

The State of Agriculture & Outlook for P&K Markets

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Topics and Take-Aways: More constructive fundamentals than the market is trading

- Ag commodity fundamentals remain positive
 - Cautious sentiment in the ag space appears to be driven as much by the contagion of the more dramatic downturns seen in other commodities (e.g. oil, iron ore)
 - While crop prices have moderated, farm economics are still profitable
 - The long term food story, though not in vogue today, is still valid
 - Affordable plant nutrients

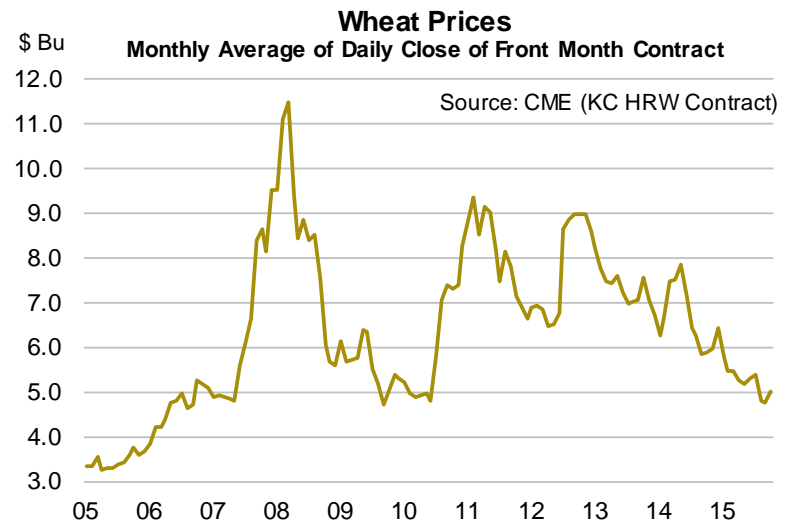
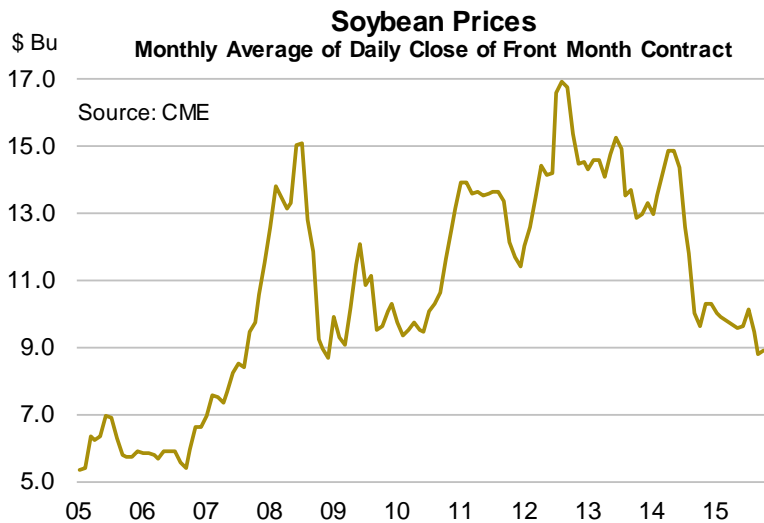
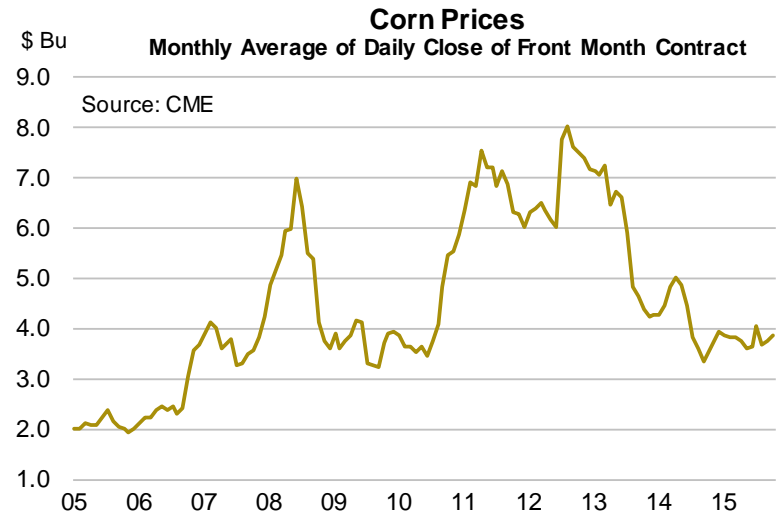
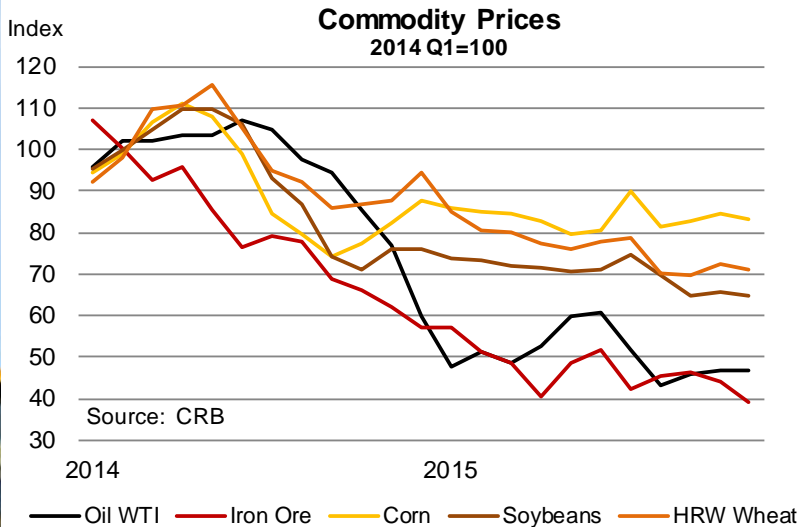
- Phosphate margins have held up rather well in 2015
 - Raw material prices, particularly ammonia, have eased from year-ago levels
 - Surge of Chinese exports absorbed by strong (and early) Indian demand
 - A number of production shortfalls globally have kept the global S/D relatively balanced

- Still positive potash demand/shipment prospects, while supply worries are overblown
 - No steep demand drop-off but rather a working down of channel inventories this year
 - 2015 on pace to be the second best year for global shipments, as well as providing a drawdown of pipeline inventories
 - Material greenfield supplies by new entrants still 2 to 3 years away
 - Lower prices offset by weaker currencies for major producers

The State of Agriculture

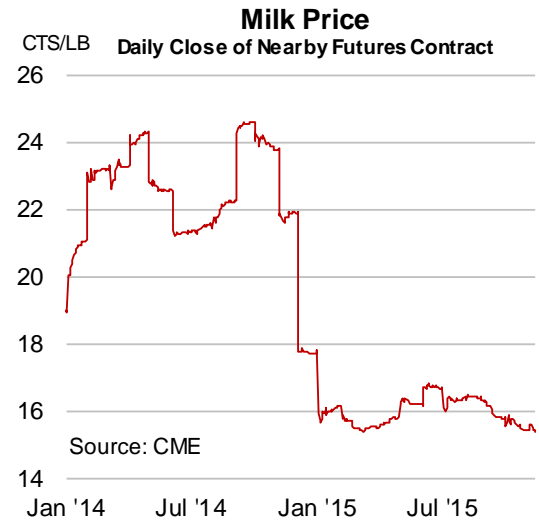
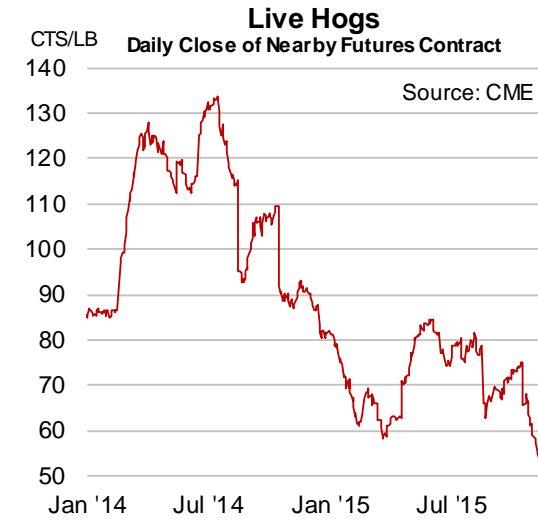
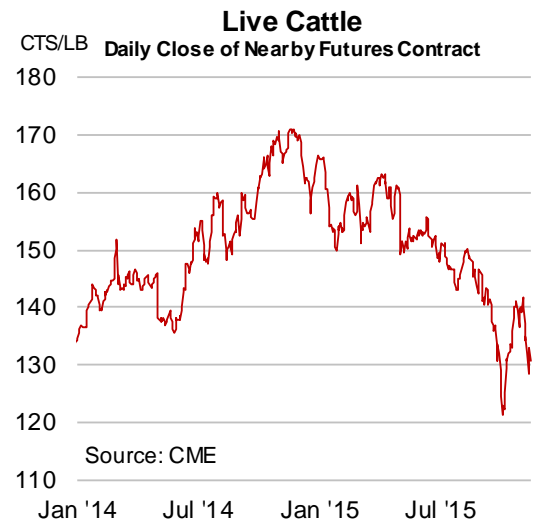
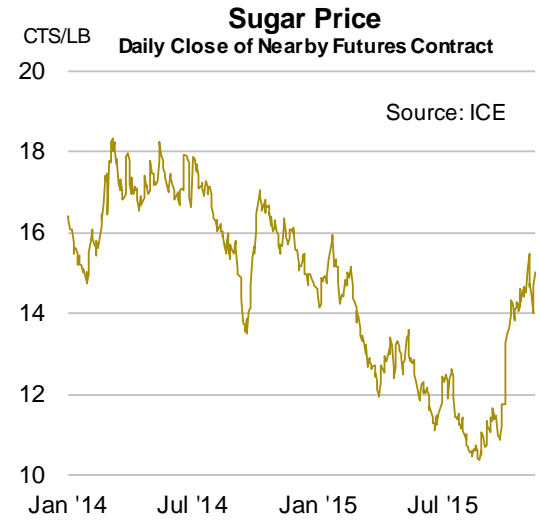
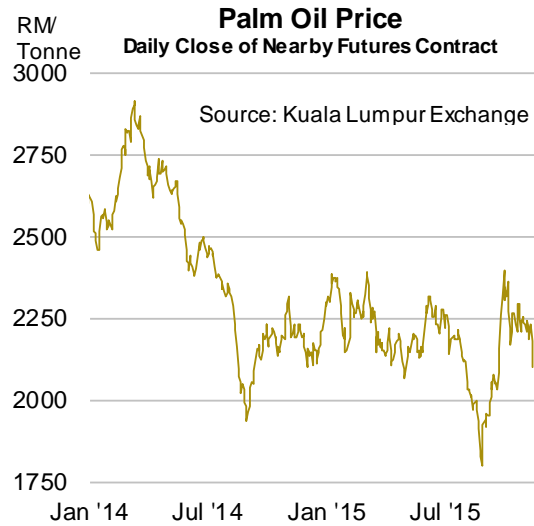
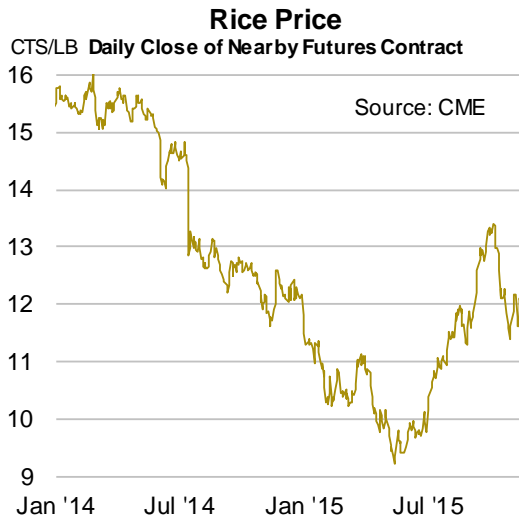


