



Food Prices

March 2016 update

World markets calm, but havoc in Southern Africa & Ethiopia

Steve Wiggins and Sharada Keats

Key messages

- **Cereal harvests** for 2015/16 may be slightly down on those of recent years. Only slightly, however: the El Niño that developed in late 2015 has barely affected the harvests of the largest exporters.
- **Stocks of grain** are expected to climb to more than 570M tonnes for all cereals, giving an ample stock-to-use ratio of 23%.
- **Prices** of grain on world markets have continued to fall or hold their low levels. They are now, in real terms, back at levels seen before the spike of 2007/08.
- There is, moreover, little sign that **low and stable prices** will be disturbed significantly over the next few years.
- While **El Niño** may have spared some countries, it has created **havoc in Southern Africa and Ethiopia** where droughts as bad as anything seen in 30 years have led to severe harvest failures.
- Some 16M people face **food insecurity and hardship** in Southern Africa; some 10M in central, eastern and northern Ethiopia.

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Recap from earlier updates

- An El Niño, one of the strongest on record, formed in late 2015. This warming of waters in the Pacific usually leads to drought in the western Pacific and heavy rains in the eastern Pacific. Through teleconnections it also affects weather around the Indian Ocean.
- The El Niño has had little impact on cereals harvests from Argentina, Australia and Brazil so that grains harvests for 2015/16 should exceed consumption.
- Spot prices for maize and wheat have continued the fall that began in 2013. Rice prices had risen marginally in 2016, but were still more than 40% lower than they were in 2012.
- While the El Niño might have spared the harvests of the main Southern Hemisphere exporters, in Southern Africa it has led to one of the deepest droughts seen in the last 30 years, with widespread and large harvest failures. The event is also associated with droughts and failed harvests in 2015 in Ethiopia.

1 Key developments since January 2016

Overall, cereal harvests in the marketing year 2015 to 2016 have reached expected levels for the most part, despite the El Niño that developed in late 2015. With prices falling, and high stocks, however, it is expected that harvests this year may be slightly down on those of recent years, as farmers react to the lower expectation of profits. The maize and rice harvests will be slightly less, the wheat harvest considerably more, than consumption. Overall, stocks of grain are expected to climb to more than 570M tonnes for all cereals, giving a stock-to-use ratio of 23%: an ample buffer against most shocks.

Prices of grain on world markets have continued to fall or hold their low levels. Indeed, by March 2016 prices of grains were the same, in real terms, as they were in May 2007 for rice, September 2006 for maize, and April 2002 for wheat. Prices are thus back to the levels seen before the price spike of 2007/08. At that time, while prices were expected to fall back from their very high levels of early 2008, few thought that they would ever return to their pre-spike levels. The low and stable prices seen over the last year or so thus marks the end of a cycle, see Section 4.

There is, moreover, little sign that low and stable prices will be disturbed significantly over the next few years, as explained in the [Annual Review for 2014/15](#), June 2015. Stocks are ample to cope with the odd harvest failure or other shock, while the main drivers of higher prices from 2007 onwards such as the growth of US ethanol distilling — see Box A — and high oil prices, are no longer driving.

Box A: US ethanol distilleries hit hard times

Faced by low oil prices, US ethanol plant operators report that they are struggling to cover their running costs, let alone generate returns on the original capital investments.

Ethanol futures on the Chicago exchange have been falling almost every month since the middle of 2013 when they were around US\$2 a gallon, to March 2016 when they were below US\$1.5 a gallon.

The industry has a capacity of 15.5 billion gallons ethanol a year. This compares to the Renewable Fuel Annual Standards proposed for 2016 where the US Environmental Protection Agency proposes 17.4 billion gallons of renewable fuel (ethanol equivalent volume), of which 3.4 billion gallons should come from advanced biofuels leaving just 14 billion gallons from conventional renewables such as ethanol [www.epa.gov/renewable-fuel-standard-program/renewable-fuel-annual-standards]. Capacity thus exceeds mandated volumes.

Leading industry operators are not necessarily mothballing their plants, so inventories are mounting, reported at 23 million barrels, that is 966 million gallons, in February 2016.

The upshot is that for the foreseeable future US ethanol distilling is more likely to contract than expand.

Sources: Agrimoney reports of 11 and 12 February 2016

<http://www.agrimoney.com/news/tate-&-lyle-boss-says-sees-no-end-to-us-ethanol-downturn--9291.html>

<http://www.agrimoney.com/news/squeezed-ethanol-markets-could-trigger-industry-shake-up--9299.html>

Not everyone, however, expects stable conditions, but the reported reasons for doubts are unconvincing: see Box B. Proof of the stability of international cereals markets is how limited has been the impact of the El Niño on world prices, see below.

That, of course, does not mean that at national levels bad weather from El Niño cannot create havoc. Southern Africa faces a crisis comparable to that of the early 2000s; households on low, agriculturally-based incomes in central and eastern Ethiopia are facing a food crisis. Lesser, but significant impacts, of El Niño can be seen in parts of SE Asia. The only consolation to the affected countries and households is that additional imports from the world market are readily available at prices considerably lower than they would have been a few years ago.

Box B: Stormy weather or calm seas? Cereal price volatility over the next five years

Will we see volatile prices for cereals on world markets over the next five to ten years?

Most participants at [a Council on Foreign Relations \(CFR\) workshop on food crises, international trade, and political stability held in January 2016](#) thought so. Two reasons were reported for expecting further instability.

One is that **production is geographically concentrated**, and hence vulnerable to shocks occurring in those countries. The five largest producers of maize grow 70% of the crop; for rice, 72%; and for wheat, 51%.

That is one way to look at concentration, but an alternative is to construct a Herfindahl index for industry concentration. If we take cereals production by region, following those used by USDA, that has 14 regions — Caribbean, Central America, East Asia, European Union 28, Former Soviet Union 12, Middle East, North Africa, North America, Oceania, Other Europe, South America, South Asia, Southeast Asia, Sub-Saharan Africa — a Herfindahl index of concentration gives a current score of 0.14: a low score for concentration. The score would be even lower were production broken down to country level. What's more, there is no sign that concentration is increasing. In 1960 the score was 0.15: not very different, but slightly more concentrated 56 years ago than today.

Of course production tends to concentrate in a few nations, since most of them are large nations: the US, China, India, Brazil and so on. World population and territory is concentrated in a few nations. So it is not so surprising to see five nations tending to dominate production. Furthermore, one would expect to see crops grown where the natural conditions favour their growth; and given the immense variability in ecosystems across the world, then it is not surprising that crop production should be geographically uneven.

Does this then mean that world cereals supply is vulnerable to events both natural and human in those leading producers? In theory it may: in practice, this only applies exceptionally and infrequently. During the last 50 years few instances of bad weather or policy that have destabilised international cereals markets can be found, even if two them — the rapid expansion of US ethanol production from maize that began in the mid-2000s, and India's ban on exports of non-basmati rice in October 2007 — are both recent and significantly contributed to the 2007/08 price spike.

