

Long-term Dairy Trends

What could happen by 2030?

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Preliminary Project Structure

Major demand and supply drivers will form the basis of the analysis

Demand Drivers

- Over a 5 and in particular 10 year time period, demand will be the critical factor driving the evolution of the dairy industry. This will be the initial focus of the project.
- There is likely to be a bifurcation between the mature western markets and the demand growth emerging markets. However, a framework of factors will be used to analyse the potential development across the core markets, focusing on several key themes, albeit with different weightings applied.
 - Economics and demographics, from income levels to population structures.
 - The development of sales channels, including the expansion of modern retail and foodservice and what impact the informal to formal transition in select markets will have on the dairy industry.
 - The threat from competition, most notably dairy alternatives, will be analysed across all markets.

Supply Drivers

- With demand factors likely to evolve considerably in the coming decade, where is the dairy supply going to come from? Why will certain producers flourish?
- Whilst demand will to a large extent dictate the direction of the dairy industry, there are certain supply drivers that will likely act independently of demand. These have the potential to drive considerable change in the milk production system, particularly at a farm level.
 - Environmental drivers will be imperative to understand; from legislation to climate change, what will be their impact on milk production?
 - In certain markets, the average age of farmers is becoming worryingly high, and profitability pressured. Could we see a position where farm number reductions accelerate? Will the growth of larger modernised farms compensate for the loss of smaller less profitable farms? Will the expansion of organic farms constrain supply growth?
- Other factors impacting supply growth from technological advances through to import competition will be analysed across markets.
- Trade policy and its impact on the flow of dairy products will also be considered here given the impact this could have on dairy supply.
- The output will be a roadmap for where production will come from and in what form, detailing the key drivers and brakes for the future of dairy farms and product processing.

Scenario Analysis

Given the uncertainty and range of variables analysed here, in addition to the Gira base case, scenarios will be provided to give a range of paths that could arise.

"So What" for Dairy Companies?

- This project will be pulled together to give Gira's thoughts on the direction the dairy industry is likely to take in the coming decade, across products and geographies.
 - What will the dairy industry look like in 2030?
- What will be the key challenges and threats to the industry and companies?
- How are dairy companies likely to react to the changing market dynamics?
- What opportunities for growth and development will be available for the industry?
- What could be some of the pertinent strategies for dairy to enact, with geographical variations playing an important role?

Where will the Value Come From?

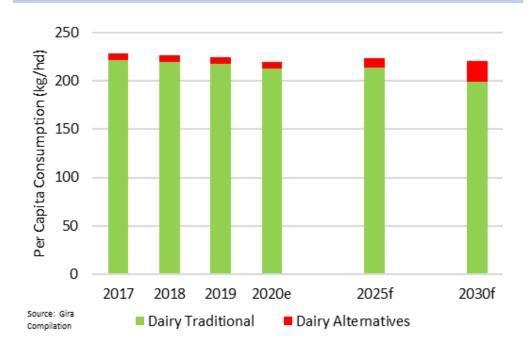
- What will be the different forces acting on the different dairy products?
- Which dairy product categories are likely to face greater pressure in the coming decade, and which could represent higher margin, more protected products?
 - Are differences between consumer products and ingredients expected?
- In the EU and US, how much value can be gleaned from the domestic market?
 - What will be the share of milk that has to be exported? Will value be created here?
- Could international product prices be driven up by reduced product availability?
 - Could this impact the viability of the export channel for processors?



A key question that must be addressed is, "what will the dairy world look like in 10 years?"

- Shifts in the dairy industry were underway, albeit at a relatively low level. Covid-19 has punctured several strong and pronounced consumer trends and driven a consumer reversion to known comforts.
 - In conjunction with some engrained dairy industry resilience, this has acted to support dairy sales.
 - However, this temporary situation is unlikely to last much longer.
- Many companies are increasingly looking at where the real growth opportunities lie.
- Several key questions need to be answered:
 - What is likely to happen to dairy demand in your home markets? How is this going to evolve holistically and at a key product level?
 - Where is demand growth going to be driven at a global level?
 - As a result, which growth avenues could you pursue? Both geographically and by product.
 - Where is the milk going to come from? Are you well positioned to continue to produce in your home markets, or do other avenues need to be explored?
 - Where is legislation likely to move with regards to government and consumer ESG goals, and how can you ensure you are well positioned here?
 - Are there opportunities to leverage the increasing technology capabilities to improve efficiencies, transparency and traceability in your supply chain?