Lower, but not a collapse of crop prices, and they have fared much better than other commodities

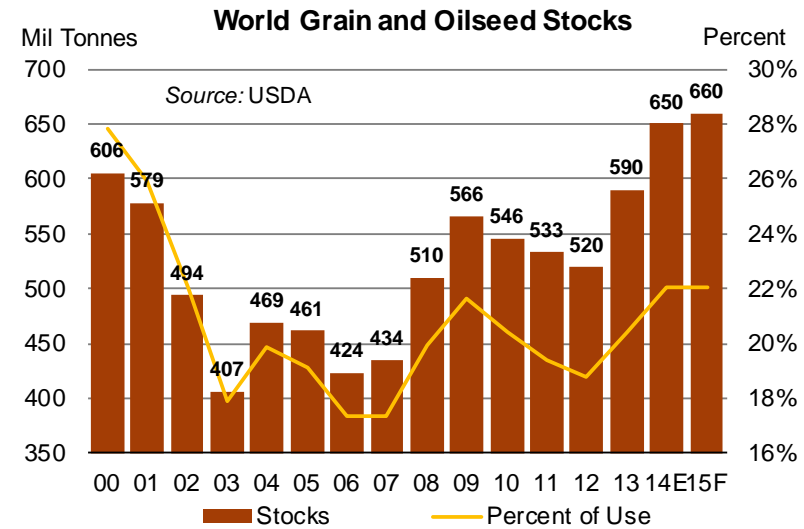
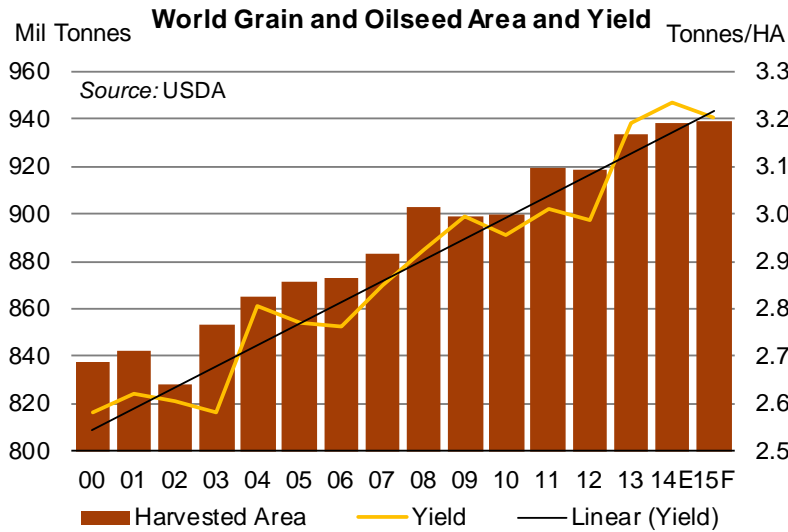


Data through November 13, 2015

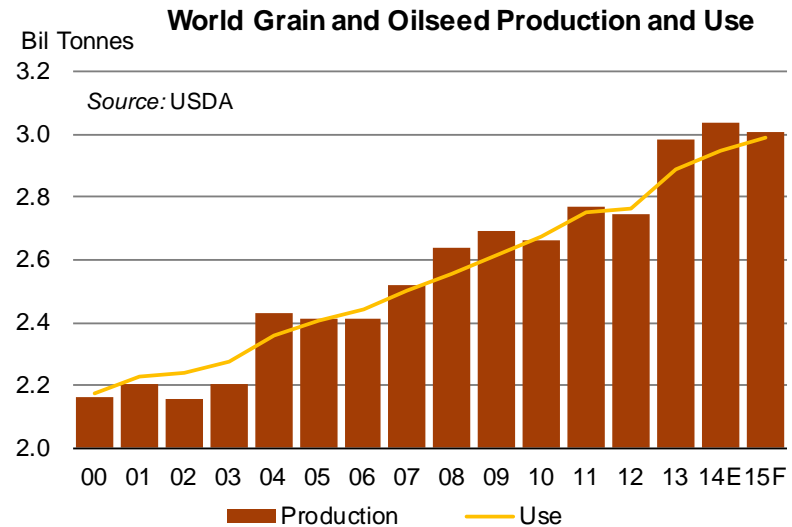
Other prices provide some good and bad news



Mostly weather-related volatility and not long term structural imbalance

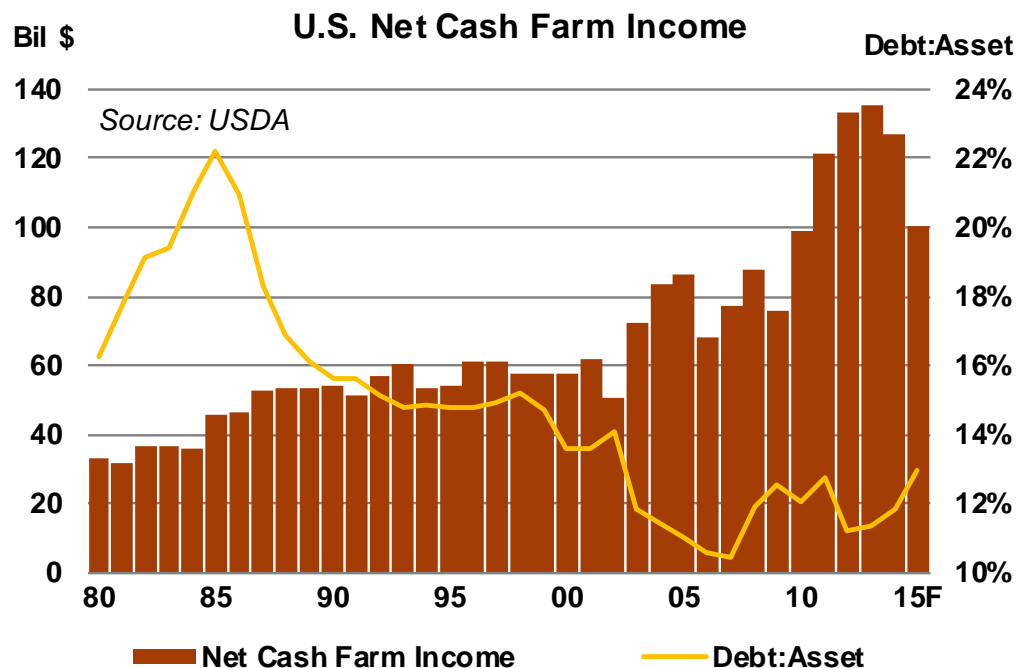


- Farmers responded to high crop prices by expanding area and applying more technology, and then Mother Nature cooperated.
- Average yield exceeded trend by a significant margin in both 2013/14 and 2014/15.
- The latest USDA estimates, however, put the 2015/16 average yield a whisker below trend and broadly flat inventories.
- Continued demand growth is expected to gobble up the second largest crop the world has ever produced.

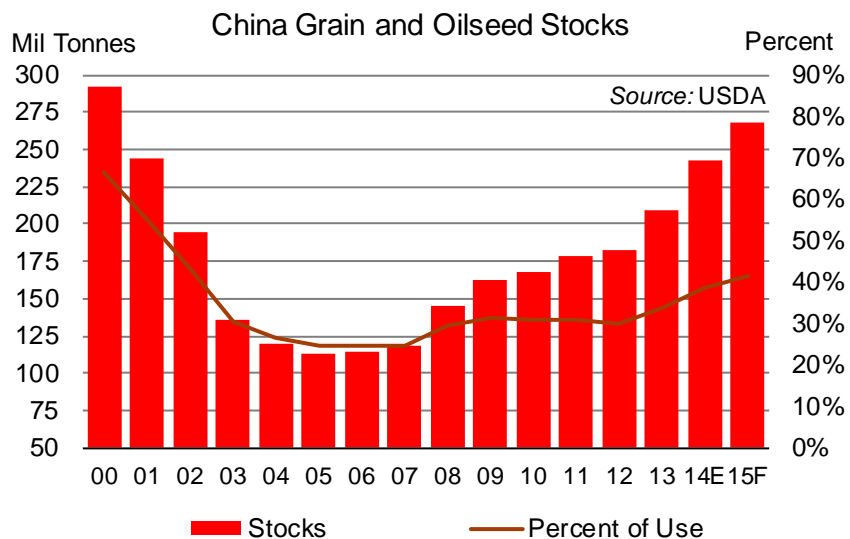


This is not the 1980s farm crisis!

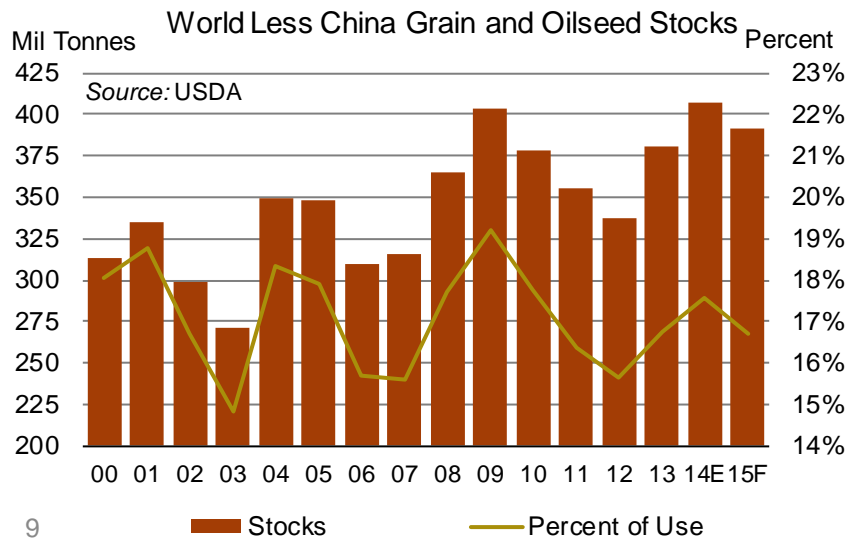
- The 2016 new crop corn price is trading about in line with the new crop price a year ago, and in the middle of the range of extremely low (1987) and extremely high (2013) new crop prices.
- U.S. net cash farm income is estimated to drop 21% to \$100.3 billion this year, but that still ranks as the fifth highest ever.