That brings us to the other reason given for instability: that **developing countries have not been raising production** — the report said 'yields', and if they meant yields per unit area that's not quite the point — **as quickly as the US**. That is simply not true. Increases in grain production from other parts of the world, especially in Asia and Africa, have since 2007 been much stronger than those coming from North America, as set out in our [Food Prices Annual Review for 2013/14](#).

Against these none-too-convincing fears can be set the two sets of reasons for expecting stability in prices in the near to medium term. One is that the main drivers of the shock of 2007/08 have been switched off: rising oil prices and the massive increase in US distillation of ethanol from corn. Oil prices have fallen in the last year, while as explained in Box A, the US ethanol industry is more likely to shrink than grow in the near future.

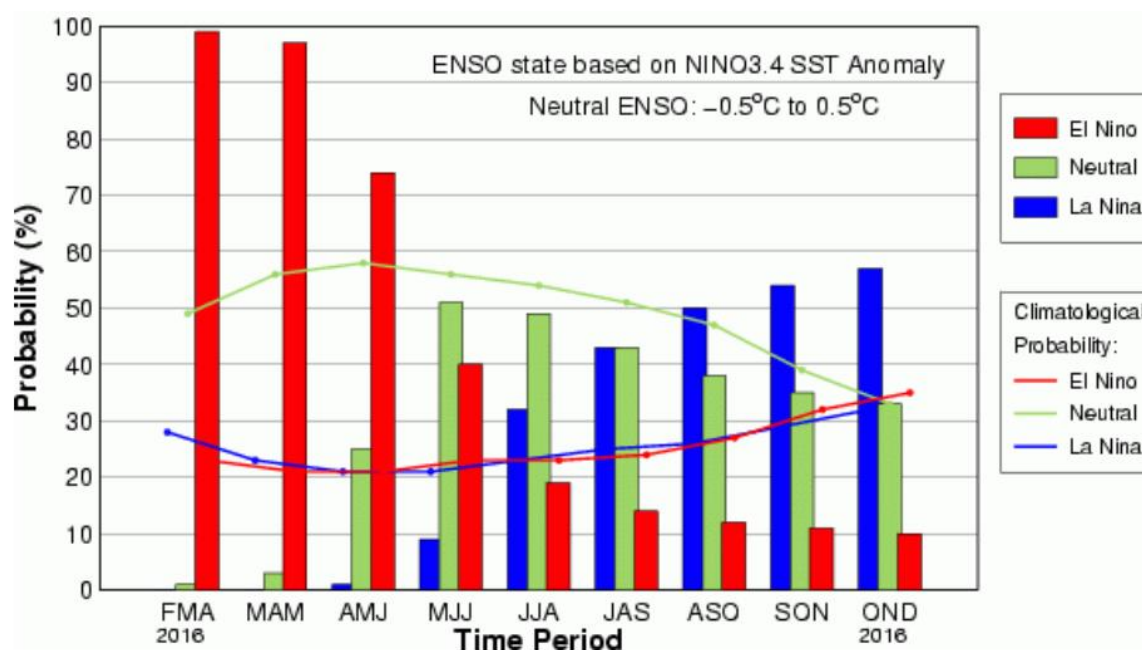
The other reason is the grain stocks have been rebuilt to the point where major harvest failures would have only limited impact on world prices, with rises of 10–30% lasting no more than one year.

2 El Niño Southern Oscillation (ENSO) update

2.1 The current El Niño, and probable La Niña

The current El Niño, a warming of the equatorial waters in the Pacific Ocean, is expected to persist until June or July. After that, there is a better-than-evens chance that La Niña will take over (Figure 1). This is the opposite of an El Niño: a cooling of the equatorial Pacific. If it occurs it will affect crop weather in late 2016 and early 2017, bringing cooler and drier weather to North America and parts of South America which may then reduce harvests of winter wheat in the former, as well as the maize and wheat crops in Argentina and Brazil.

Figure 1: El Niño-Southern Oscillation forecast to late 2016



Source: Early-Mar CPC/IRI Consensus Probabilistic ENSO Forecast from IRI http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-cpc_plume

2.2 Impacts on world markets for cereals

Impacts of El Niño on the main exporters from the Southern Hemisphere have been remarkably light. In January it was reported that the *Australian wheat* harvest, usually hit by drought when an El Niño occurs, was little affected this time. The harvest is expected to be 26M tonnes, actually higher than the last two years. *Argentine wheat* harvests should also be slightly higher than previous years, at around 27M tonnes. *Maize* harvests in *Argentina and Brazil* will be slightly down on recent years.

Stronger effects can be seen on *Indian wheat* harvests, down by 4–6M tonnes on recent years; on *Philippine maize*; and on *grain harvests in Southern Africa and Ethiopia*, as explained in the next section.

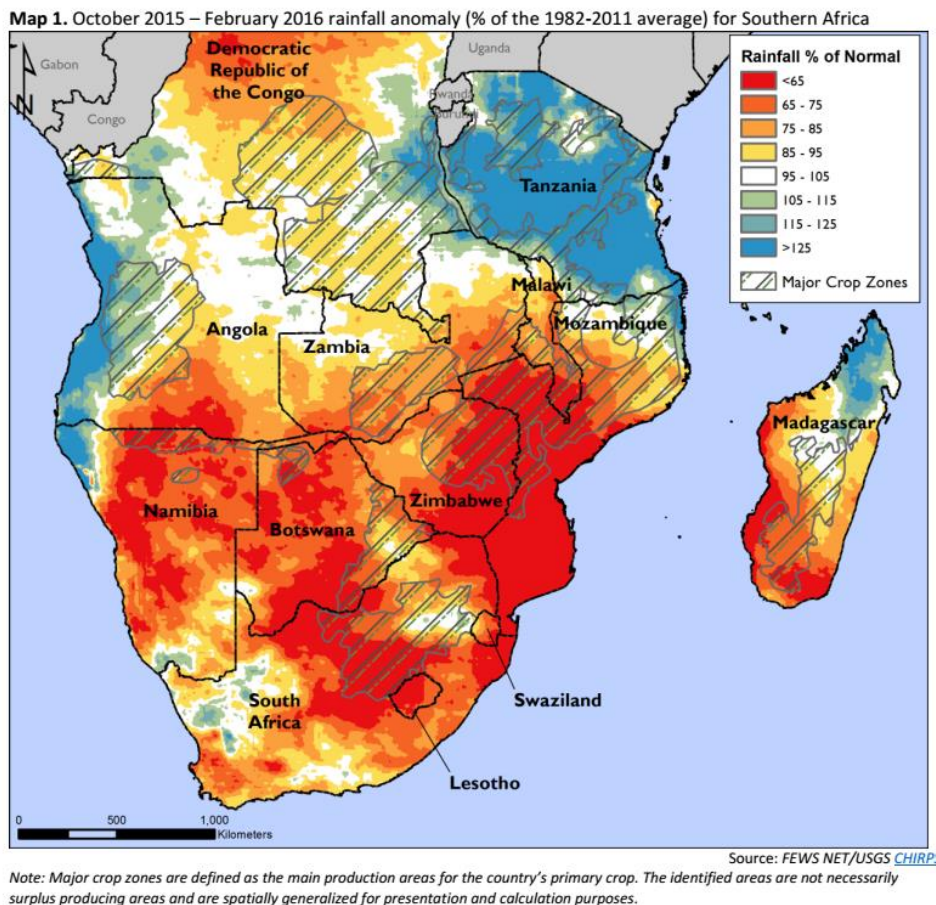
None of these changes, however, has made as much as a one percent change to world supplies. As a result, little or no impact has been seen in world prices, see section 3.

