

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

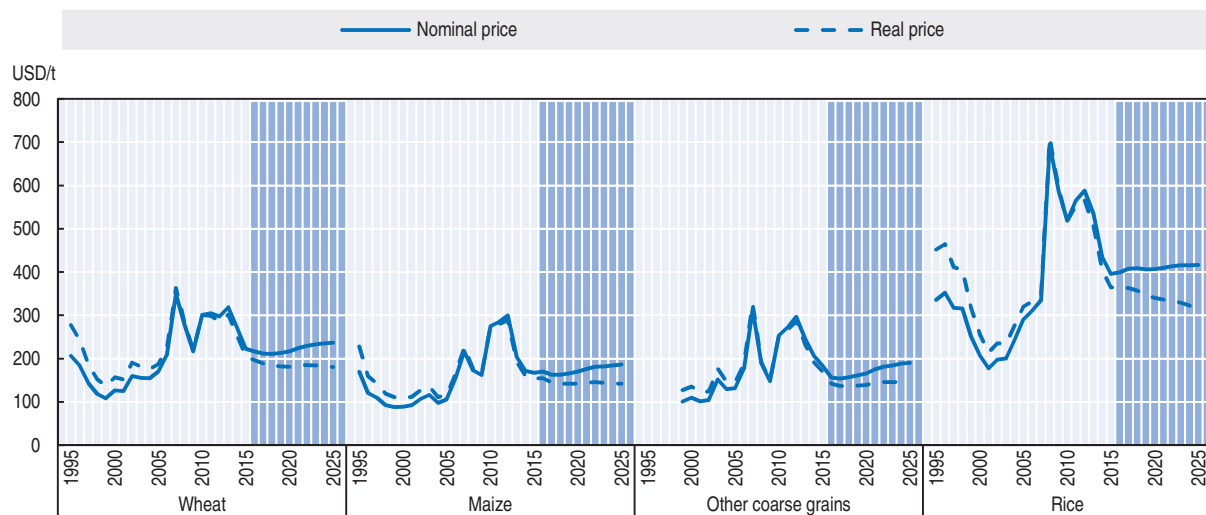
Starting with relatively low prices during the base period (2013-15), the prevailing sluggish economic growth conditions, large stocks, low oil prices and a strong US dollar are likely to keep prices under pressure in the short run. Over the course of the medium-term, however, prices of wheat and coarse 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 Mt¹ 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>.

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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

CEREALS

Prices

The international wheat price as measured by the benchmark US wheat No.2 Hard Red Winter (fob) is expected to fall to USD 223/t in the 2015 marketing year, a level not seen since 2009. Although current expectations for the 2016 wheat harvest are below the record levels of 2014 and 2015, they remain favourable. With adequately rebuilt global stocks and low projected oil prices, wheat price is projected to decrease further in the short term. From 2018, wheat prices are anticipated to follow a moderately upward trend reaching USD 237/t in 2025, corresponding to a slight decrease in real terms compared to 2016.

The world price for maize, as measured by the benchmark US maize No. 2 Yellow (fob), is expected to average at USD 167/t in the 2015 marketing year. The sharp increase in world inventories between 2012 and 2014 is likely to keep maize prices under downward pressure. However, they are not expected to drop further in 2016, after the sharp drop in 2015. Henceforth, the price is expected to recover to USD 187/t by 2025, while slowly decreasing in real terms.

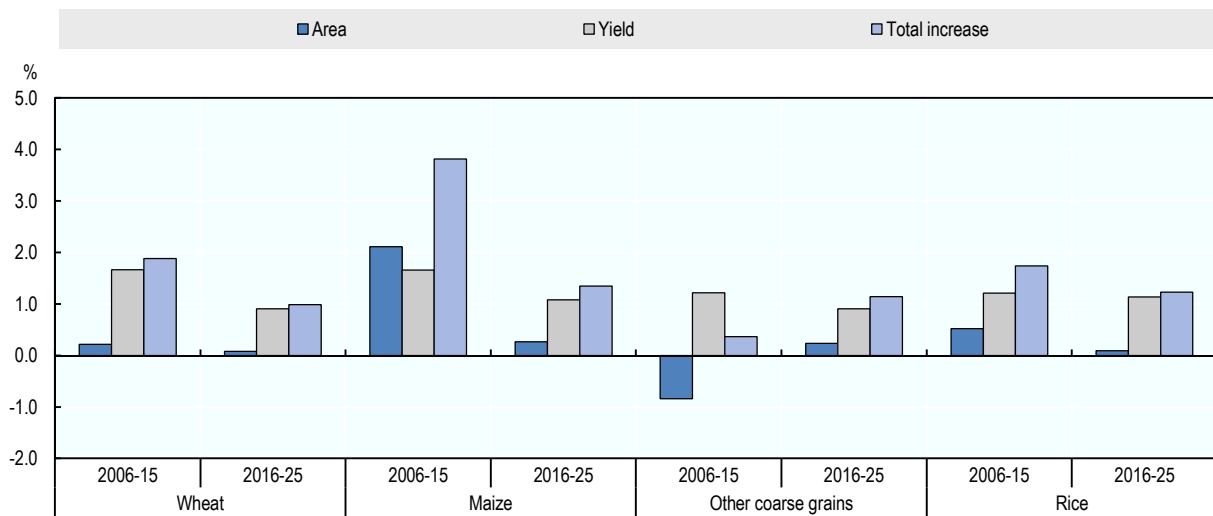
Rice prices in major exporting countries continued to ease during the 2015 marketing year. This downward trend also affected the world reference rice price (milled, 100% B, fob Bangkok), which fell 9%, from USD 435/t in 2014 to USD 395/t in 2015. The international rice price is likely to remain under pressure in the short term reflecting sluggish import demands. Over the medium term, prices in nominal terms are likely to recover slowly, sustained by growing purchases from countries in Africa, Asia and the Near East, to reach USD 416/t by 2025, with prices in real terms decreasing over the ten-year horizon. This decrease in real terms is stronger than for other cereals mainly because demand is dominated by one component, human consumption, while growing feed demand for other cereals also supports their prices.

