

# AGRICULTURAL COMMODITY MARKETS OUTLOOK 2011-2020 A COMPARATIVE ANALYSIS September 2011



European Commission  
Agriculture and  
Rural Development

**A comparative analysis  
of projections published<sup>1</sup> by**

**Organisation for Economic Cooperation and Development (OECD) & Food and  
Agriculture Organisation (FAO)**

**Food and Agricultural Policy Research Institute (FAPRI)**

**US Department for Agriculture (USDA)**

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<sup>1</sup> Sources:

OECD-FAO Agricultural Outlook 2011-2020, published in June 2011  
available at [www.agri-outlook.org](http://www.agri-outlook.org)

FAPRI-ISU 2011 World Agricultural Outlook, published in April 2011  
available at <http://www.fapri.iastate.edu/outlook/2011>

USDA Agricultural Projections to 2020, published in February 2011  
available at <http://www.ers.usda.gov/publications/oce111/>  
USDA projections are not compared systematically.

DataM tool from JRC-IPTS was used for data extraction and analysis.

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This working document does not necessarily represent the official views of the European Commission  
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[http://ec.europa.eu/agriculture/analysis/tradepol/worldmarkets/index\\_en.htm](http://ec.europa.eu/agriculture/analysis/tradepol/worldmarkets/index_en.htm)

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### List of acronyms

CIS – Commonwealth of Independents States

GDP – Gross Domestic Product

SMP– skim milk powder

USD – United States of America's Dollar

WMP – whole milk powder

### Note to the readers

Respective commodity chapters compare rates of growth between the OECD-FAO, FAPRI and, in some cases USDA projections in the previous and upcoming decade. However, it should be noted that while in many cases the past growth rates between baseline projections are of a similar magnitude, they might not be the same due to differences in geographical coverage. In addition, inclusion of new countries in the country coverage of respective models might not necessarily be reflected in a revision of past developments.

**EXECUTIVE SUMMARY**

This report compares annual medium-term projections issued by the OECD-FAO, Food and Agricultural Policy Research Institute (FAPRI) and the US Department for Agriculture (USDA) with the aim of providing an overview of main trends which are expected in agricultural commodity markets over the next ten years.

These baseline projections are established under specific sets of macroeconomic conditions and assuming normal weather conditions. While their projections of steady annual average prices could be mistaken for transmitting a signal of stability and decreased price volatility, uncertainties associated with the projections hint at even higher potential volatility in the future.

Historically agricultural prices reflected changes in their own or their substitutes' underlying market fundamentals and model-based baseline projections try to reproduce these relationships. Although market fundamentals still play an important role in determining price levels, at times changes in price levels cannot be explained by changes in market fundamentals owing to factors outside of agriculture including the increasing linkages with energy markets, the co-movement across commodity markets and financialisation of commodities. The presence of high commodity prices and increased price volatility raises the question whether they are temporary or whether they are a sign – or a consequence – of a structural change in agriculture, which then would need to be factored in the economic models that generate these baseline projections.

The goal of this comparison report is not to highlight absolute projection values which result from different assumption and structure of the models, but focus on highlighting common and diverging trends across projections as well as identifying uncertainties that could significantly impact markets. The manifestation of these uncertainties has the potential to significantly impact developments on the markets in the future despite stable projections.

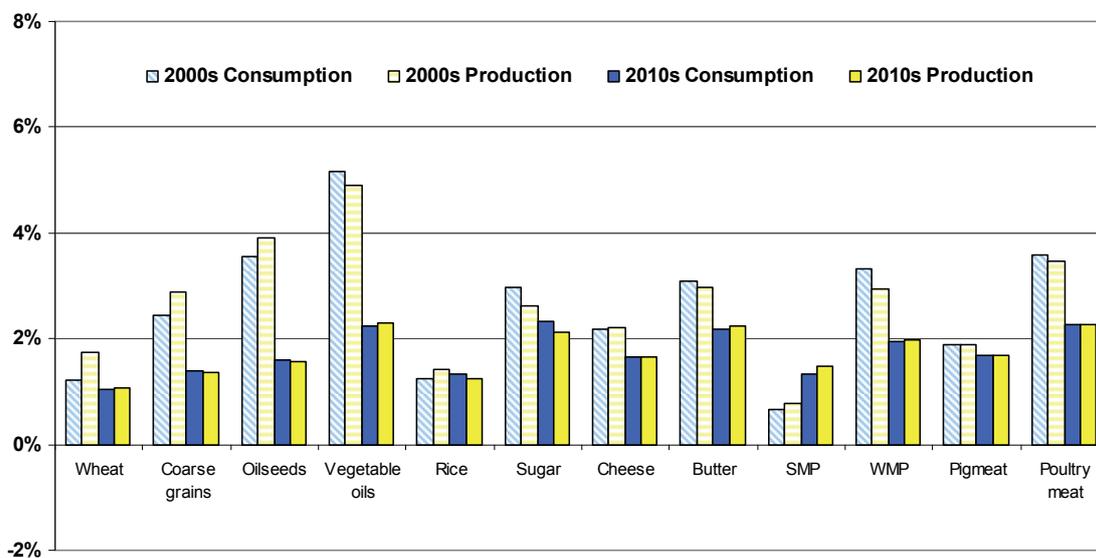
The main features of which the baseline projections broadly agree are:

- (1) Current high commodity prices result in a supply response which puts downward pressure on prices, easing from current high in nominal terms.
- (2) Even as absolute growth in supply and demand remains considerable, slowing population growth results in slower demand growth over the projection period compared to the previous decade.
- (3) Although the rate of demand growth is decreasing and the supply responds to higher prices, in some commodities the average rate of demand growth exceeds that of supply putting continuous pressure on stock levels and supporting steadily elevated prices.
- (4) Prices remain elevated compared to their historic averages. Price firmness and reduced income growth influence the expansion of global consumption and production.
- (5) Concerns about consumer inflation prevail as higher prices for commodities are passed through the food chain, raising concerns in particular in developing and

emerging economies, where food still represents a substantial part of disposable income.

- (6) Slower production growth rates are expected for most crops caused by a slow down in yield improvement and high marginal cost of bringing in additional land in some areas while livestock growth rates do not change significantly. As in the previous years, a larger share of production and consumption is shifting toward emerging economies.
- (7) The higher share of production in emerging countries comes with an uncertainty of higher yield variability, thus likely to result in volatile prices in the future.
- (8) Strong growth in the biofuel sector is largely driven by biofuels mandates and support policies. At high oil prices biofuel production becomes viable without policy support.
- (9) In spite of a slow down in demand growth, consistent further investment in agriculture are needed to tackle yield stagnation, more frequent weather events etc in order to guarantee an adequate supply response.
- (10) Systematic risks affecting all commodity markets include macroeconomic risks, such as labour market risks in developed economies, financial market risks, currency risks (including USD, eurozone), inflation in emerging countries (with China playing a central role), prospects of economic growth and income levels in developing countries on the demand side and climatic conditions on the supply side. Some newer risks, such as uncertainties associated with increasing linkages with the energy market have yet to be fully factored in, although will have ripple effects across the commodity markets.
- (11) Additional commodity specific uncertainties include increased reliance on a few key producers and exporters, as well as unexpected interventions in the policy space to protect domestic markets.

**Graph 1. Average annual growth rates in the previous and upcoming decade for consumption and production (OECD-FAO)**



## 1. MACROECONOMIC ASSUMPTIONS

Under the assumption of normal weather conditions throughout the projection period, macroeconomic assumptions play a crucial role in shaping supply and demand projections. Macroeconomic assumptions differ across outlooks corresponding to different information sources used and information available at the time when those projections were prepared.<sup>2</sup> Among the most crucial macroeconomic assumptions are GDP growth, population growth, inflation rates, exchange rates, and energy prices. Currently applicable policies are assumed valid and unchanged for the duration of the baselines.

The least of the difference between baselines is observable in the **population growth** which is slowing from current 1.2 % to about 1% per year at the end of the projection period while significant differences across regions prevail. These differences coupled with income changes and demographic dimensions such as urbanisation and aging societies influence the demand growth rates and distribution.

**Inflation** develops at unequal speed. While elevated in some developed countries, inflation is not assumed to be a major problem in countries where relatively small share of budget is spent on food. However, many high growth emerging economies have been battling inflationary pressures at least since commodity prices began to increase, and are expected to continue doing so.

Projections focus on US **exchange rates**, even as other exchange rates are increasingly important. Nevertheless, many international traded commodities remain numerated in USD, and depreciation of USD can have significant impact on commodity prices denominated in local currencies and affect competitiveness. OECD-FAO assumes a modest depreciation of the US dollar in the short term, and then to remain constant. Similar assumption is used in FAPRI. However, given ongoing budget deficit and overall macroeconomic environment, similar exchange rates assumptions seem questionable.

