

PART I  
*Chapter 3*

## Commodity snapshots

*This chapter describes the market situation and highlights of the latest set of quantitative medium-term projections for world and national agricultural markets, for the ten-year period 2016-25. It provides information on prices, production, consumption, trade and main uncertainties for cereals, oilseeds, sugar, meat, dairy products, fish, biofuels and cotton. The quantitative projections are developed with the aid of the partial equilibrium Aglink-Cosimo model of world agriculture. The printed version of this chapter only includes the projection highlights for each commodity whereas further details and an extensive statistical annex are available on line.*

## CEREALS

### Market situation

Global cereal markets have been characterised over the past few years by abundant supplies amid slower demand growth. As a result, world inventories have increased and international prices of all cereals have fallen to relatively low levels compared to the previous decade. Even the decline in world cereal production in 2015, following the 2014 record harvest, could not reverse this downward pressure, leading to further declines in international prices during the 2015 marketing year (see glossary for a definition of marketing year). Given the early prospects in world cereal output for this season, weak demand and large inventories in 2016, global markets are likely to experience relatively low prices. Against this background, only radical or sudden changes in demand or supply are likely to alter the short-term outlook.

### Projection highlights

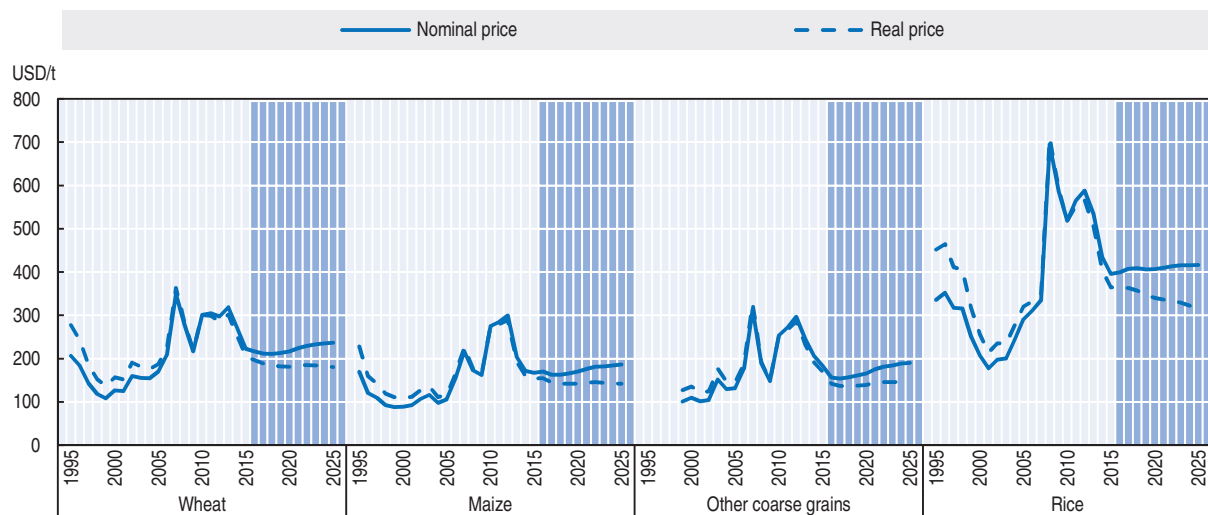
Starting with relatively low prices during the base period (2013-15), the prevailing sluggish economic growth conditions, large stocks, low oil prices and a strong US dollar are likely to keep prices under pressure in the short run. Over the course of the medium-term, however, prices of wheat and coarse grains (in nominal terms) are projected to be primarily cost driven, increasing in nominal terms but not by enough to keep pace with inflation, implying slight declines in real terms. However, prices of all cereals even in nominal terms are projected to be lower on average than in the previous decade, although well above the levels of the decade before.

Global cereal production is projected to expand by 12% by 2025 from the base period, mainly driven by yield improvements, with limited area expansion. Compared with the base period, production of wheat in 2025 is projected to increase by 10% (71 Mt), with India producing 10 Mt more, the People's Republic of China (hereafter "China") 7.9 Mt, Argentina 5.6 Mt, Ukraine 5 Mt, the Islamic Republic of Iran 4.7 Mt, Turkey 4.2 Mt, the European Union 3.5 Mt, the Russian Federation 3.1 Mt, Canada 1.9 Mt<sup>1</sup> and the United States 1.7 Mt. Rice production is set to increase by 14% (69 Mt), with most of the increase (59 Mt) concentrated in Asian countries, led by India (20 Mt), Indonesia (8.1 Mt), Viet Nam (6 Mt), Bangladesh and China (4 Mt each), as well as Thailand (2.8 Mt). Maize production is projected to rise by 13% (131 Mt), led by the United States (27 Mt), Brazil (21.5 Mt), China (21 Mt), Argentina (6 Mt), the European Union (5.6 Mt), and Indonesia (4 Mt). Production of other coarse grains is projected to increase by 8%, or 25 Mt, with the biggest increases in Ethiopia (5.5 Mt), Argentina (3.1 Mt) and India (2.9 Mt), followed closely by Nigeria (1.9 Mt).

Global cereal use is projected to grow by 14% or 340 Mt, to reach 2 818 Mt by 2025. Wheat consumption is expected to increase by 11% compared to the base period and continues to be largely used for human consumption (69% of total use throughout the projection period). The use of wheat for feed is projected to increase, mostly in China, the Russian Federation and the European Union, while biofuel use of wheat only accounts for 1.2% of global use in 2025. Maize use for animal feed is projected to increase its overall share over total use from 56% in the base period to 60% in 2025. The projected increase in total maize utilisation (157 Mt), is mainly driven by higher feed use (127 Mt) – mostly on


account of fast expanding livestock sectors in developing countries. Maize for human consumption is projected to grow by 21% (28 Mt), mainly in developing countries, especially those in Africa where white maize is a main staple in several countries. The use of other coarse grains is also set to grow, by 11% (31 Mt), driven mainly by food demand (16 Mt) followed closely by feed demand (14 Mt). The expansion of food use mainly comes from Sub-Saharan Africa (13 Mt), while China accounts for most of the expansion for feed. Direct human consumption remains the main end-use of rice, as a major staple food in large parts of Asia, Africa, Latin America and the Caribbean. Total consumption is predicted to rise to 563 Mt by 2025, sustained principally by population growth. Given the expected demographic changes, Asian countries are anticipated to account for more than 80% of the projected increase in global rice consumption.

Figure 3.1. **World cereal prices**



Note: Wheat: U.S. wheat No.2 Hard Red Winter (FOB), maize: U.S. GULF Maize, No.2 Yellow (FOB), other coarse grains: Barley (feed Rouen), rice: Thailand, 100% B, 2nd grade.

Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", *OECD Agriculture statistics* (database), <http://dx.doi.org/10.1787/agr-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933381591>

World trade in cereals by 2025 is projected to increase to 417 Mt, up 10% from the base period. At this projected level, global trade would be expanding at a slightly faster rate than production (1.6% p.a. vs. 1.2% p.a.), keeping the share of global production that is traded at 15%. For wheat, this share is expected to reach 22% by 2025, compared with 12% for maize and 15% for other coarse grains. Continuing historical trends, developed countries are expected to remain as the main exporters of wheat and coarse grains to developing countries, while rice is mostly traded between developing countries. The global players on international rice markets are expected to remain consistent, although exporters such as Cambodia and Myanmar are projected to increase their shares of the international market over the decade.