The world market price for other coarse grains, as measured by the price for feed barley (fob) Rouen, is also set to decrease in the 2015 marketing year to USD 184/t and further down to USD 156/t in 2016. By 2025, the world market price for other coarse grains should increase to USD 189/t, sustained by growing import demand from the People's Republic of China (hereafter "China") and Saudi Arabia. In real terms, prices are expected to stabilise at the 2016 level.

Production

The potential for global area expansion for cereals in the next decade is weak because the incentives to extend arable land are low given projected price levels and opportunity costs. Furthermore, the relative price developments are not in favour of cereals. While some developing countries are increasing production through area expansion, most production growth is being driven by yield increases (Figure 3.1.1). Major wheat, maize and rice producers show similar trends of limited area expansion. However, the reduction witnessed in the past decade in areas planted with coarse grains other than maize is not expected to prevail in the coming ten years as growing feed demand is projected to sustain their production. Land availability is expected to become more restricted than in the previous decade as many countries are limiting the possibility to convert forest or pasture into arable land. Yield growth is projected to slow down compared to the previous decade and global cereal production is projected to expand by an overall 12% by 2025 relative to the base period 2013-15.

Figure 3.1.1. Global growth rates of harvested areas and yields for cereals



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

StatLink  <http://dx.doi.org/10.1787/888933381677>

Production incentives for grains do not change dramatically over the outlook period. The price ratio between wheat and maize is expected to remain favourable for wheat although the dominant use of maize to supply feed for a growing animal sector is expected to remain robust throughout the projection period.

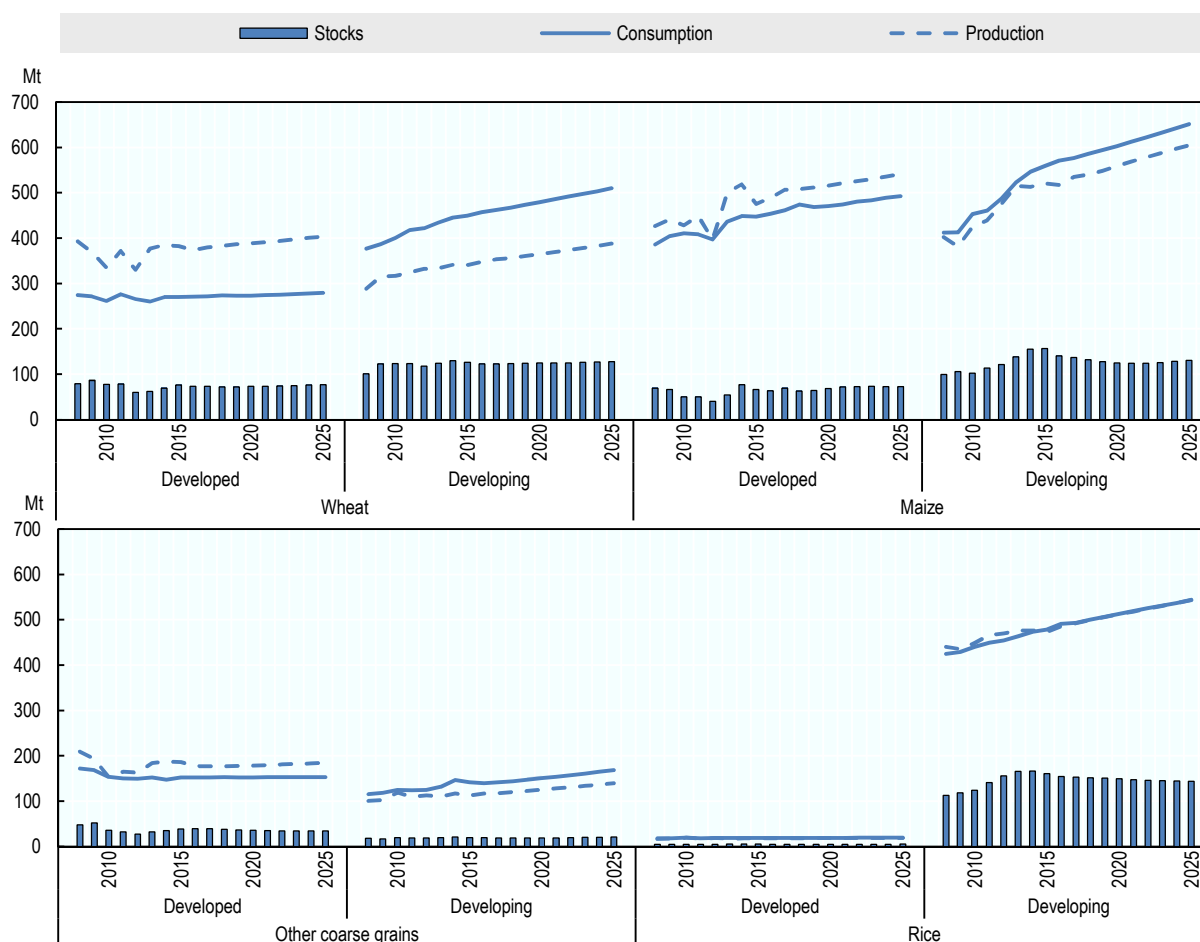
Global wheat output is expected to increase at a more moderate pace compared to the previous decade. Most of this growth is expected to come from the major wheat-producing countries, although some Middle Eastern countries also contribute to this growth, reflecting national policies set to obtain self-sufficiency for wheat. India, the world's third largest wheat producer, is expected to provide the biggest share of additional wheat supply, followed by China and Argentina. In Argentina, where areas planted to wheat decreased over the previous decade, it is expected that the number of wheat areas will increase as the country faces severe rotation problems due to the lack of winter crops. Production, as a result, is expected to grow by 3.5% p.a. During the base period, 53% of global wheat production comes from developed countries and this share is projected to decrease to 51% by 2025 (Figure 3.1.3). Furthermore, with production expected to grow slightly less than consumption, global stocks are also projected to grow at a slower rate, with a global stock-to-use ratio of about 26% by 2025.