2.3 Southern Africa and Ethiopia update

Southern Africa

The drought induced by El Niño is proving to be as severe as feared (Figure 2), with rains at under 65% of the average seen over the last 30 years.

Figure 2: Southern Africa rainfall anomaly, October 2015 to February 2016, as fraction of 1982–2011 average

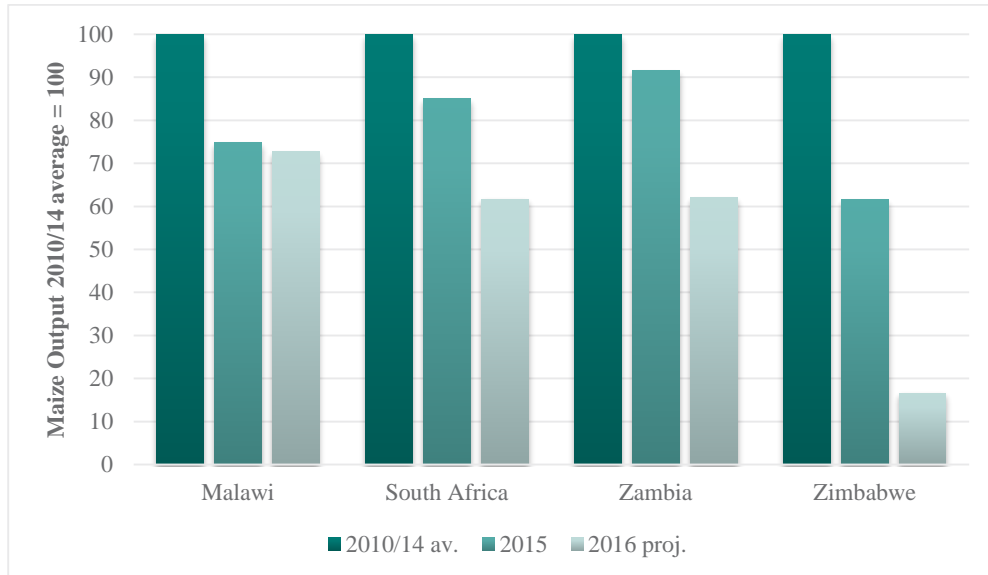


Source: FEWS NET, Southern Africa Special Report March 18, 2016.

Consequently, crops are failing. For four major countries for which 2016 projections can be found, Malawi, South Africa, Zambia and Zimbabwe, the harvests are likely to be 60–70% of the average seen from 2010 to 2014, except for Zimbabwe where the prediction is just 17% of this average (Figure 3). In all four countries, the 2016 harvest follows on from a lower-than-average harvest for 2015. In total, these four countries produced some 20.3M tonnes of maize in 2010/14, but will only produce 12.4M tonnes in 2016. Given that in recent years consumption of maize in the four countries has run at around 20M tonnes, the deficit is more than 7.5M tonnes of maize.

This does not take into consideration of Botswana, Lesotho, Mozambique and Swaziland all of which countries are also likely to see poor harvests and to require grain imports.

Figure 3: Maize output, 2015 and 2016 projected compared to 2010/14 average, selected Southern Africa



Sources: FAO, GIEWS country reports, except for 2016, Zambia from National Farmers' Union, and Zimbabwe from Grains SA.

Not only will many farm households across Southern Africa harvest much less maize than expected and thus have to buy in additional supplies, but also maize prices have risen across the region, (Figure 4) From their troughs in 2014 to March 2016, prices have increased by 183% in Randfontein, South Africa; 242% in Malawi; 106% in Maputo; 155% in Dar es Salaam; 92% in Zambia, and by a surprising low 10% in Zimbabwe.

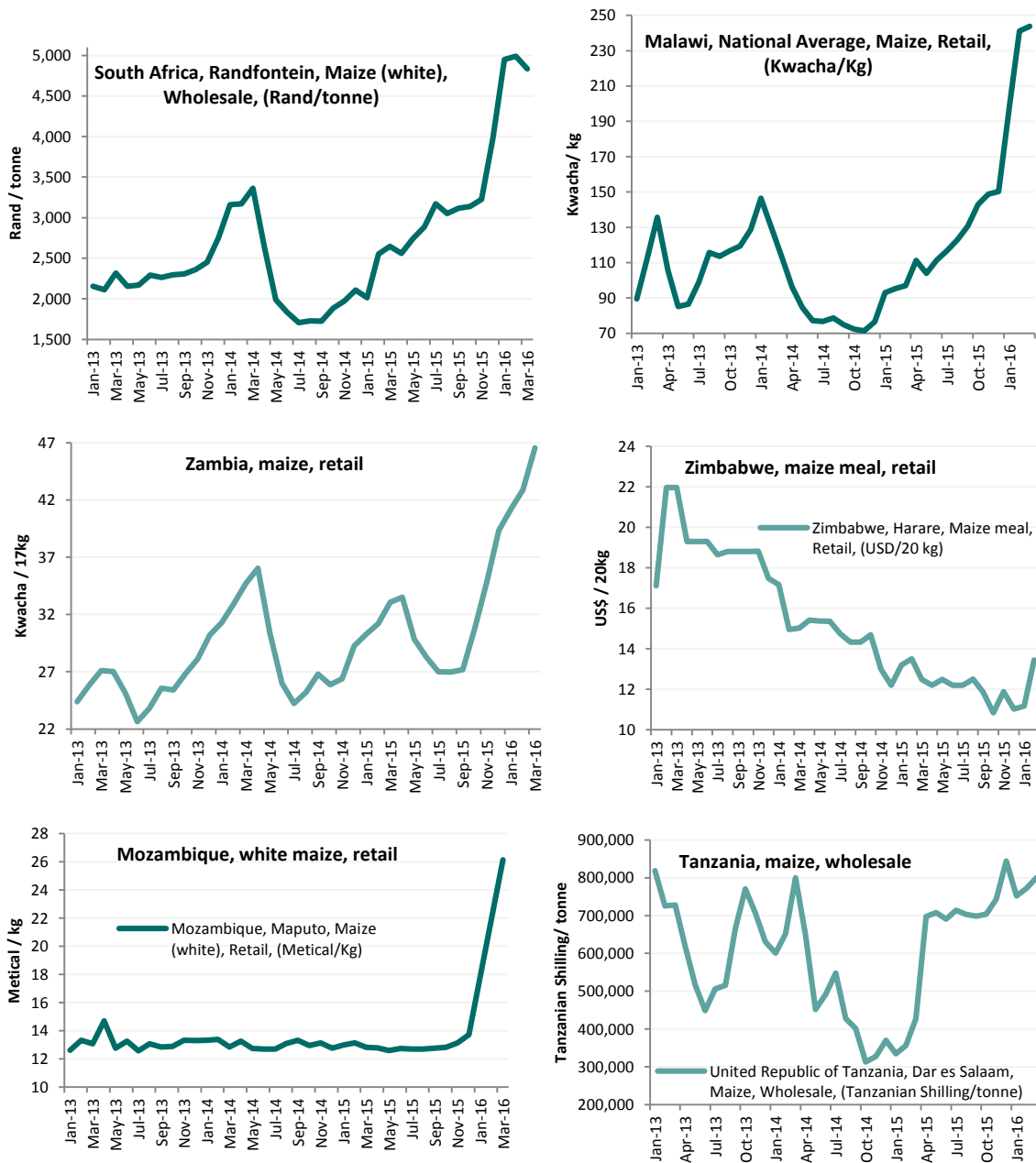
The World Food Programme estimated in March 2016 that 15.9M people in the region, not counting those in South Africa, were 'highly food insecure', and that 'more than 40 million rural and 9 million poor urban people are at risk due to the impacts of El Niño's related drought and erratic rainfall'. (WFP 2016)