Some observations about China

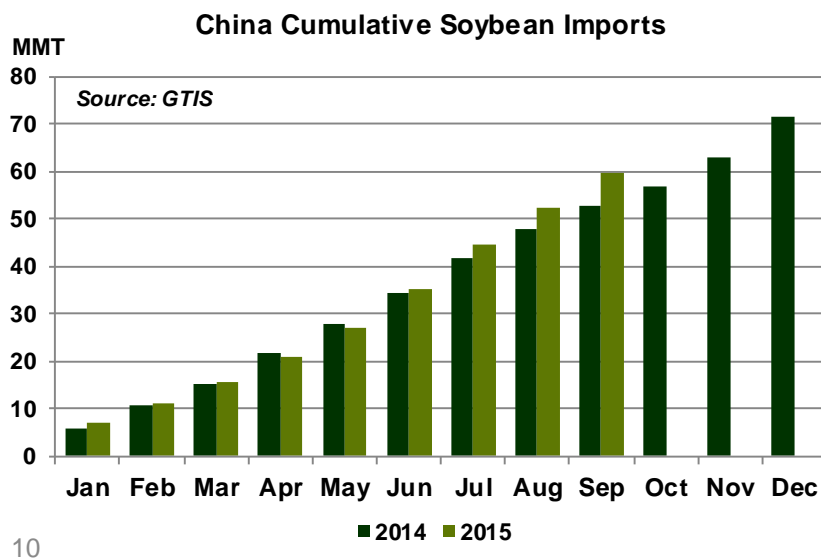
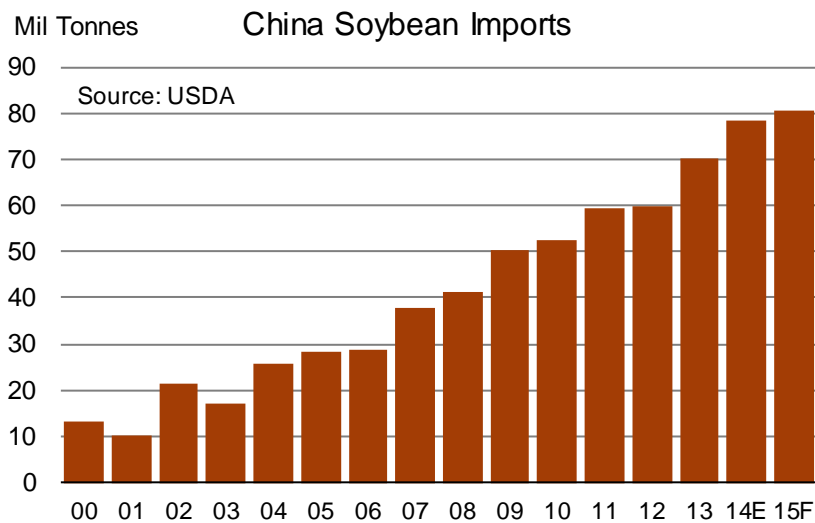


- The USDA is forecasting that China will build grain and oilseed inventories again in 2015/16
 - Consequence of high support prices



- While they expect stocks in the rest of world to fall

Some observations about China

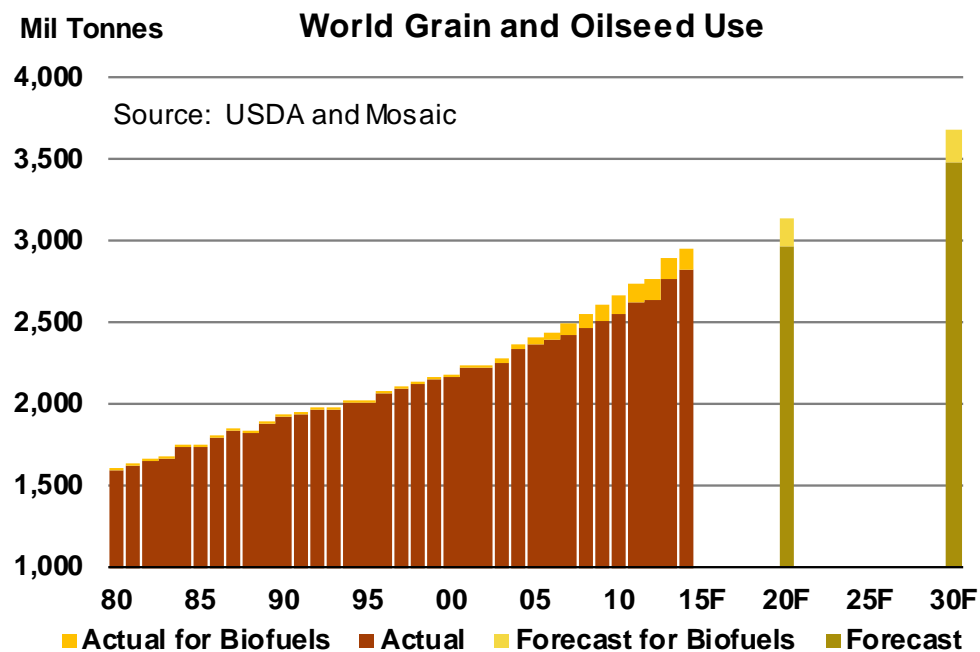


- No slowdown of soybean imports
 - China may build fewer skyscrapers but the population will continue to eat
- Markets watching agricultural policy developments
 - Objectives of high support prices were food security and to provide farm income support (to slow rural-to-urban migration)
 - Other consequences include record government stocks, record imports of feed substitutes
 - Potential for lifting the ban on the development of new corn-based ethanol plants in order to sop up inventories
 - Policy changes could have significant market impacts

The long term food story not in vogue, but still intact

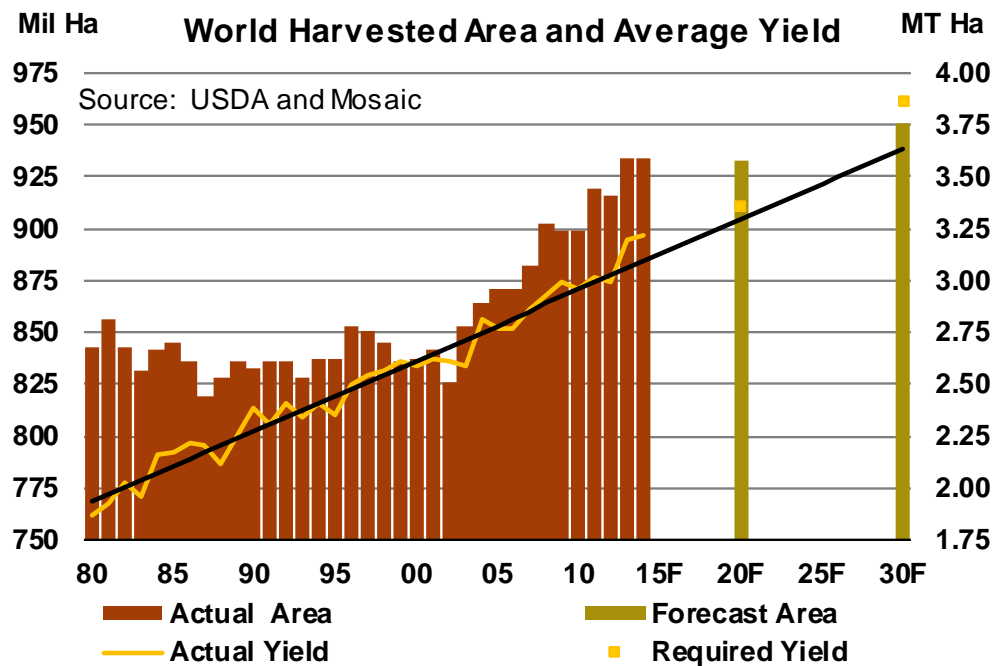


- Increases in population and income produce predictable increases in grain and oilseed demand.
- The global harvest will need to increase about 400 million tonnes during this decade in order to meet this projected grain and oilseed demand.
- Demand is projected to increase more than 500 million tonnes during the next decade -- so world production again will need to increase by nearly the current output of the United States.

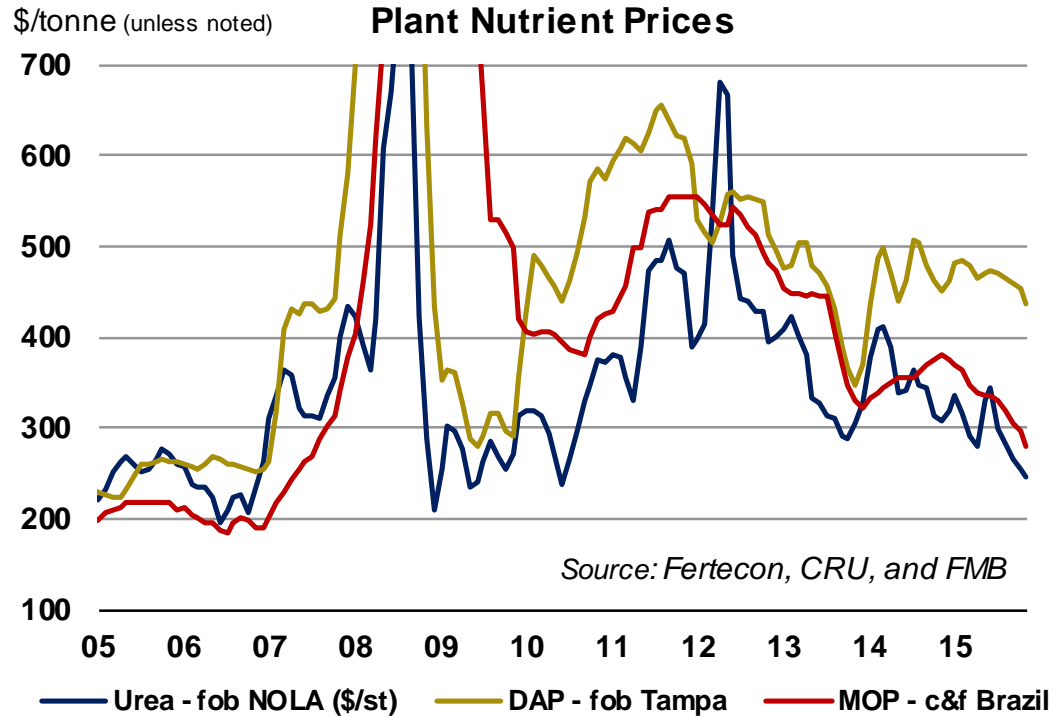


The long term food story not in vogue, but still intact

- We expect that farmers around the world will need to plant record area and reap record yields, year after year, in order to meet the projected demand for agricultural commodities during this decade and beyond.



Plant nutrient prices have also been under pressure in 2015...