World maize production is projected to rise by 132 Mt, with most of this growth coming from the United States (28 Mt), China (22 Mt), Brazil (21 Mt), and Argentina (6 Mt). The highest growth rates of production will occur in developing countries however, where maize supply is expected to rise by 17% with respect the base period, while developed countries will grow an additional 9%. By 2025, production in developing countries will exceed that in developed countries. The stock-to-use ratio is projected to decrease to 16% by 2025, mainly driven by the policy change in China announced in January 2016 to end the stock piling programme and replace it by market-oriented purchasing combined with direct subsidies to farmers. Based on this, the Outlook assumes that the Chinese government will release the accumulated stocks over the period 2016 to 2021 to reach a more sustainable stock-to-use ration of 30%. At the same time, areas planted to maize are expected to be reduced given that production incentives shift towards soybean production. Maize production in China, as a consequence, is projected to grow much slower (1.1% p.a.) than over the previous decade (5% p.a.).

Global production of other coarse grains is projected to reach 324 Mt by 2025, up from 298 Mt during the base period. Among the major producing countries, the European Union will decrease production by 2% while the Russian Federation will increase its production by 1% by 2025

compared to the base period. Major production gains are projected from Argentina, Ethiopia, India, and Nigeria. Production in developed countries (Figure 3.1.2) is expected to stagnate, partly due to feed demand not increasing, while gains in developing countries are a result of intensification in the feed sector and food demand following population increase, especially in African countries.

Figure 3.1.2. Supply, demand and stocks of cereals in developed and developing countries



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

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Rice production in developed countries is projected to increase to 19 Mt in 2025, led by a recovery in the United States and by modest expansion in Australia, the European Union, and the Russian Federation. It is expected to remain on a declining trend in Japan and Korea. On the other hand, developing countries are expected to produce 544 Mt by 2025, 14% more than during the base period, which would imply a slower pace of growth than in the previous decade. Asia contributes the majority of the additional global production (around 85%) over the projection period. Global rice production is expected to grow by 1.2% p.a. to 562 Mt in 2025.

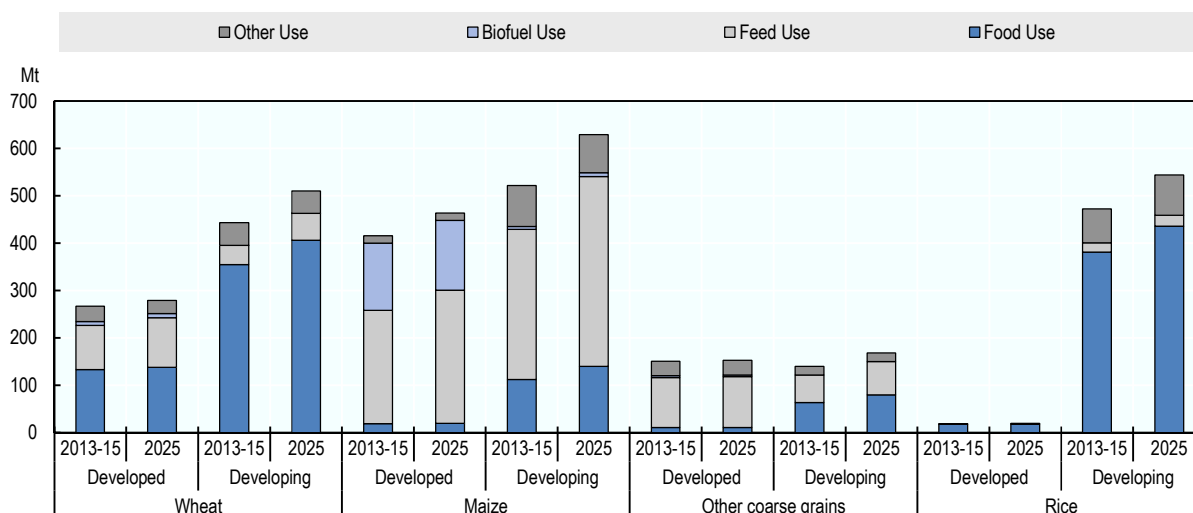
Consumption

Global food consumption per capita is expected to increase for maize, other coarse grains and rice, while almost no change is projected for wheat. Nonetheless, food use, the major driver behind the growth of total wheat utilisation, is projected to increase from 487 Mt in the base period 2013-2015 to 543 Mt in 2025 in line with global population growth. Human consumption of wheat and

wheat products is expected to remain stable with a share of 69% of total utilisation throughout the outlook period. Feed use grows by another 28 Mt compared to the base period. Global production of wheat-based ethanol is not expected to increase strongly. In developed countries, the increase in food use is half the increase in feed use, albeit the increase in food utilisation of wheat is three times larger than the increase in feed use for the developing countries. Developing countries account for most of the increase in global wheat use (84%). Overall, the absolute increase is much smaller for feed use compared to food utilisation (Figure 3.1.3).