Ethiopia

Drought hit the cereals harvests of late 2015 in Ethiopia, with some of the most affected areas reporting 50% to 90% crop losses. Imports of wheat are likely to be double usual levels.

According to the World Food Programme, over 10M persons, largely in central, northern and eastern areas, are in need of food assistance.

Figure 4: Nominal maize prices, selected Southern African markets, Jan 2013 to March 2015



Source: Data from FAO GIEWS. All data to March 2016 except Zimbabwe which runs to Feb 2016. Prices for Zimbabwe are only available in US\$. Note: Tanzania straddles Southern and Eastern Africa with parts of the country more likely to see drought as a result of El Niño, while other parts are more likely to see excess rain.

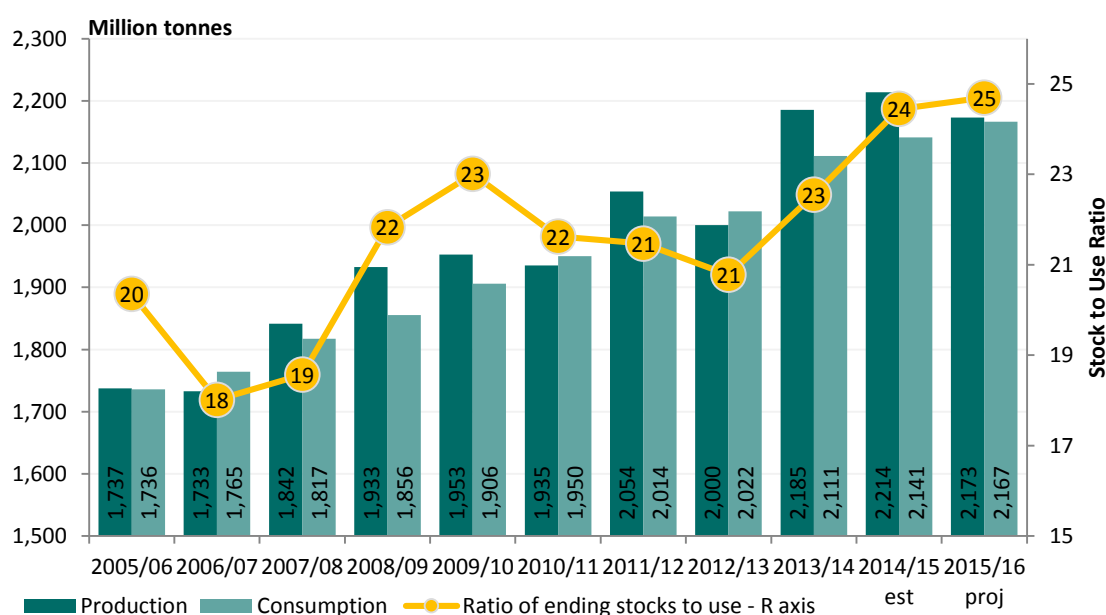
3 Cereals market round-up

3.1 Supply

2015/16 projections down slightly on last two years.

Maize, rice, and wheat production in 2015/16 is projected to fall short of last year's record harvest by almost 41M tonnes (Figure 5). Even so production is expected to exceed expected consumption by around 6M tonnes; hence stock-to-use ratios are to rise. At 25% this ratio also remains fairly high (USDA FAS, March 2016).

Figure 5: World maize, rice (milled), and wheat production and consumption, 2005/06 to 2015/16 forecast



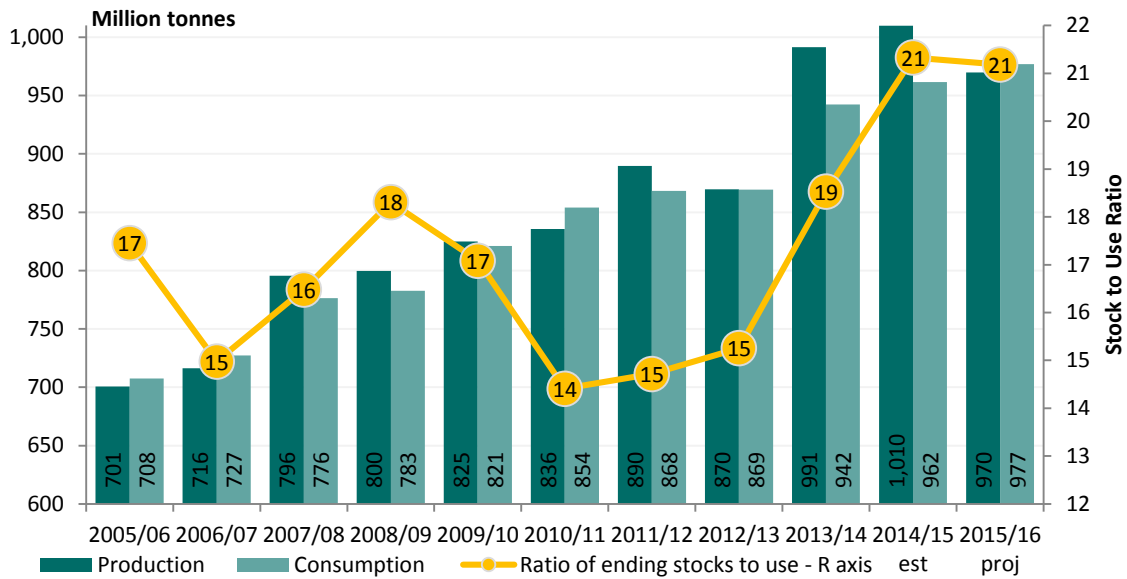
Source: Data from USDA FAS (March 2016 estimates and projections).

