growth in production, • Limited growth in exports due to domestic demand
LatAm	• Weather and macroeconomic situation • Competing with NZ • Commodities remain in the region

Future exporters should be more confident of their position

EU – shift of production from west to east?

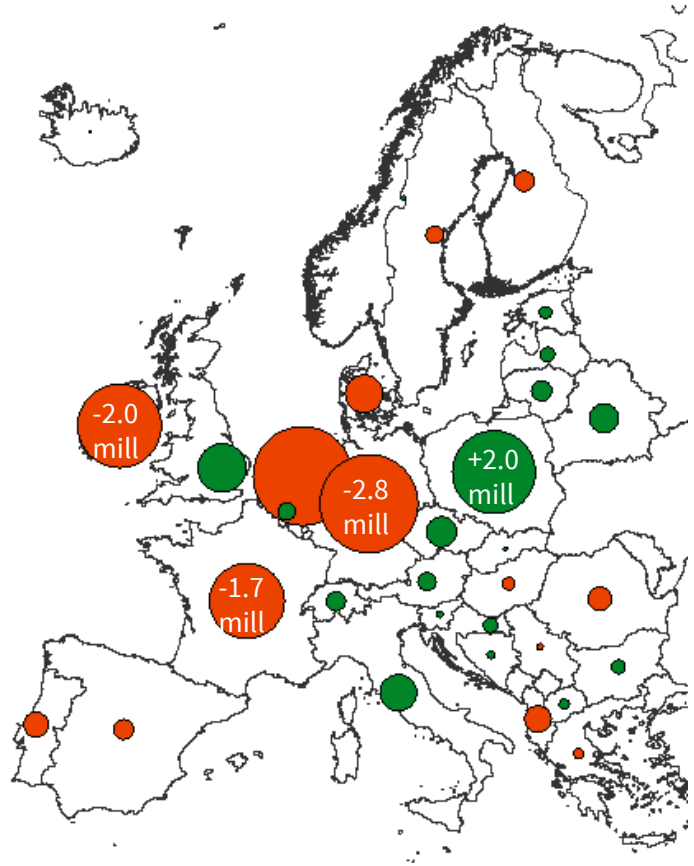
1) EU-15 is losing milk production by –9.1 mill t SCM until 2030
2) EU –13 is only growing by 2.5 mill t until 2030
3) Poland only is growing by 2 mill t until 2030

Countries are diverse and face difference challenges
Example 1 Romania:
- negative supply forecast -> the loss of smallholder farms cannot be compensated
- Lack of investments, labour leaves the country, dairy farms are not at a modern level so that young people consider it as a good business)

Example 2 Bulgaria:
- growth is foreseen, however production is at a low level

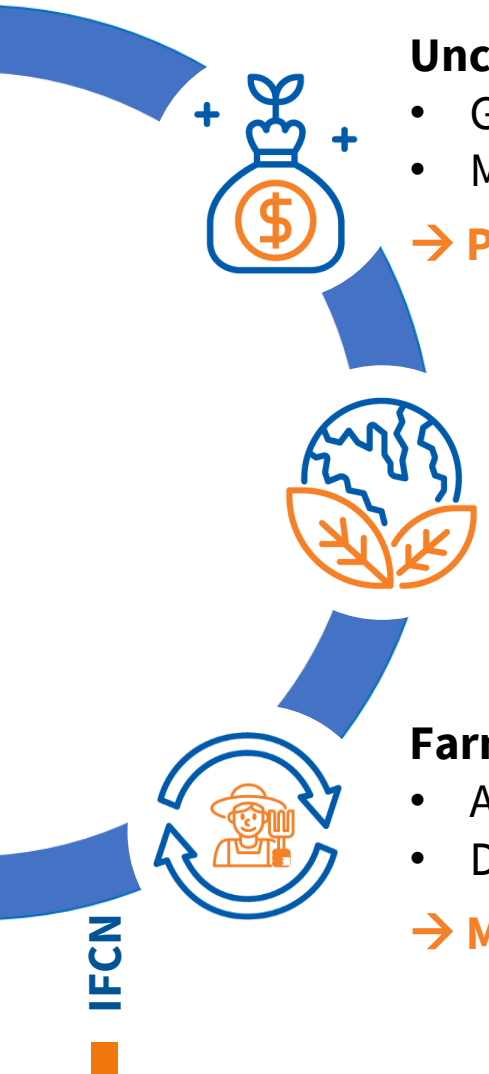
Example 3 Estonia:
- consolidated sector, already close to exploiting full potential

Increase and decrease in milk production 2023 vs 2030 in mill t



Source: D3.2 IFCN Annual Sector Database with Long-term Dairy Outlook; internal calculations

Less milk, but why?
From profitability to sustainability



Uncertain Farm Income and (future) market requirements hold the investments back

- Good farm economics is not the only decisive factor for growth in milk output
- Milk price is defined by both demand and cost of production

→ **Partner up with farmers and the rest of the supply chain to assure future raw milk pool**

Environmental factors commonly act as barriers to milk production expansion

- Weather and climate shocks are hitting more often
- GHG emissions challenge future milk sourcing

→ **Finding a cost-effective ways to reduce the impact on farm level**

Farm consolidation and urbanisation are reshaping the dairy industry

- Aging farmers, coupled with a decrease in number of farms, creates a gap in the dairy workforce
- Disconnect between urban consumers and rural production alters the supply-demand flow

→ **Modernise dairy operations and bridge the gap between formal and informal dairy sector**


Q&A