World utilisation of maize is projected to increase by 16% over the projection period, a slower pace than in the previous decade. This increase is largely driven by an expansion in feed demand, which holds the largest share of total utilisation (around 60% in 2025). In developed countries, food demand is set to increase moderately by 0.25% p.a. In developing countries, the higher importance of maize in diets, especially white maize, and a growing population leads to an increase in food use of about 2% p.a. Use of coarse grains, predominantly maize for biofuel production, almost tripled between 2004 and 2014. During the outlook period, however, growth is expected to be limited as additional maize-based ethanol is not eligible to contribute to the US biofuel mandates after 2016, and the international ethanol market is restrained in general given current biofuel policies (Figure 3.1.3).

Figure 3.1.3. Cereal use in developed and developing countries



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

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World utilisation of other coarse grains is projected to increase by 11% compared to the base period to 322 Mt by 2025. This increase is much lower for developed countries (0.1% p.a.) than for developing countries (2.2% p.a.), thus the majority of demand will be in developing countries by the end of the projection period. The main driver behind the demand expansion is increasing food use followed by feed.

One of the most important global players regarding the utilisation of maize and other coarse grains remains China, which accounts for 22% and 7.9% respectively of global maize and other coarse grain utilisation during the base period. Although these shares are expected to decrease to 21% for maize and increase to 8.3% for other coarse grains, China's demand for coarse grains will increase in absolute terms. Not surprisingly, the additional demand is mainly driven by a growing feed sector, where a substitution of maize with barley and sorghum can be observed after the stocks have returned to more normal levels.

Rice is mostly destined to direct human consumption and it is a major staple food in large parts of Asia, Africa, and Latin America and the Caribbean. Sustained by population growth, total

utilisation of rice is to expand by about 1.1% p.a. to 563 Mt in 2025, adding another 7.2 Mt, almost entirely in developing countries. African and Asian developing countries respectively account for 16% and 80% of that increase. Given demographic changes, per capita rice consumption in Asian countries, where much of the rice produced is anticipated to be consumed domestically, is expected to rise only marginally as diets diversify as incomes increase. Per capita rice consumption is expected to grow faster in Africa where rice is gaining importance as a major food staple (Table 3.1.1). Worldwide, per capita rice intake as food is projected to rise from 54.8 kg during the base period to 55.8 kg in 2025.

Table 3.1.1. Rice per capita consumption

	kg/person/year		
	2013-15	2025	Growth rate (% p.a.)
Africa	25.4	27.4	0.71
Asia and Pacific	80.7	82.5	0.17
North America	12.2	12.1	0.21
Latin America and Caribbean	29.6	29.4	-0.06
Europe	4.7	4.9	0.65

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

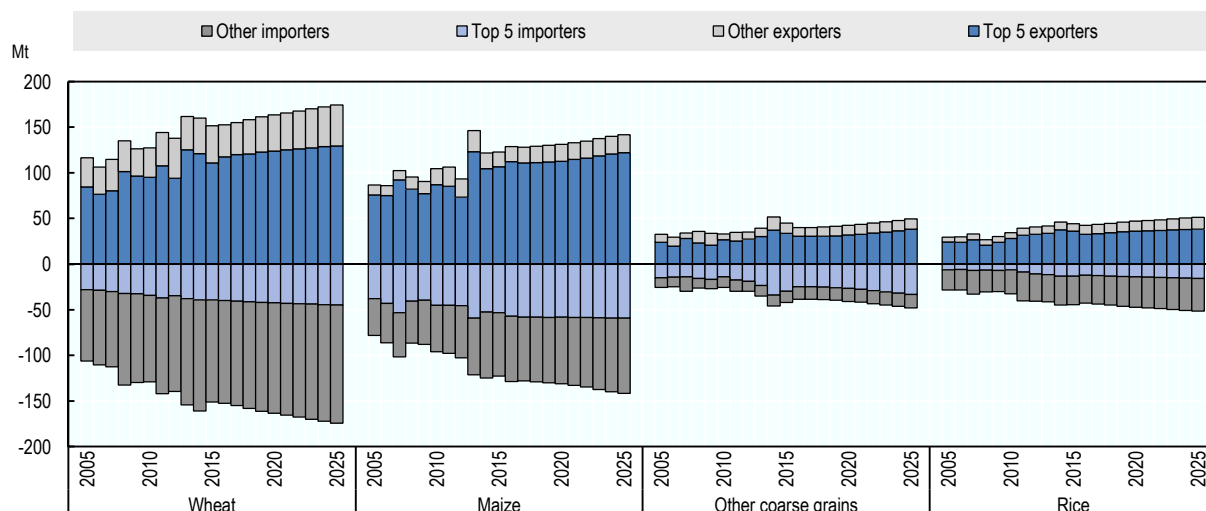
Trade

Traditionally, the developed world supplies wheat, maize and other coarse grains to developing countries. This situation is expected to continue and even intensify in the coming ten years as combined net exports of wheat, rice and coarse grains are set to increase by 10% compared to the base period. In 2025, the European Union’s international trade accounts for about 18% of global wheat exports, followed by the United States and the Russian Federation (16% each), Canada (13%), and Australia (11%). However, the share of those top five exporters is set to decrease from about 75% during the base period to 74% in 2025, with Argentina and the Ukraine increasing their export shares. Wheat imports are spread more widely among a high number of importers, where the top five importers (Egypt, Indonesia, Algeria, Brazil and Japan) take a combined stable share of 25% over the ten-year horizon (Figure 3.1.4).

Supply in the major wheat-producing members of the Commonwealth of Independent States (CIS), Kazakhstan, the Russian Federation, and the Ukraine, has been volatile in the past decade mainly due to yield fluctuations. Nonetheless, in the recent past, production growth on average outpaced consumption growth so that further increases of wheat production and exports are expected.