The anticipated continuation of lower cereal prices compared to the previous decade will impact on planting decisions and hence supply responses. Relative prices to other crops like oilseeds are therefore an important factor over the next decade which might lead

to stronger reallocation of crops. On the demand side, developments in the fastest growing economies will have more profound implications for trade. Demand changes in China and their timing of releasing maize stocks are main uncertainties during the projection period.

**The expanded cereals chapter is available at**

*[http://dx.doi.org/10.1787/agr\\_outlook-2016-7-en](http://dx.doi.org/10.1787/agr_outlook-2016-7-en)*

## OILSEEDS AND OILSEED PRODUCTS

### Market situation

Global soybean production for the 2015 marketing year (see glossary for a definition of marketing year) continued to increase, whereas production of other oilseeds (rapeseed, sunflower seed and groundnuts) declined relative to 2014. Low crude oil and cereal prices put additional pressure on oilseed prices.

Vegetable oil production increased more slowly than oilseed production for two reasons. First, palm oil yields decreased in Southeast Asia due to *El Niño* and, second, the slow production growth of oilseed oils due to an increased share of soybeans (containing less oil than other oilseeds) in the oilseeds market. However, growth in vegetable oil demand has slowed recently due to contracting biodiesel production from vegetable oils in 2015 in several developed and developing countries. Vegetable oil prices are expected to recover first within the oilseed complex due to currently stagnating production.

The continuously growing demand for protein meals has been the main driver behind the expansion of oilseed production in recent years. This has increased the share of protein meals in the returns from the crushing of oilseeds, and more so for soybeans over other oilseeds due to its higher protein content. Compared with coarse grains and other feed ingredients, protein meal prices have declined recently to historically average levels, meaning that protein meal prices are about 1.5 to 2 times those of maize.

### Projection highlights

In nominal terms all oilseeds and oilseed product prices are projected to increase over the outlook period. The price relationships within the sector will shift slightly in favour of the meal component. Due to saturation in per capita food demand in many emerging economies and reduced growth in biodiesel production from vegetable oils, vegetable oil prices will decline whereas protein meal prices will increase slightly in real terms during the outlook period.

During the outlook period, global soybean production is expected to continue its expansion, yet at 2.4%, below the annual growth rate of 4.2% experienced during the last decade. Production of other oilseeds increases by 1.2% p.a. over the next decade, considerably below the growth rate of 3.6% p.a. in the previous decade. Globally, crushing soybean and other oilseeds into meal (cake) and oil dominates total usage and it increases slightly faster than other uses, notably direct food consumption of soybeans, groundnuts and sunflower seed. Overall, 91% of world soybean production and 84% of world production of other oilseeds will be crushed in 2025.

Vegetable oil includes oil from the crushing of soybeans and other oilseeds (around 55% of production), palm (36%), as well as palm kernel, coconut and cottonseed oils. World vegetable oil production will remain concentrated among a few countries in the coming decade. Despite a slowdown in area expansion, significant production growth still occurs in the main palm oil producing countries: Indonesia (2.5% p.a. vs. 8.1% p.a. in the previous decade) and Malaysia (2.1% p.a. vs. 2.4% p.a.). The other source of growth is soybean oil produced from the increased production and crushing of soybeans. Demand growth for vegetable oil is expected to slow down in the coming decade due to: a) reduced growth in

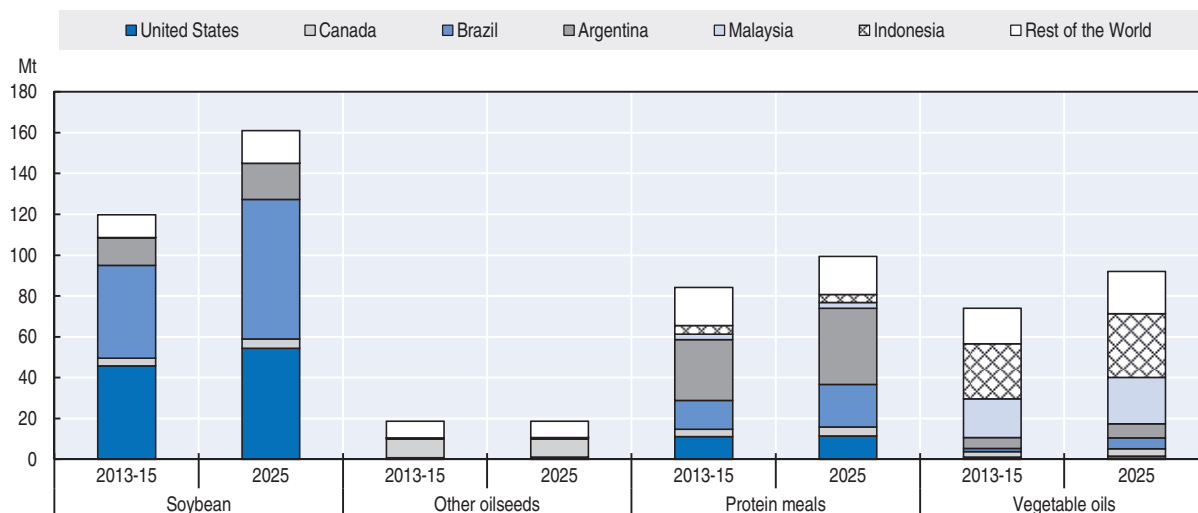
per capita food use in developing countries, at 1.5% p.a. compared to 3.0% in the previous decade; and b) only slight increases in biodiesel production from vegetable oils at 1.5% p.a., due to the gradual fulfilment of biodiesel mandates.

Protein meal production and consumption is dominated by soybean meal. Compared to the past decade, consumption growth of protein meal slows down (2.2% p.a. vs. 3.9% p.a.), reflecting both slower growth in global livestock production and saturated levels of protein meal in Chinese feed rations. Chinese consumption of protein meal is projected to grow by 2.7% p.a. compared to 7.9% p.a. in the previous decade, still exceeding the growth rate of animal production however.

Growth in the world trade of soybeans is expected to slow down considerably in the next decade, compared to the previous decade. This development is directly linked to the projected slower growth in soybean crushing in the People's Republic of China (hereafter "China"). Because the growth in livestock production is expected to be concentrated in the main protein meal producing countries, domestic use of protein meal increases while trade will only expand slightly in the coming decade, resulting in a declining share of trade in world production.

Whereas soybean, other oilseeds and protein meal exports are dominated by the Americas, vegetable oil exports continue to be dominated by Indonesia and Malaysia (Figure 3.2). Vegetable oil, at 42%, is one of the agricultural commodities with the highest share of production that is traded. It is expected that this share remains stable throughout the projection.

Figure 3.2. **Exports of oilseeds and oilseed products by region**



Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.  
StatLink  <http://dx.doi.org/10.1787/888933381602>

In addition to the issues and uncertainties common to most commodities (e.g. macro-economic environment, crude oil prices and weather conditions), the oilseed complex has its specific supply and demand sensitivities. The expected expansion of soybean and palm oil production depends on the availability of additional new land which might be constrained by new legislation aimed at protecting the environment. The low soybean

stock-to-use level projected for the end of the outlook period is a source of uncertainty for the stability of prices if the sector is affected by adverse weather events. Biofuel policies in the United States, the European Union and Indonesia are also a source of major uncertainties in the vegetable oil sector because they have an impact on a considerable share of the demand in these countries.