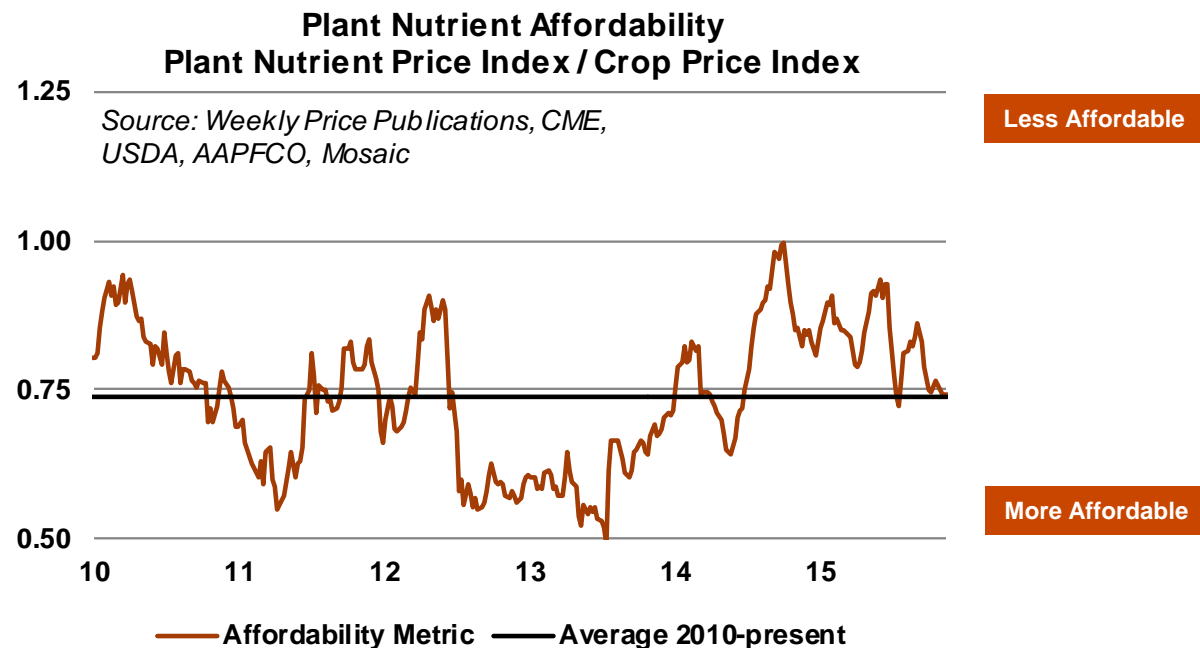


<u>Urea</u>	
Jan 2015:	\$337
Current:	\$244
Change:	-28%

<u>DAP</u>	
Jan 2015:	\$481
Current:	\$423
Change:	-12%

<u>MOP</u>	
Jan 2015:	\$370
Current:	\$285
Change:	-23%

...but these lower prices underpin demand as crop nutrients become more affordable



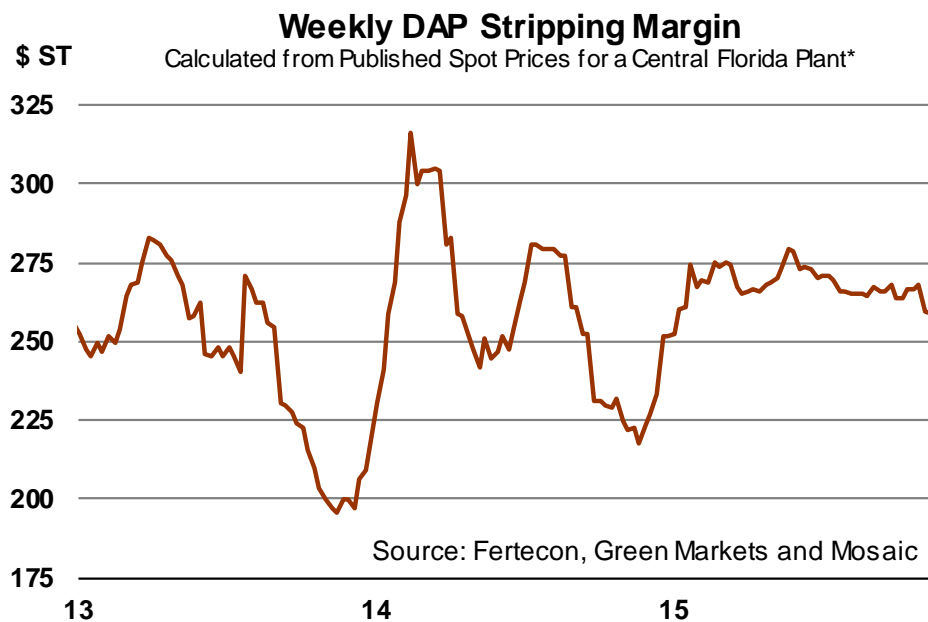
- Our plant nutrient affordability metric has bobbed and weaved with changes in agricultural commodity and plant nutrient prices, but the current reading indicates that plant nutrients are right in line with the historical average and clearly affordable.
- The metric – the ratio of a plant nutrient index to a crop price index – registered .74 in the midst of North American fall application at the beginning of November. That was down 12% from .84 a year ago and just a fraction higher than the average since 2010 of .74.
- Versus a year ago, affordability has improved due to broadly flat crop prices, but significantly lower plant nutrient costs.



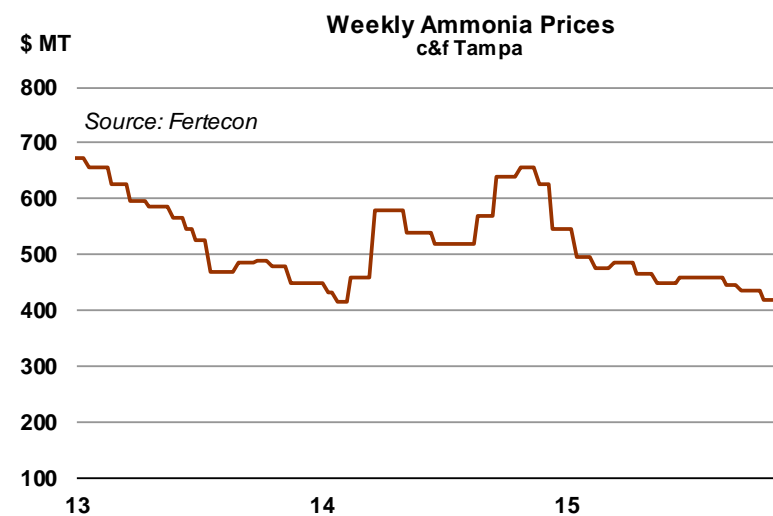
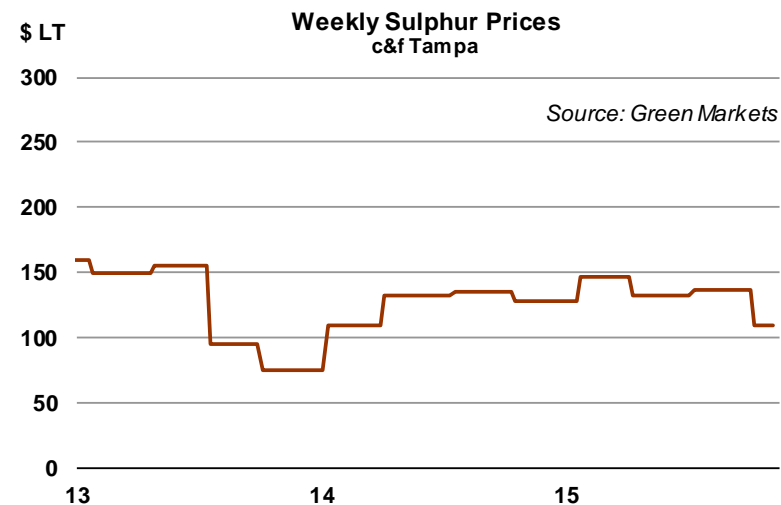
Phosphate Outlook



Phosphate margins have held up on raw material relief

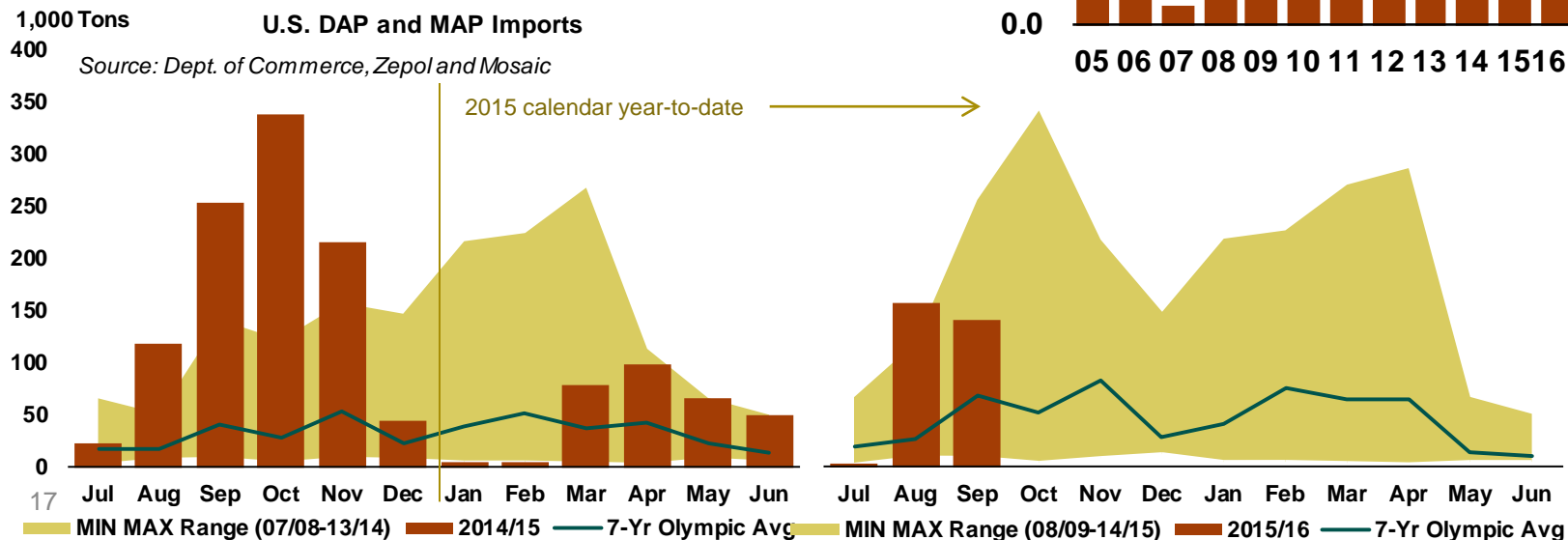
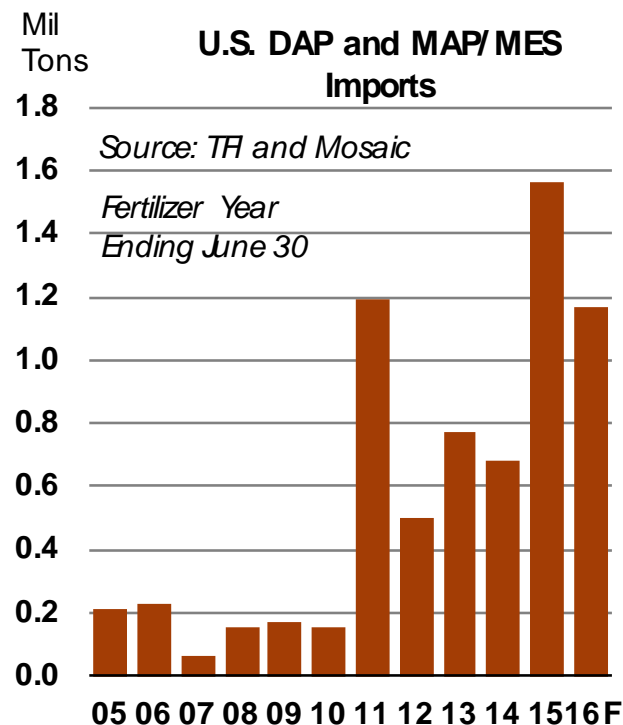


* Theoretical Central Florida plant requiring 0.37LT sulphur and 0.23 tonnes ammonia per ton of DAP, with assumed sales prices split 55%, 40% and 5% between the Tampa, Central Florida and NOLA published benchmarks, respectively. We believe this to be a fair representation of DAP production economics.