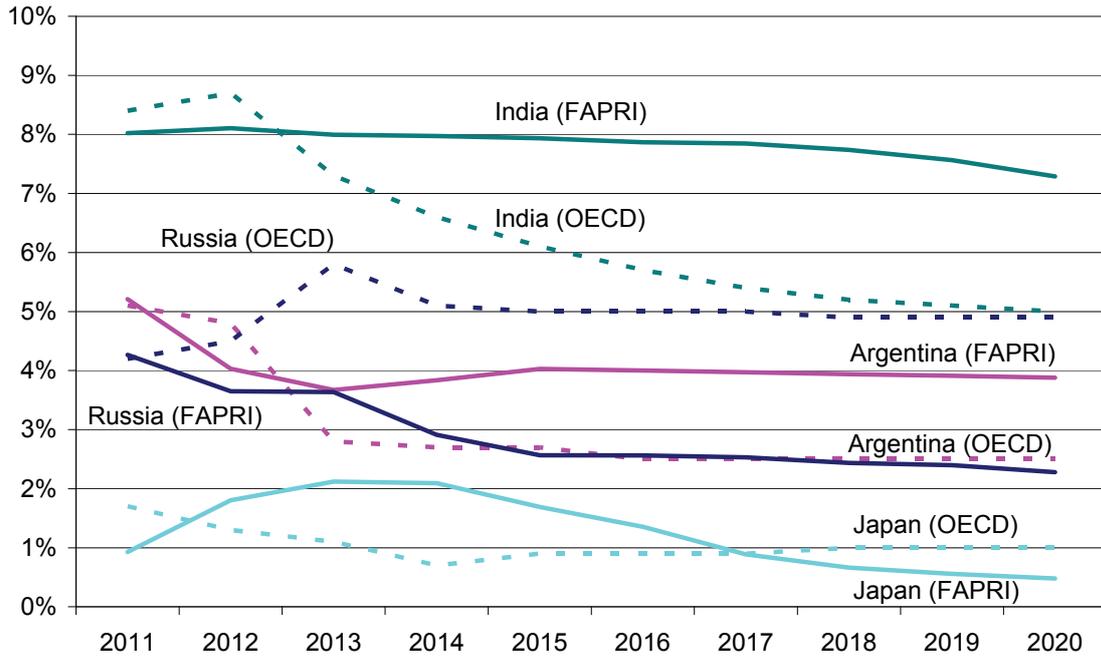
Even though baseline projections were established and published before the financial turmoil of the summer 2011, bigger discrepancies across projections occur in **GDP growth** and oil prices assumptions. Countries are gradually recovering from the 2009 financial and economic crisis, albeit at different paces. Generally two-speed GDP growth is assumed: developing and emerging economies growing at higher rates while developed countries growing only slowly. The OECD countries are expected to grow at an average rate of about 2%, while China (slowing from 9.7% at the beginning to around 7% at the end of the projection period) and India (around 8% in FAPRI projection but decreasing to 5% in the OECD-FAO) dominate growth in emerging economies. Above 4% rate of growth is also expected in Russia and Brazil. Despite different data sources GDP growth data are broadly similar across outlooks.<sup>3</sup> Figure 2 shows countries for which major discrepancies occur across outlooks.

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<sup>2</sup> USDA macroeconomic assumptions were completed in October 2010 and are not discussed in detail in this report although its general macroeconomic trends are comparable with the others.

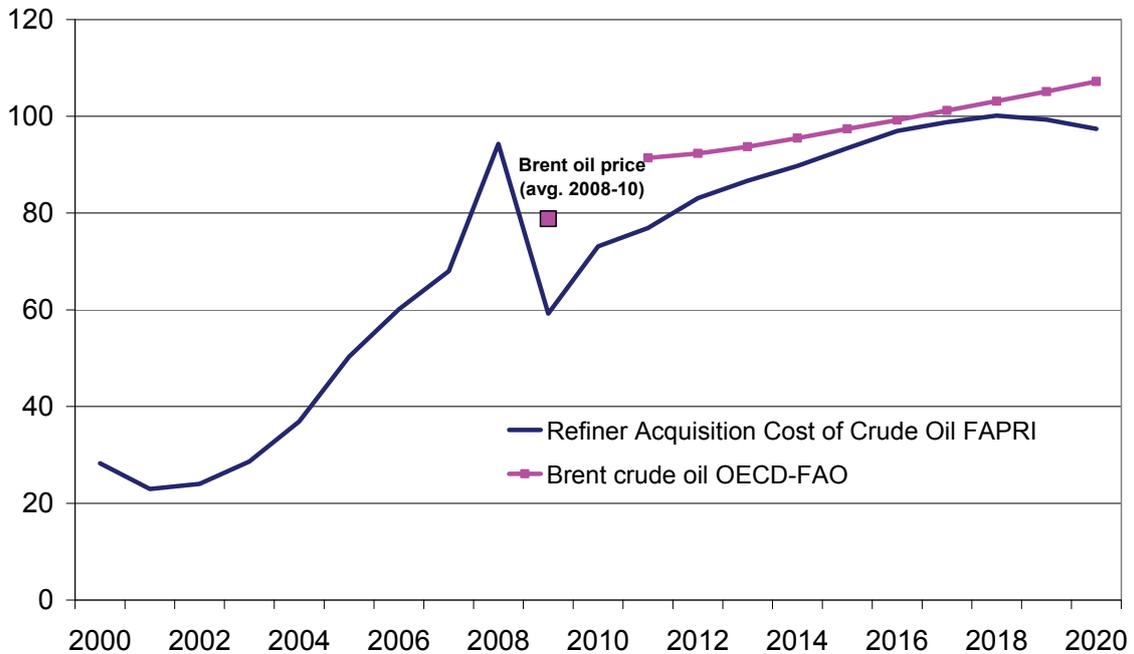
<sup>3</sup> As in previous years, OECD-FAO macroeconomic assumptions coming from OECD Economic Outlook were supplemented by extending the World Bank's Global Economic Prospects from January 2011 for OECD non-Member countries, raising questions of consistency.

**Graph 1.1. Comparison of projected GDP growth rates in selected countries (%)**



Energy prices are becoming an increasingly important assumption, even as the outlooks not yet fully take into account increased linkages with the energy sector. Figure 2 compares FAPRI and OECD oil prices used in the projections. Given ongoing divergence between Brent crude oil and refiner costs, additional analyses are challenging.

**Graph 1.2. Comparison of projections for crude oil prices (USD/barrel)**

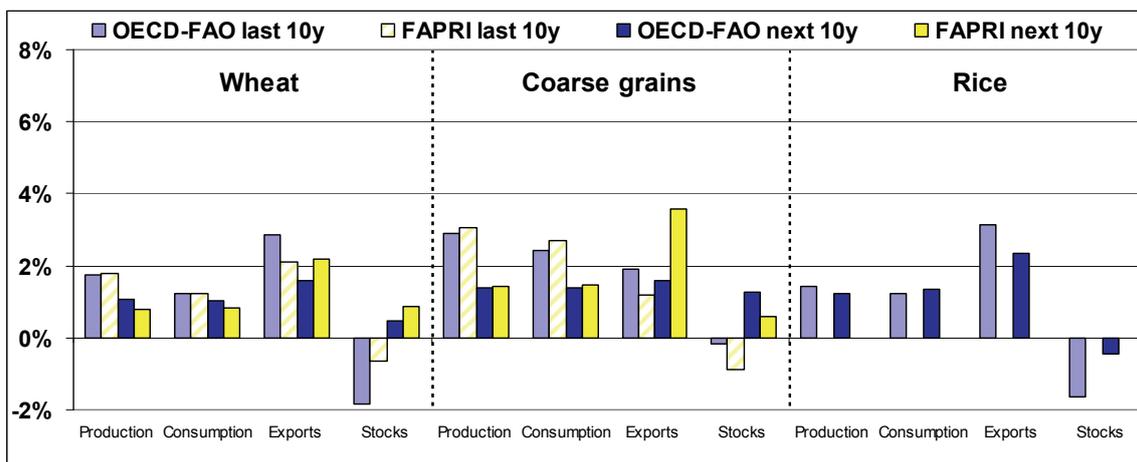


## 2. GRAINS

After two seasons of record harvests, stock replenishment and declining prices, world grains markets in 2010/11 took a serious blow. At the start of it was the drought and subsequent export ban in Russia, as well as export restrictions in Ukraine. Then Australian harvest was hit by drought in the west and floods in the east. On top of that disappointing maize harvest in the US and strong demand sent coarse grains stocks to the lowest levels in years. Towards the end of the season Europe was in the focus because of the very dry spring. As a consequence, world grain prices, first supported by wheat, then by maize, remained very high throughout the most of the season. They decreased somewhat towards the very end of 2010/11 when Russia announced an end to its export ban, belated rains in Europe alleviated drought concerns and US maize plantings reached new record despite tough planting conditions. On the other hand, rice prices remained relatively stable throughout the season, thanks to comfortable stocks and sufficient production levels.

OECD-FAO forecasts a small (2% until 2020) expansion of wheat sowing areas, with most of the growth coming from the CIS countries, although FAPRI forecasts no expansion there and even smaller area growth overall. Similarly, OECD-FAO forecasts higher wheat yield growth than FAPRI, albeit both agree that this growth is going to be slower than in the past. Combined, OECD-FAO wheat production growth forecast is notably higher than FAPRI's. However, FAPRI is more bullish on the production growth of coarse grains. Both outlooks agree that production of coarse grains will increase faster than wheat, thanks to faster expansion in area and higher growth of maize yields. Rice production, according to OECD-FAO, should continue to grow almost entirely due to increase in yields (FAPRI did not provide outlook for rice).