**The expanded oilseeds and oilseed products chapter is available at**

[http://dx.doi.org/10.1787/agr\\_outlook-2016-8-en](http://dx.doi.org/10.1787/agr_outlook-2016-8-en)

## SUGAR

### Market situation

International sugar prices fell by more than 30% in 2014. The prospect of a global sugar production deficit has led to a price increase at the start of the current season, but with stocks still at comfortable levels, the price increase is expected to average slightly above 2% in the 2015 marketing year (see glossary for a definition of marketing year).

Indeed, there has been a slowdown in output growth since 2013, and global sugar production is expected to fall by about 5 Mt in 2015. Given steady growth in global consumption, this should put an end to the surplus phase. Increases in sugar production are foreseen in Brazil (the leading producer and exporter), Australia, the Russian Federation and Thailand, but two main producers, India and the European Union, will see a decrease. After four years of replenishing global stocks, the stocks-to-use ratio should begin to decline at the start of the 2016-25 outlook period.

### Projection highlights

The continuation of in place domestic policy measures as well as Brazil's sugarcane production prospects will continue to largely influence the sugar market over the medium-term. World sugar prices, when denominated in US dollars, are not expected to increase much as production prospects should be able to satisfy a growing world demand, notwithstanding WHO recommendations to reduce daily "free" sugar intake to less than 10% of total energy intake.

In terms of the macro-economic assumptions underpinning the *Outlook*, exchange rates are a key factor affecting the sugar market. Over the forecast period, the USD is assumed to strengthen against the majority of currencies, enhancing the competitiveness of major sugar exporters on the world market, especially Brazil. In contrast, a few deficit countries located mainly in Asia (China, Korea, Japan, Malaysia), will benefit from a firming of their exchange rates against the USD, making imports less expensive when denominated in local currencies.

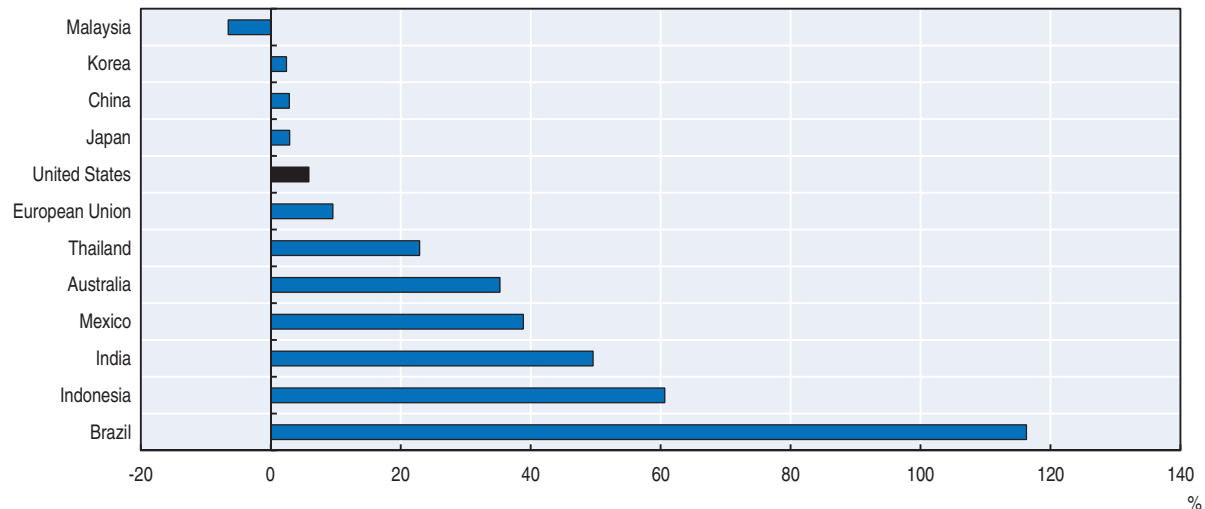
World sugar prices, with the return to a deficit phase, are expected to increase only slightly for a couple of years as a consequence of high level of stocks and low oil prices. They are then foreseen to follow a moderate upward trend. The international raw sugar price (Intercontinental Exchange No. 11 contract nearby futures) is projected to reach USD 342/t (USD 15.5 cts/lb) in 2025, in nominal terms. Similarly, the indicator world white sugar price (Euronet, Liffe futures Contract No.407, London) is projected to reach USD 425/t (USD 19.2 cts/lb) in nominal terms in 2025. The white sugar premium (difference between white and raw sugar prices) should temporarily decline in 2017 with the decline in the EU raw sugar imports after quota abolition, before returning to a level close to USD 83/t at the end of the period.

The sugar sub-sectors in many developed and developing countries will continue to benefit from domestic policy support measures such as high import tariffs, tariff rate quotas, and minimum price support. These policies will continue to distort markets and contribute to the relatively elevated level of market volatility. However, new policies will




Figure 3.3. **Change in world nominal raw sugar prices when denominated in selected national currencies**

2025 vs. 2013-15



Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933381613>

liberalise the sugar market to some extent, such as the abolition of sugar quotas in 2017 in the European Union and the deregulation of sales of sugar in the open market in India.

Brazil's sugar sector has faced financial problems for several years, but will benefit from the weakness of the Brazilian real. Government policies continue to support ethanol production from sugarcane, but the share of sugarcane devoted to ethanol production should slightly decline over the outlook to 57%. This will displace sugar sales in domestic and export markets. Globally, a higher share of sugarcane production will be devoted to producing ethanol, rising from about 20.7% during the base period to 22.3% in 2025.

Global sugar production, despite an expected fall in the coming season in some producing countries, should rise over the course of the decade, sustained by demand growth and a reduction in stocks. Over the ten-year period, the growth in production is foreseen to average 2.1% per annum (p.a.), with production reaching 210 Mt by 2025, an increase of around 39 Mt over the base period (2013-15). Most of the additional production will originate in countries producing sugarcane rather than sugar beet, and the main driver of output growth is area expansion, notably in Brazil, even though yield improvements are foreseen for sugar crops and sugar processing in some other producing countries (India and Thailand).

The anticipated growth in world sugar demand for the next decade is steadier with an increase of 2% p.a. resulting in a decrease of the stock-to-use ratio from 45% in the base period to 39% in 2025. However, the growth in demand is mixed with nearly no growth in the matured developed countries and stronger prospects in developing countries, in particular Africa and Asia. In developing countries with high sugar calorie intake, no noticeable changes in consumer habits are foreseen, as sugar is an available, cheap source of energy, which is easy to transport and store.

In the face of growing global demand, sugar exports are likely to expand in countries that have modernised their sugar sub-sector in recent years (e.g. Australia, European Union, and Thailand). Brazil will remain the world's major producer and

exporter, but lose market share at the start of the period, opting for more profitable ethanol production in the short-term. Favourable currency terms should encourage investment. Overall, Brazil's share of world sugar exports is expected to decline at the start of the projection period before recovering to a level close to that achieved during the base period (41%). On the other side, imports will remain diversified, mostly driven by demand from Africa and Asia.

