

7 Dairy and dairy products

This chapter describes recent market developments and highlights the medium-term projections for world dairy markets for the period 2021-30. Price, production, consumption and trade developments for milk, fresh dairy products, butter, cheese, skim milk powder and whole milk powder are discussed. The chapter concludes with a discussion of important risks and uncertainties that might affect world dairy markets over the next ten marketing years.

1.1. Projection highlights

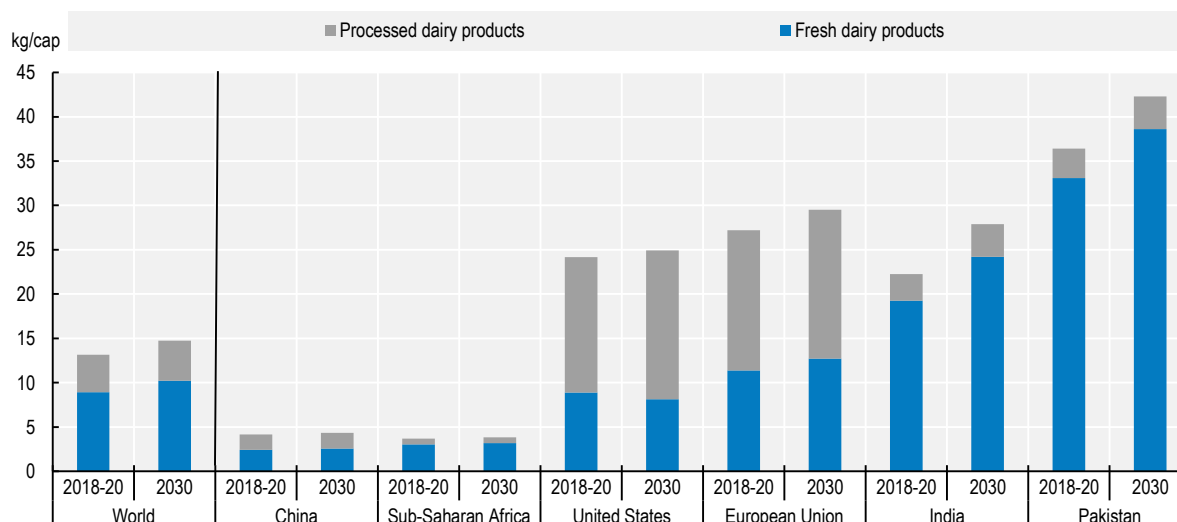
The dairy sector has proved notably resilient during the COVID-19 pandemic. The perishable nature of fresh liquid milk and fresh dairy products made them particularly vulnerable to supply chain disruptions; however, the dairy sector was not as significantly impacted as other sectors from a global perspective. The effects of the pandemic varied regionally, with negative effects ranging from shipping container shortages to disposing of surplus products. At the same time, other countries adjusted quickly and successfully to production and labour issues, and experienced minimal disruptions to their regular trade environment. Many countries adopted confinement measures that affected away-from-home consumption, which often includes a large share of dairy products; at-home consumption (retail sales) offset some of these losses. Overall, quick production and packaging adjustments resulted in no major shortages or surpluses globally.

The pandemic had the largest effect on butter prices compared to other dairy prices due to the loss in demand for milk fat from the hospitality sector. The world price of butter is projected to remain at post-pandemic levels, but will be considerably higher than the SMP (skim milk powder) price, as it has been since 2015 due to stronger demand for milk fat compared to other milk solids, and the European Union's SMP intervention (from first purchases in 2015 to final disposal in 2019). Although the gap between the price of butter and SMP is assumed to remain a defining feature over the coming decade, it is expected to narrow over the projection period. Demand for SMP, particularly in developing countries, will outpace demand for milk fat on the international market, narrowing the price gap between the two commodities.

World milk production (roughly 81% cow milk, 15% buffalo milk, and 4% for goat, sheep and camel milk combined) is projected to grow at 1.7% p.a. over the projection period (to 1 020 Mt by 2030, faster than most other main agricultural commodities). The projected growth in the number of milk-producing animals (1.1% p.a.) is higher than the projected average yield growth (0.7%) as herds are expected to grow faster in countries with lower yields, and with herds comprised of lower yielding animals (i.e. goats and sheep). It is expected that India and Pakistan, important milk producers, will contribute more than half of the growth in world milk production over the next ten years, and will account for more than 30% of world production in 2030. Production in the second largest global milk producer, the European Union, is expected to grow more slowly than the world average due to policies on sustainable production and slower domestic demand growth.

Most dairy production is consumed in the form of fresh dairy products¹, which are unprocessed or only slightly processed (i.e. pasteurised or fermented). The share of fresh dairy products in world consumption is expected to increase over the coming decade due to strong demand growth in India, Pakistan and Africa, driven by increases in income and population. In developed countries, per capita consumption is projected to grow modestly from 23.6 kg in 2018-20 to 25.2 kg (milk solids) in 2030, compared to an increase from 10.7 kg to 12.6 kg in developing countries. The consumption preferences of developed countries tend towards processed products, while in developing countries fresh dairy products comprise over 75% of average per capita dairy consumption in milk solids (Figure 7.1). Regional disparities are significant in developing nations, where the fresh dairy product share of per capita consumption can range from 99% in Ethiopia to 5.8% in the Philippines.

Consumption of processed dairy products ranges substantially by region. The second most important dairy product consumed in terms of milk solids (after fresh dairy products) is cheese. Consumption of cheese primarily occurs in Europe and North America, and is growing in both regions. In Asia, butter is the most consumed processed dairy product, accounting for almost half of all processed dairy consumption in terms of milk solids. Butter also has the strongest projected growth in consumption, although starting from a low base relative to Europe and North America. In Africa, cheese and WMP (whole milk powder) account for the majority of processed dairy consumption in milk solids. Over the coming ten years, however, SMP is expected to have the highest growth, although again from a lower consumption base.

Figure 7.1. Per capita consumption of processed and fresh dairy products in milk solids

Note: Milk solids are calculated by adding the amount of fat and non-fat solids for each product; Processed dairy products include butter, cheese, skim milk powder and whole milk powder.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook OECD Agriculture statistics (database)", <http://dx.doi.org/10.1787/agr-outl-data-en>.

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Milk is traded internationally mainly in the form of processed dairy products. The People's Republic of China (hereafter "China") is expected to remain the most important importer of milk products, despite a slight increase in domestic milk production relative to the past decade. Japan, South East Asia, the Russian Federation (hereafter "Russia"), Mexico, the Near East, and North Africa will continue to be other important net importers of dairy products. Compared with rest of the world, per capita consumption of dairy products is low in Asia, especially in South-East Asia. However, economic and population growth, and a shift towards higher-value foods and livestock products are expected to continue to drive the projected increase in import demand for dairy products in many Asian countries. International trade agreements (e.g. CPTPP, CETA, and the preferential trade agreement between Japan and the European Union) have specific arrangements for dairy products (e.g. tariff rate quotas) which create opportunities for further trade growth.

Dairy trade flows could be substantially altered by changes in the trade policy environment. For example, large amounts of cheese and other dairy products are traded between the European Union and the United Kingdom. Trade between the two regions could be affected by the new relationship, with transportation delays and changing regulations already increasing trade frictions. The United States-Mexico-Canada Agreement (USMCA) is expected to influence dairy trade flows in North America, with the United States gaining increased access to Canadian and Mexican dairy markets. Though they currently account for a relatively small share of trade, some South American countries like Argentina and Chile could have the potential to become competitors in the global dairy market for WMP and SMP respectively. To date, the big milk consuming countries, India and Pakistan, are largely self-sufficient and have not integrated into the international market. Greater engagement in trade by these two countries could have a significant effect on world markets.

Sustainable production policies or manifested consumer concerns would alter the projections for the dairy sector. In some countries, dairy production accounts for a substantial share of overall greenhouse gas (GHG) emissions, resulting in discussions on how adjustments to dairy production could contribute to reducing such emissions. Many technical adjustments are being considered, with different implications for commodity balances. In regions with high stocking densities, nitrogen and phosphate run-off can create

environmental problems if not managed properly. The planned or implemented regulations to address pollution could have a significant effect on dairy farming, notably in the Netherlands, Denmark, and Germany. On the other hand, these pressures could lead to innovative solutions improving long-term competitiveness.

Consumer interest in vegan diets and concerns about the environmental effects of dairy production are expected to continue to bolster the consumption of plant-based replacements for dairy in the liquid market. Plant-based offerings continue to diversify year after year, expanding beyond the traditional substitutes of soy, almond, and coconut-based beverages. New offerings are proving popular with consumers, and include oat, rice, and hemp-based drinks. A range of nut drinks (cashew, hazelnut, macadamia) has also become popular, although they have not proven to be more environmentally sustainable, specifically with respect to water usage. Strong growth is expected in East Asia, Europe and North America, albeit from low volumes. Offerings are likely to continue to expand as consumers in these regions look for lactose-free, vegan or sustainable alternatives to dairy products.

7.1. Recent market developments

The effect of the COVID-19 pandemic on the dairy sector was relatively modest, contrasting with initial concerns that the sector was particularly vulnerable. The pandemic had the largest effect on world butter prices compared to other dairy prices due to the loss of demand for milk fat from the hospitality sector. Butter prices fell the most sharply in 2020, compared to the WMP price which decreased by a smaller margin, and SMP and cheese prices which increased. World exports and imports had been steadily growing in previous years, but in 2020 growth remained flat. Transportation slowdowns, disruptions in the value chain, and decreased demand all contributed to the change in export and import growth. Overall, however, the sector adapted quickly and mitigated many of the initially drastic effects seen in the earlier months of the pandemic.

World milk production grew by 1.4% in 2020 to about 861 Mt. In India, the world's largest milk producer, production increased by 2.1% to 195 Mt. India, however, has little impact on the world dairy market as they trade only marginal quantities of milk and dairy products. Indian production was relatively unaffected by the pandemic, with any excess milk being processed into milk powder.

The three major dairy exporters are New Zealand, the European Union, and the United States. In 2020, milk production increased in the European Union and the United States respectively, while it decreased slightly in New Zealand due to a drought near the end of the season. As domestic consumption of dairy products in these three countries is stable, the availability of fresh dairy products and processed products for export was not significantly affected. In China, the world's largest importer of dairy products, milk production increased by 6.6%, and dairy imports remained strong in 2020.

7.2. Prices

International dairy prices refer to the prices of processed products of the main exporters in Oceania and Europe. It does not include unprocessed milk as this is not generally traded. The two main reference prices for dairy are butter and SMP, where butter is the reference for milk fat and SMP for other milk solids. Milk fat and other milk solids together account for about 13% of the weight of milk, with the remainder being water.

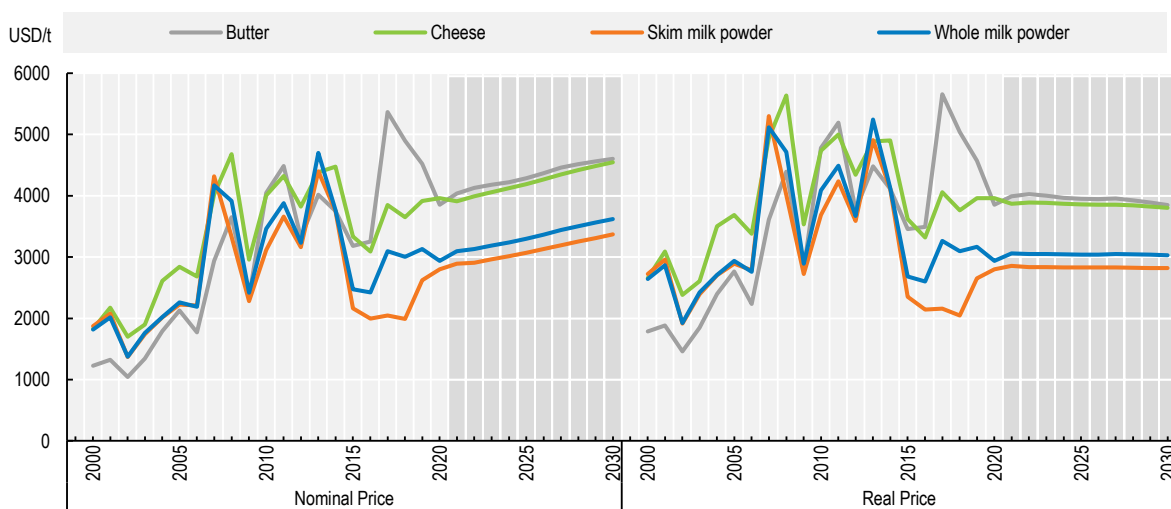
The strong volatility of international dairy prices stems from its small trade share (approximately 7% of world milk production), the dominance of a few exporters and importers, and a restrictive trade policy environment. Most domestic markets are only loosely connected to those prices as fresh dairy products

dominate consumption, and only a small share of milk is processed as compared to that which is fermented or pasteurised.

Since 2015, the price of butter has increased considerably more than SMP. Increased demand for milk fat, coupled with the European Union's SMP intervention (from first purchases in 2015 to final disposal in 2019), resulted in a price gap emerging between the two products. While the butter price will continue to be supported by stronger demand for milk fat compared to other milk solids on the international market, world demand for SMP will outpace demand for milk fat, narrowing the price gap between the two commodities over the projection period (Figure 7.2).