3.1.1 Maize

World *maize* projections for 2015/16 still 3rd highest.

World maize harvests for 2015/16 of **970M** tonnes are predicted, 40M tonnes below 2014/15's record of over a billion tonnes (Figure 6). For the first time in 5 years, production is expected to fall short of consumption, although stocks — which rose by about 30M tonnes the previous year — may rise slightly again on lower consumption. The stock-to-use ratio is set to fall very slightly, by less than a percentage point, from about 21.3% to 21.2%.

Figure 6: World maize production, consumption, and stock ratios, 2005/06 to 2015/16 projection



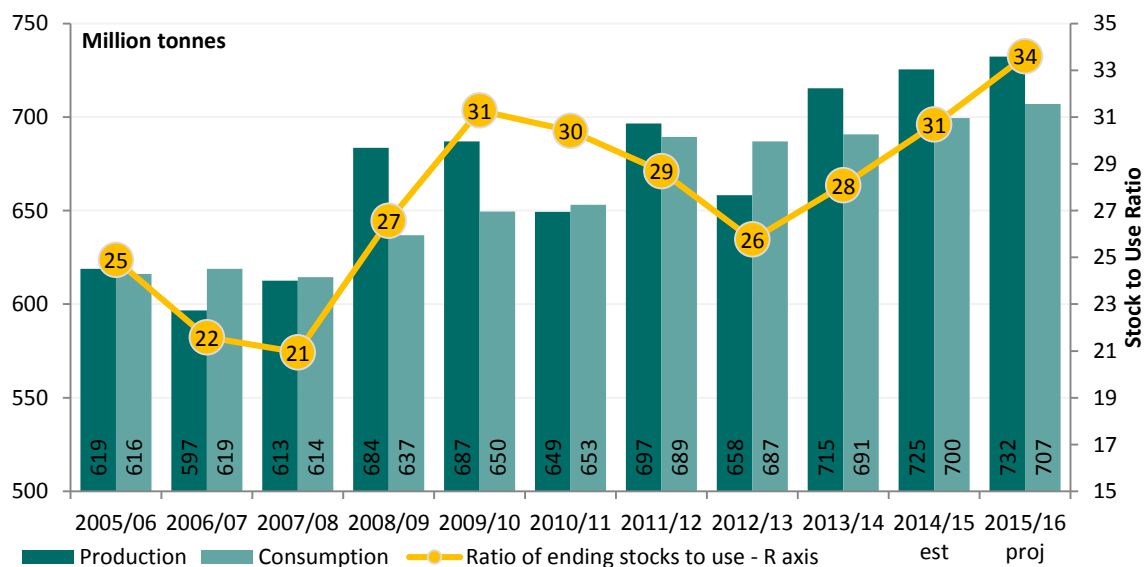
Source: Data from USDA, March 2016 estimates.

3.1.2 Wheat

Another record world *wheat* harvest still projected.

Worldwide, wheat harvests for 2015/16 are projected to be **732M** tonnes, up 7M tonnes from the 2014/15 record, while exceeding projected consumption by 25M tonnes (Figure Q). Stocks and stock-to-use ratios will rise markedly, for the third year running, to reach 34%.

Figure 7: World wheat production, consumption, and stock ratios, 2005/06 to 2015/16 projection



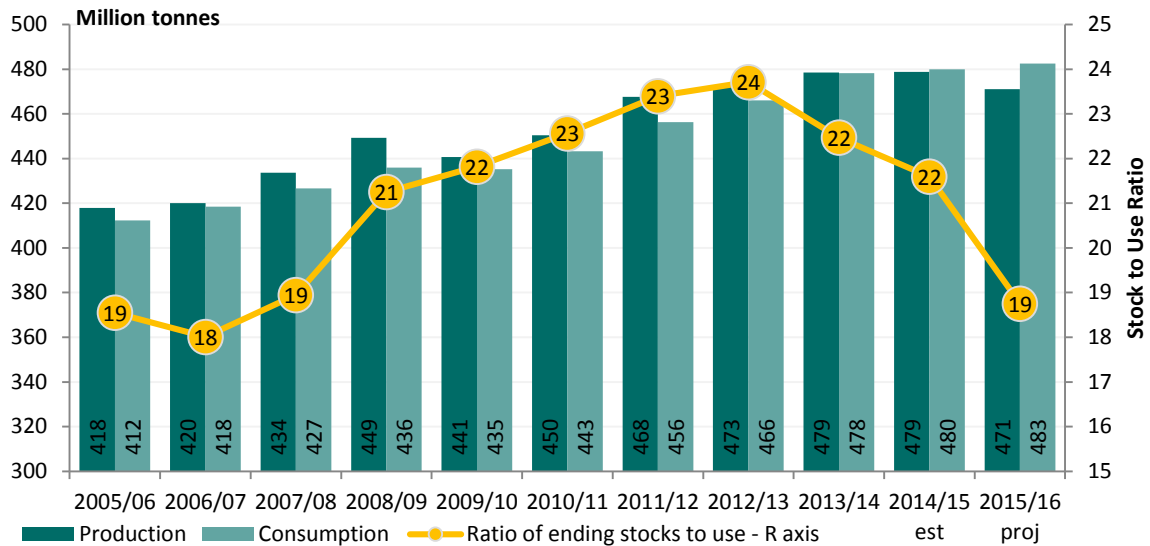
Source: Data from USDA, March 2016 estimates

3.1.3 Rice

Rice harvest slightly down on last year.

Rice production forecast for 2015/16 is down 8M tonnes on last year's record (Figure 8). Consumption is expected to exceed production for the second year in a row, with stocks falling to a ratio of 18.6%. The third consecutive year of falling stocks will see the stock-to-use ratio reach a level close to that going into the food price spike of 2007/08.

Figure 8: World rice (milled) production, consumption, and stock ratios, 2005/06 to 2015/16 projection