Over the medium-term, the interaction between the sugar market and other sectors such as the feed sector, biofuels, and other caloric sweeteners (e.g. isoglucose) will generate feedback effects. Also, with existing policies and high fixed costs, the sugar sector should stay volatile. Furthermore, any external shock to one of the related markets, or to the exogenous assumptions, could alter the results discussed in this report.

**The expanded sugar chapter is available at**  
[http://dx.doi.org/10.1787/agr\\_outlook-2016-9-en](http://dx.doi.org/10.1787/agr_outlook-2016-9-en)

## MEAT

### Market situation

Weaker demand for meats by emerging economies and oil exporting countries throughout 2015 exerted significant downward pressure on meat prices. According to the FAO Meat Price Index, meat prices in 2015 fell to a level last seen in early 2010. This fall contrasts with an extended period of continued, though at times volatile, meat price increases that started back in 2002. Only once during this extended period – during the aftermath of the 2007-08 financial crisis – have meat prices fallen by such a magnitude.

World trade in 2015 stalled in volume terms. Meat exports from the Americas, the dominant supplier region, fell in 2015 reflecting weakening supply to the rest of the world. Lower imports from the Russian Federation, and a net trade loss in North America estimated at close to one million tonnes, substantially reduced supplies going to other parts of the world.

### Projection highlights

The Outlook for the meat market remains strong. Feed grain prices are set to remain low for the projection period, giving stability to a sector that had been operating in an environment of particularly high and volatile feed costs over most of the past decade. This is particularly relevant for regions such as the Americas, Australia and Europe, where feed grains are being used more intensively in the production of meat.

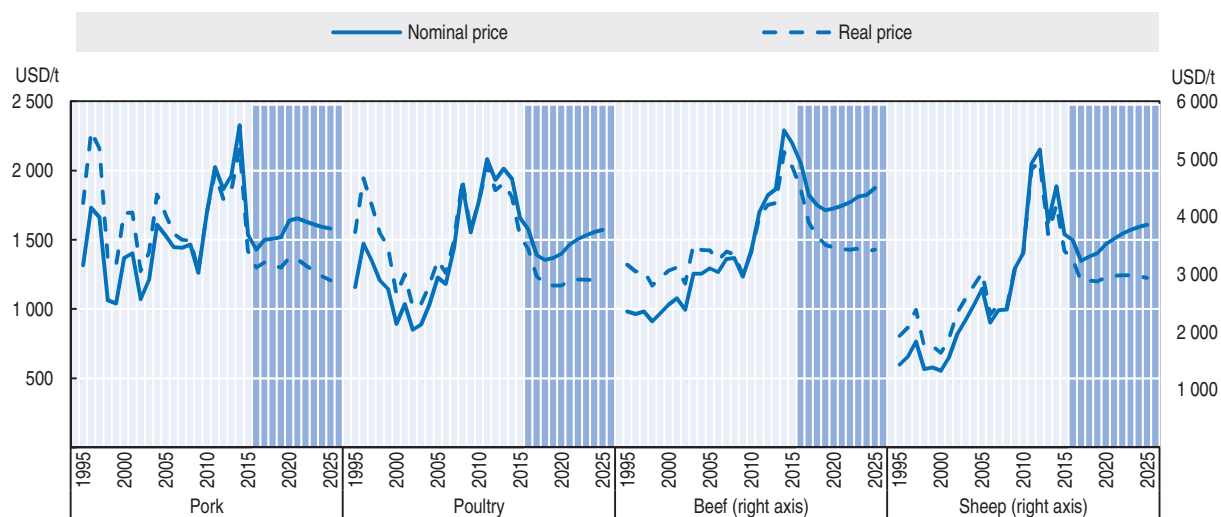
Global meat production is projected to be 16% higher in 2025 than in the base period (2013-15). This compares with an increase of almost 20% in the previous decade. Developing countries are projected to account for the vast majority of the total increase, through a more intensive use of protein meal in feed rations. Poultry meat is the primary driver of the growth in total meat production in response to expanding global demand for this more affordable animal protein compared to red meats. Low production costs and lower product prices have contributed to making poultry the meat of choice both for producers and consumers in developing countries. In the bovine meat sector, several years of cow herd liquidation in major producing regions resulted in low beef production in 2015. However, production is expected to grow from 2016 onwards, with higher carcass weights more than offsetting the decline in cattle slaughter. Pigmeat production will also grow after 2016, driven by China, where herd size is expected to stabilise after years of substantial reductions (a drop of 25 million pigs between 2012 and 2015). Another factor contributing to China's output expansion in the coming years is further consolidation of the pork sector. Production is also expected to increase in the sheepmeat sector with an expected global growth of 2.1% p.a., a higher rate than the last decade, and led by China, Pakistan, Sudan and Australia.

Globally 10% of meat output will be traded in 2025, up from 9% in 2015, with most of the increase coming from poultry meat. Import demand will be weak during the first years of the outlook period, mainly due to lower imports due to the import ban of the Russian Federation and slower growth in China, but will strengthen in the second half of the projection period, due to import growth in the developing world. The most significant growth in import demand originates from Viet Nam, which captures a large


share of additional imports for all meat types. Africa is another fast growing meat importing region albeit from a lower base. Although developed countries are still expected to account for slightly more than half of global meat exports by 2025, their share is steadily decreasing relative to the base period. On the other hand, Brazil's share of global exports is expected to increase to around 26%, contributing to nearly half of the expected increase in global meat exports over the projection period.

Nominal meat prices are expected to start at levels similar to those registered in 2010, and in most cases, trend marginally upwards. By 2025, prices for beef and pigmeat are projected to increase to around USD 4 497/t carcass weight equivalent (c.w.e.) and USD 1 580/t c.w.e. respectively, while world sheepmeat and poultry prices are expected to rise to around USD 3 857/t c.w.e. and USD 1 571/t product weight (p.w.) respectively. In real terms meat prices are expected to trend down from their recent high levels (Figure 3.4).

Figure 3.4. **World meat prices**



Note: US Choice steers, 1 100-1 300 lb dressed weight, Nebraska. New Zealand lamb schedule price dressed weight, all grade average. US Barrows and gilts, No. 1-3, 230-250 lb dressed weight, Iowa/South Minnesota. Brazil: Export unit value for chicken (FOB) product weight. Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933381625>

Global annual meat consumption per capita is expected to reach 35.3 kg retail weight equivalent (r.w.e.) by 2025, an increase of 1.3 kg r.w.e. compared to the base period. This additional consumption will consist mainly of poultry. In absolute terms, total consumption growth in developed countries over the projection period is expected to remain small relative to developing regions, where rapid population growth and urbanisation remains the core drivers. This is particularly true in Sub-Saharan Africa, where the rate of total consumption growth over the outlook period is faster than any other region. The composition of growth is also somewhat unique, with the absolute growth in beef almost matching poultry.

Globally, animal disease outbreaks and trade policies remain among the main factors driving the evolution and dynamics in world meat markets. The implementation of various trade agreements, such as the proposed Trans-Pacific Partnership, over the outlook period could increase and diversify meat trade. An announcement in 2015 by International Agency for Research on Cancer of the World Health Organization (IARC) classified

processed meat<sup>2</sup> as carcinogenic. This raised concerns among consumers worldwide and may impact the projected consumption of countries with high per capita meat consumption.

