

# **Rising Food Prices**

**CAUSES AND CONSEQUENCES**



## EXECUTIVE SUMMARY

- Recent steep price increases of major crops (cereals, oilseeds) were triggered by a combination of production remaining somewhat below trend and strong growth of demand.
- A low and declining level of stocks has added to the price rise, as has probably a significant increase in investments in agricultural derivative markets.
- The [OECD-FAO Agricultural Outlook](#) expects prices to come down again, but not to their historical levels. On average over the coming ten year period, prices in real terms of cereals, rice and oilseeds are projected to be 10% to 35% higher than in the past decade.
- The acute price hike adds to inflationary pressures in developed countries. Poor consumers in developing countries, and food importing developing countries overall, will have to spend an even higher share of their limited income on food.
- In the short term, humanitarian aid is required, where appropriate in the form of cash or vouchers so as to strengthen, rather than undermine domestic markets in recipient countries.
- In the medium term, there is a need to foster growth and development in poor countries, to improve the purchasing power of food buyers. [Agricultural trade](#) policies require further reform in order to ensure an effective supply response. Investments in productivity growth, particularly in less developed countries, should also strengthen the supply side of global agriculture. On the demand side, policies that encourage increased production and use of biofuels from agricultural commodity feed stocks warrant review.

### Introduction

World prices of wheat, coarse grains, rice and oilseed crops all nearly doubled between the 2005 and 2007 marketing years and continued rising in early 2008. These increases in agricultural commodity prices have been a significant factor driving up the cost of food and have led to a fuller awareness and a justifiably heightened concern about problems of food security and hunger, especially for developing countries.

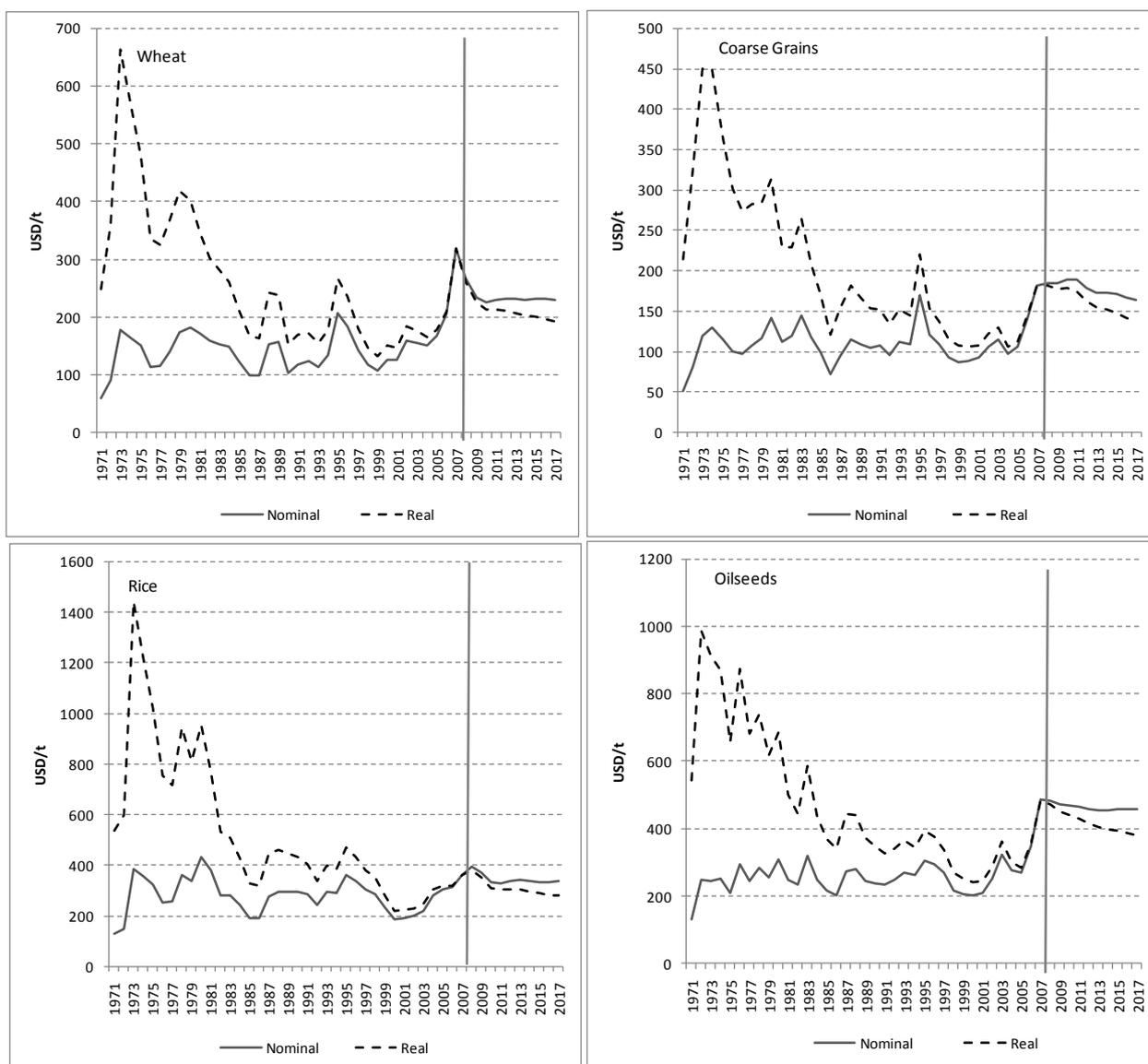
The causes of this price spike are complex and due to a combination of mutually reinforcing factors, including droughts in key grain-producing regions, low stocks for cereals and oilseeds, increased feedstock use in the production of biofuels, rapidly rising oil prices and a continuing devaluation of the US dollar, the currency in which indicator prices for these commodities are typically quoted. This turmoil in commodity markets has occurred against the backdrop of an unsettled global economy, which in turn appears to have contributed to a substantial increase in speculative interest in agricultural futures markets.