**Graph 2.1. Comparison of growth rate outlook for world cereals markets  
(average annual growth in %)**



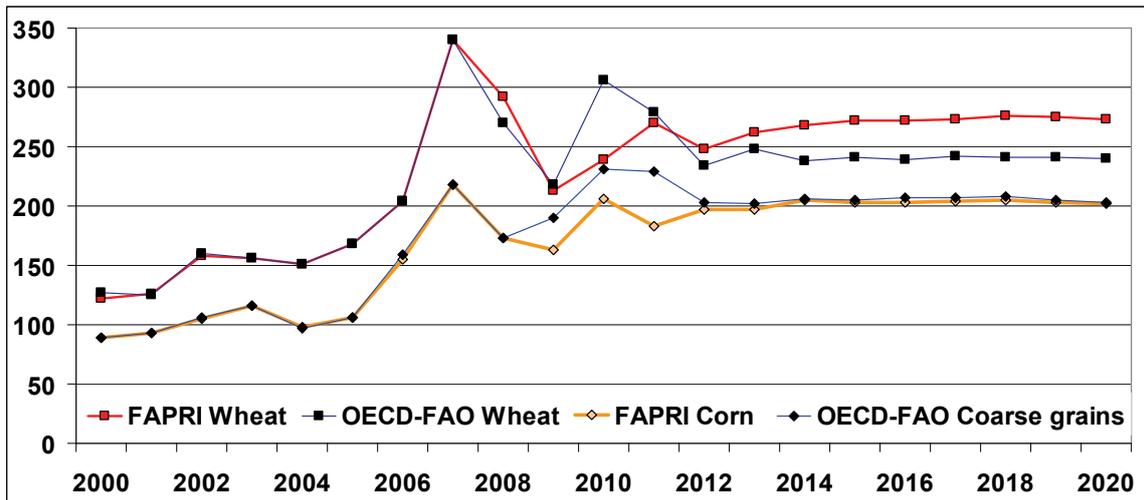
Both outlooks also agree that wheat (and rice for OECD-FAO) will largely remain a food staple and its food demand will stay in line with the population growth. On the other hand, OECD-FAO forecasts higher increase in feed use because of smaller wheat/maize price ratio, making feed wheat more attractive to livestock producers. Also according to the OECD-FAO, wheat use for the production of ethanol will grow faster than other wheat uses, but its share in total use will still be only reach 2% (now stands at about 1%) and will be primarily concentrated in the EU, Canada and Ukraine.

Coarse grains use should grow half as fast as in the previous decade, mainly due to the fact that US maize ethanol production should peak in 2014 and then decrease with the availability of the second generation biofuels. Feed demand should then retake the lead as increasing incomes in developing countries and changing diets lead to expansion of the livestock sector.

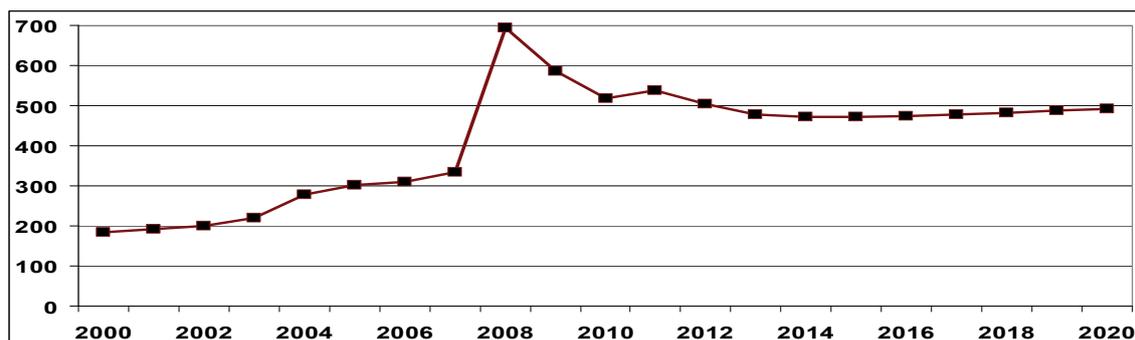
Stocks of wheat should recover some of the losses of 2010/11 and remain stable throughout the projection period, as stock decrease in the US is compensated by increase in China. Although world stock-to-use ratio should remain at a comfortable level of 26-27%, stock levels in major exporting countries should decline, leaving less wheat available to the world market and more price volatility associated with it.

Contrary to wheat, OECD-FAO and FAPRI outlooks disagree on the future coarse grains stocks. After a substantial decrease in US and EU in 2010/11, OECD-FAO forecasts world coarse grains stocks to recover, with China and US being the biggest contributors. FAPRI, on the other hand, does not project significant build-up, mainly because it sees a stagnation of US maize stocks.

**Graph 2.2. Prices of cereals (FOB US Gulf, USD/t)**



Despite different projections on the evolution of stocks, both outlooks agree on the level and trend of the maize price, which is set at just over 200 USD/t throughout the whole projection period. Wheat price projections, however, are different: FAPRI forecast is significantly higher than that of OECD-FAO, although both follow similar stable trend.

**Graph 2.3. Price of rice (FOB Thai, USD/t)**

World trade in wheat in 2010/11 was hit hard by export bans and restrictions in the Black Sea area, limited availability of high quality grains and high prices. It should recover in the projection years, growing faster than production and consumption. OECD-FAO highlights the rise of Black sea exporters (Russia, Ukraine and Kazakhstan), who should account for 30% of world wheat exports by 2020. This growth should come at the expense of "traditional" exporters, mainly the US. FAPRI forecasts China and India to become important exporters of wheat, each being net exporters of over 5 million tonnes by the end of the projection. On the import side, the growth will continue to come from developing countries, especially from Egypt, Algeria, as well as from Brazil, Mexico and other countries in Asia, Africa and Latin America.

Trade in coarse grains will also grow faster than production. OECD-FAO forecasts acceleration of maize exports from the US once maize bioethanol mandate target is reached. At the same time, China should become established net importer of both maize and barley. Outlooks disagree on India: OECD-FAO sees no change in its small net exporter status, while FAPRI projects a switch to a net importer. Most of the barley trade growth, according to FAPRI, should come from increasing exports in Russia, which should become world's second biggest net exporter. Ukraine should remain world leader in this market, although most of the coarse grains export growth in this country will come from maize. Imports of coarse grains will be driven by a number of developing countries with expanding livestock sectors: Mexico (maize), Egypt (maize), Saudi Arabia (barley) as well as other countries of North Africa, Middle East and Asia.

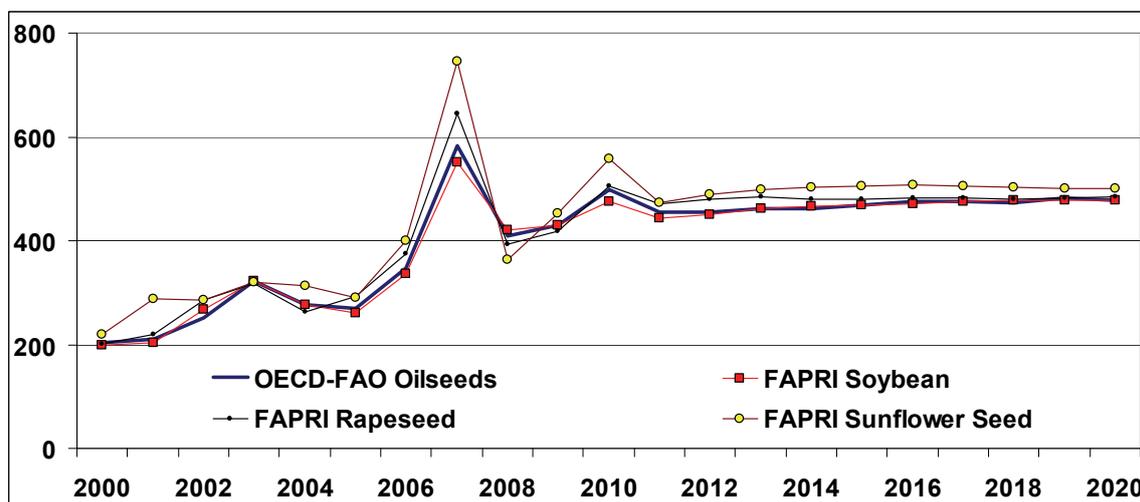
Rice trade, according to OECD-FAO, is expected to grow thanks to increasing demand in African countries. Vietnam is expected to overtake Thailand as the leading rice exporter, with Cambodia and Myanmar set to become major rice exporters.

The main uncertainties for the cereals outlook are mainly the outside factors: prospects of economic growth and income levels in the developing countries for the demand side and climatic conditions on the supply side. For coarse grains market these uncertainties are more important as they are now directly linked to energy market (through maize ethanol), production costs and to demand for feed (through GDP growth). Climatic conditions, although inherently unpredictable, could be amplified by targeted policy measures (e.g. export ban after drought). Other uncertainties are linked to cereal stocks levels (esp. in China), yield trends, producer behaviour in high and volatile price environment, adaptation to climate change, and possible changes to biofuel policies.