**The expanded meat chapter is available at**  
[http://dx.doi.org/10.1787/agr\\_outlook-2016-10-en](http://dx.doi.org/10.1787/agr_outlook-2016-10-en)

## DAIRY AND DAIRY PRODUCTS

### Market situation

International prices of all dairy products continued to decline from their 2013 peak, in particular for skim milk powder (SMP) and whole milk powder (WMP). A key factor was the decline in Chinese import demand, with demand for WMP dropping by 34% from 2014 levels. This decrease in Chinese demand for dairy products was coupled with continued production growth between 2014 and 2015, in key export markets, with total output of milk increasing in Australia (4%), the European Union (2%), New Zealand (5%) and the United States (1%).

The Russian Federation's ban on imports continues to restrict dairy trade. Russian cheese imports dropped by 62% between 2013 and 2015, which mainly affected exports from the European Union, the United States and Australia. Conversely, Belarus has greatly increased cheese exports to the Russian Federation, supplementing demand there. The ban is assumed to continue until the start of 2017; with imports of cheese expected to increase sharply as trading resumes, mostly supplied from the European Union and the United States, albeit at lower levels than prior to the ban.

Production in Oceania is facing challenges, low dairy prices have caused a reduction in the total dairy herd, which dropped by 2.7% in 2015. Furthermore drought and adverse weather conditions related to a very strong *El Niño* have restricted production in Oceania's pasture-based systems in 2016; this is expected to reduce production in New Zealand by 6.8% and to stall growth in Australia.

Previously good margins combined with the removal of the EU milk quota as of April 2015 has promoted growth in total milk production in the European Union. This growth, however, has been uneven across member states. For example, milk deliveries from the 2014 to 2015 marketing year (April-March) increased by 18.5% in Ireland, 3.7% in Germany, 2.9% in the United Kingdom, and 11.9% in the Netherlands. With increased milk production and limited growth in domestic consumption, EU exports for all major dairy commodities on aggregate are expected to increase by 58.5% between the 2013-15 base years and 2025.

### Projection highlights

Per capita demand for dairy products in developing countries is expected to grow consistently over the medium-term, supported by rising incomes and lower dairy prices relative to their 2013 peak. As seen in previous years there is a continued shift in dietary patterns away from staples and towards animal products, due to changes in diets. Strong consumption growth is expected across several markets in the Middle East and Asia, including Saudi Arabia, Egypt, Iran and Indonesia, with the per capita consumption of dairy products in developing countries growing between 0.8% and 1.7% p.a., the lowest growth being for cheese and the highest for fresh dairy products. In addition, per capita consumption in the developed world is expected to grow between 0.5% for fresh dairy products and 1.1% p.a. for SMP.

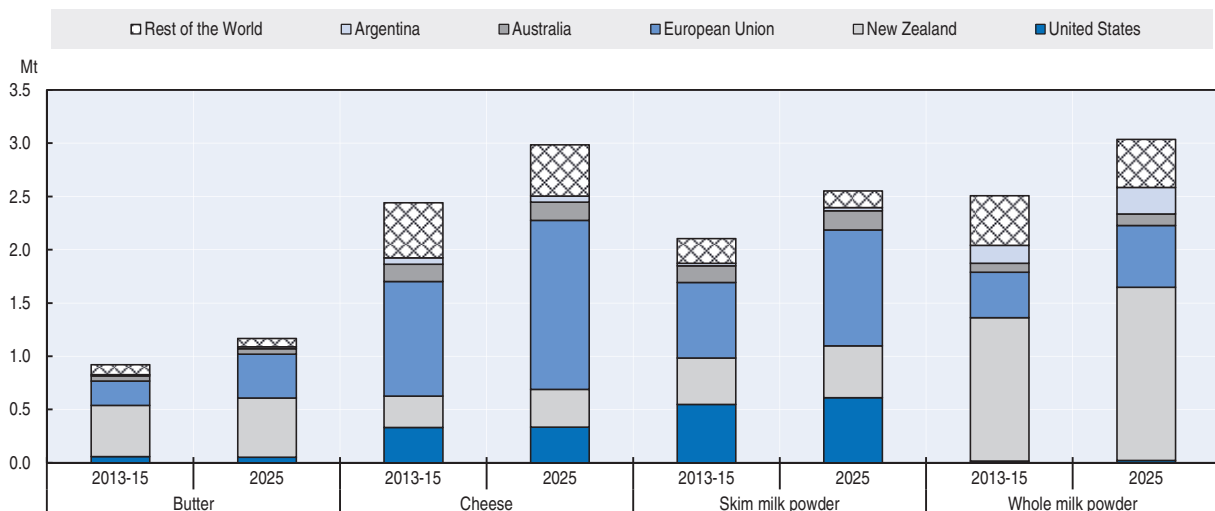
World milk production is projected to increase by 177 Mt (23%) by 2025 compared to the base years (2013-15), corresponding to an average grow rate of 1.8% p.a. which is below the 2.0% p.a. witnessed in the last decade. The majority of this growth (73%) is anticipated to come from developing countries, in particular India and Pakistan. This expansion of production is largely in fresh dairy products, which will grow at 2.9% p.a. in developing countries, and predominantly supply domestic markets. At the world level, production of the main dairy products (butter, cheese, SMP and WMP) is increasing at similar pace to milk production, albeit more slowly than that of fresh dairy products.

As a result of these demand and supply factors, nominal prices of all dairy products are expected to increase over the medium-term, along with real prices of milk powders, which recover from their current lows. The real prices of butter and cheese are expected to decline slightly over the next decade, although this is from a comparatively higher base level than for milk powders.

The strengthening of both the US Dollar and the euro will put pressure on the growth of exports from the United States and the European Union, as they become less competitive on the global market. Conversely, exporters in Argentina, Australia and New Zealand are projected to become more competitive on the world market due to relatively weaker currencies.

Continued export growth is expected over the coming decade following the slump in 2014-15. Butter, cheese, SMP and whey all average strong growth of over 2%. Growth for exports of WMP is more modest at 1.8% p.a. With low dairy prices serving as a barrier to market entry for non-traditional exporters, export growth will continue to be satisfied by a small concentration of key exporters. The European Union will be the principle exporter of SMP and cheese, and New Zealand the lead exporter of butter and WMP, as shown in Figure 3.5.

Figure 3.5. **Exports of dairy products by region**



Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.

StatLink <http://dx.doi.org/10.1787/888933381631>

The global dairy commodity market is prone to disturbances from weather variability, changes in policy, and the opening or closing of trade in key countries. Many of the developments in the dairy market will stem from import demand in the China and how quickly producers react to lower prices. The Outlook foresees a strengthening of demand from developing countries and assumes that while China does not resume importing WMP and butter at 2014 levels, instead servicing much of its demand internally, SMP and cheese imports will increase over the outlook period.