Tight market conditions for essential agricultural commodities pose policy challenges for national governments as well as for international organisations. In order to take the right policy decisions, we need to understand what caused the current price spike, what the implications may be for prices and price volatility in the future, and how various countries and members of society may be affected. This note aims to improve this understanding and thereby to contribute to sound policy formulation.

## Are food price hikes unprecedented?

The commodity price developments witnessed recently are certainly unusual when viewed from the perspective of the last decade or so, but less so when seen in a longer historical context. Figure 1 shows the evolution – in nominal and in real terms – of annual average world prices of wheat, coarse grains, rice and oilseeds from 1971 to 2007 with projections from 2008 to 2017. While spot prices for April-May 2008 are not shown, for these commodities price levels greatly exceeded the expected annual average for 2008. Two points are clear: first, agricultural commodity markets are notoriously volatile; second, the current price spike is neither the only nor even the most significant one to occur in the last forty years.

Figure 1. Food commodity price trends 1971 – 2007, with projections to 2017



Note: Real prices deflated by USA GDP deflator 2007 = 1.

Source: [OECD-FAO Agricultural Outlook, 2008-2017](#)

It is also important to recall that prices for meat and poultry have seen no or modest increases during this same period. There have been substantial increases in the prices of dairy products, at least in part due to recent policy developments, though more recently prices have again declined somewhat. As the international debate has focused on the implications of increases in prices for crop markets this note focuses primarily on prices for cereals and oilseeds.

### **How can the current price spike be explained?**

Prices rise when markets get tight. Between 2005 and 2007 there were coinciding spells of unfavourable weather in major producing regions in the world, pushing crop yields in those areas below long term average levels. World cereal output in 2007 was just 3% larger than in 2005 while there was a decline in overall oilseeds output; nevertheless, vegetable oil production rose by 7% due to rapid growth in palm oil output.

At the same time, there was strong demand growth. Demand for wheat and coarse grains grew almost twice as much as did production, and demand for vegetable oil increased two percentage points more than output. More than half of the increase in use of both coarse grains and vegetable oil was due to higher use in the biofuels industry. Use of cereals and vegetable oil for food also continued to grow, as did cereal use for feed. This food and feed demand growth came primarily from countries outside the OECD area and accounted for the remaining nearly 50% of the total increase in demand.