### 3. OILSEEDS

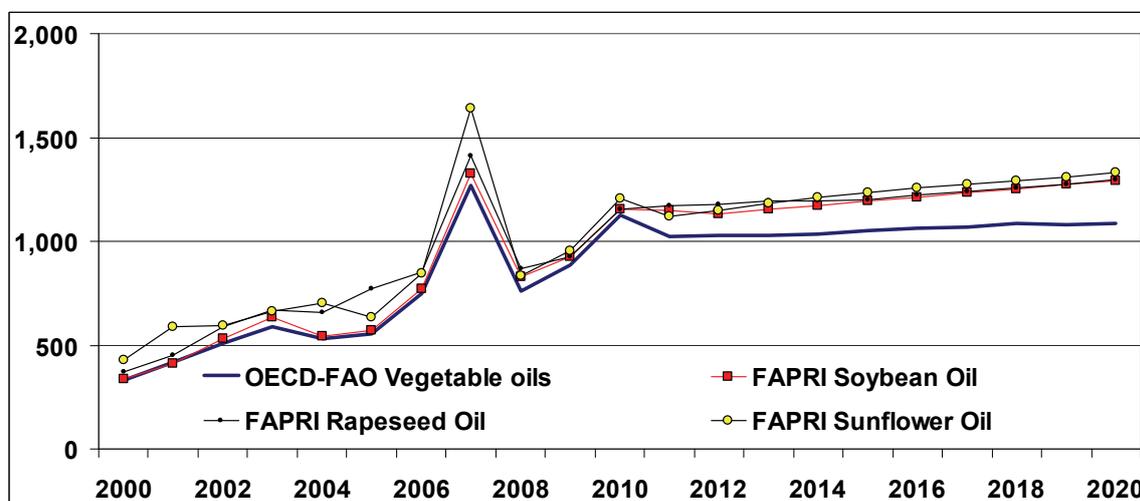
Although at the moment relatively stable, soybean complex prices remain elevated compared to historical standards after undergoing considerable price swings in 2007 – 2009.

**Graph 3.1. Comparison of projections for world oilseeds prices (USD/t)**



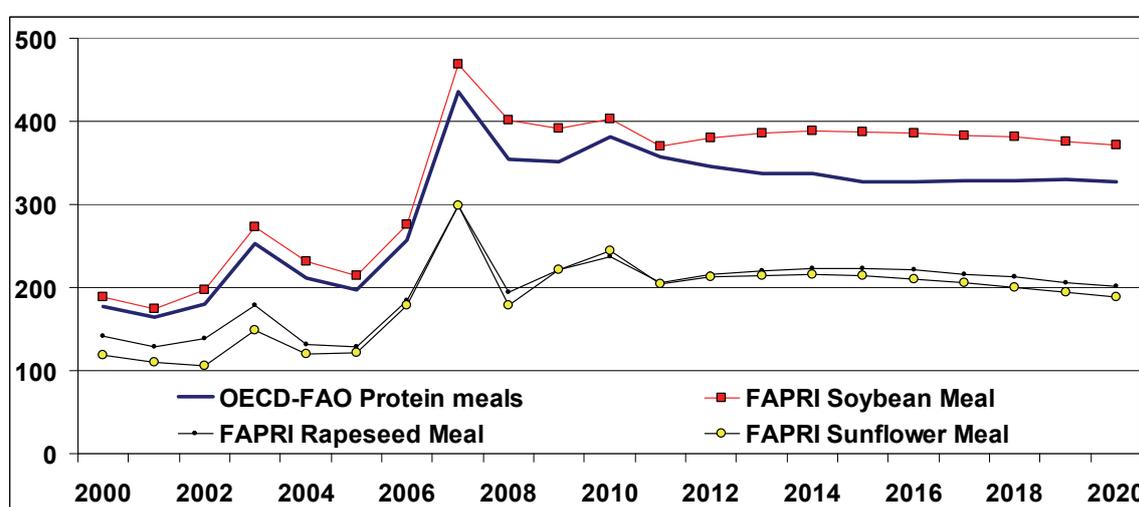
Current situation in the soybean complex prices reflect tightening of supplies and strong demand growth following post crisis recovery as well as robust interest from importing countries. While the livestock sector is rebuilding following the crisis, the demand continues to be driven by vegetable oil. China's appetite for soybeans shows no sign of slowing down putting an upward pressure on prices – although occasional reports of releasing government stocks and measures taken to control inflation make markets react. Adverse weather conditions caused low output of rapeseed and sunflower, and to a lesser extent also soybeans, resulting in below historic stock – to – use ratios. Competition for land remains ripe, in particular coarse grains vs soybeans in the US. Oilseed sector is particularly prone to spill over effects from tight grain markets, crude oil prices, and continued weakness of USD.

**Graph 3.2. Comparison of projections for world oilseed oil prices (USD/t)**



Different outlook projections use different aggregates, making comparisons across projections challenging although there are no disagreements in the trends. Seed and oil prices are expected to remain elevated while meal prices are projected to level off in line with other feed commodities. While oilseeds production is projected to increase by some 23% (OECD-FAO) by the end of the projection period based on higher – albeit slowing down – yields and plantings, the growth slows down significantly relative to the past. Same applies for vegetable oil and meals. Continuing the trends of previous outlook projections, plantings are projected to increase mostly in emerging and developing countries, even if constrained by environmental considerations and competition for land. No major changes are projected in the set up of major producing and consuming countries, production being led by the US, Brazil, China, Argentina, India and EU. China, the single biggest importer, remains the wildcard on the market for soybeans, with large domestic crush industry. No significant recovery of the stock-to-use ratio is expected.

**Graph 3.3. Comparison of projections for world oilseed meal prices (USD/t)**

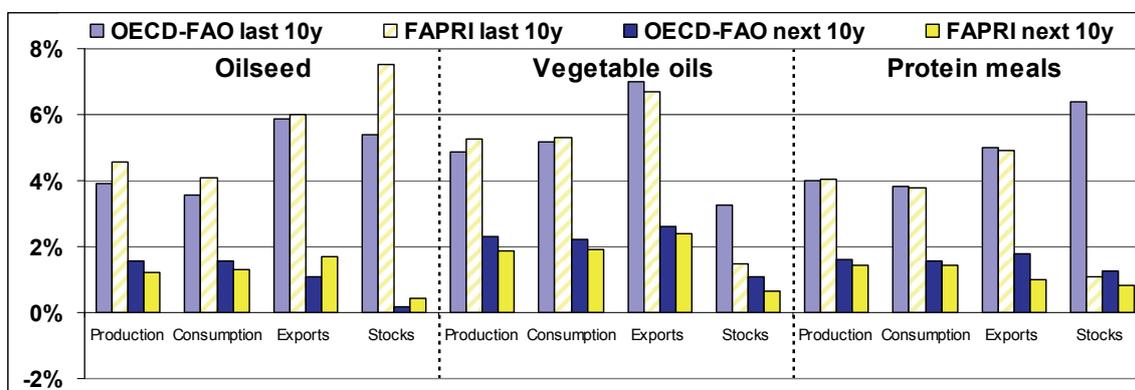


With three quarters of the expansion, demand growth also takes place in developing countries, with food consumption dominating. By its sheer size, China remains the world's leading vegetable oil consumer, followed by the EU, India, and US. Nevertheless, return to pre-crisis per capita consumption levels is rather slow. Vegetable oil consumption in developed countries is based on biodiesel, with the share of vegetable oil used for biodiesel increasing from 10% in 2008 – 10 up to 15% in 2020. Argentina, which in the past with its implementation of differentiated export taxes supported exports of value-added products, is actively working on developing an export oriented biodiesel industry, with increasing share of domestic consumption going into it (72% by 2020). Nevertheless, several countries (Brazil, Colombia, Peru, India, Indonesia, Malaysia and Thailand) are developing biodiesel for domestic consumption, influencing the amount of exportable vegetable oil available.

Demand recovery for protein meals is slow following a weak recovery for livestock products, particularly in developing countries. Albeit China's demand rate of growth is slowing, China remains the leading meal consumer utilising domestic crushing of imported seeds. EU, the second largest consumer, relies on imported meals. Dried

distillers grains (DDG) continue to substitute for part of meal consumption, particularly in the US.

**Graph 3.4. Comparison of growth rate outlook for world oilseed complex (average annual growth in %). FAPRI covers soybeans, rapeseeds and sunflower.**



Given slowing rates of growth in production and consumption, trade growth too is projected to slow down although investments in crushing capacity by countries with limited opportunity to expand oil seed production continues fuelling the trade. Brazil is projected to overtake US as the world's leading exporter of soybeans (FAPRI). Many exporters, such as Canada and Argentina move to exporting higher value products and their exports of seeds is projected to remain flat. Argentina at times even imports soybeans to enable its crushing plants to operate at full capacity. The export demand for oilseeds is likely to be satisfied by emerging exporters, such as Paraguay, Uruguay, Russia, and Ukraine. Malaysia and Indonesia are projected to become the world's leading vegetable oil producers with a combined share of 68% by 2020, with Argentina a distant third with 9% share. The imports of vegetable oil are led by EU, China and India. India in particular is likely to become dependent on imported vegetable oil, while China relies on imported seeds crushed domestically supplemented by imports of vegetable oil to meet its vegetable oil consumption. Oilseed meal imports in the EU remain stable reflecting stable consumption by the livestock sector while imports by emerging and developing economies grow.

In addition to a standard uncertainty brought in by weather conditions, national policies implemented in an effort to cope with high prices play a significant role. Among those policies are measures to facilitate imports, creation of state reserves for public distribution, production incentives, domestic marketing restrictions and control of export flows. The effects of these – and new – policies should be continuously monitored.

While projections point out to an emergence of new players in the global market, assessing the real potential and ability to delivery of these new players is challenging. In particular, with the increased role Indonesia and Malaysia as vegetable oil suppliers, future advances in productivity, increased awareness of environmental and social concerns and their interplay with national policies will affect these markets.