The share of the top five exporters for maize (United States, Brazil, Ukraine, Argentina, and the Russian Federation) amounts to 86% in the base period and is set to remain at this stable level during the projection period. The five major importers of maize – Japan, Mexico, the European Union, Korea, and Egypt – account for 45% of world imports during the base period; this share is expected to decrease to 42% mainly due to expected import decreases in the latter three countries. Import demand for maize from Asian countries, in particular Indonesia and the Philippines, is expected to grow steadily.

Figure 3.1.4. Cereal trade concentration



Note: Top 5 exporters, wheat (2015): Australia, Canada, European Union, Russia, United States.
 Top 5 importers, wheat (2015): Algeria, Brazil, Egypt, Indonesia, Japan.
 Top 5 exporters, maize (2015): Brazil, Argentina, Russian Federation, the United States, Ukraine.
 Top 5 importers, maize (2015): Egypt, European Union, Japan, Korea, Mexico.
 Top 5 exporters, other coarse grains (2015): Argentina, Australia, Canada, the European Union, the United States, Ukraine.
 Top 5 importers, other coarse grains (2015): China, the Islamic Republic of Iran, Japan, Saudi Arabia, the United States.
 Top 5 exporters, rice (2015): India, Pakistan, Thailand, the United States, Viet Nam.
 Top 5 importers, rice (2015): China, the European Union, Nigeria, Philippines, Saudi Arabia.
 Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", *OECD Agriculture statistics* (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

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The United States is projected to remain the main maize exporter with exports set to increase from 47 Mt during the base period to 49 Mt in 2025. Exports are expected to remain a constant share (13%) of US production during the projection period, although they are expected to lose export shares in global trade to Brazil. In the medium term, maize and other coarse grain markets continue to be dependent on China's willingness to import feed grains, although maize imports have not increased much in recent years. Given the announced policy change regarding maize support and the unavoidable release of stocks, maize imports are expected to drop in the coming years until China has reached a sustainable stock-to-use ratio. The *Outlook* assumes that this ratio would stabilise to around 30% from 2021 onwards. Therefore and due to maize production growth in China being projected to slow down, maize imports are expected to increase again after 2020 to reach 6 Mt by 2025.

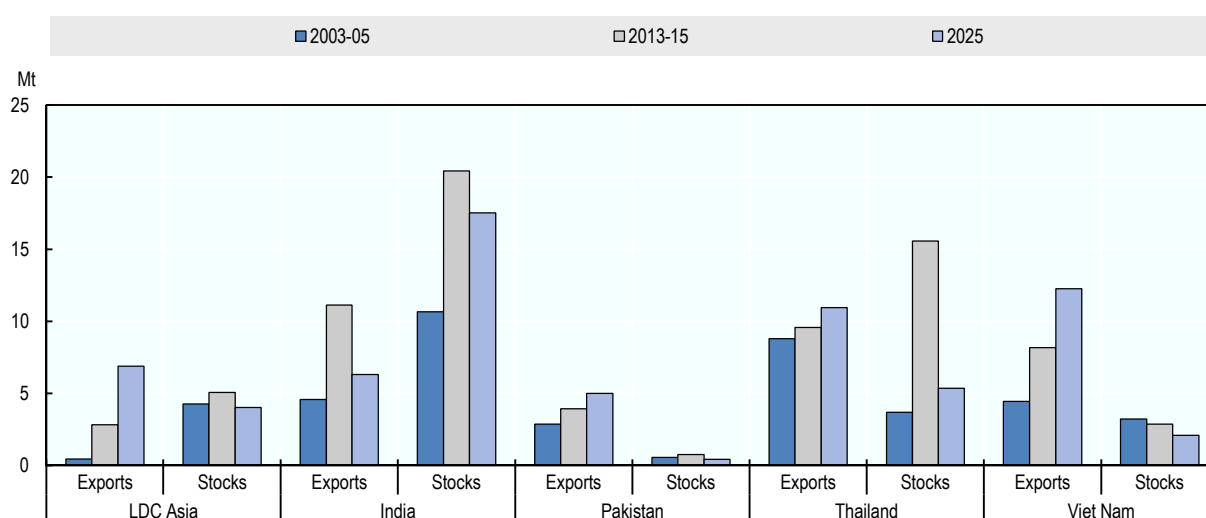
South Africa, which traditionally supplies about 2% of maize to the world market, experienced a huge drop in exports in 2015 due to production shortfalls. Nevertheless, they are expected to recover from 2016 onwards. The policy to improve wheat production in the Islamic Republic of Iran might have a negative impact on maize production whereby increasing domestic demand is expected to be covered mainly by additional imports.

The international trade volume of other coarse grains is much smaller than those for maize or wheat. The major five exporters are the European Union, Australia, the United States, Argentina, and Canada. Most of the expected increase in trade volume is projected to come from these countries, reaching 77% of global trade in 2025, as opposed to 75% during the base period. Exports from the CIS countries are also set to increase; when combined with the five major exporters, almost 95% of global trade is projected to be covered by these countries. In contrast to maize and wheat markets, imports of other coarse grains are much less widespread among countries. The five major importers (China, Saudi Arabia, Japan, the United States, and the Islamic Republic of Iran) absorb almost 70% of global trade, with China alone accounting for 33%.

A strong increase of Chinese barley and sorghum imports from about 3 Mt in 2012 to more than 18 Mt in 2014 has been observed. It is assumed in this Outlook that due to the policy change in maize, barley and sorghum imports will be replaced partly by maize released from stocks in the feed ratios in the coming years. This is expected to lead to a drop of these imports by about 8 Mt in 2016. As for maize, it is assumed that imports rise again as soon as the maize market has reached a new equilibrium and reach 16 Mt in 2025.