The production shortfall, relative to trend, would in itself have been enough to send prices higher, although under 'normal' conditions stocks would have buffered the market and dampened the price rise. But stocks were already low and they kept declining in 2006 and 2007 because of bad weather and low yields in major exporting countries. Supply shortfalls, the absence of a sufficient buffer, the continued increase in food and feed use, and the high growth in relatively price-insensitive demand for biofuels all coincided to make the price increases exceptional. More recently, there has also been a significant increase in investments in agricultural derivative markets from non-traditional sources, whether for portfolio diversification or speculation. It is likely that this has contributed to the rise in short term futures prices and is an additional factor in the current spike in spot market prices.

Some of the factors behind the current price hike are transitory while others may be more permanent. Making that distinction is an important ingredient in projecting market developments over the coming ten year period, as is done in the [OECD-FAO Agricultural Outlook](#). This differentiation is also important in designing good policy to deal with the implications of the price increases.

### **What factors will shape future prices and price volatility?**

The recent *negative yield shocks* in key agricultural commodity producing regions that have contributed to price increases should be viewed as *temporary*. Barring any underlying climate change or water constraints that could lead to permanent reductions in yield, normal higher output can be expected in the very short term.

*Macroeconomic conditions* that favour economic growth, increases in purchasing power, and stronger demand for agricultural commodities are expected to continue, at least for many non-OECD economies. This is a *permanent* factor in future price determination, but not a new one: strong GDP growth in developing countries has been a feature of commodity markets for many years. Thus, this factor should *slow the decline in real prices* in the future, but not lift average prices to permanently higher levels.

The *oil price*, and energy prices more generally, is a critically important contributing factor to the increase in production costs for agricultural commodities and food and ultimately in the market prices for these goods. Price projections discussed here reflect the widely held belief that the oil price increases are *permanent*, lifting future prices to higher average levels.

Feedstock demand for *biofuel* production is expected to increase further, albeit at a slower rate than in the past three years, and under current policy settings appears to represent a *permanent* factor in price formation. Unlike strong income growth in developing countries, this is a new source of demand which is seen as one of the factors *lifting prices to higher average* levels in the future.

*Stocks* of wheat, coarse grains and vegetable oil have fallen to low levels relative to use, reducing the buffer against shocks in supply and demand. Stocks are not expected to be fully replenished over the coming ten years, implying that tight markets may be a *permanent* factor in the period to 2017. This should not lead to permanently higher prices, but provides the background for more price *volatility* in the future.

The surge of investment in *futures commodity markets* from non-traditional sources may have short term price effects. But relative to the ten year outlook period these may prove *temporary*, given adjustment in markets and participants' behaviour: funds can move rapidly in and out of commodity markets as profit opportunities dictate. Given their size, this may well be a new and *permanent* element in future price *volatility*.

A more general point concerning price volatility relates to the 'thinness' of markets, or the share of imports and exports relative to the size of global consumption or production. When markets are thinner and prices in domestic markets do not follow those in international trade because of insulating policies or market imperfections, world market prices must change more to accommodate an external shock to traded quantities, all else equal. Such market characteristics are expected to remain a *permanent* feature in the *volatility* of prices.

Finally, the *nature and composition of demand* are factors that may increase the future variability in world prices. First, industrial demand for grains and oilseeds and in particular policy-driven demand for biofuels production is generally considered less responsive to prices than traditional food and feed demand. Second, food demand becomes less responsive to price changes as incomes rise and the commodity share in the food bill falls. Such changes are *permanent* factors that may lead to greater *volatility* in future world prices.

### **What are current expectations for future prices?**

The current outlook for crop production in 2008 is generally positive. The April forecast for global cereal production suggests an increase of over 3% from 2007, with the bulk of the growth in wheat due to a substantial recovery in production in major exporting countries. Rice harvests in major producing countries are just beginning. Wheat production in major exporting countries is expected to be above 2005 levels. The increased supply should bring some relief to the market in the course of 2008, but with use forecast to again exceed supply and stocks forecast to be further drawn down, the overall market situation is likely to remain tight throughout the year.