Following the complete disposal of intervention stocks in the European Union, SMP prices recovered in 2019 and were not significantly affected by the pandemic in 2020. SMP prices will remain stable in real terms throughout the projection period. Annual butter prices peaked historically in 2017 due to changing dietary preferences which resulted in increased demand, but have been declining since. Butter prices are expected to continue to decline moderately in real terms after recovering slightly from a sharp decline in 2020. World prices for WMP and cheese are expected to be affected by butter and SMP price developments, in line with the respective content of fat and non-fat solids.

Figure 7.2. Dairy product prices, 2000-2030



Note: Butter, FOB export price, 82% butterfat, Oceania; Skim Milk Powder, FOB export price, non-fat dry milk, 1.25% butterfat, Oceania; Whole Milk Powder, FOB export price, 26% butterfat, Oceania; Cheese, FOB export price, cheddar cheese, 39% moisture, Oceania. Real prices are nominal world prices deflated by the US GDP deflator (2020=1).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook OECD Agriculture statistics (database)", <http://dx.doi.org/10.1787/agr-outl-data-en>.

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7.3. Production

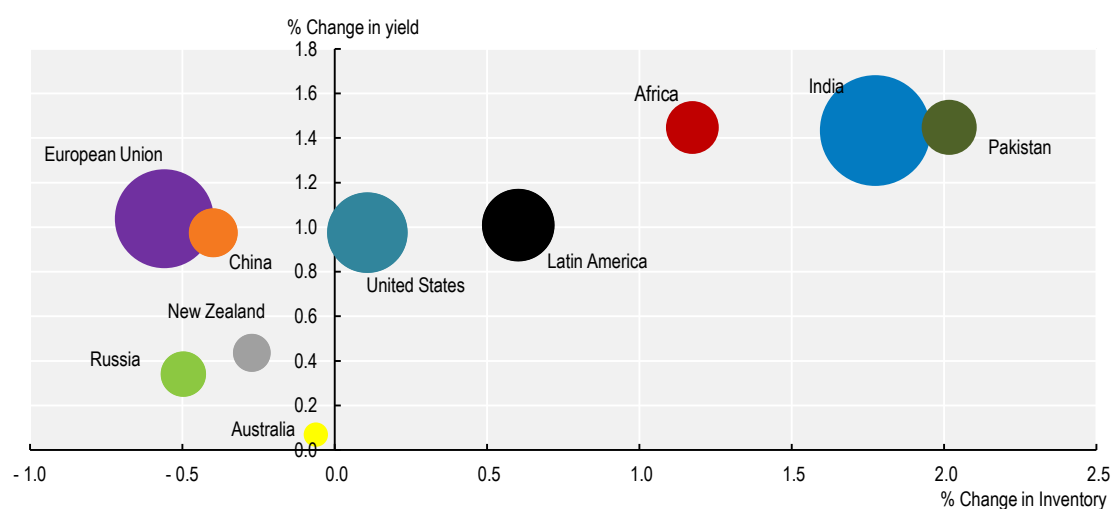
World milk production is projected to grow at 1.7% p.a. (to 1020 Mt by 2030) over the next decade, faster than most other main agricultural commodities. While the world average growth of herds (1.1% p.a.) is greater than the world average yield growth (0.7% p.a.), the changing averages are the result of herds growing faster in countries that have relatively low yields and that have herds composed of lower yielding animals. In almost all regions of the world, yield growth is expected to contribute more to production

increases than herd growth (Figure 7.3). The drivers of yield growth include the optimisation of milk production systems, improved animal health, improved efficiencies in feeding, and better genetics.

India and Pakistan are expected to contribute to more than half of the growth in world milk production over the next ten years. They are also expected to account for more than 30% of world production in 2030. Production will occur mostly in small herds of a few cows or buffaloes. It is expected that yields will continue to grow fast and will contribute more to production growth. Nevertheless, the growing herd sizes and limited growth in pasture area require an intensification of pasture use. In both countries, the vast majority of production will be consumed domestically as few fresh products and processed dairy products are traded internationally.

Production in the European Union is projected to grow more slowly than the world average. Dairy herds are projected to decline (-0.5% p.a.), but milk yields are projected to grow at 1.0% p.a. over the next decade. The European Union production originates from a mix of grass- and feed-based production systems. In addition, a growing share of milk produced is expected to be organic or in other non-conventional production systems. At present, more than 10% of dairy cows are within, but not limited to, organic systems located in Austria, Sweden, Latvia, Greece, and Denmark. Countries like Germany and France have also seen an increase in organic dairy production. These organic farms have about a quarter lower yields than conventional production and high production costs, but they constitute more than 3% of European Union milk production, suggesting a considerable price premium on European milk. In general, domestic demand (cheese, butter, cream, and other products) is expected to grow only slightly, with most additional production destined for export.

Figure 7.3. Annual changes in inventories of dairy herd and yields between 2020 and 2030

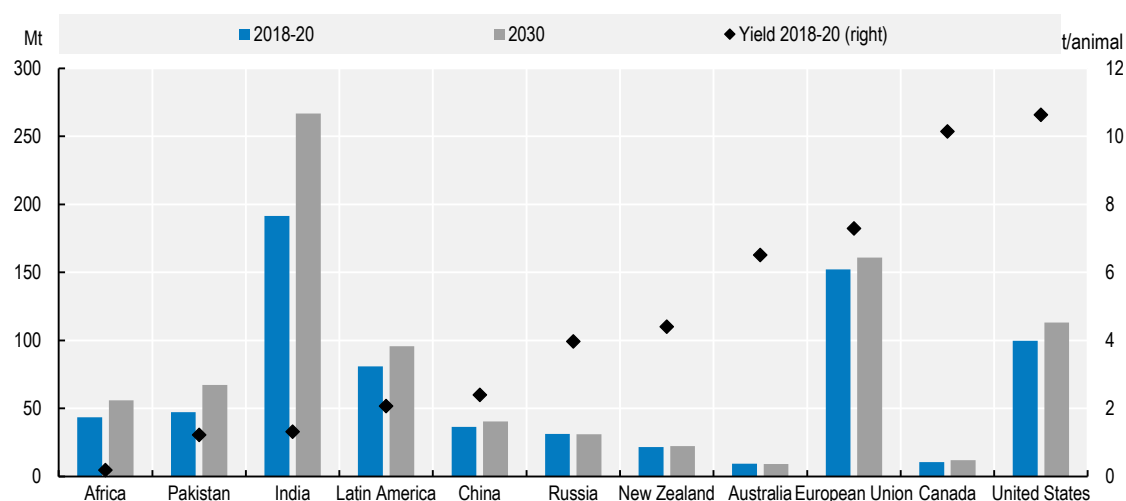


Note: The size of the bubbles refer to the total milk production in the base period 2018-20.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook OECD Agriculture statistics (database)", <http://dx.doi.org/10.1787/agr-outl-data-en>.

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North America has some of the highest average yields per cow, as the share of grass-based production is low and feeding is focused on high yields from specialised dairy herds (Figure 7.4). Dairy cowherds in the United States and Canada are expected to remain largely unchanged and production growth is expected to originate from further yield increases. As domestic demand is projected to remain stronger for milk fats, the United States will mostly export SMP, while Canadian exports of SMP are capped under the USMCA. The United States will also export a sizable amount of cheese, whey, and lactose.

Figure 7.4. Milk production and yield in selected countries and regions

Note: The yield is calculated per milking animal (mainly cows but also buffaloes, camels, sheep and goats)

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook OECD Agriculture statistics (database)", <http://dx.doi.org/10.1787/agr-outl-data-en>.

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New Zealand is the most export-orientated producer, but growth in milk production has been very modest in recent years. Milk production is mainly grass-based and yields are considerably lower than in North America and Europe. The efficiency of grass management, however, allows New Zealand to be competitive. The main constraining factors for growth are land availability and increasing environmental restrictions. A change to a more feed-based production is not expected.

Strong production growth is expected in Africa, mostly due to larger herds. These will usually have low yields, and a considerable share of milk production will come from goats and sheep. Most cows, goats and sheep graze and are used for other purposes such as meat production, traction, and savings. Additional grazing is expected to occur on the same pasture area, leading to a more intensive use which may lead to local over-grazing. Over the projection period, about a third of the world-wide herd population is projected to be located in Africa and to account for a little over 5% of world milk production.

It is projected that less than 40% of milk will be further processed into products such as butter, cheese, SMP, WMP, or whey powder. There is considerable direct food demand for butter and cheese, especially the latter, and they presently account for a large share of consumption of milk solids in Europe and North America. SMP and WMP are highly traded and largely produced for trade only. Both are used in the food processing sector, notably in confectionary, infant formula, and bakery products.

Butter production is projected to grow at a similar rate relative to overall milk production, at 1.9% p.a., reflecting strong demand for butter in developed countries and China. All other dairy products are projected to grow at slower rates, with SMP and cheese at 1.2% p.a., WMP at 1.4% p.a. The slower growth rate of WMP reflects the decreased growth in demand in China, Thailand, and the Philippines. The slower growth rate for cheese is due to the importance of slow-growing food markets in Europe and North America.

7.4. Consumption

Most dairy production is consumed in the form of fresh dairy products, including pasteurised and fermented products. The share of fresh dairy products in world global consumption is expected to increase over the

coming decade due to stronger demand growth in India and Pakistan, which in turn is driven by income and population growth. World per capita consumption of fresh dairy products is projected to increase by 1.2% p.a. over the coming decade, slightly faster than over the past ten years, and driven by higher per-capita income growth.

The level of milk consumption in terms of milk solids per capita will vary largely worldwide (Figure 7.1). Country income per capita and the impact of regional preferences will be important factors driving this consumption variation. For example, the per capita intake is expected to be high in India and Pakistan, but low in China. The share of processed dairy products (especially cheese) in the overall consumption of milk solids is expected to be closely related to income development, with variations due to local preferences, dietary constraints, and level of urbanisation.

In Europe and North America, overall per capita demand for fresh dairy products is stable to declining, but the composition of demand has been shifting over the last several years towards dairy fat, e.g. full-fat drinking milk and cream. Consumers may be influenced by recent studies that have shed a more positive light on the health benefits of dairy fat consumption, contrary to the messaging of the 1990s and 2000s. In addition, this shift may reflect increasing consumer preference for foods that are less processed or healthier, and potentially increased interest in at-home baking.

The largest percentage of total cheese consumption occurs in Europe and North America, where per capita consumption is expected to continue to increase. Consumption of cheese will also increase where it was not traditionally part of the national diet. In South East Asian countries, urbanisation and income increases have resulted in more away-from-home eating, including fast food such as burgers and pizzas. It is worth noting that the pandemic has not only increased usage of e-groceries and take-away foods in these regions, but also consumer focus on foods they consider to be healthier or more wholesome. The aforementioned changes in consumer consumption behaviour have benefitted the dairy sector.

While some regions are self-sufficient, e.g. India and Pakistan, total dairy consumption in Africa, South East Asian countries, and the Near East and North Africa is expected to grow faster than production, leading to an increase in dairy imports. As liquid milk is more expensive to trade, this additional demand growth is expected to be met with milk powders, where water is added for final consumption or further processing.

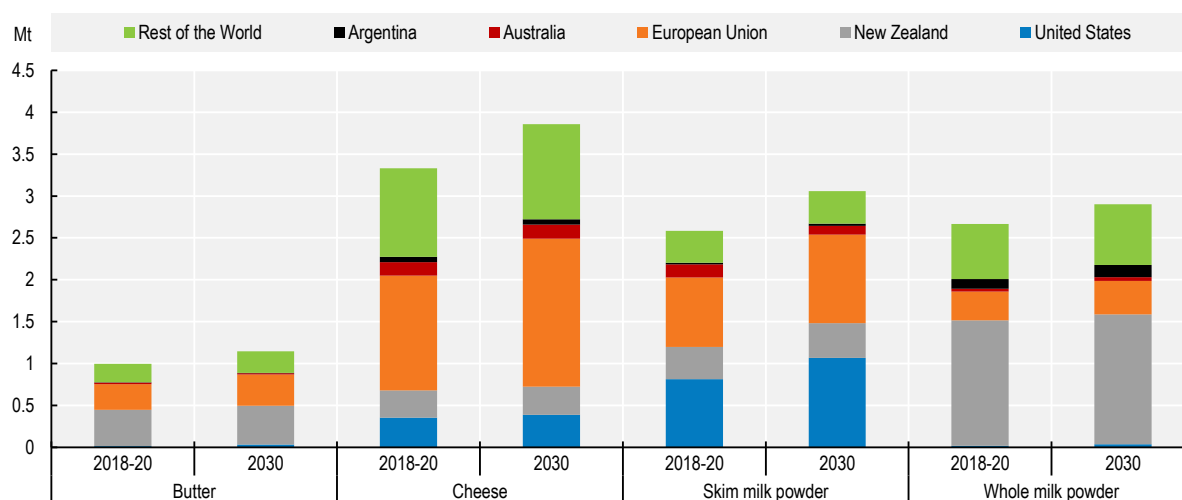
The dominant use of SMP and WMP will continue to be in the manufacturing sector, notably in confectionary, infant formula, and bakery products. A small share of dairy products, especially SMP and whey powder, are used in animal feed. China imports both products for feeding, but the African Swine Fever (ASF) outbreak reduced its demand. With the expected recovery (see Chapter 6 on meat), the feed demand for SMP and whey powder is expected to grow over the coming decade.