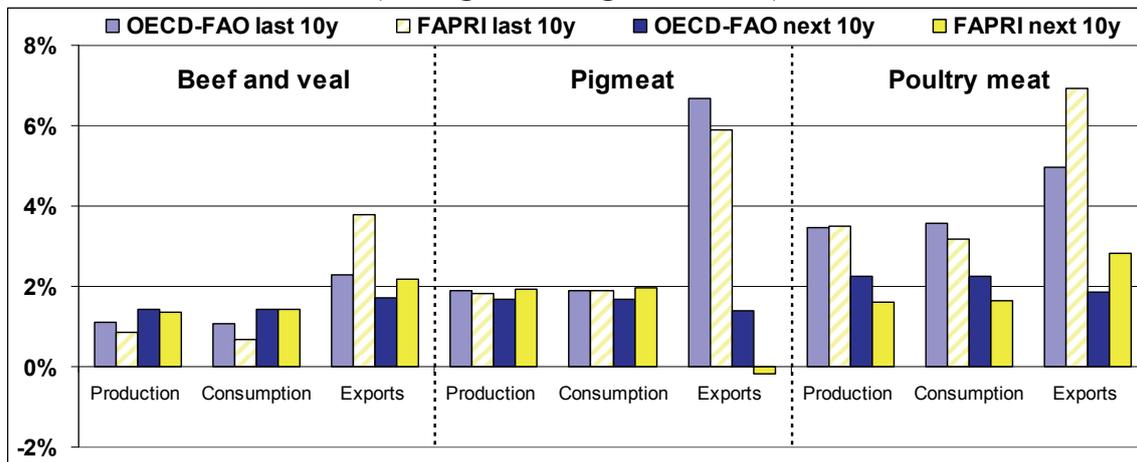
#### 4. MEATS

The world meat sector has been characterised over the last months by a very tense market situation, which led to record price levels at the end of 2010 and in the first semester of 2011. If this situation is also partly due to a buoyant meat demand after the recovery of global economy from the economic and financial crisis started in 2008, the main driver here is a severe tightness on the supply side, caused by a significant herd liquidation operated by livestock producers worldwide in the last couple of years. This destocking process was the consequence of continuing low producers' returns, caused by multiple factors: steep rise in production costs (feed and energy) in the years 2007-08, subsequent low meat prices after the slowdown of the demand during the years of global recession, extremely adverse weather conditions in various world regions and, in some cases, introduction of domestic policies discouraging exports.

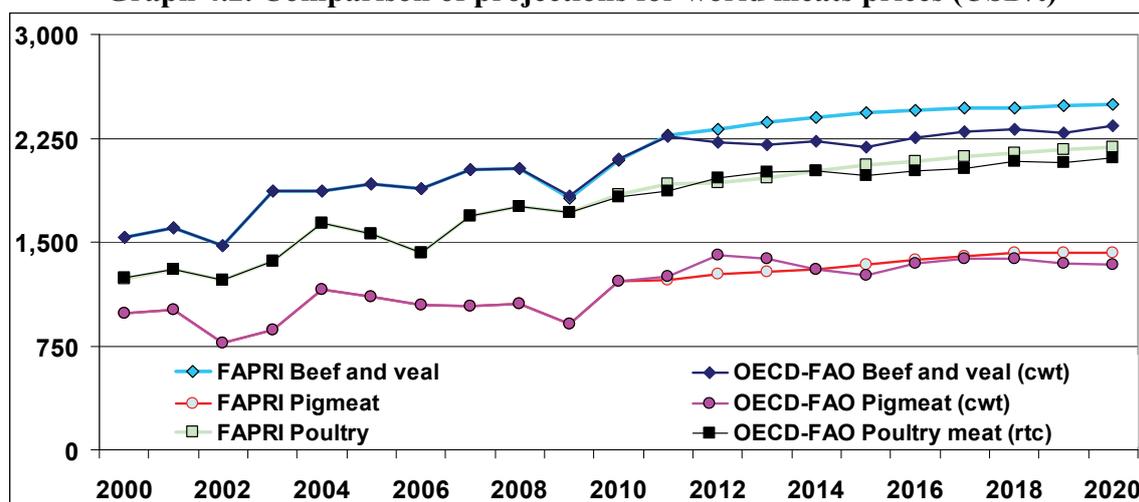
The rebuilding of depleted stocks is going to take some time in the beef sector, whereas pork and poultry supply could respond more rapidly to meet the strong global demand; hence, the price development for white meats is expected to be less bullish than for red ones.

Both OECD-FAO and FAPRI project a continuing growth of global meat production and consumption over the next decade. As for the previous period, the rising trend is stronger for the pig meat and poultry meat sector (around 2% per year), rather than for beef (less than 1.5%). However, the growth rate for beef is projected to be higher than in the past decade, whereas for pork it would be stable and for poultry the expansion would be even slowing down, though from high levels. As a consequence, the gap between the growth of white meats markets and of red meat is expected to narrow down over the projection period.

**Graph 4.1. Comparison of growth rate outlook for world meat markets (average annual growth in %)**



Both organisations forecast a deceleration in the growing trend of world meat trade expected for the period 2011-20 compared to the last decade. The slowdown is particularly significant for pork and poultry, moving from an average increase of 5-7% per year to just less than 2% (and FAPRI even forecasts a slight contraction of pig meat trade over the projection period). However, a slower expansion of world trade is expected for beef as well, particularly by FAPRI (from 4% to 2% per annum), despite the stronger growth in world beef production.

**Graph 4.2. Comparison of projections for world meats prices (USD/t)**

OECD-FAO and FAPRI agree on the projection that meat world prices are at very high historical level in 2011 for beef, pork and poultry due to the current tightness of the meats markets. Therefore, despite the upward trend in prices for all meat commodities due to the growth prospects of global demand, the magnitude of the additional price development between 2011 and 2020 is rather limited. FAPRI is slightly more bullish here about the price outlook (between +10% for beef and +16% for pig meat in nominal USD) than OECD-FAO (from 3% for beef and 13% for poultry).

The general picture on the global prospects of the meats sector, as described by the two forecasting organisations, seems to converge. Global meat demand is expected to continue its long-standing growing path (although generally at somewhat lower rates than in the past), driven by demographic and economic development, particularly in emerging countries. On the other hand, supply follows, albeit with some difficulties; so, meat prices are destined to further slightly increase compared to the already high current levels.

Looking at **world trade by type of meat**, Brazil currently represents the most important provider of **beef** on the world market and, according to FAPRI, its net **exports** are forecast to show the highest growth rate worldwide between 2008-10 and 2020 (+57%). Brazil's beef competitors in the Oceania region, which start from a lower basis, are expected to increase their net exports as well, but at more modest rates (22% for both Australia and New Zealand). On the contrary, other traditional beef-exporting countries, as Argentina and Canada, are probably going to suffer from a decline in net exports (-26% and -43% respectively over the same period). On the other hand, the OECD-FAO outlook is much less optimistic about the development of beef exports in Brazil (+25%) and Oceania (+5% only), but it is not so negative for Argentina and Canada, in which net exports are still expected to show a (minimal) positive development over the next decade.

On the side of **beef imports**, the main net-importing country at the horizon 2020 is unanimously set to be Russia. However, the OECD-FAO and FAPRI have different views regarding the evolution of its import flows by 2020: while the latter expects a firm increase (+20%) compared to the average 2008-10, the OECD-FAO outlook forecasts a contraction of 14% over the same period. USDA is in an intermediate position, since it projects a drop of 6%. Japan is expected to consolidate its position as second-largest beef-importing country, with a substantial growth in its net imports over the projection

period (+33% and +12% for FAPRI and OECD-FAO respectively). Finally, FAPRI expects Mexico to become the world third net importer of beef meat by 2020, whereas the OECD-FAO considers that the EU and the USA will maintain a higher beef trade deficit than Mexico. On this, USDA seems to be rather in line with FAPRI projections.

For **pork**, the OECD-FAO and the FAPRI outlook both project that world pork **exports** will continue to be dominated by four main players, namely the USA, the EU, Canada and Brazil in the respective order. The two organisations notably also agree on the fact that the USA and, to a lesser extent, Brazil are expected to strengthen their position of pork exporters thanks to a solid growth in exports over the projection period (which could attain 20-40% for the USA), whilst the EU and Canada's global share in net exports would somewhat shrink in the next ten years.

As regards **pork imports**, there is broad consensus on the fact that Russia would lose by 2020 its first place among world's top pork net importer to the detriment of Japan. According to FAPRI, Russia would be overtaken even by Mexico, whereas it remains the second-largest importer in the OECD-FAO outlook. The declared aspiration of the Russian government to reach (or at least to improve) self-sufficiency in the meats sector (and particularly in pork and poultry) plays a major role in the projected decline of Russian imports. South Korea would also be an important net importer of pork meat in 2020, although at a lower level than Japan, Russia and Mexico. Finally, there seems to be uncertainty about the trade position of China: by far the largest pork producer in the world, it is expected to be a slight net exporter by 2020 by the OECD-FAO and a marginal net importer by FAPRI (even without considering Hong Kong's imports), whereas the USDA is again in an intermediate position.

Finally, as to the world trade in the **poultry** sector, Brazil and the USA are expected to remain in the next decade the two giants in poultry exports (accounting together for around 90% of world net exports), followed at long distance by Thailand and Argentina. However, the OECD-FAO and FAPRI have somewhat different views about the relative export trend for the two biggest players: while FAPRI is very bullish on US broiler net exports over the next decade (+55%) - so the US would reach Brazil's level of exports by 2020 - the OECD-FAO outlook rather foresees a slightly higher exports growth in Brazil, which is believed to consolidate its leadership in poultry exports. On the other hand, OECD-FAO and FAPRI seem to agree on the fact that Thailand would top both Brazil and the USA in terms of export growth rate over the next ten years, though starting from a much lower basis, as Avian flu outbreaks nearly halted Thai poultry meat exports in the past.