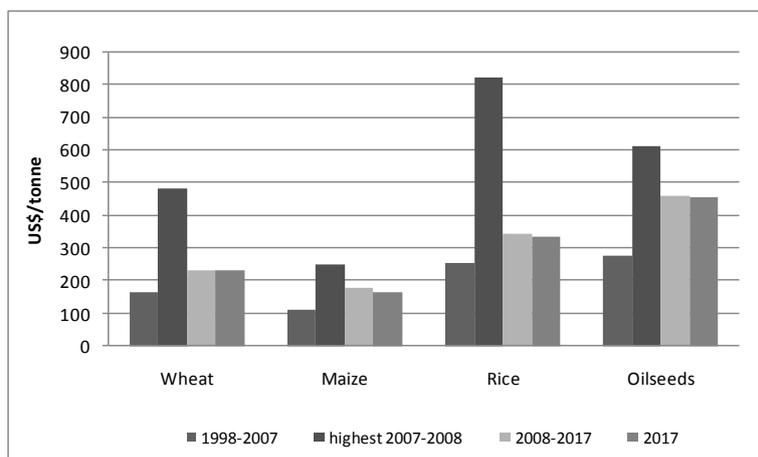
Over the 2008-2017 period covered by the [OECD-FAO Agricultural Outlook](#), a strong combination of supply response and continued growth in demand is expected to keep prices above historical levels, but well below the peaks experienced today.

Looking ahead to 2017, the average level of wheat and coarse grain prices is expected to remain higher than in 2005, but well below levels in 2007-2008. World wheat and coarse grain areas are expected to increase somewhat and yields are expected to grow along historical trends. Oilseeds prices are expected to remain strong, though slightly lower than today. Current high prices are expected to bring about a supply response that results in more land allocated to this sector and good yield growth. In addition, palm oil production is expected to increase 40%. Rice production is expected to grow modestly with continued productivity growth offsetting a small decline in the area planted.

Demand for cereals for use as feed stocks in biofuel production is projected, under current policies, to almost double between 2007 and 2017, but the largest part of future growth in total use is explained by rising food and feed demand, particularly in countries outside the OECD area that are experiencing strong economic growth. Little rice is used for feed and almost none in biofuel production. Demand for rice, almost all for food use, is expected to increase by less than 1% per year and is dominated entirely by growth in developing countries. Biofuel use of vegetable oils is forecast to account for more than a third of the expected growth in vegetable oil use from 2005 to 2017, and other uses are also expected to grow substantially. Income growth drives much of this expansion in demand, with countries outside the OECD area increasing their consumption of vegetable oils by 50%.

Based on these market developments, the Agricultural Outlook forecasts relatively tight markets to continue, with prices down from current peaks but remaining higher on average than prices experienced over the past decade, as shown in Figure 2. On average over the coming ten year period, nominal prices for cereals, rice and oilseeds are expected to be 35% to 60% higher than on average in the past ten years. Prices in real terms are projected to be 10% to 35% higher than in the past decade. Productivity gains and increasing competition in trade from countries outside the OECD area will eventually overtake stronger demand. As that happens, prices will resume their decline in real terms, though more gradually than in the past (see Figure 1).