7.5. Trade

Approximately 7% of world milk production is traded internationally. This is primarily due to the perishability of milk and its high water content (more than 85%). The notable exceptions are the small amounts of fermented milk products traded between neighbouring dairy producing nations (i.e. Canada and the United States, the European Union and Switzerland) and imports of liquid milk by China. Chinese imports of liquid milk are primarily supplied by the European Union and New Zealand, and have increased considerably in recent years. Trade of liquid milk is made possible primarily by the ability of Ultra-High Temperature milk and cream products to be shipped long distances, but also favourable Chinese freight rates in some cases. China's net imports of fresh dairy products over the base period were about 0.9 Mt, and this is projected to increase over the projection period by 1.5% p.a. The trade share of WMP and SMP is high at over 50% of world production, since these products are often produced only as a means to store and trade milk over a longer period or distance.

The three major exporters of dairy products in the base period are the European Union, New Zealand, and the United States. These three countries are projected to jointly account for around 62% of cheese, 70% of WMP, 76% of butter, and 83% of SMP exports in 2030 (Figure 7.5). Australia, another exporter, has lost market shares although it remains a notable exporter of cheese and SMP. In the case of WMP, Argentina is also an important exporter and is projected to account for 5% of world exports by 2030. In recent years, Belarus has become an important exporter, orienting its exports primarily to the Russian market due to the Russian embargo on several major dairy exporters.

Figure 7.5. Exports of dairy products by region



Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook OECD Agriculture statistics (database)", <http://dx.doi.org/10.1787/agr-outl-data-en>.

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The European Union will continue to be the main world cheese exporter, followed by the United States and New Zealand. It is projected that the European Union's share in world cheese exports will be around 46% by 2030, sustained by increased cheese exports to Canada via the CETA agreement and to Japan following the ratification of the bilateral trade agreement in 2019. The United Kingdom, Russia, Japan, the European Union, and Saudi Arabia are projected to be the top five cheese importers in 2030. These countries are often also exporters of cheese and international trade is expected to increase the choice of cheeses for consumers.

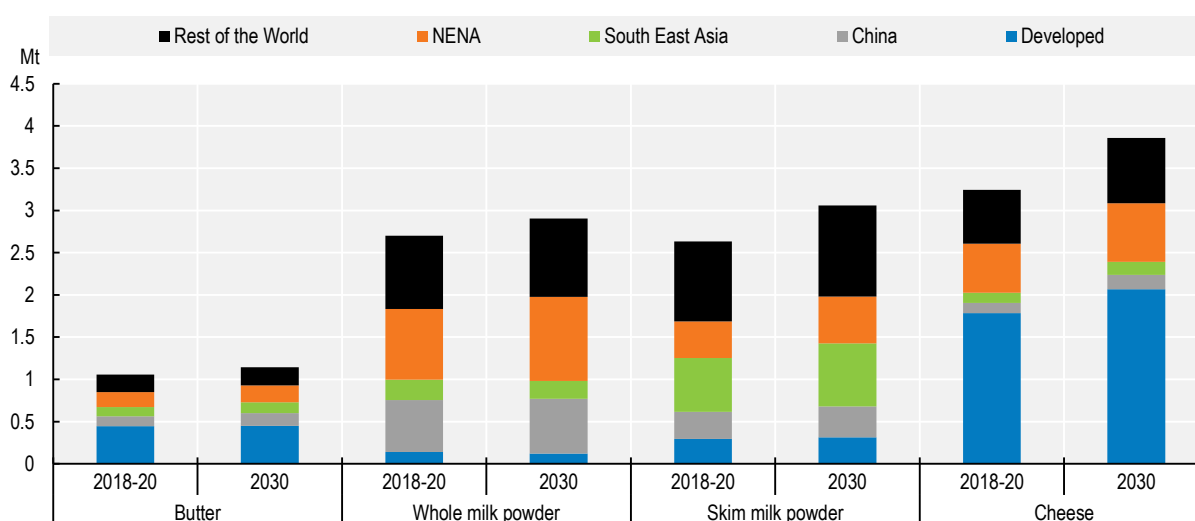
New Zealand remains the primary source for butter and WMP on the international market, and its market shares are projected to be around 40% and 53%, respectively, by 2030. China is the principle importer of WMP from New Zealand, but trade between the two countries is projected to be considerably less dynamic over the projection period. The expected growth in domestic milk production in China will limit the growth in WMP imports. It is expected that New Zealand will diversify and slightly increase its production of cheese over the outlook period.

Imports are spread more widely across countries, with the dominant destinations for all dairy products being the Near East and North Africa (NENA), developed countries, South East Asia, and China (Figure 7.6). China is expected to continue to be the world's major dairy importer, particularly for WMP. Per capita consumption of dairy products in China is relatively low, but there has been significant increases in demand over the past decade, with growth in demand projected to continue. Most of its dairy imports come from Oceania, although in recent years the European Union has increased its exports of butter and SMP to China. Imports by the Near East and North Africa are expected to originate primarily from the

European Union, while United States and Oceania are expected to be the main suppliers of milk powders to South East Asia. Developed countries import a high level of cheese and butter, around 55% and 42% respectively of world imports in 2018-20. These percentages are expected to decline slightly by 2030.


While the effects of the pandemic will subside, it will have a lasting effect on GDP in many non-OECD nations, with per capita income growth being lower than pre-pandemic projected growth. It is likely that the income shock will disproportionately affect poorer households and lower their consumption, especially in Central Asia, Indonesia, and the least developed African countries. Since dairy product demand, specifically processed dairy products like butter and cheese, is closely tied to rising incomes, it is projected there will be less import demand for butter from these nations.

Figure 7.6. Imports of dairy products by region



Note: NENA stands for Near East and North Africa, and is defined as in Chapter 2. South East Asia contains Indonesia, Malaysia, Philippines, Thailand and Viet Nam.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook OECD Agriculture statistics (database)", <http://dx.doi.org/10.1787/agr-outl-data-en>.

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7.6. Main issues and uncertainties

The COVID-19 pandemic has affected daily life worldwide. While the dairy sector was relatively stable in the wake of the pandemic, there may be structural changes that will have long-term effects. Vaccination rates, which are tied to the reduction of restrictions and economic recovery, vary substantially across regions. This will have an effect on dairy products like cheese, which are often consumed away from home (e.g. in burgers and pizzas). At the same time, there may be a shift to more at-home cooking and baking, and an increased focus on foods that consumers view as wholesome or healthy. The pandemic has also lowered the projected overall GDP level in many countries. This has implications for the dairy sector, as increased dairy consumption is tied to per capita income growth in many regions. The effects of a staggered global recovery are also unclear, as there may be longer lasting implications for supply chains that span diverse regions.

Changes to or the creation of trade agreements would affect dairy demand and trade flows. USMCA is expected to influence dairy trade flows in North America, with members gaining increased access to domestic dairy markets. The new trade relationship between the United Kingdom and the European Union is also in its infant stages. Historically, large amounts of cheese and other dairy products have been traded

between the two regions, but there have been increased trade frictions as importers and exporters navigate the new and changing trade environment. Russia embargo on several dairy products from major exporting countries was partially lifted in 2020 to shore up domestic dairy supplies during the pandemic. The embargo was temporarily lifted specifically for whey powder used in infant formula and specialized dairy products.

Dairy trade flows could be substantially altered by changes in the trade environment. To date, India and Pakistan, the big dairy consuming countries, have not integrated the international dairy market as domestic production is projected to expand fast to respond to growing internal demand. Future investment in cold chain infrastructure in these regions will increase their self-sufficiency in this sector. Countries such as Poland, Ukraine and notably Belarus could also emerge as players on the global market, as they have favourable agricultural inputs (flat land, ideal climate, competitive labour and feed costs) and are close to traditional dairy markets.

Changes in domestic policies remain an uncertainty. Under USMCA, Canada has capped SMP exports, allowed increased market access, and eliminated their Class 7 designation, which was initially introduced to comply with the World Trade Organization Nairobi Decision on the removal of export subsidies. In the European Union, under certain circumstances, intervention buying of SMP and butter at fixed prices remains possible and this has had a considerable market impact in recent years.

The role of plant-based replacements for dairy (e.g. soya, almond, rice and oat drinks) in the fluid milk sector has increased in many regions, e.g. North America, Europe and East Asia. Available replacements have continued to expand past the more traditional options, branching into various nuts, legumes and other crops. Causes include lactose intolerance, health concerns, and consumer concerns regarding the environmental impact of dairy production. The growth rates of plant-based replacements for dairy products are strong, albeit from a low base, although conflicting views exist regarding their environmental impact and relative health benefits. Popular substitutes such as almond and soya beverage have been questioned on the environmental sustainability front as more consumers consider other environmental issues in addition to GHG emissions, such as water usage and deforestation. Flexitarian, vegetarian, and vegan diets are on the rise, but given the range of preferences of these consumers, the effect on dairy consumption is not clear. Similarly, lactose intolerance is a concern for some consumers, but a range of lactose-free dairy products are becoming widely available for those who do not prefer plant-based replacements. Overall, there is uncertainty on the long-term impact of plant-based replacements on dairy demand.

Environmental legislation could have a strong impact on the future development of dairy production. GHG emissions from dairy activities make up a high share of total emissions in some countries (e.g. New Zealand, Ireland) and any changes in related policies could affect dairy production. The increasing trend towards sustainable practices such as water access and manure management are additional areas where policy changes could have an impact. Nevertheless, stricter environmental legislation could lead to innovative solutions that improve the long-term competitiveness of the sector.

World milk production could be constrained due to unforeseen weather events, especially as this concerns grazing-based milk production, the dominant production method worldwide. Climate change increases the chances of drought, floods, and disease threats, all of which can affect the dairy sector in several ways (e.g. price volatility, milk yields, cow inventory adjustments).

Animal diseases and their spread could impact milk production. Mastitis is the most common infectious disease in dairy cattle worldwide and across all types of farm sizes. It is also the most damaging from an economic point of view, with a significant impact on milk yield and milk quality. Future developments in awareness, identification, and treatment of this disease could lead to significant increases in milk production through smaller losses. In order to control many diseases, including mastitis, treatments based on antimicrobials are commonly used. This has raised concerns on the overuse of antimicrobials and the development of antimicrobial resistance, which would reduce the effectiveness of existing treatments and

require the development of new ones. The evolution of this process remains an uncertainty for the next decade.

Note

¹ Fresh dairy products contain all dairy products and milk which are not included in processed products (butter, cheese skim milk powder, whole milk powder, whey powder and, for few cases casein). The quantities are in cow milk equivalent.