Despite being a thin market, compared with other agricultural commodities, international rice trade registered a particularly fast annual growth of 5.7% over the past ten years. Trade expansion is expected to slow down to 2.1% p.a. for the next ten years, but the volume exchanged is expected to rise to 51 Mt by 2025.

Figure 3.1.5. Exports and stocks for Asian rice exporters



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

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Rice exports from four of the five major rice exporters – Pakistan, Thailand, Viet Nam, and the United States – are expected to be higher than in the base period, while those originating from India, currently the top exporter, are projected to be lower. By 2025, Viet Nam is expected to take the first position on global rice export markets with an export share of 24%, surpassing the 21% share of Thailand. India's exports increased in response to high prices during 2011-13 and have remained at high levels since then. However, they are expected to decline over the projection period. Another factor likely to dominate developments in the next decade is the probable rise of Cambodia and Myanmar (currently included in the Asia Least Developed Country grouping in this Outlook) as major rice exporters which would further stoke competition (Figure 3.1.5). As a consequence, the export share in global trade of the five major exporters is set to decrease from 81% in the base period to 75% in 2025.

African countries are expected to remain major importers of rice as demand continues to outpace production in the region. Nigeria, in particular, is predicted to be the second largest importer after China, purchasing close to 4.4 Mt. Overall, imports in Africa are expected to increase from 14.5 Mt in 2013-15 to 19.9 Mt in 2025, lifting Africa's share of world imports from 34% to 39%. In addition to China and Nigeria, the group of the five major importers includes the European Union, the Philippines, and Saudi Arabia. Altogether, these countries account only for 30% of global rice imports throughout the projection.

Main issues and uncertainties

After three consecutive years of above average supplies, current production prospects for the main grain-producing regions are optimistic despite the prevailing risk of adverse weather events such as extreme heatwaves or devastating floods evoked by climate change, affecting cereal markets in these regions. Historical deviations of crop yields from expected values are higher for wheat than for other commodities, and wheat yields in Australia, Kazakhstan, the Russian Federation and the Ukraine are particularly uncertain. Crop yields in South American countries such as Argentina, Brazil, Paraguay and Uruguay also show reasonably high variability.

Cereal prices could be affected by a potential further slowdown of fast growing economies, such as China, and lower energy prices caused by the uptake of new energy sources and new extraction technologies. Moreover, the reinforcement of food security and the sustainability criteria in the reform and design of biofuel policies (i.e. the European Union or the United States) may also impact on the demand for cereals. Additionally, political unrest in either exporting countries (notably the Ukraine) or importing countries (in particular North Africa and the Middle East) could provoke market reactions that are not reflected in the projections. China's policies which influence their import demand for cereals are also crucial for future developments of cereal markets (compare Box 1.5 of the main report)

The future developments of global wheat markets are particularly uncertain since exporting countries in South America face strong price increases given their assumed exchange rate depreciations, which will stimulate production. Stronger exchange rates would put downward pressure on dollar-denominated prices. Consequently, international prices could be falling in dollar terms: while farmers in one country are looking at prices in their domestic currency, prices could be rising and could stimulate production despite falling international prices. Demand for wheat is concentrated in North Africa and the Middle East, but further political instability in these regions could reduce demand and depress international wheat prices.

The outlook for Argentina is particularly uncertain, since recent policy changes concerning the elimination of export taxes might strengthen competitiveness on international cereal markets even more than assumed in the projections.