**Figure 2. Nominal prices fall but stay above average levels of the past**



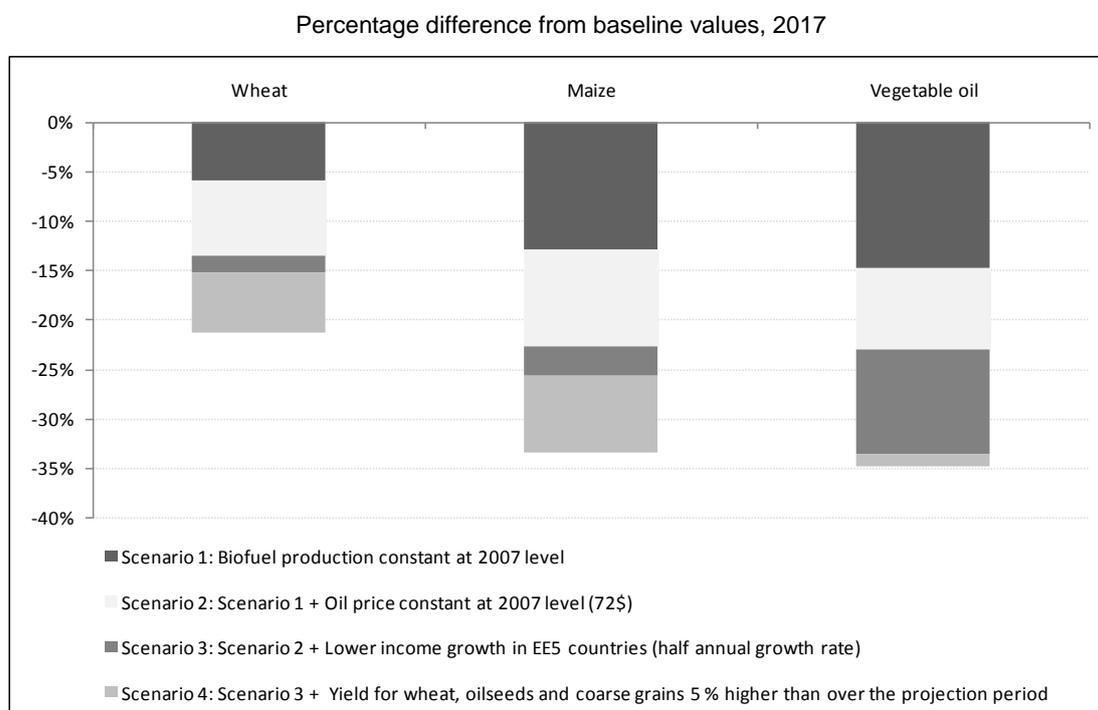
### Which factors might change these price projections?

The recent spikes in food commodity prices surprised most economic forecasters, reminding us of the inherent vulnerability of projections to unanticipated developments. The price projections discussed here assume normal weather, unchanged policies, and stable economic performance. Looking at alternatives to these assumptions provides additional insights regarding the factors influencing future prices. Key results of four alternative scenarios are illustrated in Figure 3 and summarised below:

- If biofuel production is assumed to remain at 2007 levels, rather than doubling over the next 10 years as expected, the projected prices for coarse grains would be 12% lower and vegetable oil 15% lower in 2017 than currently expected.
- If it is also assumed that oil prices stay at their 2007 level over the next decade, projected prices for wheat and maize fall by a further 10% and for vegetable oil by a further 7%.
- If the rates of growth in GDP in Brazil, China, India, Indonesia and South Africa are then reduced to half the rate assumed in the Outlook – with exchange rates and inflation also changed consistently – projected wheat and coarse grains prices would fall by a modest 1 to 2% more but vegetable oil prices by a further 10%.
- Finally, if it is also assumed that cereals and oilseeds yields are 5% higher than expected, projected wheat and maize prices would be a further 6 and 8% lower, respectively, but there is little further change in vegetable oil prices.

All these assumptions tend in the same direction, to lower prices, and taken together would lead to prices for wheat, coarse grains and vegetable oils that are 20 to 35% lower in 2017 than what is now projected. It is unlikely that these factors would all combine in the configuration described here, but it serves to illustrate the relative significance of some of the factors that will determine future price levels. Of course, alternative scenarios that could push prices back up could also be envisaged – an equivalent production shortfall in a major exporting country again this year, for example, would be expected to lead to prices that remain near current levels.

**Figure 3. Sensitivity of projected world prices to changes in four key assumptions**



## What are the impacts of high food prices?

The impact of high food prices on developing countries depends on the interplay of various factors. In general, commercial producers of these commodities will benefit directly from higher prices, as will in many cases the people they employ (assuming, of course, that governments do not prevent higher prices on world markets from being transmitted to domestic markets). Livestock producers, on the other hand, are squeezed by both higher feed and energy costs and relatively flat prices. For farm households producing mainly for their own consumption or for local markets insulated from price fluctuations on national and international markets, the impacts will be mitigated. *But for the urban poor and the major food importing developing countries, the impacts will be strongly negative as an even higher share of their limited income will be required for food.* Each 10% increase in the prices of all cereals (including rice) adds nearly USD 4.5 billion to the aggregate cereals import bill of those developing countries that are net importers of cereals.

*The impact of high agricultural commodity prices on developed countries is relatively modest, overall.* The agricultural commodity price component of final food product prices is relatively small (often 35% or less), as is the proportion of disposable income spent on food (10-15% for most OECD countries). Of course these averages mask much more significant impacts on lower income consumers who spend a larger share of their expenditure on food. In addition, and to the extent that high prices persist and hence do not reduce the future rate of inflation, indirect economic impacts might also be important.