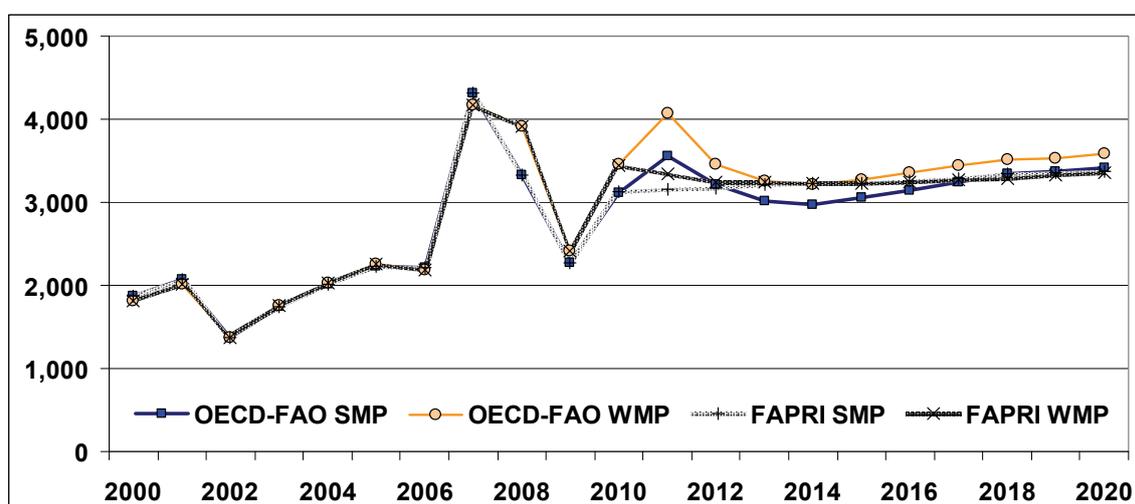
When compared to exports, global **imports of poultry meat** are spread among a larger number of net importing countries. The OECD-FAO and the FAPRI outlook both project a very significant growth in poultry imports in Mexico (35-130%) and Saudi Arabia (48-54%), which, according to both organisations, are expected to become the world's top two net importing countries by 2020, thus clearly outpacing Japan, which would thus follow in third position. The extent to which the Russian policies will be successful in their objective to boost domestic production is a major source of uncertainty in the poultry outlook, and the views of the various organisations substantially diverge on this point: while FAPRI expects that Russia will remain a substantial poultry net importer by 2020 (770 000 t), the OECD-FAO outlook even projects Russia to become a net exporter. Again, the USDA figures are somehow in between the two extremes and indicate that Russia might remain a net importer of poultry, albeit with a reduced deficit (less than 150 000 t).

### 5. DAIRY

In the second half of 2010 and early 2011, global dairy markets were marked by increasing prices, mainly driven by strong global demand for milk and dairy products. In autumn 2010, the prices were additionally supported by lower than expected weather-affected early-season output in Oceania. The supply in Oceania recovered in the second part of the season, however strong global demand persisted and has driven global dairy prices to new record heights in 2011. In the short-term, prices are expected to stay at high levels, at least until new production season 2011/12 starts in the Southern Hemisphere.

The medium-term outlooks (OECD-FAO, FAPRI) project **world milk production** to continue increasing in the next 10 years at the average growth rate equal to the one of the past decade. In its forecast OECD-FAO is slightly more optimistic (with a 2% increase per year) than FAPRI (+1.8%). The majority of the growth is expected to come from developing countries where increasing incomes and westernisation of diets results in strong demand for dairy products.

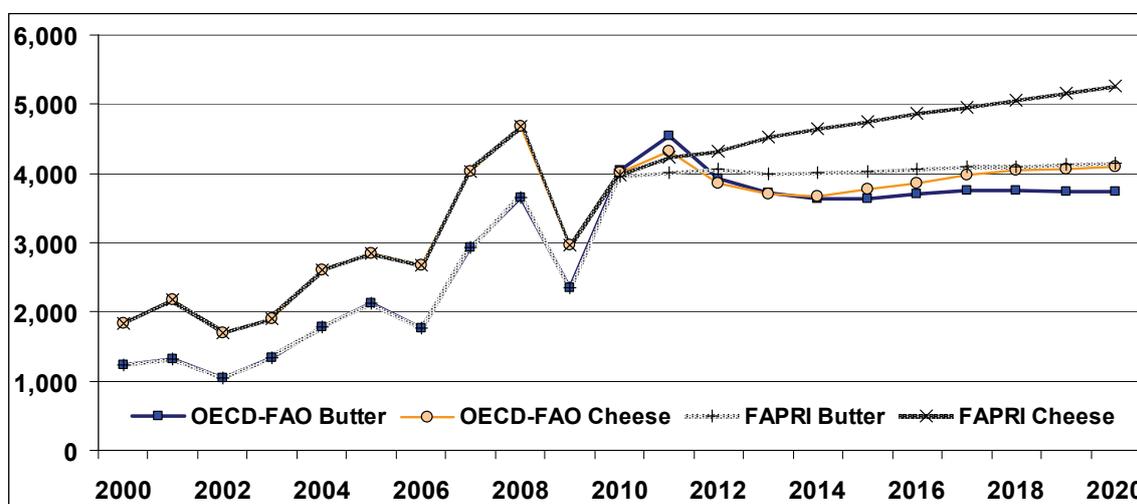
**Graph 5.1. Comparison of projections for world SMP and WMP prices (USD/t FOB Oceania)**



**World dairy products prices** in 2011-2020 are expected to remain at high levels, well above the average prices of the past decade. Although FAPRI is generally more bullish about future price developments, apart from the projections for cheese prices the two forecasts are relatively close and they very much converge in the second half of the outlook period. The remaining differences in price forecasts could be related to the timing of their production. FAPRI’s outlook (drafted in late 2010) expects prices to stagnate (WMP), or modestly (butter, SMP) or strongly (cheese) increase from the 2010 price levels throughout the outlook period. OECD-FAO’s forecasts (drafted in early 2011 amidst peaking prices) project prices to peak in 2011 (above FAPRI price spikes levels), ease away till mid-projection season (as production responds to price signals) and then start a modest rise until 2020, roughly converging in the second part of the projection period with more bullish FAPRI’s expectations. A distinctive discrepancy between the two Outlooks concern cheese prices, which are to increase by over 30% from 2010 to 2020 (this way reaching and overtaking the record levels of 2007/2008 by the end of the projection period) according to bullish FAPRI projections, or fall down from a 2011 peak

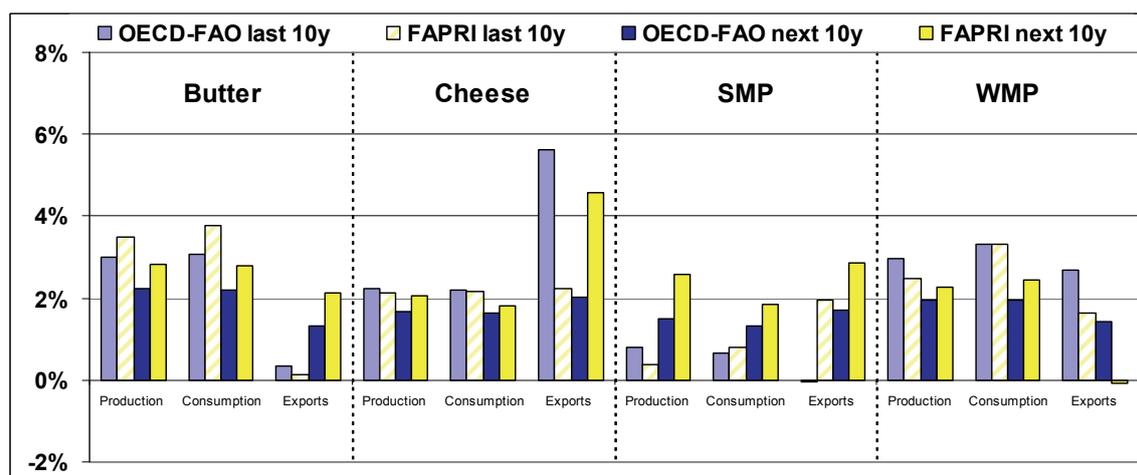
and start moderately growing only from the mid-outlook period (a 5% decline between 2011 and 2020 overall).

**Graph 5.2. Comparison of projections for world butter and cheese prices (USD/t FOB Oceania)**



World production and consumption of dairy products will increase steadily in the next decade, although, with the exception of SMP, the rate of growth is expected to be lower than the average of the past 10 years, the two Outlooks agree. FAPRI is generally more bullish about the rates of future growth compared to OECD-FAO. Contrary to the other dairy products, world SMP production in 2011-2020, as forecast by both OECD-FAO and FAPRI, is to follow a much steeper growth path than in the past decade and also contrary to the past it is projected to outpace the growth rate of world SMP consumption over the outlook period.