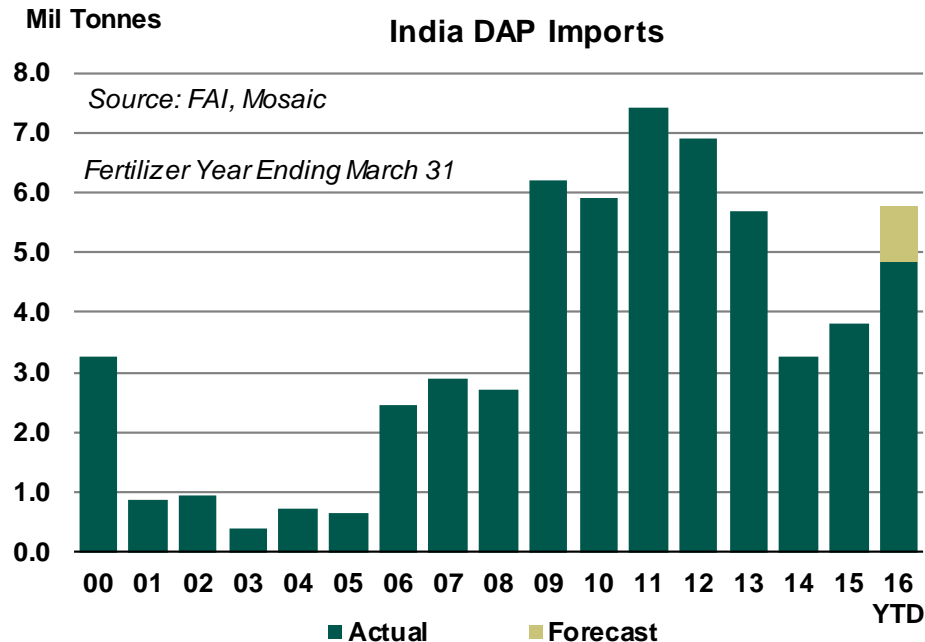
NAM imports expected to shift lower in '15/16 despite recent market focus

- Higher netbacks (and due to the relative demand vacuum elsewhere) prompted exporters to again look to NOLA
 - These volumes have been one driver pushing NOLA quotes sharply lower in the past week (along with, for example, trader long liquidations)
- Imports for the fertilizer year are expected to be down from the record-setting 2014/15 volume
 - Price weakness is thus expected to be transitory
 - The US market requires greater import volumes following two plant closures last year



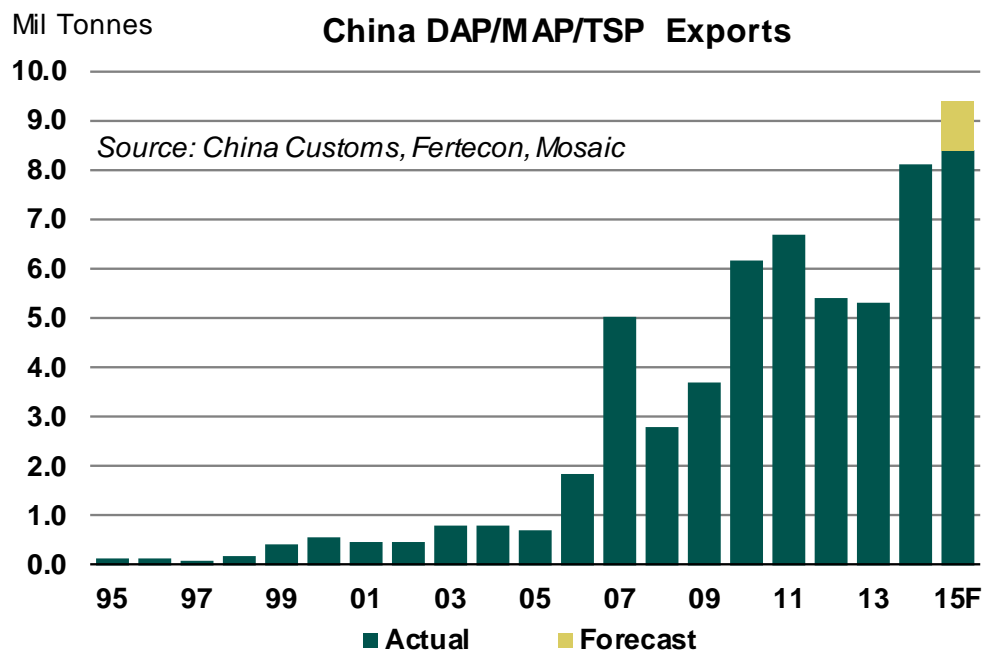
India imports slowing (demand is largely satisfied)

- Very strong start: Fertilizer-year-to-date imports (Apr-Sep) of 4.9 million tonnes are nearly 3 million tonnes higher than a year ago
- Buying activity has slowed to a crawl despite attractive import economics
- Limited upside due to the below average monsoon



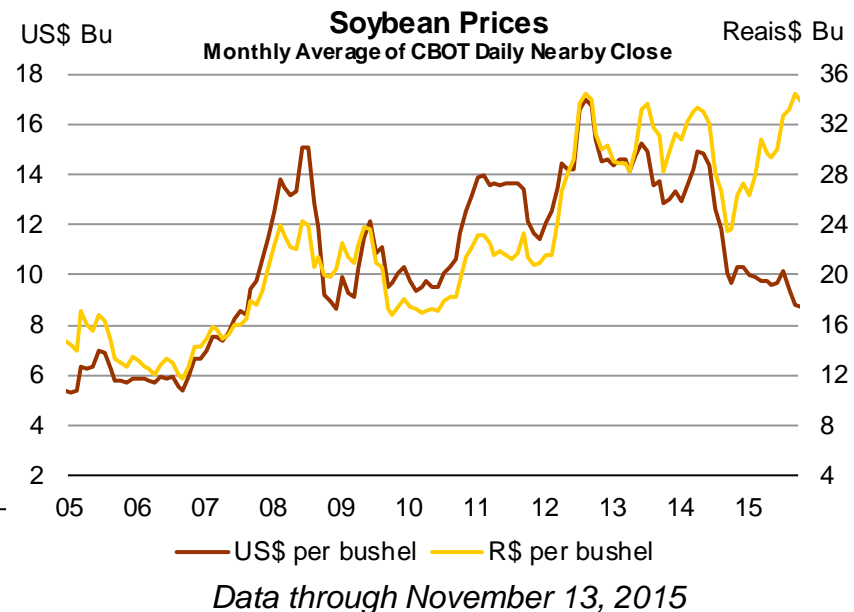
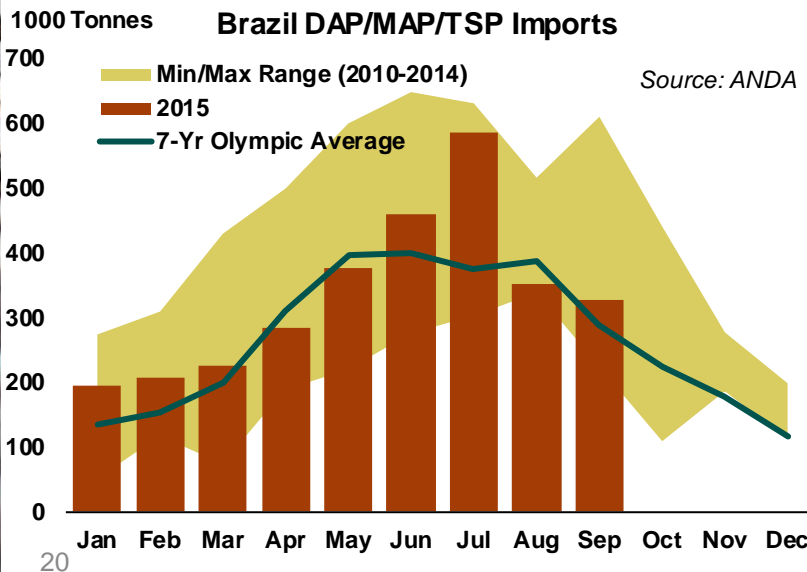
Chinese phosphate export volumes ramped up to meet Indian demand

- Chinese phosphate exports through September of 8.4 million tonnes are up 66% (3.3mmt) versus a year ago:
 - The strength of Indian imports has absorbed much of the increased volume...
 - ...while production hiccups elsewhere have kept global supplies in check

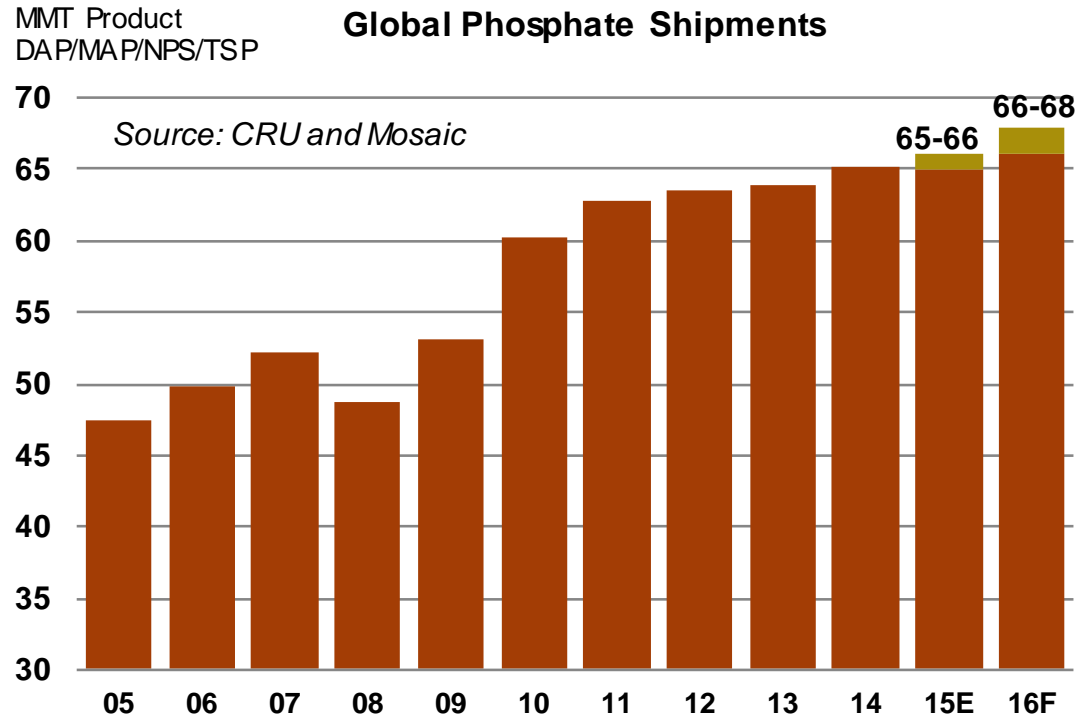


Brazil continues to underperform versus year-ago levels

- DAP/MAP/TSP imports year-to-date are off 22% from last year's record level
 - Though total phosphate shipments are down just 3% y-o-y, suggesting a drawdown of inventories is the main driver of lower imports
 - Domestic production is also up y-o-y
- Credit availability and a volatile exchange rate have hindered activity, despite the local currency price of soybeans at a record high