Table C.5. World dairy projections: Milk, butter and cheese

Calendar year

		Average 2018-20est	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MILK												
World												
Production	kt pw	851 046	872 229	888 144	906 627	924 959	940 352	955 734	971 611	987 915	1 003 691	1 019 691
Inventory	000 hd	714 635	727 482	731 877	746 869	758 219	765 167	771 951	779 489	786 738	793 767	800 198
Yield	t/head	1.19	1.20	1.21	1.21	1.22	1.23	1.24	1.25	1.26	1.26	1.27
Developed countries												
Production	kt pw	403 931	409 765	411 596	414 396	418 194	420 854	423 675	426 532	429 902	432 737	435 996
Inventory	000 hd	75 573	75 507	75 487	75 539	75 556	75 488	75 435	75 409	75 377	75 338	75 285
Yield	t/head	5.35	5.43	5.45	5.49	5.53	5.58	5.62	5.66	5.70	5.74	5.79
Developing countries												
Production	kt pw	447 115	462 464	476 548	492 231	506 765	519 498	532 059	545 080	558 013	570 955	583 695
Inventory	000 hd	639 062	651 975	656 390	671 330	682 663	689 679	696 516	704 080	711 361	718 429	724 913
Yield	t/head	0.70	0.71	0.73	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.81
OECD¹												
Production	kt pw	366 940	372 781	375 007	378 212	381 809	384 271	386 935	389 668	392 924	395 640	398 795
Inventory	000 hd	82 130	83 033	83 255	83 633	83 889	84 020	84 218	84 523	84 829	85 090	85 333
Yield	t/head	4.47	4.49	4.50	4.52	4.55	4.57	4.59	4.61	4.63	4.65	4.67
FRESH DAIRY PRODUCTS												
World												
Consumption	kt pw	428 250	436 411	448 322	461 316	472 635	482 439	492 206	502 107	511 704	521 501	530 926
Developed countries												
Consumption	kt pw	133 311	132 897	133 826	134 918	135 869	136 656	137 323	138 172	138 960	139 804	140 557
Developing countries												
Consumption	kt pw	294 939	303 513	314 496	326 397	336 766	345 783	354 883	363 935	372 745	381 697	390 368
OECD¹												
Consumption	kt pw	105 550	104 931	105 597	106 400	107 161	107 804	108 357	109 119	109 850	110 639	111 352
BUTTER												
World												
Production	kt pw	11 611	12 052	12 317	12 587	12 850	13 090	13 333	13 570	13 813	14 049	14 290
Consumption	kt pw	11 632	12 053	12 314	12 581	12 844	13 086	13 330	13 566	13 808	14 043	14 283
Stock changes	kt pw	-8	-1	3	6	6	4	3	4	5	6	6
Price ²	USD/t	4 424	4 037	4 130	4 180	4 222	4 287	4 366	4 462	4 517	4 564	4 600
Developed countries												
Production	kt pw	4 829	4 903	4 936	4 967	5 003	5 042	5 078	5 109	5 137	5 165	5 194
Consumption	kt pw	4 339	4 391	4 413	4 435	4 459	4 484	4 507	4 526	4 544	4 561	4 579
Developing countries												
Production	kt pw	6 782	7 149	7 381	7 620	7 847	8 048	8 255	8 461	8 676	8 884	9 096
Consumption	kt pw	7 292	7 662	7 901	8 147	8 385	8 602	8 823	9 040	9 264	9 481	9 704
OECD¹												
Production	kt pw	4 721	4 802	4 842	4 882	4 919	4 958	4 992	5 023	5 050	5 077	5 104
Consumption	kt pw	4 236	4 285	4 309	4 337	4 361	4 388	4 412	4 433	4 453	4 472	4 492
Stock changes	kt pw	-4	-1	3	6	6	4	3	4	5	6	6
CHEESE												
World												
Production	kt pw	24 067	24 667	25 047	25 384	25 676	25 954	26 254	26 568	26 924	27 264	27 613
Consumption	kt pw	24 044	24 658	25 022	25 342	25 632	25 921	26 238	26 552	26 898	27 241	27 613
Stock changes	kt pw	5	9	25	42	44	33	16	16	25	22	0
Price ³	USD/t	3 842	3 910	3 990	4 057	4 122	4 190	4 267	4 349	4 419	4 485	4 545
Developed countries												
Production	kt pw	19 866	20 371	20 637	20 867	21 081	21 280	21 496	21 727	21 996	22 255	22 522
Consumption	kt pw	18 881	19 327	19 547	19 738	19 921	20 098	20 306	20 511	20 748	20 982	21 245
Developing countries												
Production	kt pw	4 202	4 296	4 410	4 517	4 595	4 674	4 758	4 841	4 927	5 009	5 091
Consumption	kt pw	5 163	5 331	5 475	5 604	5 711	5 823	5 932	6 041	6 151	6 259	6 368
OECD¹												
Production	kt pw	19 310	19 764	20 004	20 214	20 419	20 606	20 815	21 039	21 300	21 548	21 805
Consumption	kt pw	18 501	18 904	19 097	19 262	19 434	19 600	19 798	19 996	20 224	20 450	20 703
Stock changes	kt pw	5	9	25	42	44	33	16	16	25	22	0

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand in aggregates. Average 2018-20est: Data for 2020 are estimated. Prices are in nominal terms.

1. Excludes Iceland and Costa Rica but includes all EU member countries.

2. FOB export price, butter, 82% butterfat, Oceania.

3. FOB export price, cheddar cheese, 39% moisture, Oceania.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.6. World dairy projections: Powders and casein

Calendar year

		Average 2018-20est	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
SKIM MILK POWDER												
World												
Production	kt pw	4 434	4 620	4 698	4 766	4 832	4 901	4 969	5 036	5 101	5 163	5 228
Consumption	kt pw	4 545	4 618	4 698	4 766	4 832	4 901	4 969	5 036	5 101	5 163	5 228
Stock changes	kt pw	-128	3	0	0	0	0	0	0	0	0	0
Price ¹	USD/t	2 470	2 890	2 909	2 964	3 016	3 072	3 130	3 192	3 252	3 311	3 371
Developed countries												
Production	kt pw	3 820	3 968	4 026	4 079	4 129	4 181	4 234	4 286	4 337	4 387	4 439
Consumption	kt pw	1 787	1 774	1 783	1 791	1 792	1 793	1 795	1 797	1 798	1 798	1 803
Developing countries												
Production	kt pw	614	652	672	687	703	719	735	749	763	777	790
Consumption	kt pw	2 758	2 844	2 916	2 975	3 040	3 107	3 174	3 238	3 302	3 365	3 426
OECD²												
Production	kt pw	3 549	3 699	3 756	3 808	3 858	3 909	3 960	4 011	4 060	4 108	4 159
Consumption	kt pw	1 874	1 922	1 934	1 946	1 951	1 957	1 963	1 969	1 975	1 979	1 988
Stock changes	kt pw	-128	3	0	0	0	0	0	0	0	0	0
WHOLE MILK POWDER												
World												
Production	kt pw	5 059	5 379	5 363	5 373	5 458	5 543	5 622	5 704	5 785	5 865	5 945
Consumption	kt pw	5 102	5 381	5 360	5 373	5 460	5 545	5 624	5 704	5 785	5 865	5 945
Stock changes	kt pw	11	-2	3	1	-2	-2	-2	0	0	0	0
Price ³	USD/t	3 025	3 093	3 130	3 188	3 240	3 299	3 366	3 442	3 503	3 564	3 622
Developed countries												
Production	kt pw	2 510	2 597	2 635	2 649	2 670	2 692	2 705	2 720	2 736	2 753	2 769
Consumption	kt pw	713	743	740	745	752	753	754	755	756	759	761
Developing countries												
Production	kt pw	2 549	2 782	2 728	2 724	2 789	2 851	2 917	2 984	3 048	3 112	3 176
Consumption	kt pw	4 389	4 638	4 620	4 627	4 709	4 792	4 870	4 949	5 028	5 106	5 184
OECD²												
Production	kt pw	2 692	2 784	2 826	2 846	2 870	2 895	2 911	2 929	2 948	2 967	2 986
Consumption	kt pw	952	1 003	1 003	1 013	1 023	1 027	1 031	1 036	1 041	1 047	1 052
Stock changes	kt pw	11	-2	3	1	-2	-2	-2	0	0	0	0
WHEY POWDER												
Price ⁴	USD/t	909	916	926	929	940	958	983	1 007	1 027	1 046	1 066
CASEIN												
Price ⁵	USD/t	6 529	7 659	7 694	7 834	7 973	8 111	8 256	8 402	8 549	8 697	8 846

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand in aggregates. Average 2018-20est: Data for 2020 are estimated. Prices are in nominal terms.

1. FOB export price, non-fat dry milk, 1.25% butterfat, Oceania.
2. Excludes Iceland and Costa Rica but includes all EU member countries.
3. FOB export price, WMP 26% butterfat, Oceania.
4. FOB export price, sweet whey non-hygroscopic, Western Europe.
5. Export price, New Zealand.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.31.1. Butter projections: Production and trade

Calendar year

	PRODUCTION (kt)		Growth (%) ⁴		IMPORTS (kt)		Growth (%) ⁴		EXPORTS (kt)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	11 611	14 290	2.34	1.90	1 057	1 145	1.82	1.09	1 033	1 145	0.52	1.09
NORTH AMERICA	1 035	1 168	1.55	0.96	56	56	23.35	-0.66	21	34	-14.27	8.65
Canada	116	135	3.57	1.13	18	21	14.90	2.73	0	0	-17.41	..
United States	920	1 033	1.32	0.94	38	35	30.45	-2.25	20	34	-14.19	8.65
LATIN AMERICA	435	508	1.38	1.38	59	76	4.58	2.37	36	45	-5.19	2.69
Argentina	29	34	-8.19	1.01	0	0	..	..	8	6	-9.43	2.08
Brazil	104	109	3.66	0.46	3	8	10.32	8.88	0	1	-16.30	-1.17
Chile	23	32	1.06	3.11	6	2	21.06	-6.04	2	4	-7.01	6.22
Colombia	17	17	-2.27	0.04	0	0	..	..	0	0	..	..
Mexico	200	237	3.37	1.36	27	38	5.95	2.52	9	12	19.09	1.68
Paraguay	1	1	0.38	..	0	0	..	..	0	1	..	..
Peru	4	4	2.50	1.85	8	17	5.35	5.63	0	0	..	..
EUROPE	3 086	3 256	2.33	0.45	291	303	0.51	0.97	431	536	3.34	1.51
European Union ¹	2 327	2 477	2.22	0.39	52	55	-3.95	0.26	277	375	3.58	1.69
United Kingdom	176	153	3.58	0.23	108	99	0.52	0.96	45	41	0.98	-0.96
Russia	292	306	4.21	0.50	114	121	3.14	1.41	3	3	-1.65	0.00
Ukraine	93	82	0.95	-0.65	6	20	-10.30	3.75	20	8	36.50	-3.61
AFRICA	285	353	-1.37	2.37	95	112	-6.52	1.55	6	7	-5.66	-0.61
Egypt	98	115	-2.92	2.16	33	40	-10.86	1.40	2	3	-8.33	-0.41
Ethiopia	14	16	-3.67	2.43	0	1	..	..	0	0	..	..
Nigeria	12	17	-0.89	3.84	13	18	4.49	2.96	0	0	..	..
South Africa	22	27	2.58	2.18	6	7	7.13	1.58	3	2	10.25	-1.55
ASIA	6 213	8 445	3.05	2.79	516	555	3.03	1.17	68	48	5.74	-1.90
China ²	109	114	0.58	0.53	115	148	13.65	2.64	2	2	-0.78	1.00
India	4 555	6 335	3.42	2.88	0	3	-12.40	20.37	30	0	16.41	-40.39
Indonesia	0	0	..	..	23	26	4.59	2.61	1	1	8.39	-2.54
Iran	144	120	-2.29	-1.28	24	35	-12.88	10.14	1	0	13.64	..
Japan	66	63	0.34	-0.56	20	18	7.16	0.00	0	0	..	..
Kazakhstan	21	32	5.95	4.06	6	10	-1.45	3.50	2	1	67.01	-3.26
Korea	3	3	2.43	0.31	13	19	8.96	3.14	0	0	..	..
Malaysia	0	0	..	..	20	25	4.32	2.30	6	4	5.06	-2.25
Pakistan	851	1 147	3.05	3.15	1	0	13.20	..	0	0	..	..
Philippines	0	0	..	..	34	43	8.53	2.96	0	0	..	..
Saudi Arabia	5	9	-2.34	4.69	48	56	-1.95	1.20	7	7	9.82	-1.18
Thailand	0	0	..	..	13	15	0.65	1.25	1	1	3.91	-1.24
Turkey	256	330	4.05	2.41	22	0	3.58	-44.70	1	1	4.18	5.38
Viet Nam	0	0	..	..	19	21	3.72	0.66	0	0	..	..
OCEANIA	558	560	-0.54	0.38	41	42	7.73	0.19	471	475	-0.48	0.48
Australia	77	73	-6.33	-0.32	37	36	9.18	0.00	19	12	-13.58	-0.05
New Zealand	479	486	0.69	0.50	1	1	1.59	1.00	452	463	0.59	0.50
DEVELOPED COUNTRIES	4 829	5 194	1.78	0.65	447	451	3.12	0.34	932	1 066	0.63	1.30
DEVELOPING COUNTRIES	6 782	9 096	2.75	2.68	610	693	0.93	1.61	102	79	-0.64	-1.46
LEAST DEVELOPED COUNTRIES (LDC)	207	247	0.76	1.68	12	23	-3.93	8.36	2	2	-8.02	0.12
OECD³	4 721	5 104	1.79	0.68	349	340	4.14	0.02	828	945	0.20	1.12
BRICS	5 081	6 892	3.40	2.67	239	287	6.97	2.27	38	8	10.14	-13.44

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.31.2. Butter projections: Consumption, food