**Graph 5.3. Comparison of growth rate outlook for world dairy products markets (average annual growth in %)**



As regards projections for **world trade in dairy products** in the next decade, the two Outlooks vary in their forecasts for cheese but are in agreement concerning future trends in global butter and milk powders trade. While FAPRI forecasts world cheese trade to outpace the already impressive rate of growth of the past decade and increase by 4.6% per year in 2011-2020, OECD-FAO is less bullish in its trade projections, with a 2% per

year (less than a half of the annual growth in the past - 5.5%). Both Outlooks expect world butter trade to increase but FAPRI is again more bullish (+2.1% per year) compared to OECD-FAO (+ 1.3%), although in the case of the latter it is a substantial change in comparison to the projected stagnation in world butter trade forecasted in its last year outlook. In both Outlooks, the projections for world SMP and WMP trade were scaled down substantially compared to the last year forecasts. Trade in milk powders is to grow substantially slower, in particular WMP, than it did in 2001-2010. FAPRI is bearish with a forecast of stagnation in world WMP trade (-0.1% over the outlook). Moreover, WMP is the only dairy product, for which FAPRI is more bearish than OECD-FAO. The low projections for WMP trade should be seen together with the strong performance of SMP, as importers substitute away from higher priced WMP.

A closer look at the forecasts for the main players in dairy markets shows that similarly to last year projections, substantial differences persist as regards outlooks for **Russian butter** production and consumption. While FAPRI expects the Russian production to decrease by 10% (from the average of 2008-10 until 2020), which is a more severe decline than Russian consumption falling by 6% over the same period, OECD-FAO projects a strong increase in both output (+25%) and consumption (+15%). FAPRI's bearish forecast for Russia's domestic butter consumption and production result in projected increase in butter imports over the outlook period (by 8% from 2008-10 average to 2020). On the other hand the expected increase in production in OECD-FAO causes butter imports to be on the decline throughout the outlook (-9% from 2008-10 avg. to 2020). In both forecasts, however, Russian butter imports are to remain below the elevated levels of the past decade. Also projections for **India's** domestic butter output differ from one Outlook to the other. Both project the domestic production to continue growing over the outlook period, however FAPRI is more positive with a forecast of above 4.5% per year in 2011-20, than OECD-FAO expecting a 3% growth in the next decade (according to both this would still be well below the past decade growth of around 7%). Both Outlooks project EU net butter exports to fall in the next decade, although OECD-FAO is more prudent in its prospects for the **EU** (EU share of the world butter exports to go down from 15% in 2008-10 avg. to only 3% by 2020). Also **New Zealand** will see their share of global butter exports decline (particularly in FAPRI projections) and taken over by emerging exporters (India, Argentina, Ukraine, Uruguay).

As regards international SMP market, the Outlooks are relatively close as regards projections for the **EU SMP market** balance (in both projections production falling faster than consumption but decreasing at a roughly half the rate of the past decade). This is expected, FAPRI and OECD-FAO agree, to result in EU net SMP exports, and its world market share, to decline over the outlook period, although, at the same time, the average level of EU exports is expected to remain above the average level of the past decade. The Outlooks differ in their forecasts for the **US SMP** market. FAPRI is particularly bullish in its prospects for the US production expansion, with the rate of growth (5.2% per year) more than double of the OECD-FAO's projections (2.3%) and also stronger than the growth rate of the past decade (2.2%). In consequence, US share of world SMP exports is to expand in FAPRI forecast, and decline, according to OECD-FAO. Similar, discrepancy between the outlooks exist for New Zealand, while FAPRI forecasts **New Zealand's** world SMP market share to decline slightly, OECD-FAO is more bullish and forecasts New Zealand to secure its place of the top SMP exporter with its exports expanding substantially in 2011-2020. On the imports side, no critical changes, compared to the last year's projections are forecast for the main net SMP

importers. China is to increase its global imports share most substantially, the Outlooks agree.

The above mentioned discrepancies concerning **world WMP supply and demand** balance should be related to the projections for **China's WMP** consumption and production, and more specifically to different views on China's ability to recover from the melamine scandal of 2008 that dramatically affected the Chinese WMP market. FAPRI forecasts China's consumption to increase unabated throughout the outlook period and its domestic production to keep up with this growth from 2012 onwards (69% increase by 2020 compared to the basis of the 2008-10 average) and China increasingly become a net WMP exporter, while OECD-FAO is far less optimistic about the ability of China's domestic production to recover from the melamine crisis and projects a less impressive growth (a 42% increase over the same period) causing Chinese WMP imports to ease in the short run and to return to historically low levels. Both FAPRI and OECD-FAO revised up from last year their prospects for **New Zealand's WMP net exports** in the coming decade, so that NZ's share of the world export market increases from roughly half currently up to two-thirds at the end of the projections period. The Outlooks differ substantially in their projections for **EU WMP net exports**. While OECD-FAO expects the export share of the EU to increase modestly, FAPRI forecasts EU net exports to decline (particularly steeply until 2015) and its share of global WMP export markets to decline 3-fold by the end of the projection period.

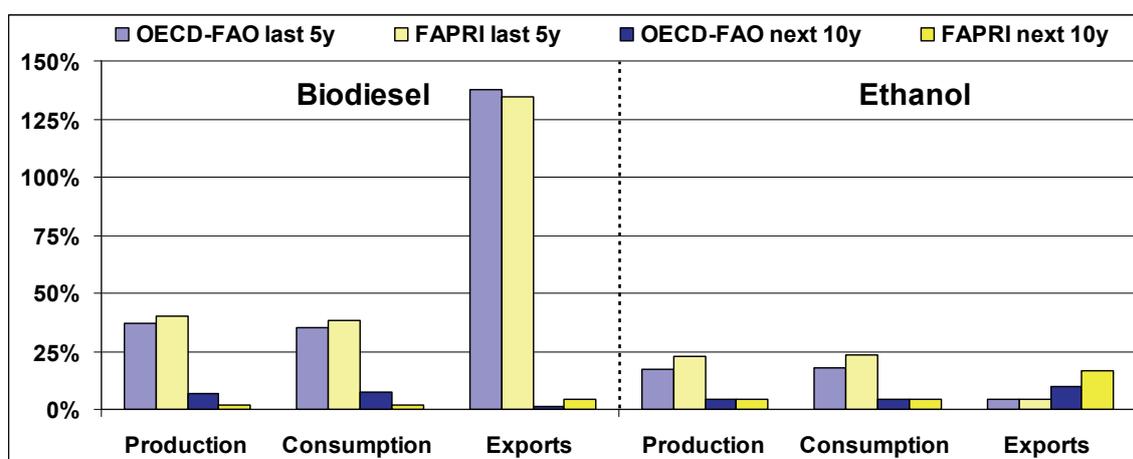
As regards the international cheese market, FAPRI is more bullish in its projections for the main net **cheese** exporting countries. Although both Outlooks forecast increases in **NZ** and **AUS** production and, in turn, in their exports, only the very optimistic projections by FAPRI (NZ domestic cheese production growing by 60% and AUS by over 100% till 2020 when compared to the 2008-2010 basis) allow the two countries to increase their world market shares. Similarly to last year's forecasts, also this year the Outlooks agree on the bearish prospects for the **EU net cheese exports** (although this year, FAPRI is less pessimistic in its forecast for the EU) as due to strong domestic demand, the EU net exports and consequently its share of world exports drops. On the imports side, the Outlooks agree, the main players (**Russia and Japan**) are expected to continue along a steady modest growth in cheese imports but nonetheless lose their global imports share to smaller and fragmented **Rest of World** importers, which increase their imports faster. FAPRI revised down its last year's projections for **Mexico's** imports and, contrary to OECD-FAO, projects its global imports share to decline over the outlook period.

## 6. BIOFUELS

Although the biofuels sector continues to be largely driven by policy mandates and fiscal incentives in many world regions, the ethanol and the biodiesel markets have been reacting in the recent months to increasing energy and oil prices as well as to the comeback of high prices for agricultural commodities and notably the most important ethanol feedstocks, as maize and sugar. In particular, the skyrocketing sugar prices have dramatically augmented the relative attractiveness of transforming sugar cane into sugar to the detriment of ethanol production. As a consequence, not only ethanol price has considerably gone up worldwide, but also the Brazilian ethanol sector itself is now suffering from an unprecedented supply shortage, which is negatively affecting both the export potential of the world's largest ethanol provider and even the availability on its domestic market.

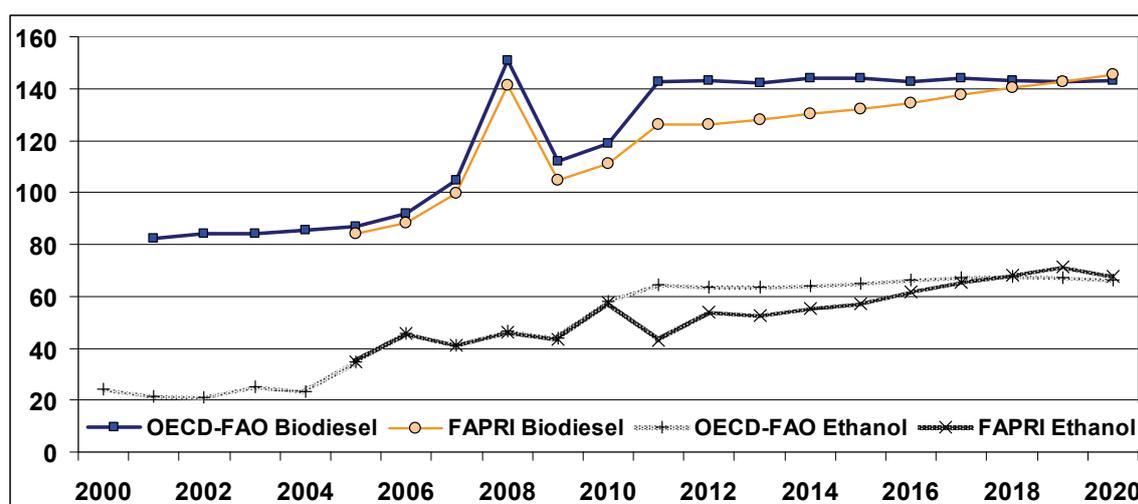
The biofuels sector is entering in its mature period. Therefore, all mid-term projections expect that the growth rates of world ethanol and biodiesel production and consumption will cool down in the next decade compared to the last five years, when the annual growth attained roughly 40%. However, the OECD-FAO is more optimistic about the future development of biofuels and projects for both biodiesel and ethanol a yearly increase around 7%, whereas FAPRI contemplates a scenario of quasi-stagnation, with annual growth rates lower than 2%.