**The expanded dairy and dairy products chapter is available at**

*[http://dx.doi.org/10.1787/agr\\_outlook-2016-11-en](http://dx.doi.org/10.1787/agr_outlook-2016-11-en)*



## FISH AND SEAFOOD

### Market situation

During 2015, the global fishery and aquaculture sector showed sustained growth in overall production and consumption. In 2014, aquaculture's contribution to total fish supplied for food overtook that of wild fish for the first time and this trend continued in 2015. In the same year, after a period of continuous expansion, trade of fish and fishery products declined in value terms. This slowdown was caused by economic contractions in key markets, exchange rate developments and lower fish prices. China, the leading producer, processor and exporter, and the third largest importer of fish and fishery products entered a period of serious uncertainty, even reducing its fish exports due to a slowdown in its processing sector. Seafood consumption in the Russian Federation suffered from the effects of its continuing trade embargo on fish from certain countries. Norway had record total export values, while in Thailand and other large shrimp supplying countries lower shrimp prices pushed total export values down significantly. Catches of anchoveta (mainly used to produce fishmeal and fish oil) were better than expected, relieving some short-term pressure on fishmeal and fish oil prices.

Prices of wild species increased more than those of farmed seafood in 2015, as measured by the FAO Fish Price Index (base 2002-04 = 100). Since reaching a peak in March 2014, with the index at 164, overall fish prices have shown a decreasing trend, with the index falling to 135 in July 2015 due to reduced consumer demand in key markets and an increased supply in certain fishery species. During the end of 2015 and early 2016, prices started to slightly recover.

### Projection highlights

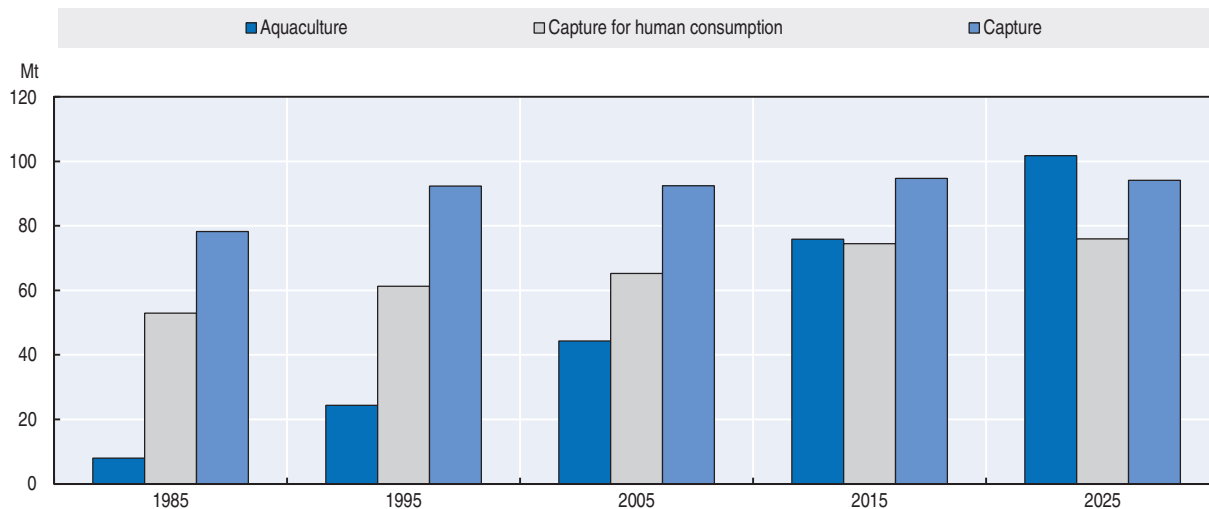
The outlook for the fish sector remains largely positive. In nominal terms, average fish prices are all expected to decline in the first part of the projection period before recovering in the last five years of the outlook period. In 2025, average producer prices are projected to be slightly higher than during the 2013-15 base period, as demand growth is expected to outpace supply. However, the average prices for traded products for human consumption, fishmeal and fish oil are projected to be slightly lower in 2025 relative to the base period. In real terms, however, all prices are expected to decrease over the next decade from the record highs attained in 2014.

World fish production is projected to grow at 1.5% p.a. during the outlook period, a slowdown relative to the 2.5% p.a. of the previous decade. Production is expected to reach 196 Mt, with an overall increase of 29 Mt, or 17%, between the base period and 2025. Most of the production growth for fish will take place in developing countries and in particular in Asia. As capture fisheries production is expected to increase by only 1%, by 2025, the majority of growth will come from aquaculture, which will surpass total capture fisheries in 2021 (Figure 3.6). Despite the increasing role of aquaculture in total fish supply, the capture sector is expected to remain dominant for a number of species and vital for domestic and international food security.

Aquaculture will continue to be one of the fastest growing food sectors despite its average annual growth rate slowing from 5.4% p.a. in the previous decade to 3.0% p.a. in the


period 2016-25. This deceleration is due to higher costs, combined with competition for land, water and labour from alternative production systems. Much of the increase is expected in freshwater species.

Figure 3.6. **Aquaculture production and capture fisheries**



Note: "Capture for human consumption refers" to the Capture production excluding ornamental fish, fish destined to the production of fishmeal, fish oil and other non-food uses. All aquaculture production is assumed to be destined to human consumption.

Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933381641>

World production of fishmeal is expected to increase by 15% in 2025 relative to the average 2013-15 level to reach 5.1 Mt, while fish oil should grow by 17% to 1 Mt during the same period. Approximately 38% of fishmeal in 2025 will be obtained from fish by-products.

World fish consumption as food is projected to increase by 21% (or 31 Mt live weight (lw)) in 2025 compared to the base period, growing at 1.8% p.a. in the next decade compared to 3.1% p.a. in the previous one. In 2025, fish originating from aquaculture is expected to represent 57% of the fish consumed. Fish consumption will continue to expand more strongly in developing countries than developed countries, where there is an overall slowdown in consumption growth. Per capita fish consumption is expected to increase in all continents, while the fastest growth rates are projected for Oceania and Asia.

Fish and fishery products (fish for human consumption, fishmeal) will continue to be highly traded with about 36% of total fishery production (31% excluding intra-EU trade) expected to be exported in 2025. Trade of fish for human consumption is projected to increase by 18% (or 7 Mt lw) by 2025. However, its annual rate of growth is projected to decline from 2.3% p.a. during the last decade to 1.9% p.a. over the next decade reflecting the slowdown in production and demand. Developing countries will continue to be the main exporters of fish for human consumption, but their share in world exports will decrease from 67% in 2013-15 to 66% in 2025. During the same period, developed countries will reduce their share in world imports from 54% to 53%.

A number of uncertainties and challenges can affect projections for fish. The outlook for capture fisheries, fishmeal and fish oil depend on the natural productivity of fish stocks

and ecosystems, which is uncertain, as well as on variable weather patterns. For aquaculture, relevant factors are the accessibility and availability of sites and water resources as well as to technology and finance; the sustainability, availability and cost of fish seeds (e.g. eggs, spawn, offspring, fry, larvae) and feeds; antibiotic use; assessment of environmental impacts (including pollution, fish diseases and escapees); and food safety and traceability issues. Furthermore, trade policies, trade agreements and market access remain important factors influencing the overall dynamics of world fish markets.