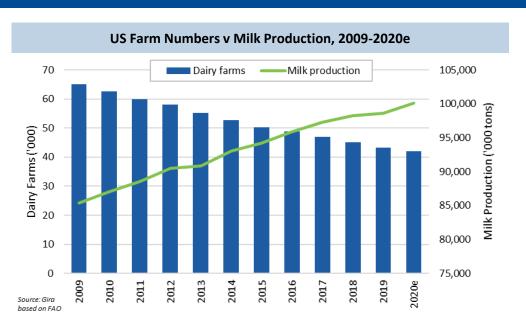
Hypothetical US Dairy & Alt-Dairy per Capita Consumption, 2017-30f

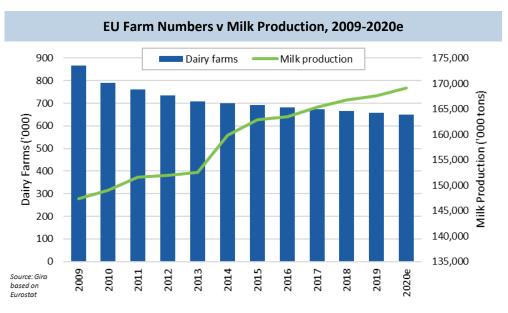


The dairy industry in the EU and US is becoming increasingly pressurised. It is distinctly possible that an inflexion point will be reached in these markets where dairy demand peaks and begins to trend down. This could well transpire in the coming decade.

- The threat of new entrants and challenger brands such as Fairlife® in its infancy has become more pronounced, highlighting two facets: the importance of marketing and the changing role of scale.
 - This has accelerated over the last few years, with new start-ups coming in, particularly for higher growth dairy alternatives products, often winning on marketing. Whilst this has been a negative for incumbent players, it should be used as an example for what can be done by dairy companies.
 - With the pervasion of technology, scale is no longer a prerequisite to reach consumers, removing a once-potent barrier to entry. Economies of scale in dairy manufacturing should continue to remain; blending this with entrepreneurial flair in creating demand (marketing) or filling demand (selling) and you could develop an unassailable position of strength. How and where can this be achieved?
- The threat of substitution is clearly increasing. Dairy alternatives, will become an increasing threat to the traditional dairy industry.
 - Joining the movement can be part of the solution, but adapting the core dairy business to withstand the pressure will also be imperative.
- Developing a strong and robust strategy to manage the future dairy environment will be important. What options really exist for dairy companies?







Whilst demand drivers will be central to dictating the evolution of dairy markets around the world, supply challenges in certain developed markets will likely play a role. There are a range of issues that will be addressed, but two are likely to have an overweight impact on the evolution of supply.

- The average age of farmers in certain European markets is high and profitability pressured; in conjunction with other factors, this is driving a reduction in farm numbers.
 - Average income levels on farms are often very low, discouraging younger family members from remaining in the business, and instead have gone elsewhere in search of jobs. These trends across the EU and US could well drive a long-term reduction in farm numbers.
 - The major question will be, can the loss of milk supply from these farms be compensated for by production gains in the larger, more modernised dairies? And can these larger units maintain overall supply capacity and profitability?
 - What will be the impact of organic farm growth on milk supply?
- The implementation of environmental legislation seems inevitable in the EU, US and NZ, and could well take place in other markets around the world, with increasing focus on reducing the environmental impact of the food supply chain. There are already several plans underway to lower GHG footprints, but is likely much more will have to be done.

The key question will be, how will farmers and supply chains adapt to changing social consumer and regulatory expectations? What must be done?

- What cost, if any, will this add to the dairy supply chain, and if so, could this be passed on to consumers?
- Particularly from an environmental standpoint, producers around the world are at very different starting points.
- Understanding the deviation of size and performance around the mean through the dairy supply chain, both financial and environmental, will be crucial.
 - This will enable Gira to make projections about the potential shifts in the farm and industry structure that could be made to both meet the growing dairy demand in emerging markets whilst simultaneously implementing more environmentally acceptable practices, and remaining profitable. How feasible will this be?



At a holistic level, there has been a continued and perhaps accelerated polarisation of the dairy industry across two key fronts:

- 1. By product, split between the consumer versus ingredient categories,
- 2. By geography, with increasing divergence between mature western surplus markets and emerging economy deficit markets.

With nuances, these trends are expected to become more accentuated. This should be driving an important strategic rethink for major dairy companies across these two axis.

By product, there are very different drivers for each category, and therefore almost a different business model required to succeed in each.

- The consumer market in Western markets is coming under increasing pressure.
 - The key market forces from competition to the threat of substitution generally look pressured.
 - However, several companies have clearly shown there are ways to combat this from NPD to brand development, R&D and importantly innovation.
 - What other areas of innovation and development should dairy companies pursue?
- The ingredient market is still in need of innovation and development, but whilst depending on the particular product, is generally under less pressure at present.
 - The focus here will for many products be on the cost of production. Scale will therefore be important, and this fits within the engrained mantra of the dairy industry.
 - What other areas of value addition can companies develop?
 - And which markets could be of greatest interest to dairy companies?
 - · Understanding where the demand will be, and how this will best be met is going to be vital; this will be a key focus of the study.