Table 3.A1.1. World cereal projections

Marketing year		Average 2013-15est	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
WHEAT												
World												
Production	Mt	720.3	721.7	733.2	739.8	747.3	753.9	760.1	767.7	775.6	783.6	791.3
Area	Mha	222.2	222.6	222.8	223.3	223.6	223.7	223.6	223.6	223.9	224.1	224.4
Yield	t/ha	3.24	3.24	3.29	3.31	3.34	3.37	3.40	3.43	3.46	3.50	3.53
Consumption	Mt	709.9	727.7	733.4	740.4	746.7	752.2	759.9	766.5	773.7	781.4	789.6
Feed use	Mt	133.4	140.6	141.1	143.1	146.1	148.3	150.5	152.7	155.1	157.9	161.3
Food use	Mt	487.7	497.2	503.5	508.6	513.4	518.1	523.3	528.2	532.8	537.9	543.8
Biofuel use	Mt	8.8	9.4	9.8	10.4	10.4	10.1	9.9	9.5	9.2	9.2	9.3
Other use	Mt	80.0	80.5	79.1	78.3	76.8	75.7	76.2	76.2	76.7	76.4	75.3
Exports	Mt	157.8	152.5	155.0	158.3	161.2	163.3	165.6	167.8	170.0	172.4	174.5
Closing stocks	Mt	196.2	196.6	196.4	195.8	196.4	198.1	198.3	199.5	201.4	203.5	205.3
Price ¹	USD/t	271.0	216.5	211.7	210.8	213.1	216.6	224.0	229.0	233.2	235.5	236.9
Developed countries												
Production	Mt	381.5	374.0	379.9	383.2	386.7	388.9	391.1	394.0	397.2	400.5	403.3
Consumption	Mt	266.9	270.6	271.5	273.4	273.0	272.9	274.2	275.0	276.5	278.1	279.5
Net trade	Mt	109.1	106.3	108.4	111.2	113.5	115.0	116.6	118.3	119.8	121.5	122.8
Closing stocks	Mt	69.5	73.8	73.8	72.4	72.6	73.6	73.9	74.6	75.6	76.5	77.5
Developing countries												
Production	Mt	338.8	347.7	353.3	356.5	360.6	365.0	369.1	373.7	378.4	383.1	388.0
Consumption	Mt	443.0	457.1	461.9	467.0	473.7	479.3	485.7	491.5	497.2	503.3	510.1
Net trade	Mt	-106.9	-106.3	-108.4	-111.2	-113.5	-115.0	-116.6	-118.3	-119.8	-121.5	-122.8
Closing stocks	Mt	126.7	122.9	122.6	123.3	123.8	124.5	124.4	124.8	125.8	127.0	127.7
OECD²												
Production	Mt	291.8	290.9	291.3	293.6	295.9	297.1	298.6	300.6	302.8	305.0	306.6
Consumption	Mt	219.2	222.9	223.9	225.4	225.0	224.9	225.8	226.4	227.8	228.9	229.8
Net trade	Mt	68.7	67.9	69.7	69.7	71.0	71.4	72.5	73.5	74.3	75.3	76.0
Closing stocks	Mt	51.9	57.0	54.7	53.2	53.2	54.0	54.3	54.9	55.7	56.5	57.3
MAIZE												
World												
Production	Mt	1 014.3	1 006.0	1 041.3	1 048.5	1 059.8	1 075.1	1 090.0	1 103.4	1 117.1	1 132.3	1 146.0
Area	Mha	181.1	178.9	182.7	182.3	182.4	183.0	183.5	183.8	184.1	184.6	184.8
Yield	t/ha	5.60	5.62	5.70	5.75	5.81	5.88	5.94	6.00	6.07	6.13	6.20
Consumption	Mt	986.7	1 024.9	1 038.6	1 060.1	1 062.8	1 073.7	1 087.2	1 102.6	1 114.7	1 130.6	1 143.4
Feed use	Mt	555.9	583.9	599.2	614.8	616.1	622.1	635.8	649.2	660.3	671.7	682.9
Food use	Mt	130.9	136.3	138.3	140.8	143.2	145.8	148.4	150.9	153.6	156.2	158.9
Biofuel use	Mt	148.0	156.9	161.4	160.9	159.6	159.4	157.1	156.3	155.2	156.6	154.4
Other use	Mt	102.0	101.4	93.3	96.0	95.4	97.2	96.7	96.1	95.4	95.4	95.8
Exports	Mt	130.2	128.6	127.9	129.1	130.2	131.0	133.1	134.7	137.4	139.8	141.5
Closing stocks	Mt	216.2	204.2	206.9	195.2	192.2	193.6	196.4	197.2	199.6	201.3	203.9
Price ³	USD/t	180.6	170.2	163.0	163.0	165.9	170.0	175.9	181.2	182.2	183.9	186.7
Developed countries												
Production	Mt	498.0	488.6	506.4	507.9	511.3	516.1	521.3	525.5	530.2	536.0	541.5
Consumption	Mt	444.2	453.9	461.7	474.2	468.6	470.8	474.5	480.6	483.2	489.2	492.2
Net trade	Mt	45.0	37.6	38.9	40.4	41.3	41.3	42.7	44.3	46.3	47.6	49.2
Closing stocks	Mt	66.3	64.0	69.9	63.1	64.5	68.6	72.7	73.4	74.1	73.3	73.4
Developing countries												
Production	Mt	516.3	517.4	534.9	540.5	548.5	559.0	568.8	577.8	586.9	596.3	604.5
Consumption	Mt	542.5	571.1	576.9	585.9	594.2	603.0	612.7	622.0	631.6	641.4	651.2
Net trade	Mt	-37.9	-37.6	-38.9	-40.4	-41.3	-41.3	-42.7	-44.3	-46.3	-47.6	-49.2
Closing stocks	Mt	149.9	140.2	137.0	132.1	127.7	125.0	123.7	123.8	125.5	128.0	130.6
OECD²												
Production	Mt	466.2	463.1	474.9	475.6	478.4	482.6	487.2	490.8	494.8	499.9	504.8
Consumption	Mt	459.7	471.9	479.2	491.8	486.0	488.0	491.8	497.8	500.4	506.4	509.2
Net trade	Mt	-2.7	-5.3	-9.2	-9.2	-8.9	-9.7	-8.8	-7.7	-6.2	-5.5	-4.4
Closing stocks	Mt	65.6	63.7	68.6	61.6	63.0	67.2	71.4	72.0	72.7	71.7	71.7

Table 3.A1.1. World cereal projections (cont.)