Calendar year

	CONSUMPTION (kt)		Growth (%) ⁴		FOOD (kg/cap)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	11 632	14 283	2.53	1.89	1.5	1.7	1.33	0.97
NORTH AMERICA	1 062	1 190	2.79	0.71	2.9	3.0	2.07	0.13
Canada	132	155	4.66	1.36	3.5	3.8	3.63	0.58
United States	930	1 035	2.55	0.62	2.8	3.0	1.86	0.06
LATIN AMERICA	462	539	2.79	1.41	0.7	0.8	1.77	0.65
Argentina	25	27	-3.50	0.78	0.6	0.6	-4.46	-0.03
Brazil	107	117	3.91	0.88	0.5	0.5	3.06	0.38
Chile	27	31	4.33	1.73	1.4	1.6	3.09	1.61
Colombia	17	17	-2.33	0.03	0.3	0.3	-3.54	-0.42
Mexico	218	263	3.35	1.51	1.7	1.9	2.11	0.63
Paraguay	0	0	..	..	0.0	0.0	-40.76	0.76
Peru	12	22	4.44	4.73	0.4	0.6	3.02	3.84
EUROPE	2 934	3 023	2.02	0.33	3.9	4.1	1.71	0.42
European Union ¹	2 102	2 157	2.05	0.18	4.7	4.9	1.92	0.27
United Kingdom	227	211	1.61	0.83	3.4	3.0	0.95	0.46
Russia	403	425	3.52	0.75	2.8	3.0	2.11	0.96
Ukraine	79	94	-2.15	0.43	1.8	2.3	-1.69	1.12
AFRICA	373	458	-2.80	2.21	0.3	0.3	-5.26	-0.11
Egypt	129	153	-5.42	2.00	1.3	1.3	-7.42	0.35
Ethiopia	14	17	-3.58	2.80	0.1	0.1	-6.15	0.46
Nigeria	25	35	1.99	3.37	0.1	0.1	-0.65	0.90
South Africa	26	32	3.18	2.37	0.4	0.5	1.68	1.31
ASIA	6 655	8 946	3.01	2.71	1.5	1.8	2.02	2.01
China ²	222	259	5.68	1.68	0.2	0.2	5.16	1.53
India	4 525	6 338	3.36	2.93	3.3	4.2	2.23	2.06
Indonesia	22	25	4.51	2.89	0.1	0.1	3.24	1.99
Iran	167	154	-3.75	0.38	2.0	1.7	-5.01	-0.57
Japan	83	81	0.57	-0.44	0.7	0.7	0.75	0.04
Kazakhstan	26	41	3.07	4.19	1.4	2.0	1.59	3.24
Korea	13	16	4.82	1.48	0.3	0.3	4.48	1.52
Malaysia	14	22	3.79	3.31	0.4	0.6	2.40	2.21
Pakistan	852	1 147	3.06	3.15	3.9	4.4	0.94	1.39
Philippines	34	43	8.45	3.00	0.3	0.3	6.82	1.78
Saudi Arabia	46	59	-3.04	1.98	1.4	1.5	-5.25	0.78
Thailand	12	14	0.40	1.36	0.2	0.2	0.02	1.30
Turkey	277	330	4.07	1.67	3.3	3.7	2.45	1.15
Viet Nam	19	21	3.73	0.66	0.2	0.2	2.68	0.00
OCEANIA	145	127	6.44	-0.04	3.5	2.7	4.91	-1.19
Australia	113	97	5.90	-0.24	4.5	3.5	4.46	-1.21
New Zealand	27	25	17.71	0.50	5.7	4.7	16.57	-0.19
DEVELOPED COUNTRIES	4 339	4 579	2.32	0.47	3.0	3.1	1.77	0.27
DEVELOPING COUNTRIES	7 292	9 704	2.65	2.64	1.2	1.4	1.33	1.55
LEAST DEVELOPED COUNTRIES (LDC)	217	268	0.58	2.12	0.3	0.2	-1.73	-0.06
OECD³	4 236	4 492	2.48	0.53	3.0	3.1	1.91	0.26
BRICS	5 282	7 171	3.46	2.70	1.6	2.1	2.56	2.21

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.32.1. Cheese projections: Production and trade

Calendar year

	PRODUCTION (kt)		Growth (%) ⁴		IMPORTS (kt)		Growth (%) ⁴		EXPORTS (kt)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	24 067	27 613	1.64	1.23	3 243	3 857	2.87	1.49	3 262	3 857	1.67	1.49
NORTH AMERICA	6 443	7 547	2.75	1.43	166	193	-0.77	1.19	363	400	3.76	1.08
Canada	489	537	3.25	1.36	33	67	5.19	2.75	10	10	0.75	0.29
United States	5 955	7 010	2.71	1.43	133	127	-1.91	0.46	352	389	3.86	1.10
LATIN AMERICA	2 131	2 644	-0.67	1.93	371	441	4.34	1.56	161	158	-0.14	-0.22
Argentina	441	523	-3.30	1.66	2	1	-11.96	0.00	63	63	0.03	0.02
Brazil	760	987	1.19	2.33	29	31	-0.52	2.05	3	5	2.89	3.70
Chile	100	130	2.51	2.32	48	49	16.61	-0.14	9	9	-0.13	0.14
Colombia	49	50	-2.27	0.48	5	4	17.58	-2.44	1	1	0.83	0.45
Mexico	324	386	1.44	1.21	125	165	5.20	2.87	2	4	26.67	7.81
Paraguay	0	0	..	..	5	6	14.82	2.34	0	0	..	..
Peru	25	33	2.95	2.71	8	9	10.06	1.58	0	0	..	..
EUROPE	12 221	13 626	1.85	0.90	1 159	1 343	0.96	1.17	1 889	2 412	2.65	2.06
European Union ¹	10 437	11 543	1.78	0.86	209	217	2.32	0.45	1 325	1 764	2.18	2.48
United Kingdom	465	489	2.49	0.33	525	560	2.46	0.47	187	167	5.76	-1.09
Russia	507	667	1.68	1.82	268	343	-4.06	2.32	26	24	4.64	-0.66
Ukraine	194	190	0.88	0.17	30	95	8.38	6.24	7	4	-26.60	-4.62
AFRICA	926	1 069	-1.21	1.51	137	172	-2.59	1.76	98	82	-6.02	-1.61
Egypt	506	575	-2.88	1.34	27	34	-6.40	1.56	73	65	-6.54	-1.54
Ethiopia	6	8	0.00	2.23	0	1	..	..	0	0	..	..
Nigeria	9	10	-1.45	0.21	1	2	2.59	10.04	0	0	..	..
South Africa	100	110	2.16	1.08	10	10	0.78	2.32	11	9	20.32	-2.27
ASIA	1 597	1 952	0.71	2.12	1 299	1 587	5.66	1.83	256	301	-1.98	1.89
China ²	278	291	0.56	0.50	118	169	17.85	2.60	0	0	..	..
India	4	6	11.40	3.86	3	3	15.04	-1.70	8	9	14.65	1.73
Indonesia	0	0	..	..	30	36	5.99	2.36	1	1	10.07	-2.30
Iran	209	210	-2.46	0.07	0	0	..	..	56	40	11.83	-2.83
Japan	45	45	-0.56	0.06	291	363	3.75	2.63	0	0	..	..
Kazakhstan	25	33	3.56	2.82	20	28	-1.71	1.79	2	2	43.08	-1.73
Korea	26	23	2.00	0.10	133	175	7.58	2.25	0	0	..	..
Malaysia	0	0	..	..	27	38	10.35	2.71	1	1	14.71	-2.64
Pakistan	0	0	..	..	4	5	14.63	4.12	0	0	..	..
Philippines	0	0	..	..	38	48	11.53	2.76	0	0	-18.38	..
Saudi Arabia	173	225	0.91	3.15	175	195	4.14	0.57	81	76	-10.54	-0.57
Thailand	5	4	0.00	-1.20	17	22	10.45	2.69	1	1	..	-2.62
Turkey	245	342	3.70	3.28	11	6	5.26	-7.26	56	116	6.90	7.83
Viet Nam	0	0	..	..	11	11	13.31	0.64	0	0	..	..
OCEANIA	748	775	2.37	0.37	111	120	5.11	0.57	495	504	2.07	0.20
Australia	383	399	1.72	0.38	98	105	4.35	0.56	166	168	0.18	0.02
New Zealand	366	376	3.08	0.36	12	13	13.70	0.50	330	337	3.13	0.29
DEVELOPED COUNTRIES	19 866	22 522	2.15	1.09	1 786	2 069	1.50	1.25	2 767	3 346	2.73	1.66
DEVELOPING COUNTRIES	4 202	5 091	-0.54	1.85	1 457	1 788	4.76	1.78	495	512	-2.82	0.47
LEAST DEVELOPED COUNTRIES (LDC)	377	464	1.13	2.12	23	31	-2.30	2.39	0	0	..	..
OECD³	19 310	21 805	2.12	1.08	1 716	1 952	3.44	1.17	2 521	3 053	2.64	1.76
BRICS	1 650	2 063	1.31	1.82	427	556	-0.25	2.36	48	46	7.97	-0.15

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

ANNEX C

Table C.32.2. Cheese projections: Consumption, food

Calendar year

	CONSUMPTION (kt)		Growth (%) ⁴		FOOD (kg/cap)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	24 044	27 613	1.79	1.24	3.1	3.2	0.64	0.32
NORTH AMERICA	6 243	7 341	2.58	1.47	17.0	18.8	1.86	0.89
Canada	513	593	3.59	1.52	13.7	14.5	2.57	0.74
United States	5 729	6 748	2.49	1.46	17.4	19.3	1.81	0.91
LATIN AMERICA	2 341	2 927	-0.03	2.01	3.6	4.2	-1.02	1.24
Argentina	380	461	-3.81	1.90	8.5	9.4	-4.77	1.08
Brazil	785	1 014	1.10	2.32	3.7	4.5	0.27	1.81
Chile	139	170	6.15	1.67	7.4	8.7	4.88	1.55
Colombia	53	53	-1.42	0.21	1.1	1.0	-2.64	-0.24
Mexico	447	547	2.31	1.65	3.5	3.9	1.09	0.77
Paraguay	5	6	16.40	2.44	0.7	0.8	14.87	1.35
Peru	32	42	4.06	2.49	1.0	1.2	2.64	1.62
EUROPE	11 491	12 556	1.63	0.72	15.4	16.9	1.47	0.82
European Union ¹	9 321	9 995	1.74	0.59	20.9	22.6	1.61	0.68
United Kingdom	802	882	1.81	0.72	11.9	12.5	1.15	0.35
Russia	749	986	-0.82	2.06	5.1	6.9	-1.00	2.26
Ukraine	216	281	7.28	1.95	4.9	6.9	7.78	2.65
AFRICA	966	1 160	-0.74	1.80	0.7	0.7	-3.24	-0.51
Egypt	460	545	-2.26	1.75	4.6	4.5	-4.33	0.10
Ethiopia	6	8	0.12	3.16	0.1	0.1	-2.55	0.82
Nigeria	10	12	-1.14	1.39	0.1	0.0	-3.70	-1.04
South Africa	99	112	1.00	1.50	1.7	1.7	-0.47	0.45
ASIA	2 638	3 238	3.29	2.00	0.6	0.7	2.29	1.31
China ²	396	460	3.83	1.22	0.3	0.3	3.31	1.07
India	0	0	..	..	0.0	0.0	-61.03	0.18
Indonesia	28	35	5.80	2.54	0.1	0.1	4.52	1.64
Iran	152	170	-5.29	0.89	1.8	1.8	-6.53	-0.07
Japan	334	407	3.03	2.31	2.6	3.4	3.21	2.80
Kazakhstan	43	59	0.28	2.52	2.3	2.9	-1.17	1.58
Korea	159	197	6.49	1.98	3.1	3.9	6.15	2.01
Malaysia	26	37	10.24	2.81	0.8	1.0	8.76	1.72
Pakistan	4	5	14.63	4.12	0.0	0.0	12.28	2.35
Philippines	38	47	12.48	2.78	0.3	0.4	10.78	1.56
Saudi Arabia	267	344	14.47	2.50	7.8	8.8	11.86	1.29
Thailand	21	26	7.09	2.08	0.3	0.4	6.70	2.01
Turkey	199	232	2.99	1.21	2.4	2.6	1.39	0.69
Viet Nam	10	11	12.72	0.66	0.1	0.1	11.58	0.00
OCEANIA	365	390	3.69	0.67	8.9	8.3	2.20	-0.49
Australia	315	335	3.48	0.62	12.5	11.9	2.08	-0.36
New Zealand	48	53	4.99	0.90	10.1	10.2	3.97	0.21
DEVELOPED COUNTRIES	18 881	21 245	2.00	1.03	13.2	14.5	1.57	0.83
DEVELOPING COUNTRIES	5 163	6 368	1.04	1.95	0.8	0.9	-0.27	0.87
LEAST DEVELOPED COUNTRIES (LDC)	401	495	0.88	2.14	0.5	0.4	-1.44	-0.04
OECD³	18 501	20 703	2.16	1.00	13.3	14.4	1.59	0.72
BRICS	2 029	2 572	0.81	1.98	0.6	0.8	0.04	1.49

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.33.1. Skim milk powder projections: Production and trade