The polarisation between demand growth and demand pressured markets is expected to become more apparent and more accentuated in the coming decade.

- How can dairies position themselves to leverage this?
- Deficit regions is where the key growth opportunities are likely to be. There is limited investment in dairy production expected in most markets, and imports will remain fundamental.
 - The current export model is feasible, but leaves money on the table; what other options are available to dairies as competitors pay increasing attention to these regions?
 - · How should western dairy companies approach these markets?
- For major producers in the US and EU, will exposure to the export channel have to increase?
 - For this to take place, it will be imperative that greater value is attained at export. Shifting the balance of sales towards more export exposure will be dilutive to earnings unless comparable or greater margins can be attained in this channel.
 - Could supply shortages in emerging markets drive higher sustained prices that act to increase the profitability of the export channel for companies without a change in business model?
 - Greater challenges in domestic markets could put more pressure on the export channel or 3rd markets to drive returns. Is a change in strategy for most companies required?
- Trade should continue, and will be important to rebalance production. What are the major risk factors dairies should consider?

Dairies will remain hamstrung by the very nature of their business, with a given volume of milk arriving at the factory gate each day.

- Decades of investment building up large asset bases also drive further challenges. Turning a tanker will not be easy!
- With more and more commoditisation of dairy products, identifying pockets of value, in product, channel and geographic terms will be imperative for dairies.

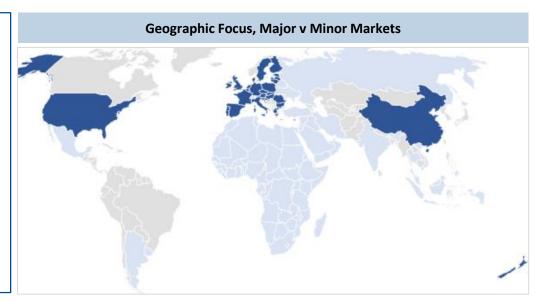


Given the over-weight impact a few key countries will have on the evolution of dairy markets, Gira will focus this research in four key markets:

- The EU (including UK),
- The US,
- New Zealand,
- China.

Further light research will be conducted into other markets in order to provide background and context for the key markets which will be the focus of this research.

- Major consumer market: India.
- Key import markets: SE Asia, Mexico, The Middle East, Africa.
- **Exporters**: Belarus, Ukraine, Russia, Argentina, Uruguay.



The main body of this research will focus on the evolution of demand and supply from a holistic standpoint.

- This discussion will take place purely in terms of dairy. A split between proteins and fats will be used when necessary.
 - This should enable us to map out the key dynamics that should play out in terms of supply and demand at a global level.
 - Unlike the Gira Dairy Club, this report will not be split into markets with specific product sections, although chapters on key countries and select products will be given.
- At the next level of detail, products will be split between consumer products and ingredients; these will largely discussed at this level of detail.
 - · Consumer products include drinking milk, yogurt and others that are clearly sold, either through retail or foodservice to consumers in that form.
 - Ingredients will include lower value products such as WMP and SMP, in addition to higher value technical ingredients such as WPI, and will be those products that are used as an ingredient in the manufacture or production of other finished products.
 - There will be some degree of overlap here, with cheese or butter for example fitting into both categories.
- In select major markets, some detail on the evolution of specific products will be given such as detail on drinking milk and cheese in the US.
 - These will be broken out as specific case studies to illustrate how and why we expected demand to evolve in a certain manner.

Sales channels detail will be provided.

- However, this will largely be qualitative.
- It will be of greater importance in emerging markets such as India where the discussion will centre on the prospective transition from informal to formal sales channels and the inherent opportunities this will create for dairy companies.

Methodology & Project Forecast Time Frame

Methodology

In 2009, we created the annual Gira Dairy Club (GDC), a global analysis covering 38 countries around the world for the main six dairy commodities (butter, cheese, SMP, WMP, whey powders and cream) in addition to a range of technical dairy ingredients such as Casein, Lactose, MPC/MPI as well as Fat Filled Milk Powders. A list of members for the club is detailed at the end of this proposal.

This provides Gira with a unique, extensive and detailed dairy database; this will be used throughout the study to provide background data and market information where required.

Gira will utilise a range of research methodologies during this project to supplement the information in Gira's dairy database. These will effectively break the problem into discrete components ensuring all aspects of the problem are analysed.