Marketing year


		Average 2013-15est	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
OTHER COARSE GRAINS												
World												
Production	Mt	298.9	294.1	295.2	296.9	300.3	304.2	307.8	312.0	316.1	320.0	324.2
Area	Mha	158.2	157.4	156.9	156.7	157.1	157.7	158.0	158.6	159.2	159.6	160.2
Yield	t/ha	1.89	1.87	1.88	1.89	1.91	1.93	1.95	1.97	1.99	2.01	2.02
Consumption	Mt	290.5	291.2	294.0	296.8	299.9	303.0	306.6	310.1	313.9	317.7	321.6
Feed use	Mt	163.5	160.1	161.0	162.3	164.7	167.5	169.7	171.9	173.9	175.9	177.9
Food use	Mt	74.5	77.4	78.4	79.8	81.2	82.7	84.1	85.7	87.2	88.8	90.5
Biofuel use	Mt	3.9	4.2	4.2	4.3	4.3	4.2	3.8	3.6	3.4	3.4	3.4
Other use	Mt	48.6	49.6	50.4	50.3	49.7	48.7	49.0	49.0	49.3	49.5	49.9
Exports	Mt	45.5	40.2	40.4	40.7	41.4	42.6	43.6	45.1	46.6	48.1	49.8
Closing stocks	Mt	55.3	59.0	58.4	56.7	55.2	54.5	53.7	53.7	54.1	54.6	55.3
Price ⁴	USD/t	212.4	156.4	153.9	157.1	161.4	166.0	175.3	181.0	184.5	188.4	190.0
Developed countries												
Production	Mt	185.8	177.5	177.3	176.6	177.4	178.6	179.7	181.0	182.3	183.5	184.9
Consumption	Mt	150.7	151.9	152.6	152.7	152.5	152.5	152.8	152.7	152.9	153.0	153.1
Net trade	Mt	31.3	24.8	24.9	25.2	26.2	27.1	27.8	28.7	29.6	30.5	31.7
Closing stocks	Mt	35.4	39.4	39.2	37.9	36.6	35.6	34.8	34.3	34.2	34.2	34.3
Developing countries												
Production	Mt	113.1	116.6	118.0	120.3	122.8	125.5	128.1	131.0	133.8	136.5	139.4
Consumption	Mt	139.8	139.3	141.5	144.0	147.3	150.6	153.9	157.4	161.0	164.7	168.6
Net trade	Mt	-26.7	-23.0	-23.1	-23.3	-24.4	-25.3	-25.9	-26.8	-27.7	-28.7	-29.8
Closing stocks	Mt	19.9	19.6	19.2	18.8	18.6	18.8	19.0	19.4	20.0	20.4	21.0
OECD²												
Production	Mt	155.4	148.4	147.9	147.3	148.0	149.1	150.0	151.2	152.4	153.4	154.6
Consumption	Mt	130.6	131.1	131.7	131.9	131.8	131.8	132.1	132.1	132.2	132.2	132.1
Net trade	Mt	21.5	17.0	16.6	16.6	17.4	18.2	18.7	19.6	20.4	21.3	22.4
Closing stocks	Mt	28.9	32.8	32.4	31.2	30.1	29.2	28.4	28.0	27.7	27.7	27.7
RICE												
World												
Production	Mt	493.4	503.6	510.5	517.7	524.7	531.0	537.0	543.4	549.7	556.3	562.6
Area	Mha	162.3	160.2	160.3	160.6	160.8	161.0	161.0	161.2	161.3	161.4	161.5
Yield	t/ha	3.04	3.14	3.18	3.22	3.26	3.30	3.34	3.37	3.41	3.45	3.48
Consumption	Mt	490.8	510.3	512.1	519.0	525.8	532.3	538.7	544.8	550.5	556.7	563.2
Feed use	Mt	20.9	22.6	22.5	22.6	22.7	22.9	23.1	23.2	23.4	23.5	23.5
Food use	Mt	397.9	408.8	413.9	419.6	424.9	430.2	435.1	439.8	444.1	448.7	453.6
Exports	Mt	44.3	42.7	43.7	44.8	46.2	47.1	48.0	48.7	49.6	50.6	51.4
Closing stocks	Mt	169.7	159.1	157.5	156.1	155.1	153.7	152.0	150.6	149.9	149.4	148.9
Price ⁵	USD/t	454.7	399.6	407.6	409.2	405.8	407.0	409.7	413.4	415.5	415.4	416.3
Developed countries												
Production	Mt	17.9	18.0	18.2	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1
Consumption	Mt	18.9	18.8	18.8	18.9	19.0	19.1	19.1	19.2	19.3	19.4	19.4
Net trade	Mt	-1.0	-0.5	-0.4	-0.4	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.6
Closing stocks	Mt	5.3	4.8	4.6	4.5	4.4	4.4	4.4	4.5	4.6	4.8	5.1
Developing countries												
Production	Mt	475.4	485.6	492.2	499.3	506.2	512.4	518.3	524.6	530.9	537.2	543.5
Consumption	Mt	471.9	491.4	493.3	500.1	506.8	513.3	519.5	525.5	531.3	537.3	543.8
Net trade	Mt	1.8	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6
Closing stocks	Mt	164.4	154.3	152.8	151.6	150.7	149.3	147.6	146.1	145.2	144.6	143.7
OECD²												
Production	Mt	21.6	21.4	21.6	21.7	21.7	21.8	21.9	21.9	22.0	22.0	22.1
Consumption	Mt	22.7	22.7	22.7	22.8	22.8	22.8	22.8	22.8	22.8	22.9	22.8
Net trade	Mt	-1.3	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-1.0	-1.0	-1.0
Closing stocks	Mt	6.7	6.5	6.2	6.1	5.9	5.9	5.9	5.9	6.0	6.1	6.4

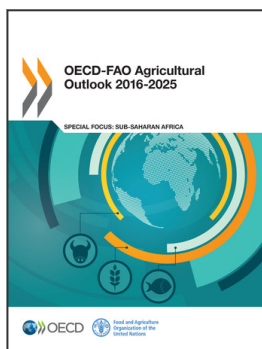
Note: Marketing year: See Glossary of Terms for definitions.

Average 2013-15est: Data for 2015 are estimated.

1. No.2 hard red winter wheat, ordinary protein, United States FOB Gulf Ports (June/May), less EEP payments where applicable.
2. Excludes Iceland but includes all EU28 member countries.
3. No.2 yellow corn, United States FOB Gulf Ports (September/August).
4. Feed barley, Europe, FOB Rouen.
5. Milled 100%, grade b, nominal price quote, FOB Bangkok (January/December).

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

StatLink  <http://dx.doi.org/10.1787/888933382148>



From:
OECD-FAO Agricultural Outlook 2016-2025

Access the complete publication at:
https://doi.org/10.1787/agr_outlook-2016-en

Please cite this chapter as:

OECD/Food and Agriculture Organization of the United Nations (2016), "Cereals", in *OECD-FAO Agricultural Outlook 2016-2025*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/agr_outlook-2016-7-en

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