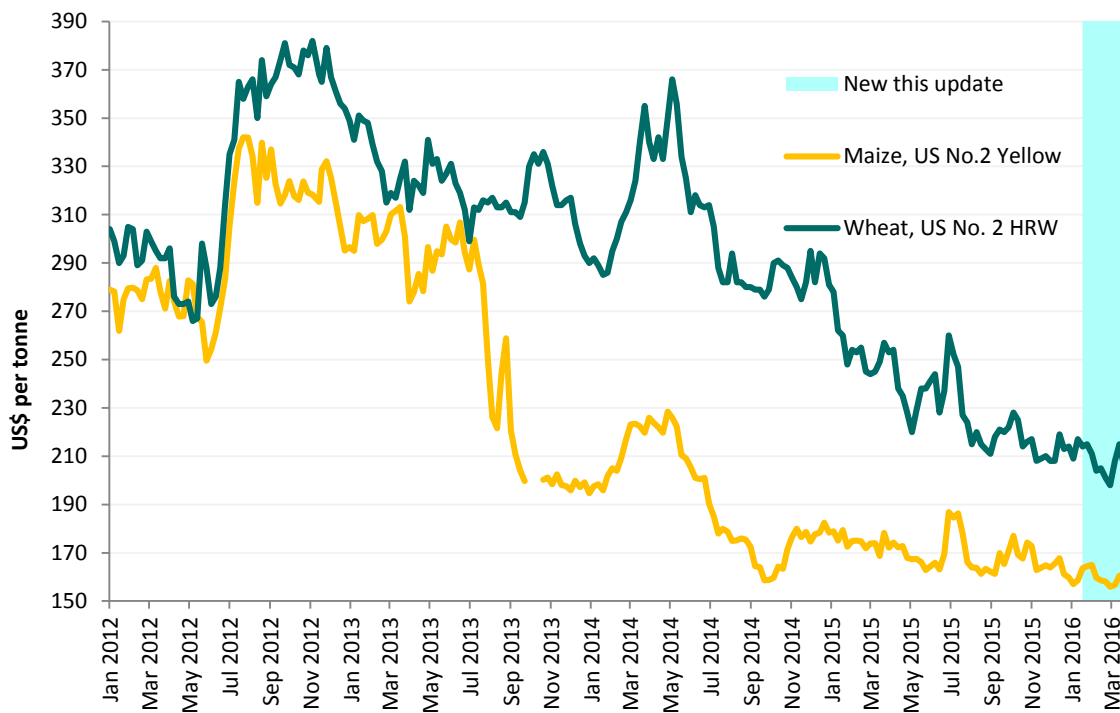
Source: Data from USDA.

3.2 Cereals prices on world markets

Spot prices for maize and wheat continue to fall.

Maize and wheat prices continue to fall. By the final week of March 2016, maize and wheat prices stood at US\$161 and US\$206 a tonne, respectively, down by 7% and 17% respectively on their average for March 2015 (Figure 9).

Figure 9: Maize and wheat spot prices, January 2012 to March 2016

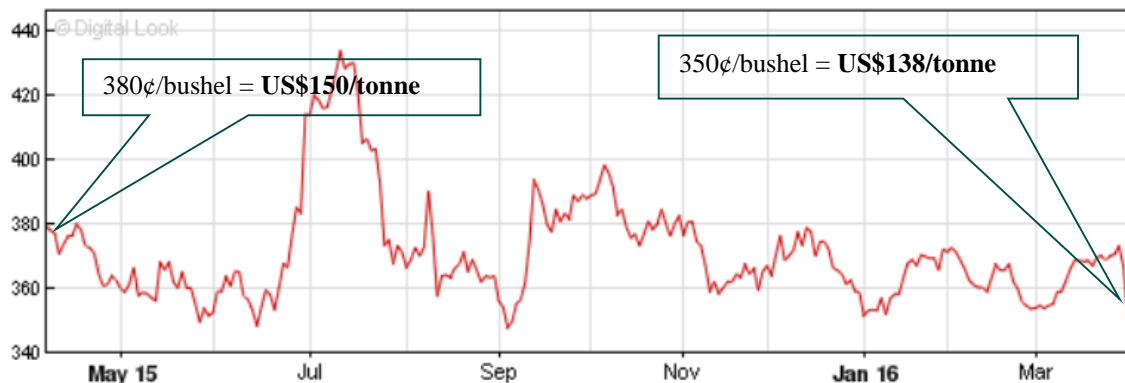


Source: FAO GIEWS. **Note:** Prices are weekly, to the week ending March 25, 2016

Maize futures prices below spot prices

By the end of March 2016, maize futures stood at US\$138 a tonne, US\$23 lower than spot prices (Figure 10) indicating that traders expect prices to fall still further.

Figure 10: Chicago Corn Futures, 12 months to end of March, 2016, US cents/bushel

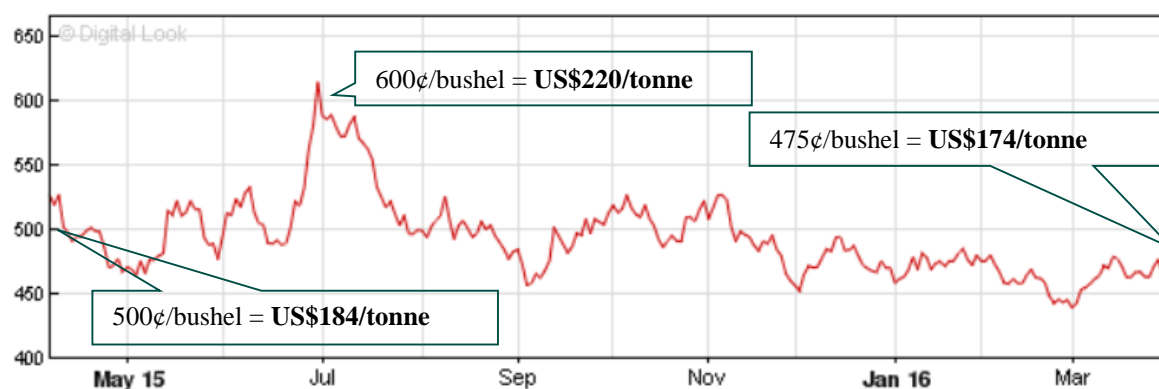


Source: BBC Market data. US\$/tonne added.

Wheat futures also hovering below spots

Wheat futures, around US\$174 a tonne by the final week of March 2016, were US\$32 a tonne below the current spot prices, indicating traders expect prices to continue to fall (Figure 11).

Figure 11: Chicago Wheat Futures, 12 months to end of March, 2016, US cents/bushel

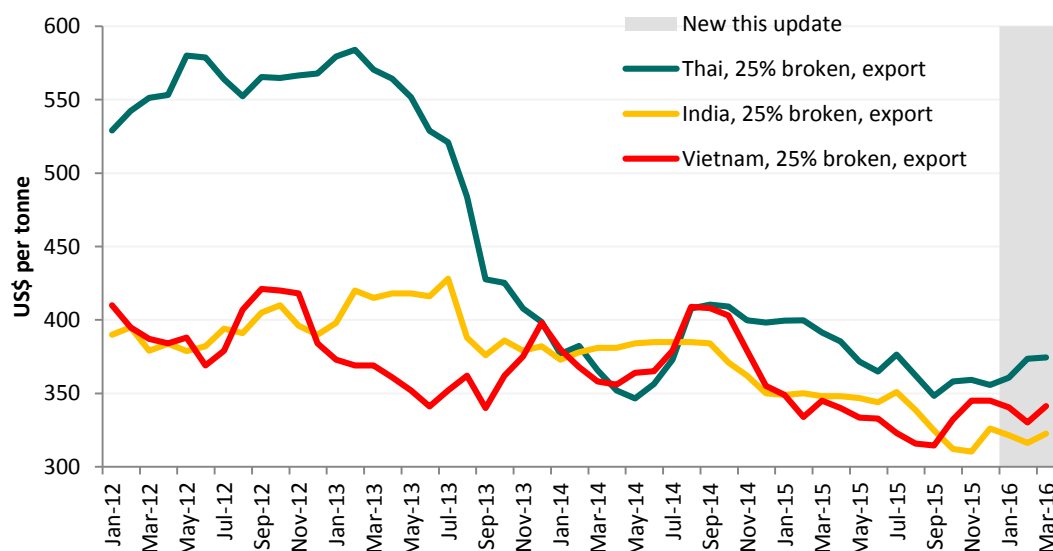


Source: BBC Market data. US\$/tonne added.