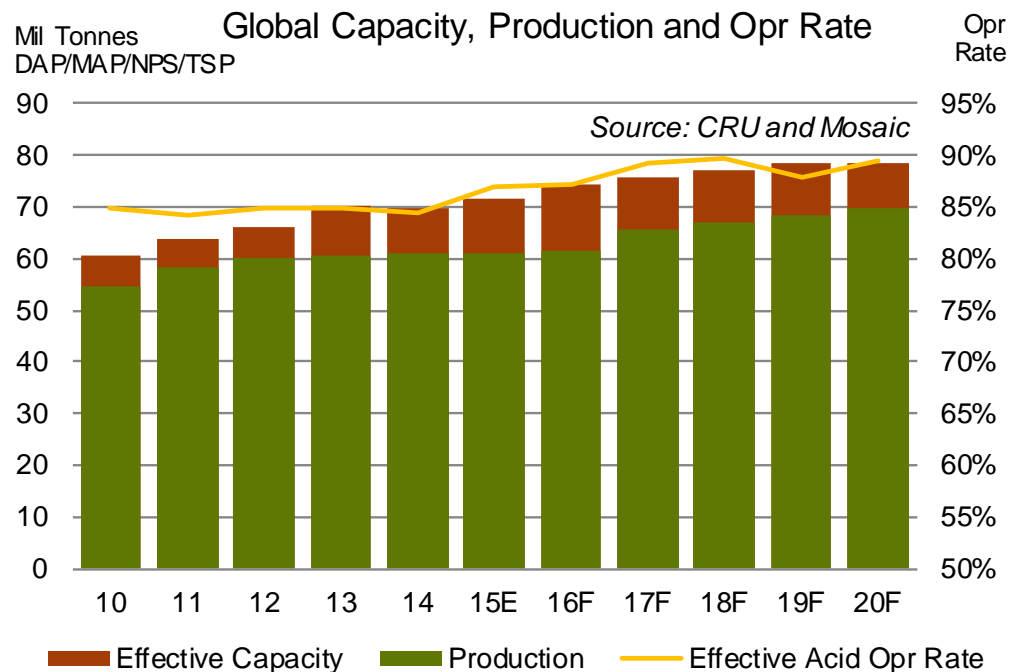
Constructive demand fundamentals shaping up for 2016



Longer term, demand growth has the potential to outstrip the rise in effective capacity

▪ Global phosphates operating rate

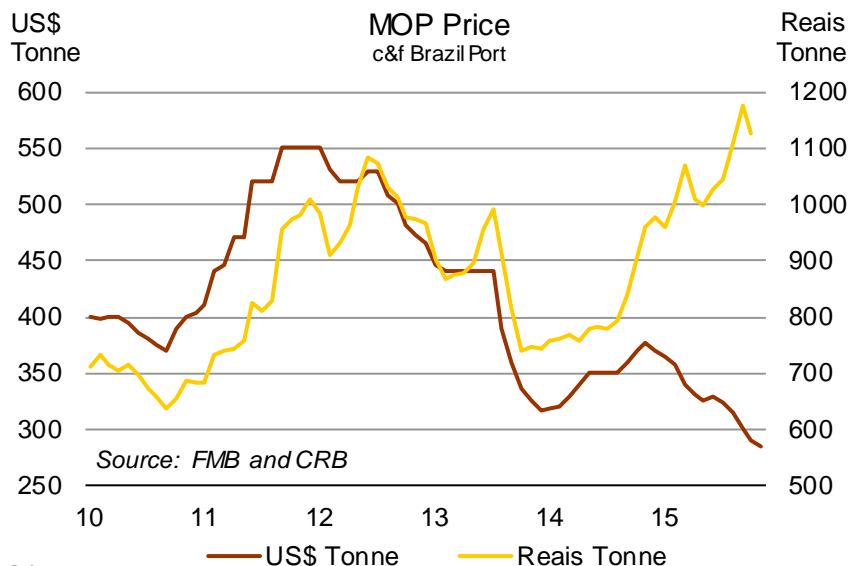
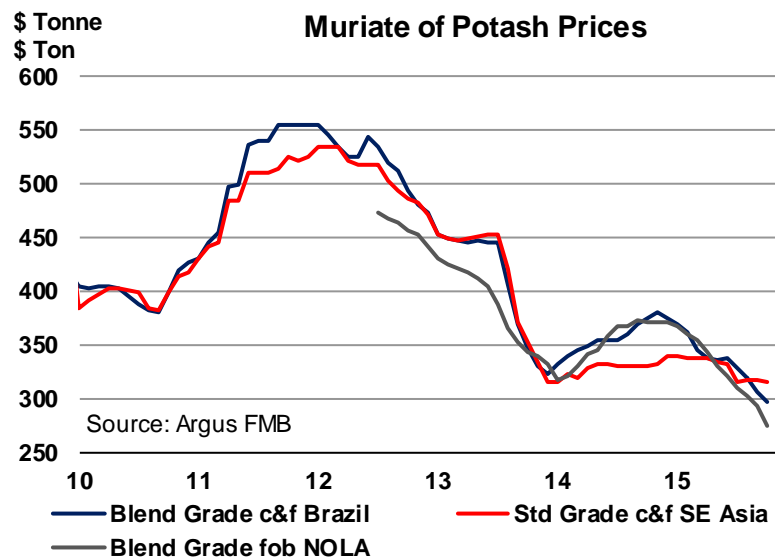
- Largely balanced global S/D
- We expect a continuation of the recent pattern of production curtailments / capacity rationalizations at higher cost operations (e.g. non-integrated plants and some less-economic Chinese capacity)
- We are forecasting a rise in global phosphoric acid operating rates of 200 basis points over the 2015 to 2020 period (i.e. from 87% to 89%), but this will depend on a resumption of stronger demand growth than what has been seen the past two years
- It is primarily projects in Saudi Arabia and Morocco that are expected to satisfy this demand growth



Potash Outlook



Potash prices soften in 2015



- Prices have been under pressure (but for reasons different than the current consensus)
 - A thick fog of negative sentiment and expectations of lower prices overhangs the market
 - Weak and volatile currencies of key exporting and importing countries weigh on prices
 - Lower shipments this year mainly due to channel inventory builds last year (e.g. in Brazil and USA)
 - But significant new supplies from greenfield entrants still two to three years away

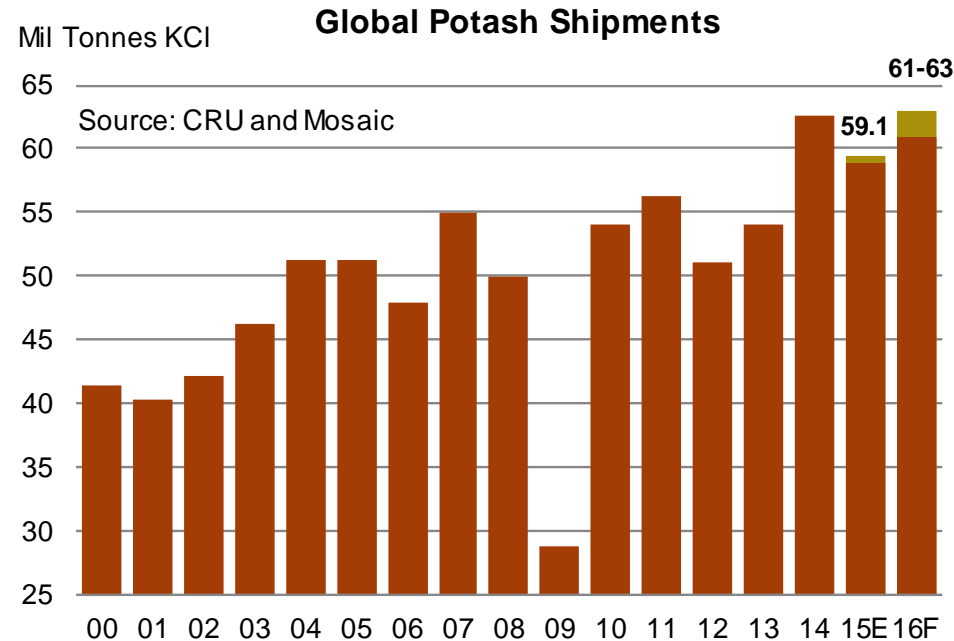


A long litany of market concerns

- **Further declines in crop prices**
 - Could there be more above-trend harvests
 - Prospects of a strong dollar for years to come
 - Fallout from China's economic slowdown
 - Other macroeconomic/financial market turbulence
 - Flat biofuels production
- **More moderate demand prospects**
 - Channel inventory builds last year
 - Weak/volatile exchange rates (e.g. Brazil, India)
 - China VAT and no-growth NPK plan
 - Expectation of no material subsidy reform in India
- **Plentiful supplies due to:**
 - New brownfield and greenfield capacity
 - Lower cost structure from the devaluation of currencies in key exporting countries
- **Changes in the competitive landscape**
 - New entrants at the doorstep
 - K+S potash in Saskatchewan
 - Eurochem in Russia

More constructive fundamentals than the market is trading

- Shipments expected to decline about 3.6 million tonnes in 2015
 - The decline follows a massive 16% or 8.7 million tonne surge in 2014 to 62.7mmt
 - Modest declines in use expected in some countries this year, but larger declines in shipments due to a build of channel inventories last year
 - Notable declines in Brazil, North America, and Indonesia/Malaysia, only partly offset by modest gains in China and India
- Decent rebound forecast for 2016
 - Led by Brazil, Indonesia and Malaysia