Calendar year

	PRODUCTION (kt)		Growth (%) ⁴		IMPORTS (kt)		Growth (%) ⁴		EXPORTS (kt)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	4 434	5 228	2.63	1.37	2 632	3 059	4.31	1.77	2 669	3 059	4.58	1.77
NORTH AMERICA	1 192	1 555	2.21	2.60	4	4	-1.26	0.00	795	1 102	7.31	3.75
Canada	100	108	3.05	0.97	2	1	-9.20	0.00	53	35	26.18	-0.61
United States	1 092	1 447	2.14	2.73	3	2	12.35	0.00	742	1 067	6.53	3.93
LATIN AMERICA	286	334	0.74	1.19	523	552	6.64	1.01	83	47	1.68	1.14
Argentina	41	42	2.10	0.96	0	0	..	..	21	24	1.77	1.95
Brazil	154	194	1.27	1.60	27	25	-1.28	0.00	0	0	..	..
Chile	3	3	-15.50	0.72	13	17	8.45	4.52	1	0	-11.01	..
Colombia	0	0	..	..	25	40	36.25	2.48	0	0	..	..
Mexico	44	44	1.36	-0.13	336	383	6.16	0.97	41	3	8.47	0.00
Paraguay	0	0	..	..	1	1	10.30	0.06	1	1	..	-0.06
Peru	0	0	..	..	24	27	3.55	2.46	0	0	..	..
EUROPE	1 889	2 205	4.24	0.99	168	168	3.39	-0.06	1 107	1 318	6.66	1.58
European Union ¹	1 482	1 779	4.86	1.12	48	50	11.11	0.55	868	1 060	7.07	1.80
United Kingdom	57	65	-1.95	0.95	29	30	-4.66	0.34	79	82	5.17	0.39
Russia	82	75	3.07	-0.99	81	77	5.43	-0.55	1	1	19.89	0.00
Ukraine	110	100	0.63	-0.39	2	4	-6.17	2.28	19	6	-1.30	-9.45
AFRICA	9	9	0.53	0.49	394	577	3.26	3.32	12	9	-0.31	-1.67
Egypt	0	0	..	..	76	107	-0.08	3.74	0	0	-47.50	..
Ethiopia	0	0	..	..	1	1	12.03	2.26	0	0	..	..
Nigeria	0	0	..	..	40	79	4.18	5.33	0	0	..	..
South Africa	5	5	1.00	-0.71	15	25	13.32	0.88	7	6	5.81	-0.87
ASIA	469	585	3.98	2.09	1 526	1 737	4.01	1.75	113	64	-2.68	-1.29
China ²	20	20	0.00	0.02	321	367	9.09	1.64	1	1	22.03	0.00
India	294	420	7.17	3.07	1	1	-26.20	-0.63	18	3	-12.34	-1.90
Indonesia	0	0	..	..	181	249	3.89	2.50	1	1	-1.24	-2.44
Iran	0	0	..	..	9	4	-6.93	0.00	9	4	6.98	0.00
Japan	134	123	-0.01	-0.45	46	39	5.06	-1.87	0	0	..	..
Kazakhstan	2	2	0.25	-0.93	19	26	-0.27	2.67	1	1	..	-2.60
Korea	10	11	1.64	1.45	25	26	0.54	-0.02	0	0	..	..
Malaysia	0	0	..	..	126	138	2.68	1.01	4	2	-18.03	-1.00
Pakistan	0	0	..	..	35	37	3.68	4.25	0	0	-14.43	..
Philippines	0	0	..	..	158	163	5.72	1.68	0	0	..	..
Saudi Arabia	0	0	..	..	25	14	-17.34	3.25	7	4	-15.15	-3.15
Thailand	0	0	..	..	67	70	0.65	0.75	9	5	32.76	-0.74
Turkey	0	0	..	..	27	14	39.33	0.00	27	14	39.33	0.00
Viet Nam	0	0	..	..	104	127	3.81	1.19	2	3	32.34	0.00
OCEANIA	590	540	-0.82	-0.72	17	22	8.10	0.80	560	519	0.36	-0.67
Australia	177	120	-3.07	-3.68	12	13	15.22	0.00	154	105	0.56	-3.84
New Zealand	412	420	0.31	0.32	0	2	-28.00	0.00	406	414	0.29	0.32
DEVELOPED COUNTRIES	3 820	4 439	2.52	1.25	294	313	4.50	0.18	2 475	2 949	5.09	1.86
DEVELOPING COUNTRIES	614	790	3.36	2.13	2 338	2 746	4.30	1.97	195	110	-1.55	-0.35
LEAST DEVELOPED COUNTRIES (LDC)	0	0	..	..	141	181	8.04	3.74	4	3	-1.15	-2.88
OECD³	3 549	4 159	2.35	1.30	572	625	6.19	0.76	2 385	2 796	5.34	1.91
BRICS	556	714	4.29	2.04	444	495	6.32	1.13	28	11	-5.96	-0.93

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.33.2. Skim milk powder projections: Consumption, food

Calendar year

	CONSUMPTION (kt)		Growth (%) ⁴		FOOD (kg/cap)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	4 545	5 228	2.65	1.38	0.6	0.6	1.50	0.51
NORTH AMERICA	408	457	-3.91	0.26	1.0	1.1	-4.71	-0.55
Canada	56	74	-4.28	2.00	0.6	0.7	-6.90	0.18
United States	352	382	-3.86	-0.05	1.1	1.1	-4.50	-0.59
LATIN AMERICA	726	839	4.21	1.08	1.0	1.1	3.41	0.28
Argentina	19	18	3.05	-0.26	0.4	0.4	2.02	-1.06
Brazil	180	219	0.82	1.41	0.6	0.7	-0.38	0.86
Chile	15	20	-0.69	4.04	0.8	1.0	-1.87	3.91
Colombia	25	40	36.71	2.49	0.5	0.7	35.01	2.03
Mexico	339	424	4.00	0.86	2.7	3.0	2.76	-0.02
Paraguay	0	0	..	..	0.0	0.0	-4.99	-0.61
Peru	24	27	3.55	2.46	0.7	0.7	2.14	1.59
EUROPE	1 088	1 054	2.31	0.13	1.3	1.3	1.99	0.39
European Union ¹	781	769	3.30	0.22	1.5	1.5	3.10	0.56
United Kingdom	17	13	-16.66	3.84	0.3	0.2	-17.20	3.47
Russia	172	151	3.99	-0.77	1.2	1.1	3.81	-0.57
Ukraine	92	98	1.11	0.64	2.1	2.4	1.58	1.33
AFRICA	391	578	3.32	3.37	0.3	0.3	0.71	1.02
Egypt	76	107	0.17	3.74	0.8	0.9	-1.94	2.06
Ethiopia	1	1	12.94	2.32	0.0	0.0	9.92	0.00
Nigeria	40	79	4.14	5.37	0.2	0.3	1.44	2.84
South Africa	14	24	37.68	0.99	0.2	0.4	35.68	-0.06
ASIA	1 874	2 258	4.45	1.94	0.4	0.5	3.44	1.27
China ²	339	385	8.27	1.55	0.2	0.3	7.73	1.40
India	277	418	10.18	3.10	0.2	0.3	8.98	2.23
Indonesia	180	248	3.94	2.52	0.7	0.8	2.68	1.62
Iran	0	0	-74.33	..	0.0	0.0	-74.67	-0.09
Japan	171	162	-0.22	-0.82	1.1	1.1	-0.98	-0.50
Kazakhstan	21	28	-0.34	2.47	1.1	1.3	-1.78	1.54
Korea	36	37	1.59	0.40	0.7	0.7	1.26	0.43
Malaysia	122	136	4.80	1.04	3.8	3.8	3.39	-0.03
Pakistan	35	37	4.04	4.30	0.2	0.1	1.90	2.52
Philippines	158	163	5.72	1.68	1.5	1.3	4.13	0.47
Saudi Arabia	17	10	-22.79	7.92	0.5	0.3	-24.55	6.65
Thailand	58	65	-1.15	0.88	0.8	0.9	-1.51	0.82
Turkey	0	0	..	..	0.0	0.0	-1.56	-0.05
Viet Nam	102	124	3.72	1.22	1.1	1.2	2.67	0.55
OCEANIA	57	43	-5.09	-0.61	1.4	0.9	-6.45	-1.75
Australia	45	28	-6.47	-1.48	1.8	1.0	-7.74	-2.44
New Zealand	7	8	-4.68	0.24	1.5	1.6	-5.60	-0.45
DEVELOPED COUNTRIES	1 787	1 803	0.16	0.14	1.1	1.1	-0.54	-0.03
DEVELOPING COUNTRIES	2 758	3 426	4.53	2.09	0.4	0.5	3.25	1.02
LEAST DEVELOPED COUNTRIES (LDC)	137	179	8.42	3.87	0.2	0.2	5.94	1.65
OECD³	1 874	1 988	0.52	0.35	1.2	1.3	-0.26	0.12
BRICS	982	1 198	5.94	1.69	0.3	0.3	5.42	1.21

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.34.1. Whole milk powder projections: Production and trade

Calendar year

	PRODUCTION (kt)		Growth (%) ⁴		IMPORTS (kt)		Growth (%) ⁴		EXPORTS (kt)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	5 059	5 945	0.82	1.25	2 699	2 903	1.75	0.78	2 645	2 903	1.63	0.78
NORTH AMERICA	68	77	9.60	1.25	10	10	-2.98	0.00	23	40	11.67	7.21
Canada	8	7	-3.37	-1.77	3	3	-4.85	0.00	1	1	4.75	1.16
United States	60	70	13.70	1.61	7	7	-1.57	0.00	22	39	11.95	7.38
LATIN AMERICA	1 332	1 746	0.23	2.24	271	249	-4.39	-1.20	291	375	-1.68	2.33
Argentina	187	204	-6.08	1.04	0	0	-59.53	..	115	145	-7.93	2.45
Brazil	592	872	1.38	2.87	63	55	2.72	-1.04	0	11	-11.44	6.97
Chile	81	89	-2.08	1.15	7	6	5.40	-7.13	3	5	-20.41	7.68
Colombia	35	45	-2.27	2.90	18	30	15.04	1.01	1	0	-15.56	..
Mexico	224	261	1.19	1.23	44	42	9.93	-0.79	6	6	-7.57	0.00
Paraguay	0	0	..	..	6	9	19.43	0.00	6	9	59.80	0.00
Peru	0	0	..	..	22	22	6.80	0.48	0	0	..	..
EUROPE	900	1 037	1.23	1.23	82	75	0.55	-0.64	416	495	-1.15	1.76
European Union ¹	715	821	1.55	1.19	21	15	-6.10	-2.35	336	402	-1.57	1.58
United Kingdom	38	52	-1.95	2.41	22	18	-2.92	-1.38	46	49	3.11	1.84
Russia	61	62	0.40	0.43	36	40	14.66	0.57	1	1	20.03	0.00
Ukraine	10	9	0.91	-0.86	0	0	..	..	6	4	21.06	-1.64
AFRICA	54	68	10.67	2.45	561	723	0.54	2.44	25	22	4.94	-1.11
Egypt	0	0	..	..	25	22	-9.98	1.39	11	9	33.41	-1.37
Ethiopia	0	0	..	..	2	3	18.77	2.32	0	0	..	..
Nigeria	0	0	..	..	49	77	-5.06	3.53	0	0	..	..
South Africa	12	12	2.41	0.36	3	3	6.58	-0.16	6	6	7.16	0.16
ASIA	1 202	1 405	-0.80	1.18	1 736	1 816	3.51	0.58	409	382	4.70	-0.17
China ²	1 072	1 204	-1.10	0.75	617	648	5.13	0.32	1	1	-21.89	0.07
India	7	9	82.56	3.20	0	0	-25.14	..	3	5	20.28	5.88
Indonesia	83	135	2.73	4.62	53	27	-2.01	-5.91	1	1	-29.17	1.04
Iran	1	1	-4.42	0.65	2	2	-0.36	0.63	1	1	-0.16	0.00
Japan	10	13	-3.28	1.43	0	0	..	..	0	0	..	..
Kazakhstan	16	18	1.71	0.61	2	2	-11.94	-0.61	0	0	..	..
Korea	2	2	-0.31	0.62	5	6	9.43	0.65	0	0	..	..
Malaysia	0	0	..	..	57	49	10.41	0.10	43	38	18.49	-0.10
Pakistan	0	0	..	..	1	1	-12.97	0.87	1	1	-25.86	0.00
Philippines	0	0	..	..	28	30	-4.86	0.65	7	7	-18.95	-0.65
Saudi Arabia	0	0	..	..	128	176	4.22	2.26	13	6	-10.10	-2.21
Thailand	0	0	..	..	58	62	7.37	0.92	2	2	-14.12	-0.91
Turkey	0	0	..	..	1	1	-6.04	0.00	1	1	-6.04	0.00
Viet Nam	0	0	..	..	44	43	2.43	0.46	16	13	6.21	0.00
OCEANIA	1 503	1 610	2.05	0.30	39	30	12.93	-1.51	1 480	1 590	2.34	0.30
Australia	58	57	-12.75	1.17	32	22	18.16	-2.15	40	43	-12.59	1.69
New Zealand	1 445	1 553	3.16	0.27	2	3	19.59	0.00	1 439	1 547	3.16	0.27
DEVELOPED COUNTRIES	2 510	2 769	1.86	0.67	139	123	2.83	-0.80	1 925	2 131	1.57	0.72
DEVELOPING COUNTRIES	2 549	3 176	-0.13	1.78	2 560	2 780	1.70	0.85	720	772	1.74	0.93
LEAST DEVELOPED COUNTRIES (LDC)	34	43	31.21	2.37	228	295	0.73	3.31	6	5	-7.24	-2.10
OECD³	2 692	2 986	1.62	0.74	168	160	4.09	-1.07	1 897	2 094	1.44	0.68
BRICS	1 744	2 160	-0.19	1.54	720	745	5.02	0.22	12	24	-5.44	3.95

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.34.2. Whole milk powder projections: Consumption, food