**The expanded fish and seafood chapter is available at**

*[http://dx.doi.org/10.1787/agr\\_outlook-2016-12-en](http://dx.doi.org/10.1787/agr_outlook-2016-12-en)*

## BIOFUELS

### Market situation

Several political changes concerning biofuel markets were finalised in the course of 2015. In Brazil, the taxation system was amended to favour hydrous ethanol rather than gasohol<sup>3</sup> and the mandatory anhydrous ethanol blending ratio was increased from 25% to 27%. In the European Union, revisions to the Renewable Energy Directive (RED) and to the Fuel Quality Directive were adopted. A 7% cap was introduced on renewable energy coming from food and feed crops in the transport sector by 2020. After a long delay, the US Environmental Protection Agency's (EPA) final rulemaking for the years 2014-16 was issued in November 2015. The mandates specified are higher than those proposed earlier in the year, though still considerably lower than the initial levels proposed in 2007.

World ethanol<sup>4</sup> and biodiesel<sup>5</sup> prices continued to decrease in nominal terms in 2015 due to weak crude oil and biofuel feedstock prices. Demand for bioenergy in the transportation sector was mostly driven by blending mandates in major economies and by sustained fuel use around the world.

### Projection highlights

International prices of ethanol and biodiesel are expected to recover in nominal terms over the outlook period, given developments in crude oil markets and the recovery of prices of biofuel feedstock (Figure 3.7). Global ethanol production is expected to expand modestly from 116 Bln L in 2015 to 128.4 Bln L by 2025. Half of this growth will originate from Brazil.

The expansion of global biodiesel production will be driven by policies in place in the United States, Argentina, Brazil and Indonesia, and to a lesser extent the fulfilment of the RED target in the European Union. It is expected to increase from 31 Bln L in 2015 to 41.4 Bln L by 2025. Advanced biofuels are not expected to take off over the projection period.

For the United States, this *Outlook* assumes that the 10% ethanol blend wall<sup>6</sup> will continue to limit growth in ethanol use, that biodiesel use will expand due to a stronger advanced mandate and that cellulosic ethanol will not be available on a large scale. The cellulosic mandate will be mostly met with renewable compressed natural gas and renewable liquefied natural gas. In the European Union, the proportion of total transport energy accounted for by biofuels, including double counting for sustainable biofuels is expected to reach 6.3% by 2020. The remainder of the 10% RED target will be met from other renewable energy sources such as electric cars.

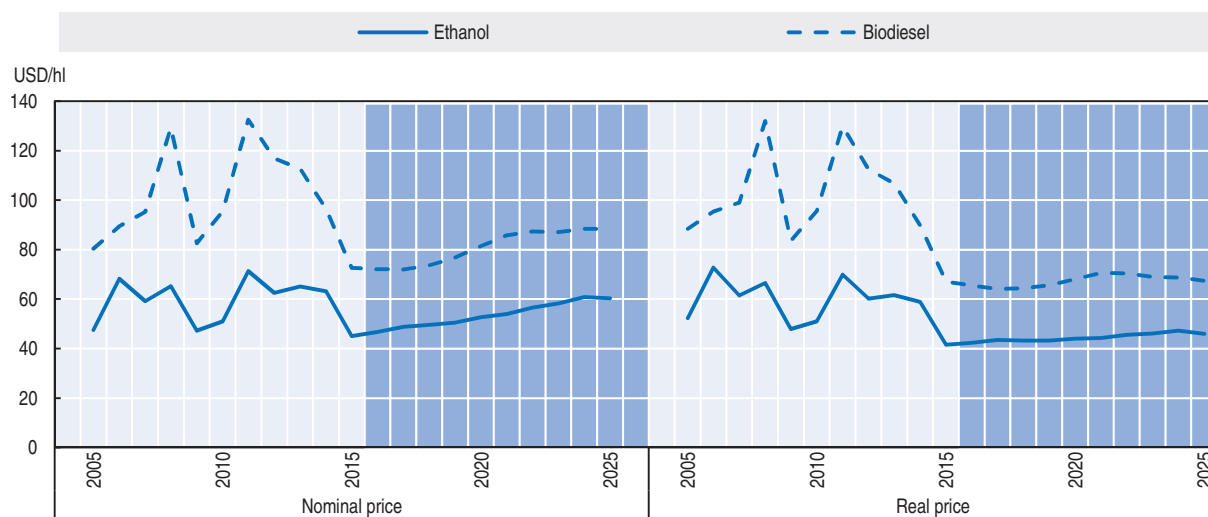
In Brazil, it is assumed that prices will remain favourable to hydrous ethanol use rather than gasohol and thus a sustained demand for ethanol, mostly met by domestic production, will prevail over the outlook period. Indonesian biodiesel production will be used mainly to meet domestic mandate-driven demand. For India, the new policies aiming at compensating sugar mills for high sugar prices will encourage ethanol production from molasses.

Elsewhere in the world, development of the comparatively minor biofuels markets depends on a mix of effective policy support and price trends, leading to mixed prospects across countries.

Biofuel trade will remain limited. It is expected that ethanol exports will mostly originate from the United States where the blend wall limits further increases in domestic demand, and that biodiesel trade will be mostly directed from Argentina to the United States in order to meet the biodiesel and advanced mandates. Indonesian exports of biodiesel are expected to remain marginal given high tariffs imposed by importing countries.


The future evolution of energy markets as well as possible policy changes are key uncertainties attached to the Outlook for biofuel markets over the next decade. However, given recent policy decisions, uncertainties concerning the future of biofuel markets should ease somewhat, at least over the short-term.

Figure 3.7. **World biofuel prices**



Note: Ethanol: wholesale price, US, Omaha; Biodiesel: Producer price, Germany, net of biodiesel tariff and energy tax.

Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933381654>

**The expanded biofuels chapter is available at**

[http://dx.doi.org/10.1787/agr\\_outlook-2016-13-en](http://dx.doi.org/10.1787/agr_outlook-2016-13-en)

## COTTON

### Market situation

The world cotton market experienced dramatic developments in the first half of the 2015 marketing year (see glossary for a definition of marketing year) caused by an acute drop in production – about 9% – in major producing countries. Worldwide cotton production has not declined this much since 2008. This unexpected drop in production led to releases of stocks; however, total world stocks still remain at a very high level (20 Mt, 5% down from 2014).

Production fell in almost all major cotton producing countries led by Pakistan, the United States, and China, which experienced declines of 5%, 19% and 17%, respectively. Adverse weather, lower global world market demand and policy uncertainty all contributed to the sharp decline. The decreased synthetic fibre prices driven by substantially lower oil prices placed huge competitive pressures on world cotton markets. Nonetheless, cotton mill consumption is estimated to increase by 1% from 2014 to around 24.3 million tonnes (Mt) in the 2015 marketing year. Mill consumption estimates in China and India remained stable at 7.7 Mt and 5.3 Mt respectively, Pakistan experienced over 2% and Bangladesh over 4% growth while Viet Nam picked up 6% as Chinese direct investment in mills of the latter two countries continues to increase.

Global cotton imports declined for the third consecutive season, falling 2% from 2014, to 75 Mt. Increases in imports by Indonesia, Turkey and Viet Nam were insufficient to offset the 12% decline in China's import demand from 2014, as their new cotton support policy narrowed the price gap between domestic and imported cotton. With lower output, US exports are estimated to fall to 2.2 Mt, about 11% below the previous year. India's exports however increased slightly.