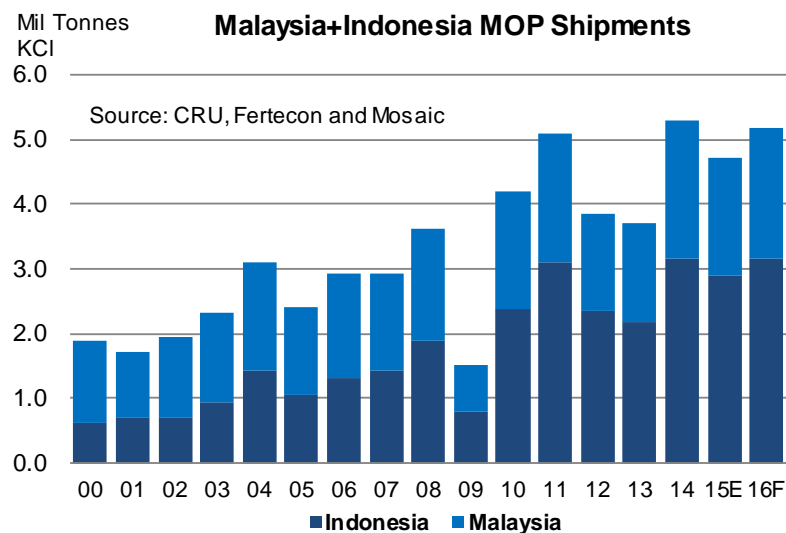
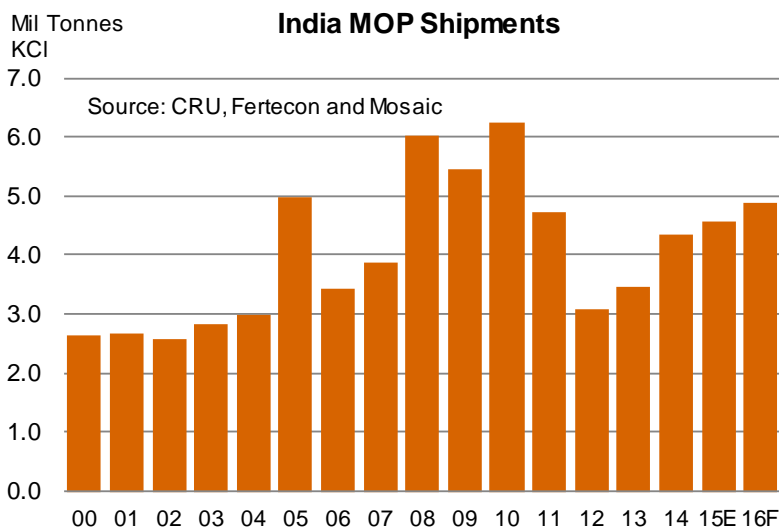
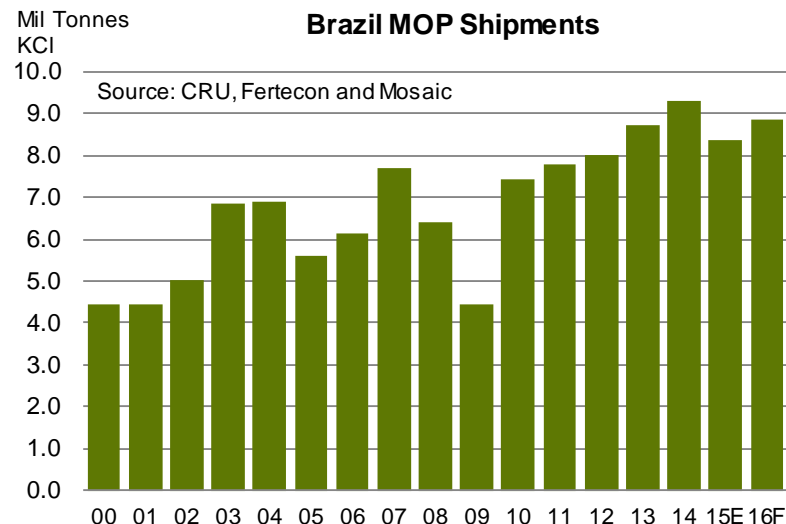
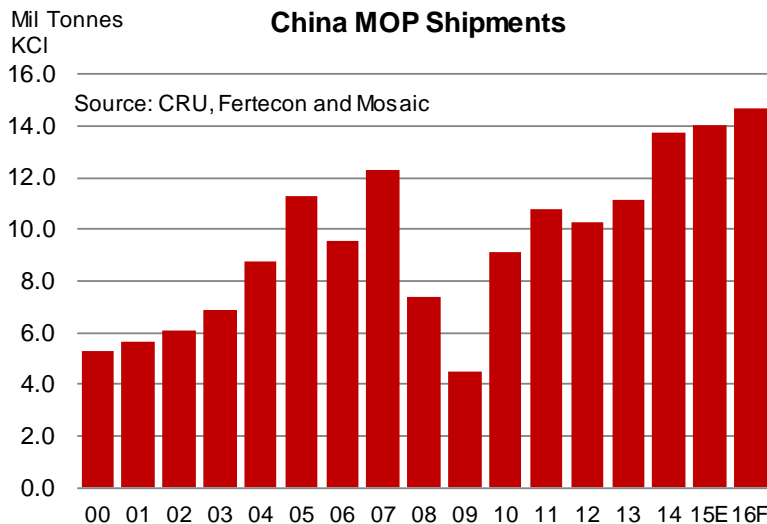
Global capacity 'overhang' is overstated

- Less operational capacity today than most analyst estimates
 - Consultants' estimates look way too high to us
 - e.g. Canadian capacity based on Canpotex proving runs, not operational capacity
 - Optimistic estimates for most other producers as well
 - Mosaic estimates are based on peak historical output (practical limit for some operations) and ratable capacity from expansions (rather than peak capacity achieved over a short period)
 - Brownfield projects added using realistic start-up dates and ramp-up schedules
 - Greenfield projects added only if board approved and financing in place
- Overly optimistic capacity forecasts in 2020
 - Most analyst/consultant estimates are in the 100 million tonne range, which we believe is about 20% overstated

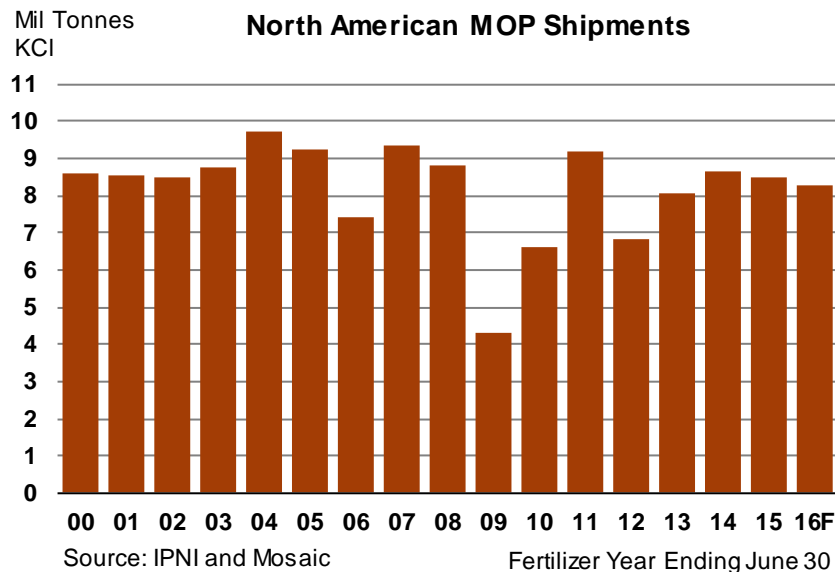
2015 MOP Operational Capacity

MOP Capacity Mil Tonnes KCI	Mosaic Est. (Nov 2015)
World	66.4
Canada	22.3
Russia	11.4
Belarus	10.4
China	6.8
Other	15.5

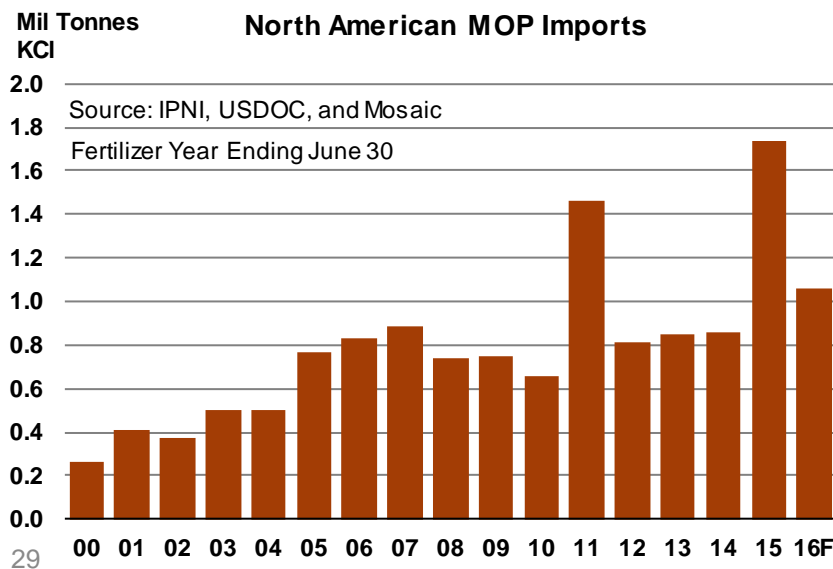
Lower shipments this year mainly due to large channel inventories, but a decent rebound forecast for 2016



North America shipments pull back modestly, while imports expected to return to historically normal level

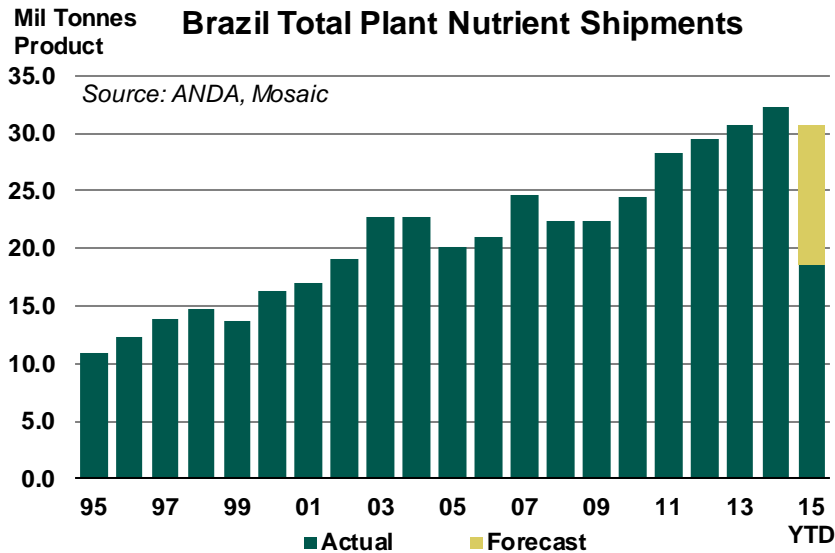


- NA MOP shipments were 9.4 million tonnes in 2014/15, down ~2% from the year before. Shipments are expected to again show a modest contraction in 2015/16 on cautious buyer sentiment and as pipeline inventories are worked through.

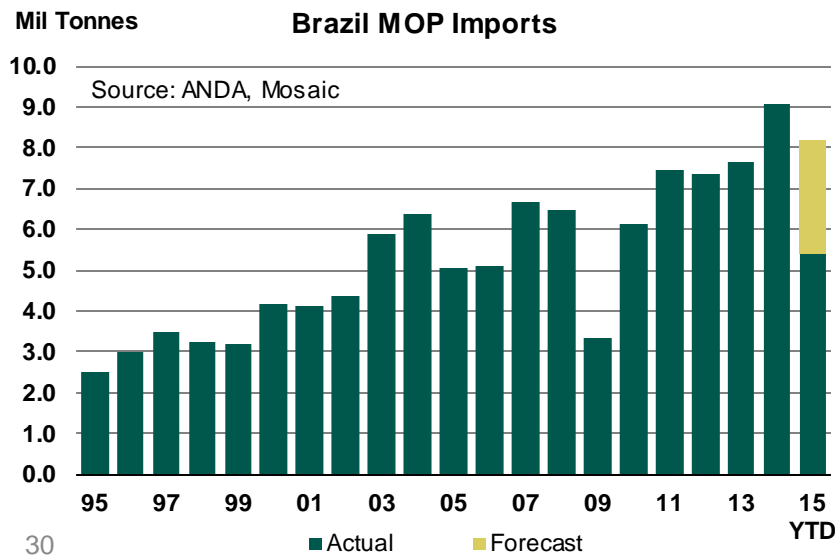


- NA MOP imports surged to over 1.7 million tonnes in 2014/15. Imports are forecast to drop to more normal levels due to lower U.S. prices (parity with other regions).