Calendar year

	CONSUMPTION (kt)		Growth (%) ⁴		FOOD (kg/cap)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	5 102	5 945	0.85	1.25	0.7	0.7	-0.28	0.33
NORTH AMERICA	49	48	3.23	-1.19	0.1	0.1	2.50	-1.75
Canada	6	9	-12.61	6.07	0.1	0.2	-13.47	5.25
United States	43	39	8.17	-2.36	0.1	0.1	7.45	-2.89
LATIN AMERICA	1 312	1 620	-0.50	1.61	2.0	2.3	-1.49	0.84
Argentina	72	59	-2.93	-1.82	1.6	1.2	-3.90	-2.62
Brazil	655	916	1.63	2.55	3.1	4.1	0.80	2.04
Chile	85	91	0.49	0.13	4.5	4.7	-0.70	0.01
Colombia	52	75	1.87	2.11	1.0	1.4	0.61	1.65
Mexico	262	298	2.44	0.94	2.1	2.1	1.21	0.07
Paraguay	0	0	..	..	0.0	0.0	-54.48	-0.10
Peru	22	22	6.93	0.48	0.7	0.6	5.48	-0.37
EUROPE	558	618	2.96	0.51	0.7	0.8	2.80	0.60
European Union ¹	391	434	4.08	0.60	0.9	1.0	3.95	0.68
United Kingdom	14	21	-11.86	0.01	0.2	0.3	-12.44	-0.35
Russia	96	101	3.37	0.48	0.7	0.7	3.18	0.69
Ukraine	5	5	-10.53	-0.02	0.1	0.1	-10.11	0.66
AFRICA	590	769	0.99	2.57	0.5	0.5	-1.56	0.24
Egypt	14	13	-17.31	3.81	0.1	0.1	-19.06	2.13
Ethiopia	2	3	20.56	2.32	0.0	0.0	17.34	0.00
Nigeria	49	77	-4.91	3.54	0.2	0.3	-7.37	1.06
South Africa	9	9	2.45	0.33	0.2	0.1	0.96	-0.71
ASIA	2 528	2 839	1.12	0.97	0.6	0.6	0.14	0.29
China ²	1 688	1 851	0.78	0.59	1.2	1.3	0.28	0.43
India	4	4	21.29	0.85	0.0	0.0	19.97	0.00
Indonesia	136	160	1.55	1.89	0.5	0.5	0.32	1.00
Iran	2	2	-3.03	0.96	0.0	0.0	-4.31	0.00
Japan	10	13	-2.79	1.38	0.1	0.1	-2.62	1.86
Kazakhstan	18	19	-0.76	0.50	1.0	0.9	-2.19	-0.42
Korea	7	7	6.04	0.66	0.1	0.1	5.70	0.69
Malaysia	14	11	-1.56	0.81	0.4	0.3	-2.88	-0.26
Pakistan	1	1	39.93	1.74	0.0	0.0	37.06	0.00
Philippines	21	23	8.15	1.06	0.2	0.2	6.52	-0.14
Saudi Arabia	114	170	6.83	2.48	3.3	4.3	4.39	1.28
Thailand	57	60	9.28	0.97	0.8	0.9	8.88	0.91
Turkey	0	0	..	..	0.0	0.0	-1.56	-0.05
Viet Nam	28	30	0.97	0.66	0.3	0.3	-0.06	0.00
OCEANIA	66	50	-0.78	-1.14	1.6	1.1	-2.21	-2.27
Australia	54	36	-1.66	-1.75	2.1	1.3	-2.99	-2.71
New Zealand	7	9	5.02	0.45	1.6	1.7	4.00	-0.24
DEVELOPED COUNTRIES	713	761	2.60	0.29	0.5	0.5	2.16	0.09
DEVELOPING COUNTRIES	4 389	5 184	0.59	1.39	0.7	0.7	-0.71	0.32
LEAST DEVELOPED COUNTRIES (LDC)	256	333	2.43	3.28	0.3	0.3	0.08	1.08
OECD³	952	1 052	2.22	0.55	0.7	0.7	1.65	0.28
BRICS	2 452	2 882	1.10	1.17	0.8	0.8	0.33	0.68

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.35. Whey powder projections: Production and trade

Calendar year

	PRODUCTION (kt)		Growth (%) ¹		IMPORTS (kt)		Growth (%)		EXPORTS (kt)		Growth (%)	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	3 280	3 780	2.09	1.09	1 620.4	2 059.8	4.39	2.20	1 939.2	2 378.6	3.34	1.87
NORTH AMERICA	484	512	-0.80	0.68	6.2	6.1	6.01	-0.45	226.7	248.0	-0.10	1.02
Canada	40	44	5.85	1.36	6.2	6.1	6.01	-0.45	42.3	43.0	7.70	0.00
United States	443	468	-1.25	0.62	0.0	0.0	..	..	184.5	205.0	-1.35	1.25
LATIN AMERICA	163	196	1.07	1.60	129.4	143.8	0.26	0.81	177.9	206.0	-0.20	1.24
Argentina	73	86	1.11	1.66	0.6	0.5	-31.98	0.00	49.7	58.9	-4.16	1.67
Brazil	0	0	..	..	14.4	14.5	-5.11	-0.01	0.4	0.5	..	0.00
Chile	7	9	83.59	2.32	8.1	16.6	5.60	6.57	15.1	25.5	7.04	4.91
Colombia	0	0	..	..	12.5	16.0	9.22	2.29	0.0	0.0	-47.81	..
Mexico	56	67	0.37	1.21	64.2	66.0	1.46	0.00	64.2	66.0	1.46	0.00
Paraguay	0	0	..	..	1.2	1.5	42.65	2.48	0.0	0.0	..	..
Peru	0	0	..	..	10.0	13.8	4.54	2.88	10.0	13.8	4.54	2.88
EUROPE	2 352	2 765	2.79	1.16	173.5	150.3	1.92	-0.69	930.3	1 070.5	3.79	1.10
European Union ²	2 071	2 443	2.28	1.18	60.9	51.2	0.53	0.09	652.8	767.9	3.78	1.23
United Kingdom	76	78	2.84	-0.17	48.8	39.1	9.31	-1.98	51.4	46.0	-1.05	-1.02
Russia	1	1	0.81	0.00	45.3	48.2	-0.32	0.70	45.3	43.9	-0.32	0.00
Ukraine	42	43	8.82	0.02	2.0	2.8	3.30	3.13	31.6	33.4	4.91	0.27
AFRICA	2	2	-8.37	1.09	56.1	87.6	4.96	4.41	30.4	54.9	6.39	5.80
Egypt	0	0	..	..	9.8	0.0	-4.77	-60.24	9.8	0.0	-4.77	-62.67
Ethiopia	0	0	..	..	0.4	0.6	..	3.75	0.0	0.0	..	..
Nigeria	0	0	..	..	4.1	11.0	6.54	9.47	4.1	11.0	278.79	9.47
South Africa	2	2	-8.38	1.08	11.1	13.7	3.60	2.37	0.3	0.0	-16.55	..
ASIA	129	147	2.41	1.30	1 214.4	1 631.5	5.12	2.59	520.0	756.2	5.90	3.56
China ³	75	75	-0.88	0.00	583.0	774.8	6.60	2.24	0.7	0.8	11.56	0.00
India	1	1	5.99	3.86	8.7	13.0	6.35	3.89	0.8	2.2	..	9.30
Indonesia	0	0	..	..	128.8	187.2	4.64	3.43	128.8	187.2	4.64	3.43
Iran	9	9	3.66	0.07	3.5	4.9	1.28	3.07	9.0	10.5	7.72	1.13
Japan	0	0	..	..	54.3	54.5	1.08	0.00	0.0	0.0	..	..
Kazakhstan	0	0	..	..	8.0	22.1	14.69	9.47	8.0	22.1	371.09	9.47
Korea	0	0	..	..	35.9	34.6	0.39	0.00	0.3	0.3	..	..
Malaysia	0	0	..	..	85.1	107.7	4.82	2.36	85.1	107.7	4.82	2.36
Pakistan	0	0	..	..	26.8	73.6	3.27	9.47	26.8	73.6	95.91	9.47
Philippines	0	0	..	..	66.6	125.9	-5.76	6.27	66.6	125.9	-15.05	6.27
Saudi Arabia	0	0	..	..	6.1	16.8	10.41	9.47	6.1	16.8	275.27	9.47
Thailand	0	0	..	..	59.9	63.3	1.09	0.39	59.9	63.3	1.09	0.39
Turkey	44	62	11.41	3.28	0.1	0.0	..	..	44.5	62.0	11.47	3.28
Viet Nam	0	0	..	..	52.1	53.6	2.73	0.00	0.0	0.0	-30.81	..
OCEANIA	150	156	3.04	0.38	40.8	40.6	12.69	0.78	53.8	43.0	2.93	-1.03
Australia	120	125	2.76	0.38	15.6	22.1	4.36	1.47	39.4	29.7	2.34	-1.63
New Zealand	30	31	4.20	0.36	24.9	18.2	25.20	0.02	14.4	13.2	5.36	0.48
DEVELOPED COUNTRIES	2 988	3 436	2.14	1.05	301.6	296.9	3.29	0.36	1 221.7	1 386.4	3.01	1.10
DEVELOPING COUNTRIES	292	344	1.64	1.47	1 318.8	1 763.0	4.66	2.54	717.4	992.2	3.94	3.05
LEAST DEVELOPED COUNTRIES (LDC)	0	0	..	..	24.2	37.6	9.16	4.31	14.9	25.8	130.95	5.22
OECD⁴	2 915	3 354	1.91	1.06	341.4	333.4	3.24	0.18	1 126.3	1 276.5	2.70	1.08
BRICS	79	79	-1.09	0.09	662.6	864.2	5.41	2.13	47.6	47.4	-0.18	0.28

.. Not available

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Least-squares growth rate (see glossary).
2. Refers to all current European Union member States (excludes the United Kingdom)
3. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
4. Excludes Iceland and Costa Rica but includes all EU member countries.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.36. Fresh dairy products projections: Production and food consumption

Calendar year

	PRODUCTION (kt)		Growth (%) ⁴		FOOD CONSUMPTION (kg/cap)		Growth (%) ⁴	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	428 841	531 924	1.90	2.18	55.8	62.4	0.79	1.24
NORTH AMERICA	25 484	24 175	-1.51	-0.39	69.2	61.6	-2.23	-0.95
Canada	2 851	2 784	-0.65	0.00	75.6	67.5	-1.91	-0.78
United States	22 633	21 390	-1.62	-0.43	68.5	60.9	-2.27	-0.98
LATIN AMERICA	34 312	40 997	-0.83	1.76	52.7	57.9	-1.78	1.02
Argentina	1 570	1 680	-1.50	0.40	28.3	27.7	-1.59	-0.36
Brazil	15 217	19 556	0.08	2.36	72.4	87.7	-0.75	1.87
Chile	361	321	-10.84	-0.52	19.1	16.5	-11.90	-0.64
Colombia	4 868	6 421	-1.45	3.09	96.8	120.2	-2.67	2.63
Mexico	3 474	3 291	-1.16	-0.46	27.3	23.5	-2.38	-1.32
Paraguay	458	549	-1.18	1.55	65.0	69.0	-2.48	0.47
Peru	1 862	2 501	2.08	2.97	57.3	69.4	0.69	2.10
EUROPE	76 282	78 413	-0.61	0.41	101.4	104.3	-0.69	0.44
European Union ¹	39 045	42 177	0.58	0.97	85.8	91.8	0.37	0.91
United Kingdom	7 439	7 210	-0.56	-0.24	111.9	105.9	-0.23	-0.45
Russia	15 233	15 624	-2.25	0.10	106.6	111.2	-2.27	0.30
Ukraine	6 577	5 938	-3.22	-0.39	149.5	145.2	-2.77	0.29
AFRICA	33 467	43 849	-0.69	2.89	25.8	26.2	-3.20	0.56
Egypt	1 152	1 398	-3.25	2.18	11.5	11.6	-5.29	0.53
Ethiopia	2 453	3 936	-4.41	5.26	21.9	27.2	-6.97	2.87
Nigeria	227	237	-0.76	0.69	1.1	0.9	-3.33	-1.72
South Africa	2 596	2 751	2.35	0.62	44.3	41.7	0.86	-0.43
ASIA	255 822	340 585	4.10	2.83	56.1	69.1	3.14	2.13
China ²	26 483	29 463	0.73	0.48	19.1	20.9	0.64	0.35
India	132 020	183 970	6.10	3.35	96.6	122.3	4.95	2.48
Indonesia	994	1 141	-0.69	1.64	3.7	3.8	-1.89	0.75
Iran	3 490	4 340	1.77	2.09	42.1	46.8	0.43	1.13
Japan	4 347	4 260	0.14	-0.21	34.3	35.3	0.32	0.27
Kazakhstan	5 004	5 990	1.47	1.73	269.8	290.2	0.00	0.80
Korea	1 355	1 335	-0.08	-0.48	26.7	26.3	-0.33	-0.45
Malaysia	52	55	-6.65	0.58	1.6	1.5	-7.91	-0.49
Pakistan	37 078	53 464	3.21	3.72	171.2	203.3	1.09	1.95
Philippines	15	17	-1.92	0.78	0.1	0.1	-3.40	-0.42
Saudi Arabia	1 334	1 504	5.97	1.13	39.0	38.2	3.56	-0.06
Thailand	625	689	-6.52	1.03	9.0	9.8	-6.86	0.97
Turkey	15 289	18 600	3.75	1.99	183.4	208.6	2.13	1.47
Viet Nam	977	1 393	12.59	4.02	10.1	13.4	11.45	3.34
OCEANIA	3 474	3 905	1.95	0.63	67.5	65.9	-1.37	-0.64
Australia	2 923	3 333	1.81	0.68	102.1	102.0	-0.67	-0.45
New Zealand	541	563	3.51	0.34	42.5	40.6	-5.89	-0.48
DEVELOPED COUNTRIES	134 553	142 515	-0.11	0.66	93.3	96.0	-0.54	0.41
DEVELOPING COUNTRIES	294 288	389 409	2.94	2.79	47.2	55.5	1.66	1.70
LEAST DEVELOPED COUNTRIES (LDC)	20 858	26 744	0.05	2.77	24.0	24.2	-2.24	0.58
OECD³	107 077	113 599	0.13	0.71	76.0	77.5	-0.46	0.39
BRICS	191 548	251 365	3.79	2.64	60.0	74.4	3.05	2.14