- Documentary research will be used to validate certain figures: national and customs statistics, published studies, trade press, corporate and other websites etc.
- Interviews will also be conducted with a wide range of operators through the value chain.
- On a confidential basis, Gira will also look to organise interviews and questionnaires with project clients to discuss their views on the development of key markets.
 - This will help Gira attain a range of views from the core dairy markets and the operators within them.

This study will naturally have to be flexible, and we will adapt the study depending on the findings of the research.

- We will be completely transparent with our projections, clearly laying out all assumptions underpinning these forecasts.
- Scenario analysis will play a fundamental role in providing different viewpoints depending on how markets and drivers will evolve.

Project Forecast Time Frame

Historical data will be provided from 2009-20, with 2020 serving as a base year for the projections.

Longer time frame data will be shown were relevant to illustrate particular points.

The forecast period will focus on 2030, with interim data for 2025 shown in places.

• Understanding the evolution of markets and industries in these two five-year increments will be important given the time certain changes will take to materialise.



Project Deliverables & Timing

This work will be delivered as a report. A webinar will also be given to clients on completion of the project.

• The report and presentation will be delivered in English in a searchable PDF format.

Assuming sufficient founder client support is received in **April/May 2021**, we propose a 4 month work period for this, and will aim to deliver the report by **end-September 2021**.

Project Fees

The fee for the project will be EUR 17,000 (before any relevant tax) for Gira Dairy Club members

- For non-members the fee will be EUR 22,000 (before any relevant tax).
- We will request payment from clients of 50% of the fee upfront, and the remainder on delivery of the final report and presentation with the same 30 day payment term.



Gira

Gira is an international strategy consulting and market research firm founded in 1970, operating throughout the food and drink value chain. We have a vast experience in animal protein going back 50 years, working across a range of levels from macroeconomic trade analyses through strategy to new market evaluations and market due diligence.

- Gira knows all the main operators in the supply chain and has worked for many these operators: dairy processors (coops but also public and private companies), logistics operators, traders, retailers, caterers, administrations as well as consumers.
- Gira's extensive network of international experts, contacts and clients in most meat sectors means that it is highly qualified to carry out this research.

The Gira Team

This assignment will be undertaken by a Gira advisory team with the mix of language & research skills, and animal protein industry knowledge & experience.

- Christophe Lafougere is CEO of Gira, and directly responsible for all Gira assignments in the worldwide dairy sector. He has been directing all Gira's consulting and research
 activities in the dairy sector for over 25 years covering all aspects of production, collecting, processing and marketing, in all the major dairy producing and consuming
 regions of the world.
- James Caffyn, Director of Strategy & Due Diligence for Gira. He is responsible for managing Gira's strategy and due diligence projects throughout the value chain in emerging and developed markets. Whilst working in a range of food and drink industries, he specialises in the animal protein sector, and has managed a range of projects for leading global companies, with a focus on growth, market entrance and investment strategy.
- Mylène Potier is a Senior Consultant within Gira responsible for all the work done on technical dairy ingredients. She has strong knowledge of the European dairy industry and the technical dairy ingredients sector and will be responsible for examining the competitor strategies in the EU, as well as identifying the key opportunities for technical ingredients.
- Rémi Valençot is a Senior Consultant within Gira and has been responsible for the US dairy industry reports for the last 10 years.
- Earl Rattray, a Gira Associate and principle of Dairy Link, a NZ based strategic dairy consultancy, with 35 years experience in the NZ dairy sector and Asian dairy trade. He will cover the Oceania and Asian aspects of the research.
- Yi Chen is the Senior Consultant responsible for all Gira's Chinese projects and she will oversee the research in the Chinese market.
- Other Gira Team Members will be used as needed. Gira's team of country and regional specialists are based in markets around the world. They will support Gira's central strategic and analytical team with up-to-date local insight.





Members of GDC 2020

Agropur EU Commission

ALIC Ferrero

Arla Foods FIT

Bel Fonterra

Bord Bia GEA

Chr Hansen Glanbia

Dantrade IFC

DMK Land O'Lakes

DSM Sodiaal

Emmi USDEC

Eurial Valio

Other D	airy C	lients
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Agropur DSM IFC (World Bank) Sealed Air

Agrial/Eurial DuPont Kerry Sodiaal

ALIC Emmi Lactalis Unilever

Alpma EU Commission Laïta USDEC

Arla Foods Eucolait Mondelez Valio

BordBia Fedegan Meggle Yili

Chr Hansen FIT Mueller

CNIEL Fonterra Nestlé

Coveris Friesland Campina DMK

Dairygold Glanbia Rupp

Dantrade (Danone) Huishan Dairy Savushkin

In addition to a number of retailers, caterers, banks and investment funds



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