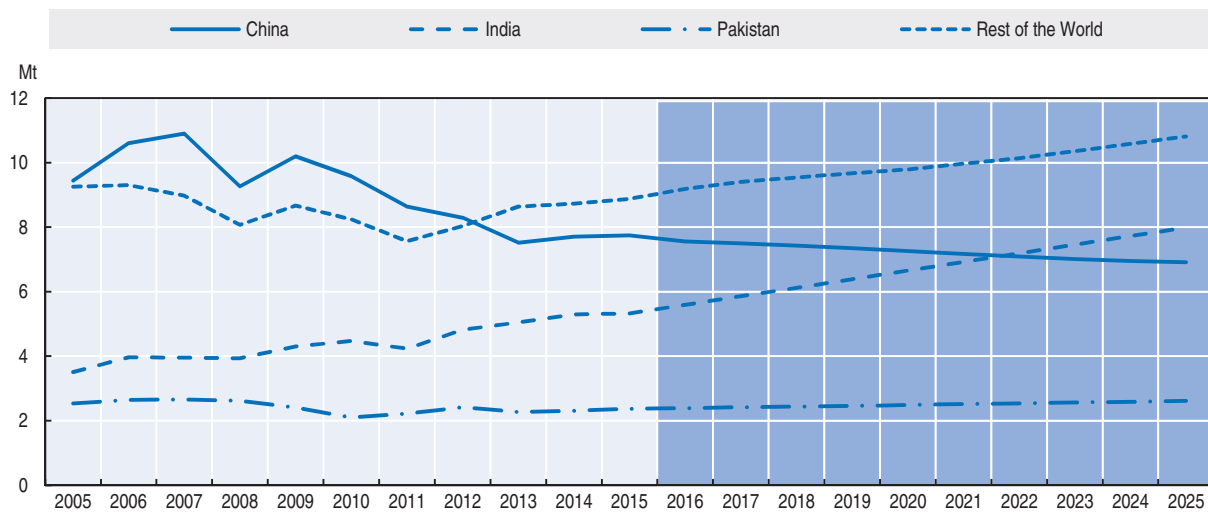
### Projection highlights

Although the world cotton price is under pressure from substantial high stock levels and fierce competition from synthetic fibres, cotton prices are expected to be relatively stable in nominal terms after an anticipated further drop in 2016. During 2016-25, relative stability is expected as government support policies stabilise markets in major cotton producing countries. However, world cotton prices are expected to be lower than the average in 2013-15 in both real and nominal terms.


World production is expected to grow at slower pace than consumption during the first few years of the outlook period, reflecting the anticipated lower price level resulting from the large global stocks that accumulated between 2010 and 2014. The stock-to-use ratio is expected to be over 40% in 2025, which is at the high-end of historical levels but well below the historical high of 87% in 2014. World cotton area should be stable for the first five years but it is projected to grow from 2020 onwards. Yields rise around the world and global average yield grows slowly as production switches from relatively high yielding countries, notably China, to relatively low-yielding ones in South Asia.

World cotton use is expected to grow at 1.5% p.a. as a result of economic and population growth, reaching 28.3 Mt. Consumption in China is expected to fall to 6.9 Mt following the downward trend started in 2010, while India becomes the world's largest country for cotton

Figure 3.8. Cotton consumption by region



Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933381669>

mill consumption (8 Mt) in 2025. Higher cotton mill consumption by 2025 is also foreseen for Bangladesh, Pakistan, Turkey, Indonesia and Viet Nam.

It is expected that the growth in global cotton trade will be slower compared to previous years, especially 2011-13, when growth was driven by surging Chinese imports. To obtain value-added from mills, a shift to trading cotton yarn and fabrics rather than raw cotton has emerged over the past few years, which is expected to continue. Nonetheless, by 2025 global raw cotton trade will reach 8.7 Mt, nearly 7% higher than the average during 2013-15. The United States retains its position as the world's largest exporter, accounting for 28% of world trade. Exports from Brazil are expected to almost double from 0.7 Mt to 1.5 Mt, making it the world's second largest cotton exporter. With higher production, Australia is expected to increase cotton exports to 1.1 Mt, over 70% more than in the base period. Cotton producing countries in Sub-Saharan Africa, as a whole, will increase their exports to reach 1.4 Mt by 2025. On the import side, China is expected to import 1.6 Mt in 2025 and retains barely its position as the world's largest import market. Its dominant role in the world cotton market will be significantly challenged as other importing countries emerge. It is projected that by 2025, Bangladesh, Indonesia and Viet Nam will each import more than 1 Mt.

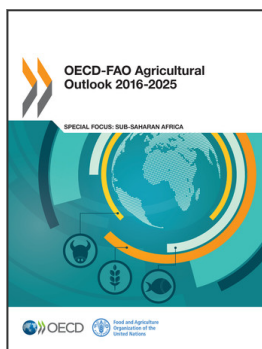
While continuing increases in farm labour costs and competition for resources with other agricultural crops place significant constraints on growth in global cotton production, higher productivity driven by technological progress, including greater adoption of bio-tech cotton, creates substantial potential for cotton production to expand in the next decade. While the medium-term prospects are for sustained growth, there may be potential short-term uncertainties in the current Outlook which may result in short-term volatilities in demand, supply and prices. A sudden slow-down in global economy, a sharp drop in global textiles and clothing trade, quality and price competition from synthetic fibres and changes in government policies are important factors that can affect the cotton market. The unprecedented high stock level is a key driver of the world cotton price.

**The expanded cotton chapter is available at**  
[http://dx.doi.org/10.1787/agr\\_outlook-2016-14-en](http://dx.doi.org/10.1787/agr_outlook-2016-14-en)

### Notes

1. These absolute increases in the European Union and Canada are slightly misleading since the base periods included bumper crops in 2013 and 2014 in the European Union and an extreme bumper crop in Canada in 2013.
2. The term “processed meats” refers to meat that has been treated either to be preserved or flavoured, such as hams and sausages.
3. Gasohol is a mixture of gasoline and anhydrous ethanol used as transport fuel. In Brazil, most vehicles are flex-fuel vehicles able to run on any blend of gasoline and ethanol. At the pump, automobilists can choose between gasohol (currently E27) and hydrous ethanol (E100).
4. Wholesale price, US Omaha.
5. Producer price, Germany, net of biodiesel tariff and of energy tax.
6. The term blend wall refers to short run technical constraints that act as an impediment to increased ethanol use. It is assumed in this *Outlook* that US cars will not be able to consume gasohol with more than 10% of ethanol.





**From:**  
**OECD-FAO Agricultural Outlook 2016-2025**

**Access the complete publication at:**  
[http://dx.doi.org/10.1787/agr\\_outlook-2016-en](http://dx.doi.org/10.1787/agr_outlook-2016-en)

**Please cite this chapter as:**

OECD/FAO (2016), "Commodity snapshots", in *OECD-FAO Agricultural Outlook 2016-2025*, OECD Publishing, Paris.

DOI: [http://dx.doi.org/10.1787/agr\\_outlook-2016-6-en](http://dx.doi.org/10.1787/agr_outlook-2016-6-en)

This work is published under the responsibility of the Secretary-General of the OECD and the Director-General of the FAO. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries, or the governments of the FAO member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to [rights@oecd.org](mailto:rights@oecd.org). Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at [info@copyright.com](mailto:info@copyright.com) or the Centre français d'exploitation du droit de copie (CFC) at [contact@cfcopies.com](mailto:contact@cfcopies.com).