Brazil volumes have eased back from record-shattering levels seen in 2014

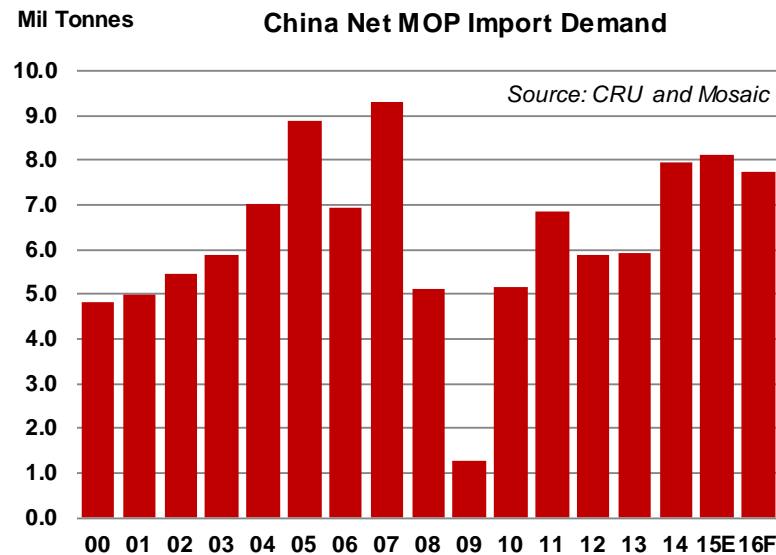
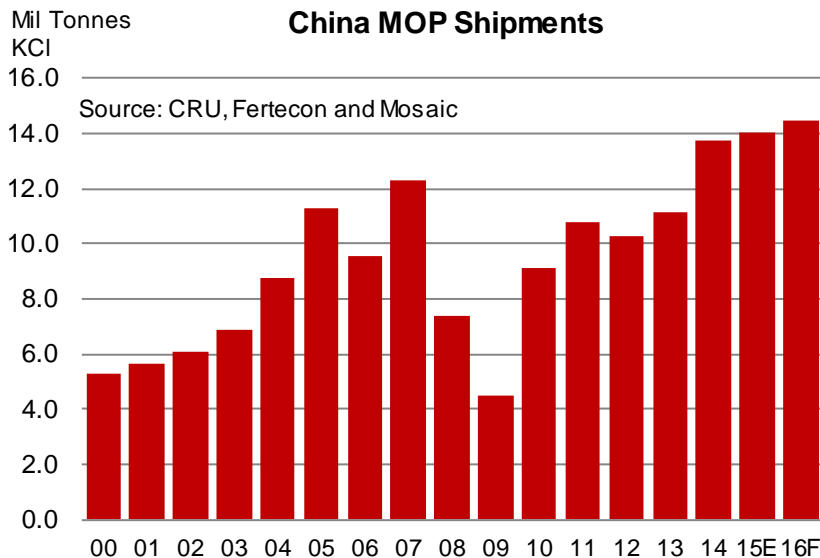


- Total product shipments are projected to decline to 30.7 million tonnes this year, off 5% or 1.5 million from the record 32.2 million last year and equal to the 2013 total. Shipments are expected to rebound in 2016 to 31-33 million tonnes due to the combination of continued moderate grain and oilseed prices and the weaker *real*.



- MOP imports are forecast to decline to 8.1 million tonnes this year, off 10% or 900,000 tonnes from the record-shattering level last year, but this would be the second highest total by a margin of one-half million tonnes. Imports are projected to rebound to 8.5-9.0 million tonnes next year.

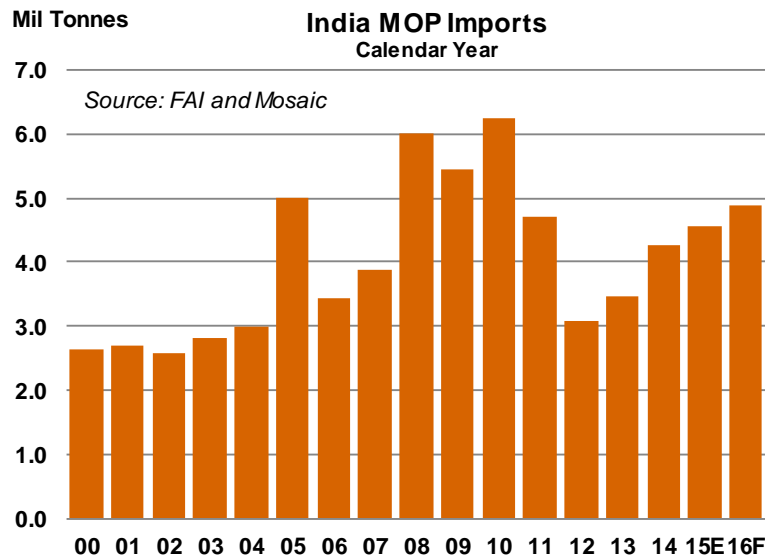
China's fertilizer VAT has not derailed MOP demand



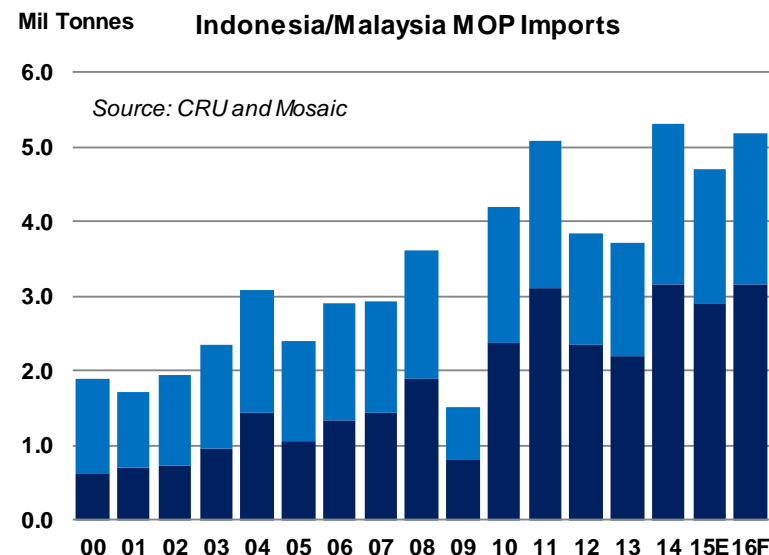
- China imposed a 13% VAT on all fertilizer sales effective September 1, 2015. However, only a 3% VAT was levied on product in inventory. The VAT combined with a ~3% currency devaluation is expected to result in a significant bump in farm prices. After the imposition of the VAT, Chinese importers continued executing on 2015 contracts (including optional tonnage) and demand appears to be holding.
- Potash shipments continue to increase due to steady imports and significant increases in domestic production. Net imports reached just shy of 8.0 million tonnes last year and are projected to hold near this level over the next few years (despite rising domestic production).



India and Indonesia/Malaysia notes



- Potash shipments and imports collapsed following significant changes to the P&K subsidy on April 1, 2010.
- Imports are slowly recovering due in large part to the decline in global potash prices. Imports are projected to increase to 4.6 million tonnes in 2015 and to 4.9 million in 2016.
- Recovery is expected to continue due to lower global potash prices and the pressing need to achieve more balanced and sustainable nutrient use.



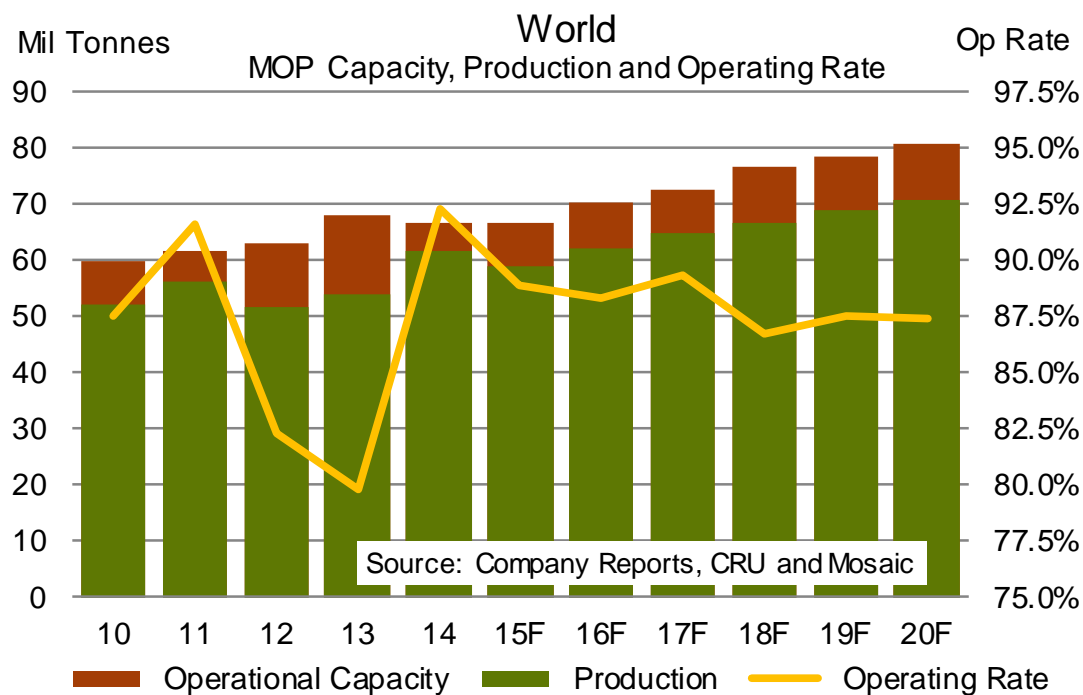
- After surging to a record 5.3 million tonnes last year, imports are forecast to drop to 4.7 million this year. The combination of elevated channel inventories, devaluations of the rupiah and ringgit, and lower rice and palm oil prices earlier this year has dampened buying interest.
- Currencies and rice/CPO prices have shown strength recently, and imports are projected to rebound to 5.2 million tonnes next year.



Capacity increases do outpace demand growth, but by much smaller margins than many analyst forecasts

- Global MOP operating rate

- Projected to trend downward by just 200 basis points from 89% in 2015 to 87% in 2020
- No deep or prolonged cyclical downturn
- Current producers likely will scale operations to meet demand and clear the market
- Greenfield projects begin to ramp up, but full impact not until after 2020



Thank You!

The State of Agriculture & Outlook for P&K Markets

Andy J. Jung
Director, Market and Strategic Analysis
The Mosaic Company

CIBC Agriculture Conference
London, UK
November 19, 2015