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.
3. Excludes Iceland and Costa Rica but includes all EU member countries.
4. Least-squares growth rate (see glossary).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.37. Milk projections: Production, inventories, yield

Calendar year

	PRODUCTION (kt)		Growth (%) ¹		INVENTORIES ('000 hd)		Growth (%)		YIELD (t/head)		Growth (%)	
	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30	Average 2018-20est	2030	2011-20	2021-30
WORLD	851 046	1 019 691	1.91	1.75	714 635	800 198	1.12	1.08	1.19	1.27	0.79	0.66
NORTH AMERICA	110 189	125 096	1.57	1.07	10 417	10 647	0.38	0.09	10.58	11.75	1.18	0.98
Canada	10 565	12 015	2.81	1.17	1 050	1 182	1.32	-0.09	10.14	10.17	1.47	1.26
United States	99 624	113 081	1.44	1.06	9 367	9 465	0.27	0.11	10.64	11.95	1.17	0.95
LATIN AMERICA	80 926	95 762	0.46	1.62	39 167	41 635	-2.70	0.60	2.07	2.30	3.25	1.01
Argentina	10 545	11 877	-1.01	1.01	1 718	1 697	-0.20	-0.10	6.14	7.00	-0.81	1.11
Brazil	35 757	43 988	1.79	1.92	16 297	17 832	-4.89	0.91	2.19	2.47	7.03	1.00
Chile	2 037	2 418	-2.77	1.79	1 050	1 089	0.31	0.41	1.94	2.22	-3.07	1.38
Colombia	5 774	7 391	-1.59	2.80	5 644	6 414	-0.69	1.24	1.02	1.15	-0.90	1.54
Mexico	12 366	13 225	1.43	0.68	2 555	2 655	0.92	0.38	4.84	4.98	0.51	0.30
Paraguay	473	576	-1.14	2.03	213	238	-0.58	0.90	2.22	2.42	-0.56	1.12
Peru	2 102	2 806	2.16	2.91	1 171	1 373	0.39	1.48	1.80	2.04	1.76	1.42
EUROPE	225 955	233 935	0.89	0.35	40 796	37 754	-0.80	-0.67	5.54	6.20	1.71	1.03
European Union ²	152 216	160 972	1.28	0.48	20 552	19 201	-0.50	-0.54	7.29	8.23	1.89	1.01
United Kingdom	15 129	14 366	0.93	-0.05	1 878	1 770	0.57	-0.62	8.06	8.12	0.36	0.58
Russia	31 262	30 892	0.21	0.02	7 870	7 424	-1.32	-0.50	3.97	4.16	1.55	0.52
Ukraine	9 816	8 926	-2.01	-0.37	2 665	2 135	-4.01	-2.05	3.68	4.18	2.08	1.71
AFRICA	43 525	55 969	-0.72	2.69	232 533	262 447	1.38	1.24	0.19	0.21	-2.07	1.43
Egypt	4 499	5 252	-3.12	1.79	6 545	6 547	-0.25	0.40	0.69	0.80	-2.88	1.38
Ethiopia	2 758	4 304	-4.31	4.98	12 986	17 611	-1.08	3.12	0.21	0.24	-3.27	1.80
Nigeria	535	647	-0.90	2.22	2 327	2 476	-0.08	0.64	0.23	0.26	-0.82	1.57
South Africa	3 764	4 101	2.34	0.89	842	797	-1.54	-0.62	4.47	5.14	3.94	1.52
ASIA	359 546	477 617	3.59	2.74	385 355	441 581	1.70	1.25	0.93	1.08	1.86	1.48
China ³	36 469	40 467	0.26	0.51	13 500	13 439	-1.32	-0.39	2.40	2.71	1.91	0.97
India	191 476	266 674	5.30	3.20	145 473	175 483	2.47	1.78	1.32	1.52	2.76	1.40
Indonesia	1 514	1 980	0.38	2.80	14 600	17 220	2.74	1.49	0.10	0.12	-2.30	1.29
Iran	7 618	8 003	-0.69	0.65	20 380	17 803	-0.45	-1.06	0.37	0.45	-0.24	1.73
Japan	7 360	7 293	-0.25	-0.10	842	810	-1.24	-0.33	8.74	9.00	1.00	0.23
Kazakhstan	5 711	6 985	1.81	1.94	3 030	3 175	1.69	0.30	1.88	2.20	0.12	1.64
Korea	2 047	2 001	0.09	-0.35	258	254	0.24	-0.12	7.95	7.89	-0.14	-0.22
Malaysia	52	55	-6.65	0.58	105	95	-5.77	-1.22	0.49	0.58	-0.94	1.83
Pakistan	47 214	67 118	3.20	3.60	38 560	47 634	2.99	2.11	1.22	1.41	0.20	1.46
Philippines	15	17	-1.92	0.78	5	5	-0.05	-1.07	2.79	3.53	-1.87	1.88
Saudi Arabia	2 505	3 076	2.78	2.19	4 838	5 127	0.67	0.56	0.52	0.60	2.10	1.62
Thailand	655	716	-6.28	0.94	136	121	-5.49	-0.98	4.82	5.94	-0.84	1.94
Turkey	21 861	27 253	3.80	2.19	31 404	35 210	5.42	0.87	0.70	0.77	-1.54	1.31
Viet Nam	977	1 393	12.59	4.02	331	411	9.58	2.29	2.95	3.39	2.75	1.69
OCEANIA	30 905	31 311	0.95	0.06	6 367	6 135	-0.36	-0.27	4.86	5.10	1.32	0.33
Australia	9 246	9 056	-0.70	-0.02	1 422	1 392	-2.08	-0.27	6.51	6.51	1.41	0.26
New Zealand	21 636	22 234	1.77	0.09	4 913	4 717	0.25	-0.26	4.41	4.71	1.51	0.35
DEVELOPED COUNTRIES	403 931	435 996	1.20	0.70	75 573	75 285	-0.10	-0.03	5.35	5.79	1.29	0.74
DEVELOPING COUNTRIES	447 115	583 695	2.60	2.60	639 062	724 913	1.27	1.21	0.70	0.81	1.31	1.37
LEAST DEVELOPED COUNTRIES (LDC)	27 158	34 326	0.29	2.56	218 082	241 317	0.98	1.01	0.12	0.14	-0.68	1.54
OECD⁴	366 940	398 795	1.32	0.75	82 130	85 333	1.64	0.30	4.47	4.67	-0.31	0.45
BRICS	298 728	386 122	3.48	2.43	183 982	214 976	1.12	1.46	1.62	1.80	2.34	0.96

Note: Calendar year; except year ending 30 June for Australia and 31 May for New Zealand. Average 2018-20est: Data for 2020 are estimated.

1. Least-squares growth rate (see glossary).

2. Refers to all current European Union member States (excludes the United Kingdom)

3. Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Asia aggregate.

4. Excludes Iceland and Costa Rica but includes all EU member countries.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database). dx.doi.org/10.1787/agr-outl-data-en

Table C.38. Main policy assumptions for dairy markets

Calendar year

		Average 2018-20est	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
CANADA												
Milk target price ²	CADc/litre	81.4	82.6	83.6	85.0	86.6	88.5	90.4	92.5	94.4	96.4	98.6
Butter support price	CAD/t	8 301.9	7 844.8	7 985.2	8 128.3	8 282.8	8 457.4	8 634.0	8 826.9	9 002.8	9 178.4	9 365.0
Cheese tariff-quota	kt pw	33.6	49.0	56.4	60.9	63.2	65.4	65.7	65.9	66.2	66.5	66.8
In-quota tariff	%	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Out-of-quota tariff	%	245.6	245.6	245.6	245.6	245.6	245.6	245.6	245.6	245.6	245.6	245.6
EUROPEAN UNION³												
Voluntary coupled support												
Milk and milk products ⁴	mIn EUR	853	846	846	846	846	846	846	846	846	846	846
Butter reference price ⁵	EUR/t	2 217.5	2 217.5	2 217.5	2 217.5	2 217.5	2 217.5	2 217.5	2 217.5	2 217.5	2 217.5	2 217.5
SMP reference price	EUR/t	1 400.0	1 400.0	1 400.0	1 400.0	1 400.0	1 400.0	1 400.0	1 400.0	1 400.0	1 400.0	1 400.0
Butter tariff-quotas	kt pw	90.1	90.3	90.4	90.4	90.5	90.5	90.6	90.6	90.7	90.7	90.8
Cheese tariff-quotas	kt pw	119.2	119.9	120.2	120.5	120.8	121.2	121.5	121.8	122.1	122.5	122.8
JAPAN												
Direct payments ⁶	JPY/kg	10.8	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
Cheese tariff ⁷	%	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2
Tariff-quotas												
Butter	kt pw	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
In-quota tariff	%	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Out-of-quota tariff	%	278.6	308.9	302.7	309.2	313.5	314.2	314.1	313.1	314.6	316.8	319.7
SMP	kt pw	82.2	82.2	82.2	82.2	82.2	82.2	82.2	82.2	82.2	82.2	82.2
In-quota tariff	%	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Out-of-quota tariff	%	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
WMP	kt pw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
In-quota tariff	%	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Out-of-quota tariff	%	316.2	316.2	316.2	316.2	316.2	316.2	316.2	316.2	316.2	316.2	316.2
KOREA												
Tariff-quotas												
Butter	kt pw	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
In-quota tariff	%	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Out-of-quota tariff	%	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0
SMP	kt pw	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-quota tariff	%	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Out-of-quota tariff	%	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0
WMP	kt pw	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
In-quota tariff	%	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Out-of-quota tariff	%	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0	176.0
MEXICO												
Butter tariff	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tariff-quotas												
Cheese	kt pw	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
In-quota tariff	%	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Out-of-quota tariff	%	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
SMP	kt pw	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
In-quota tariff	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Out-of-quota tariff	%	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Liconsa social program	mIn MXN	1 313.9	1 240.8	1 240.8	1 240.8	1 240.8	1 240.8	1 240.8	1 240.8	1 240.8	1 240.8	1 240.8
RUSSIA												
Butter tariff	%	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Cheese tariff	%	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
UNITED STATES⁸												
Butter tariff-quota	kt pw	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
In-quota tariff	%	2.8	3.1	3.0	2.9	2.9	2.9	2.8	2.8	2.7	2.7	2.7
Out-of-quota tariff	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cheese tariff-quota	kt pw	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
In-quota tariff	%	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Out-of-quota tariff	%	39.1	38.5	37.8	37.1	36.3	35.8	35.2	34.6	34.1	33.6	33.1
INDIA												
Butter tariff	%	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Cheese tariff	%	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Skim milk powder tariff	%	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Whole milk powder tariff	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SOUTH AFRICA												
Butter tariff	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cheese tariff	%	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9
Skim milk powder tariff	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Whole milk powder tariff	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANNEX C

Note: Average 2018-20est: Data for 2020 are estimated.

1. Refers to all current European Union member States (excludes the United Kingdom)
2. For manufacturing milk.
3. Since 2015 the Basic payment scheme (BPS) holds, which shall account for 68% maximum of the national direct payment envelopes. On top of this, compulsory policy instruments have been introduced: the Green Payment (30%) and young farmer scheme (2%).
4. Implemented in 19 Member States. The maximum quantity limit is 11.695 million dairy cow heads.
5. Buying-in when market prices go below the reference price for SMP and 90% of the reference price for butter is operable automatically for a maximum quantity of 109 000 tonnes for SMP and 50 000 tonnes for butter (before 2014, this ceiling was set at 30 000 tonnes). Above that ceiling intervention can take place only via tender. For 2018 due to a temporary measure the SMP buying in quantity at fixed prices of is set to 0. Buying in via a tendering procedure may still be possible.
6. In April 2017, in addition to skim milk powder, butter and cheese, milk used for fresh cream, concentrated skim milk and concentrated whole milk production became covered by the direct payments.
7. Excludes processed cheese.
8. A milk margin (all-milk price minus the average feed margin) protection program applies, which has been updated February 2018, and provides a dairy safety net to farmers. Farmers have to decide on enrolment and coverage levels.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", *OECD Agriculture statistics* (database). dx.doi.org/10.1787/agr-outl-data-en