Rice prices slow decline since late 2014 looks to be levelling out

Rice prices have changed little since late 2015 (Figure 12). Prices offered by different exporters remain close together, with exports of 25% broken grade from Thailand, Vietnam, and India selling for US\$376, US\$341, and US\$323 a tonne respectively by March 2016.

Figure 12: Rice prices, January 2012 to March 2015



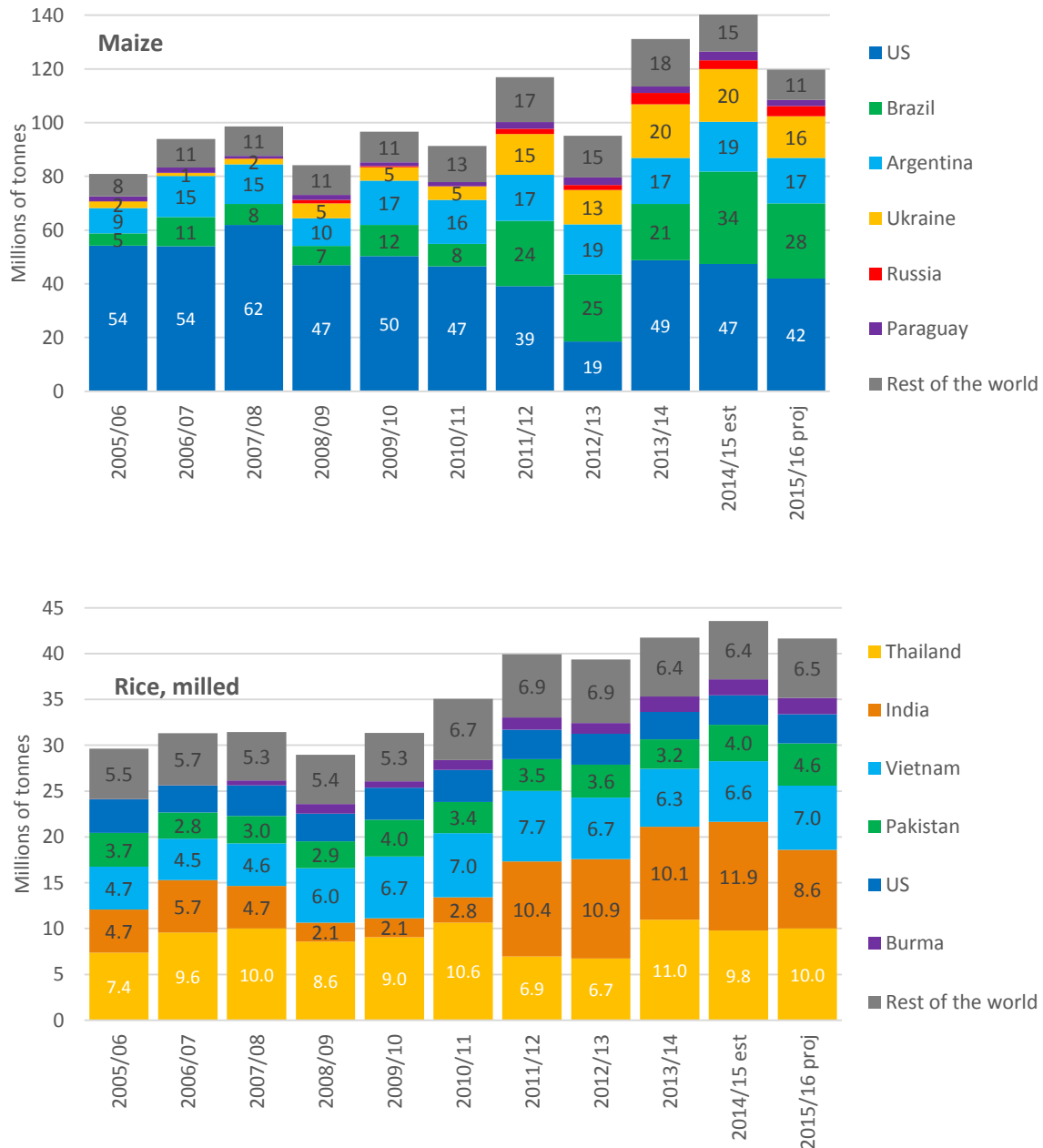
Source: Data from FAO GIEWS. **Note:** Prices run to the final week of March 2015

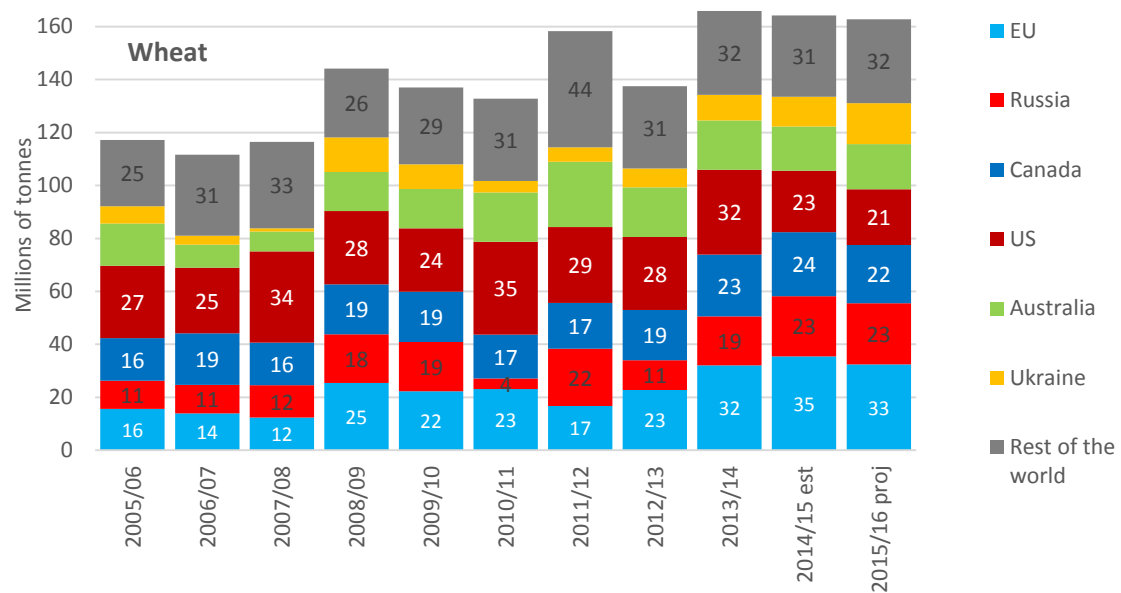
3.3 Export projections

Key cereal exports slightly down on 2014/15

Exports of maize, rice, and wheat are forecast to shrink in 2015/16 compared to 2014/15, more so for maize than the other two (Figure 13). Maize exports are expected to be some 21M tonnes lower in 2015/16 than in 2014/15, 15% less; rice down by 1.9M tonnes, 4%; and wheat down by 1.4M tonnes, 0.9%.