## What are appropriate policy responses?

In the short term, *humanitarian aid* is required. Before recent price increases, hundreds of millions of people were going hungry because they could not afford food. With higher prices, the numbers of people suffering from extreme hunger has increased even further – the 1st UN MDG has become an even greater challenge. Immediate and substantial aid is required, where appropriate in the form of cash or vouchers so as to strengthen, rather than undermine domestic markets in the recipient countries.

In the medium term, there is a real need to improve the purchasing power of poor food buyers so they can acquire enough food even at the higher prices, relative to past averages, that are expected to prevail in the future. Fundamentally that requires to *foster growth and development in poor countries*. In some of the poorest countries, investment in agriculture, including in agricultural research, extension and education, may be the best way to cut poverty and stimulate economic activity. In other situations, investment in agriculture may also be helpful, but there may equally be a need to diversify the structure of the economy. In many cases, investments in improving the overall environment in which agriculture operates may be most appropriate – improving basic governance systems, macroeconomic policy, infrastructure, technology, education, health, etc. In other words, a tailored approach is needed, one that builds upon the capacity and potential of individual countries, rather than a generalized rush to develop agriculture.

*Agricultural trade policies require further reform.* Trade restricting policies – whether they restrict exports or imports – have undesirable and often unintended impacts, especially in the medium and long term. Subsidies that distort markets are equally unhelpful. Export taxes and embargos may in the short term provide some relief to domestic consumers, though such measures do not distinguish between low and high income consumers, and they also impose a burden on domestic producers and limit their supply response. Export restrictions contribute to global commodity market uncertainty and drive international market prices further up. On the import side, “protecting” domestic producers of agricultural commodities by providing high price support and border protection restricts growth opportunities for producers abroad and imposes a burden on domestic consumers. A swift and ambitious conclusion of the [Doha Round](#) of WTO negotiations could make an important contribution to exploiting the potential of markets to balance global supply and demand.

It is also instructive to look closely at the causes of recent price increases. On the supply side, the link between production and yield shortfalls and *climate change* might be further explored. Investments in R&D, technology transfer and extension services, particularly in less developed economies, could do much to increase *productivity* and output. The use of genetic modification (*GMOs*) also offers potential that could be further exploited, to improve productivity, to enhance the attributes of crops destined for either food or non-food uses, and to enhance the resilience of crops against stress such as drought. On the demand side, policies that encourage increased production and use of *biofuels* warrant a close review. OECD/IEA analysis to date suggests that the energy security, environmental, and economic benefits of biofuels production based on (first generation) agricultural commodity feed stocks are modest and are unlikely to be delivered by current policies. Alternative approaches (for example, that encourage reduced energy demand and GHG emissions, provide for freer trade in biofuels, and accelerate introduction of 'second generation' production technologies that do not rely upon current commodity feed stocks) offer potentially greater benefits without the unintended impact on food prices.

High agriculture commodity prices also have an impact on close substitutes, such as [fish](#), and could contribute to even further pressure on already depleted *fish stocks*, as well as to increased demand for fish from aquaculture. Policies that ensure the sustainable and responsible use of ocean resources have a key role to play, both within national boundaries and on the high seas; concerted action to control illegal fishing is needed. Options to improve the business environment for private investment in aquaculture might also be explored.

The current hike in food prices is an issue of a truly global nature. It has complex causes and impacts, and requires a complex response at the international level. Current developments on global food markets are having dramatic implications for food security among poor people. At the same time, speculative factors and inward looking policy actions contribute to the nervousness and volatility of markets. What is needed now is an *objective, effective and coherent global response* to avoid making a difficult situation worse.

Now, more than ever, it is important to counter growing calls for trade protectionism. Closing markets to either imports or exports will have exactly the wrong result. More secure global food supplies will only come from competitive producers around the world being provided the freedom to respond to current market opportunities. Continuation or introduction of policies that create distortions and that undermine the appropriate market responses should be avoided. The OECD will continue to monitor commodity market developments and government initiatives over the coming months, and report periodically on its findings.