**Graph 6.1. Comparison of growth rate outlook for world biofuels markets (average annual growth in %)**



World biodiesel trade is also expected to grow more slowly in the period 2011-20, after the formidable expansion of the recent past. The OECD-FAO and the FAPRI outlook agree on this. However, while the latter organisation still sees room for some moderate development in the future (+4% per year), the OECD-FAO only projects a meagre 1% increase. Against this background of decelerating growth in the biofuels sector, world ethanol trade seems to represent an exception, since the two organisations forecast a firmer expansion over the projection period (+10% and +17% per year respectively) compared to the rates registered in the past.

**Graph 6.2. Comparison of projections for world ethanol and biodiesel prices (USD/hl)**



Bioethanol and particularly biodiesel world prices are at quite high historical levels in 2011, due to the current tension on the respective feedstocks markets and high oil prices. The OECD-FAO outlook projects a quite steady pattern for the two biofuels prices between 2011 and 2020, while FAPRI rather expects a slightly upward trend in world prices, though generally failing to reach the hikes attained in 2008.

Looking at **ethanol world trade**, Brazil indisputably represents the most important exporting country and, according to FAPRI, its net **exports** are forecast to multiply by four between 2011 and 2020. On the **import** side, FAPRI project the USA to become by far the largest world importer of ethanol, with a trade deficit considerably expanding year after year until 2020. Other large importers of ethanol are projected to be the EU and Japan, for both of which FAPRI expects net imports to increase by around 60% over the projection period.

As regards **biodiesel**, world trade is driven by the **import** demand of the EU, which currently attracts almost the entirety of global import flows. FAPRI expects that EU biodiesel net imports would increase by more than 60% between 2011 and 2020. On the **export** side, the largest player on the world market is Argentina, whose exports however are projected to grow by only 15% over the projection period. On the contrary, according to FAPRI, Malaysia and Indonesia are expected to boost their palm oil-based biodiesel production and thus to roughly multiply by four their exports over the next decade. Brazil – currently the second-largest biodiesel exporter – would be relegated to a more marginal role by 2020, due to the much smaller export expansion pattern compared to the two Asian countries.

The OECD-FAO outlook for biodiesel differs from FAPRI on a number of points. First of all, the projected trade surplus of Indonesia is questioned: contrary to FAPRI, the OECD-FAO is more confident on the success of the Indonesian biofuel programme, which would, not only leave little room for exports, but even require additional imports. Secondly, the USA are expected to have a deficit of biodiesel production by 2020, thus their weight of on the world import market is much higher than what expected by FAPRI.

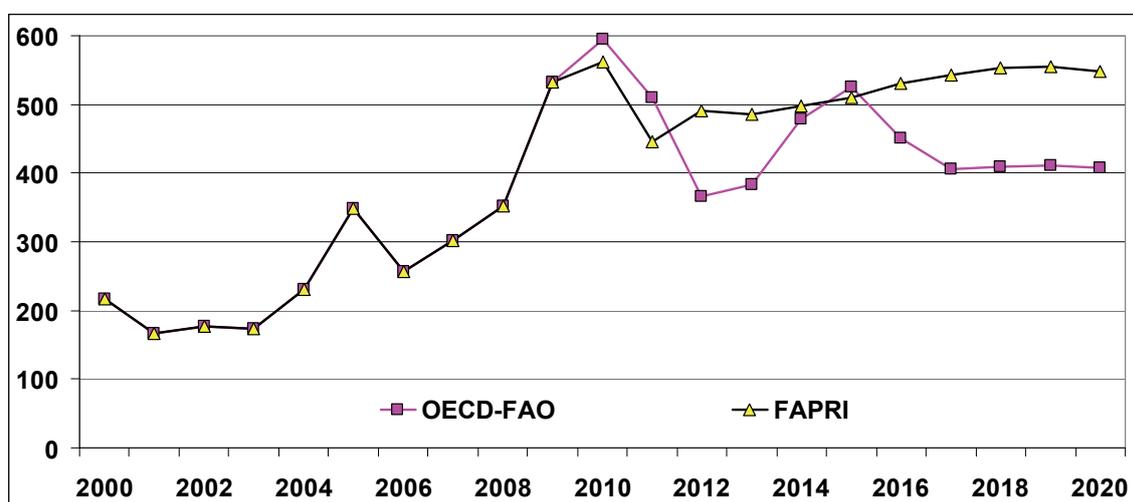
## 7. SUGAR

Sugar market has been particularly turbulent in the past few years; despite some recent easing the sugar price does remain well above historical averages even though a small production surplus is expected in 2010/11 owing to bumper crops in Thailand and Brazil. Stocks are at their lowest in 20 years. Although not large enough to rebuild inventories, the production surplus would be the first one since 2007/08. Larger production surplus is not expected until the 2011/12 season, responding to high prices.

Increasing production is expected to exert downward pressure on raw sugar prices. Nevertheless, over the projection period prices are expected to remain high. The OECD-FAO and FAPRI sugar price projections follow a different pattern as OECD-FAO's "wave pattern" takes into account production cycles and related government intervention of Indian sugar production.

Most of the production expansion takes place in developing and emerging countries while production in many developing countries stagnates or decreases. Although other producing countries can increase their plantings marginally, the key determinant in world sugar production is Brazil. However, Brazil's dual car fleet results in a fast transmission of ethanol prices into sugar prices as some mills switch between ethanol and sugar production, depending on the profitability. In addition, appreciation of Brazilian Real increases the cost of production. India, the second largest sugar producer and the largest consumer too is expected to boost its production subject to already mentioned sugar production cycles. The third largest producer Thailand continues to expand the production.

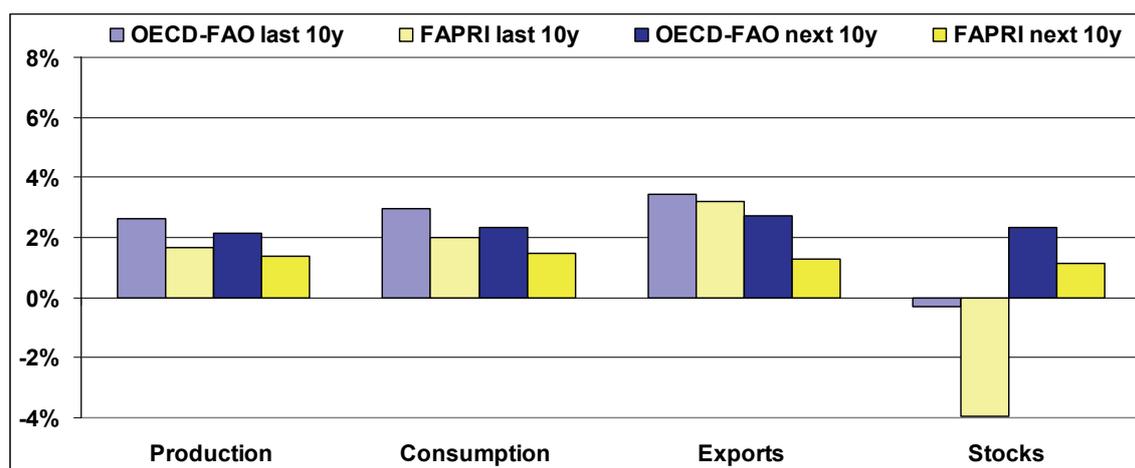
**Graph 7.1. Comparison of projections for sugar prices  
(USD/t of raw sugar equivalent, FOB Caribbean)**



Consumption, albeit at a slowing rate, continues growing despite slower income growth and high sugar prices. The demand growth continues to be the strongest in developing countries, although the pace of growth is uneven. Owing to health concerns and dietary shifts, developed countries consumption stagnates. Some stock rebuilding is possible although increasing consumption will drive stock-to-use ratios down.

Trade is dominated by the biggest producing countries, with Brazil accounting for more than half of exports at the end of the projection period. Thailand, together with Australia, are stable exporters while India switches from net exporter to net importer. A number of new "destination refineries" in Africa and Middle East will contribute to trade in raw and white sugar. Importers, on the other hand, are diverse. However, current relatively low per capita consumption in China coupled with economic growth and urbanisation leading to dietary shifts are likely to place China on the top of the list of the largest importers.

**Graph 7.2. Comparison of growth rate outlook for world sugar market (average annual growth in %)**



Among the main uncertainty is increased reliance on production condition in one country (Brazil) to increase production. This reliance, coupled with production cycles in India, is likely to bring additional uncertainty to the market and possibly contribute to future bouts of price volatility. Nevertheless, Brazil remains the only country capable of switching part of the production between ethanol and sugar depending on the profitability taking into account changes in oil and energy prices.

Given history, a legitimate concern is whether current period of high prices and improved profitability can lead to overinvestment in countries where production is based on perennial sugar cane.