Figure 13: Maize, rice, and wheat exports, by origin, 2005/06 to 2015/16





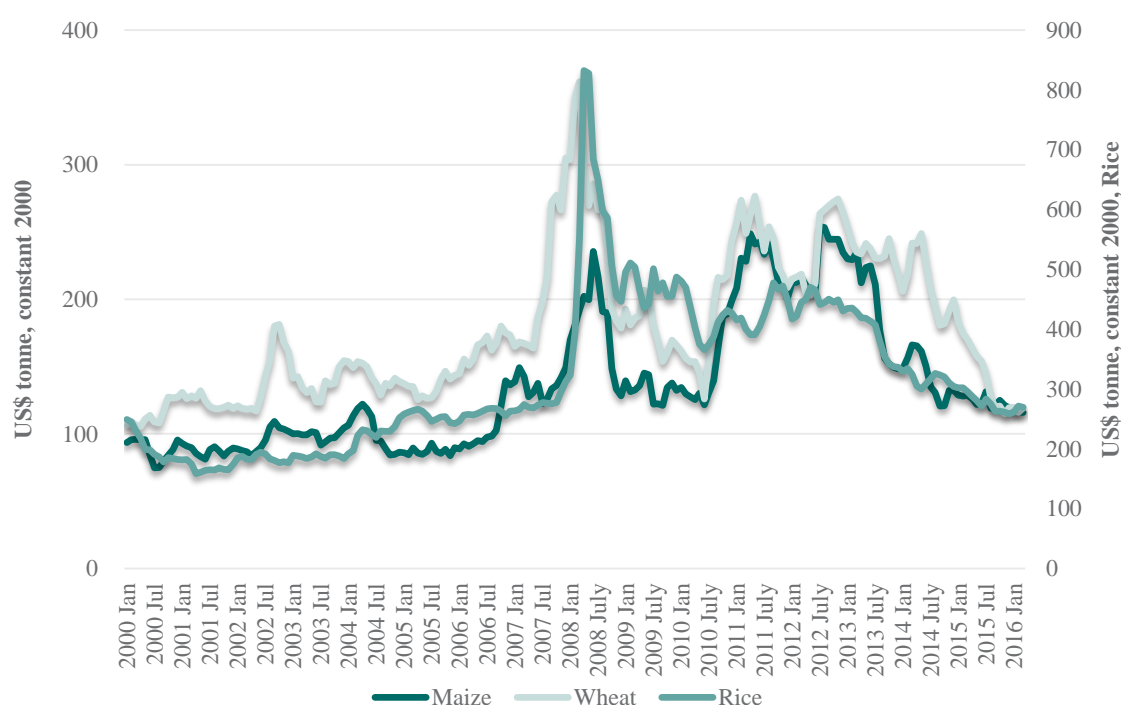
Source: Data from USDA FAS PSD, March 2015 projection.

4 The end of a cycle. As cereals prices fall below their 2007 level, what have we learned from the price spike of 2007/08?

What kicks off with a bang often ends with a whimper. In late 2007 and early 2008, maize and wheat prices doubled and those of rice tripled. Food riots broke out across the developing world as prices soared, prompting world leaders to put food high on their agendas for the first time since the last serious price spike in 1973/74.

The initial sharp spike lasted only until mid-2008, but subsequent lesser spikes in mid-2010 owing to harvest failures in the Black Sea region; and in mid-2012 when a one-in-fifty-year drought struck the US Corn Belt, served to prolong the sense of crisis. Since then, however, prices have fallen for most months, now below their levels before the spike (Figure 14). A cycle, it seems, has run its course.

Figure 14: Cereals prices, world market, 2000 to 2015, constant terms



Source: IMF commodity data, prices adjusted by US GDP deflator. Maize (corn), U.S. No.2 Yellow, FOB Gulf of Mexico; Wheat, No.1 Hard Red Winter, ordinary protein, FOB Gulf of Mexico; Rice, 5% broken milled white rice, Thailand.

At the time of the price spike, several explanations were offered. For some, soaring prices confirmed that the food system was broken, that too much had been left to private initiative in fragile markets that had now failed — at poor people's expense. Speculation on futures markets was further evidence of the folly of entrusting food security to markets. They called for public stocks, controls on futures markets, and even a fund to counter speculation in such markets.

Other observers, however, were less critical of markets. They saw the coming together of some unusual circumstances — a combination of low cereals stocks; an extraordinary increase in ethanol distillation of US maize; rising oil prices pushing up costs of production; harvest failures in Australia; export bans, above all for rice; and some wealthy countries over-ordering cereals imports, alarmed at the prospect of stock-outs — to produce a 'perfect storm': a once-in-a-generation event that complex systems can generate. Their recommendations were more cautious: boosting cereals production; information on stocks; and agreements to not ban exports. In the end, meetings of the G8 in 2008 and 2009, and the G20 from 2009 onwards, produced two major international responses: funds to stimulate production — US\$22 billion over three years pledged by G8 governments at L'Aquila in July 2009; and better public information, through the Agricultural Market Information Service, established at FAO in 2011 on the G20's prompting.

So what may be learned from this episode? First, while the international food system is far from perfect, it is not broken. It increasingly seems that the events of 2007/08 and subsequent volatility were indeed the result of unusual circumstances, rather than a new norm.

Second, the response of farmers since 2008 in increasing production of cereals has been quite extraordinary. While in the seven years before the spike, 146M tonnes of cereals were added to world production, in the seven years since the spike, 329M tonnes were added — well ahead of the growth of consumption. In 2006, the world produced 340 kg of grain per person: in 2013 it was 388 kg (FAO data, FAOSTAT).

Third, while a price response from farmers was expected, most of the extra grain has come not from the export powerhouses of the US, Canada, Argentina and Australia where large-scale farmers were expected to seize their chance; but rather from Asia and Africa, where most cereals come from smallholdings of less than 10 hectares. Moreover, because in the latter regions world prices were only weakly transmitted to farmers, bigger harvests probably resulted more from supply-side pushes than from higher prices. These countries, helped by international funds — the Global Agricultural Food Security Program was launched in 2009 with the pledges from G8 and G20 meetings — delivered extra seed and fertiliser to farmers and prioritised electricity for irrigation pumps. Public responses, seen as half-hearted and not sufficiently radical by some, made a difference.

Epilogue: the end of a bulletin

The end of a cycle coincides with the end of funding for this series of updates that began back in January 2009. We will miss compiling these reports and commentaries.

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Overseas Development Institute
203 Blackfriars Road
London SE1 8NJ
Tel +44 (0)20 7922 0300
Fax +44 (0)20 7922 0399