
This report is a quarterly update of historical and future pricing in the world market for selected commodities: cocoa, coffee, rice, wheat, corn, soybeans, cashews, crude oil, and fertilizer. The historical price data was taken from a variety of sources including the World Bank and the Food and Agricultural Organization. 2009 and 2010 projections are the futures prices currently set on the benchmark commodities markets for each commodity.

This quarterly update lists average monthly prices through the end of 2008 and, for commodities that are sold on a futures market, the prices through the end of 2010. For each commodity, the data presented is either a world price, or world price for a widely sold type (such as U.S. Soft Winter Red Wheat) that has a futures contract.

In addition to this data, this report provides a concise review of selected market bulletins, explaining broad trends for past volatility and future pricing. This explanation provides only a small snapshot of the commodity literature, which could be expanded if the Bill & Melinda Gates Foundation would like further information.

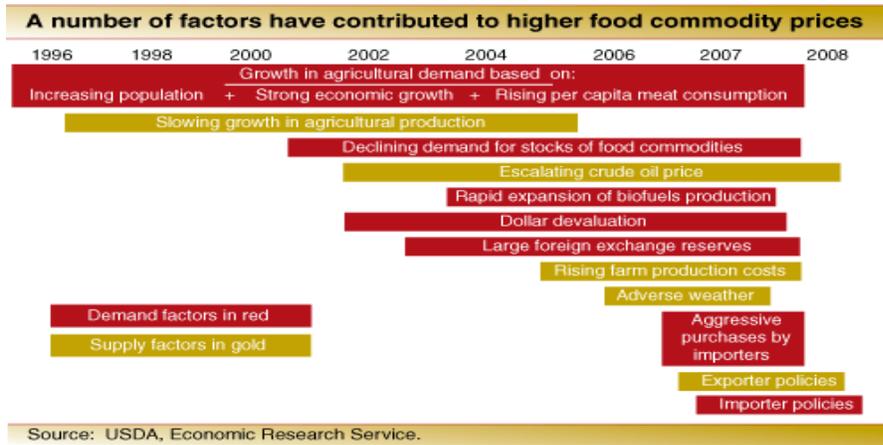
The report for each commodity is structured in the following way:

- A chart of historical and future prices.
- A brief description of notable trends and shifts.
- A short account of price drivers and explanations of price volatility, based on current commodity reviews or market bulletins.

Overview

The OECD and FAO¹ have recently published their Agricultural Outlook for 2008-2017. They conclude that world commodity prices will generally retreat in the short term (which we saw in the second half of 2008), but will remain generally firm over the next ten years due to factors such as population growth and rising incomes in developing countries. These factors, combined with nearly a decade (1995-2005) of slowing growth on the supply side, will likely create an atmosphere of consistent demand and rising prices over the next ten years.

¹ FAO-OECD. (2008). *OECD-FAO Agricultural Outlook 2008-2017*. OECD/FAO 2008.



The combined effect of sluggish supply and steadily increasing demand follows a prior 20-year period of abundant food supplies and stable prices that reduced incentives for countries to maintain food stockpiles. This effect, combined with a relatively recent period of major economic gains, adverse weather conditions in 2006/07, and the depreciation and comeback of the U.S. dollar created a commodity market environment that was easily disrupted and subject to volatility. These and other factors the USDA believes have been important to higher food commodity prices are shown in more detail in the chart above.²

The sharp rise in the price of commodities in the first half of 2008 was followed by a dramatic fall in the second half of 2008, which is generally attributed to several factors:³

- Higher energy prices that drove up the price of production, transportation, and inputs in the first half of 2008, and the fall of energy prices having the opposite effect in the final quarter of the year.
- Declining value of the U.S. dollar in the beginning of the year and low interest rates, which caused stockpiling and subsequent shortages at the beginning of the year. The strengthening of the dollar created the reverse effect in the final quarter.
- Speculation in hedge and index funds at the beginning of 2008.
- Biofuel policies in the United States, Brazil, and European Union shifting crop utilization from food to fuel.
- Supply shortfall in the beginning of 2008 due to poor weather conditions in Australia, Europe and other individual countries.

² Trostle, Ronald (2008). *Fluctuating Food Commodity Prices*. Washington DC: USDA 2008

³ Carter, C., Rausser G., and A. Smith. "The Food Price Boom and Bust." Giannini Foundation of Agricultural Economics. (2008). This document can be found at:

http://www.agecon.ucdavis.edu/extension/update/articles/v12n2_2.pdf

Individual Commodity Prices



World Cocoa prices rebounded in December to finish at \$2,457 a ton at the end of the month. This price was a 19% gain from November of 2008 which marked the low for year at \$2,068 per ton. The average price at the end of 2008 marked a 16% increase from the end of 2007 and 45% increase from the end of 2006. The New York Mercantile Exchange⁴ forecasts relatively flat prices for 2009 and 2010.

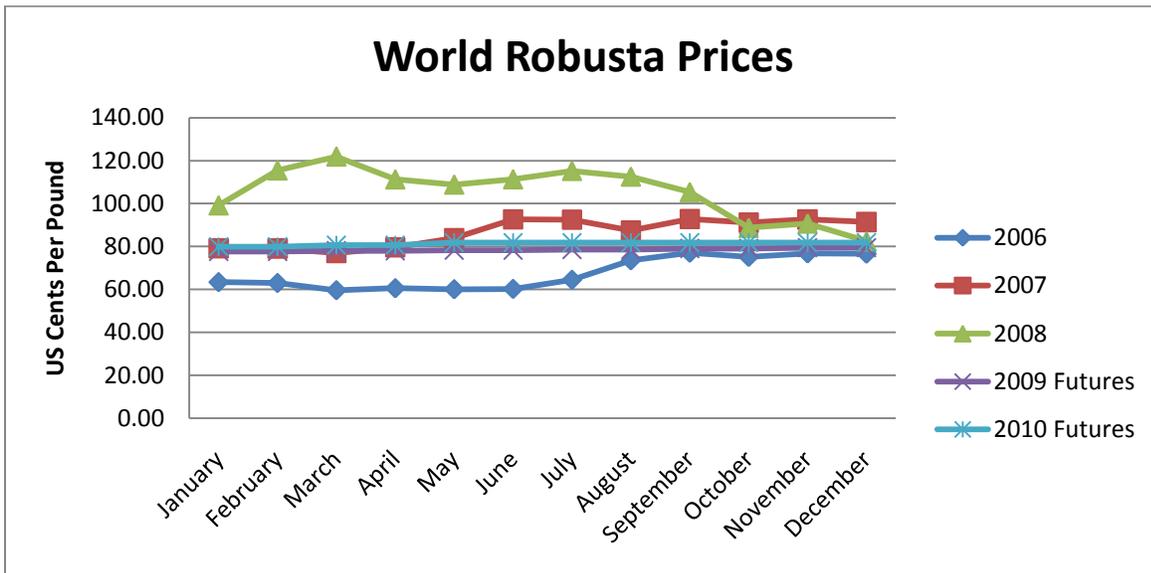
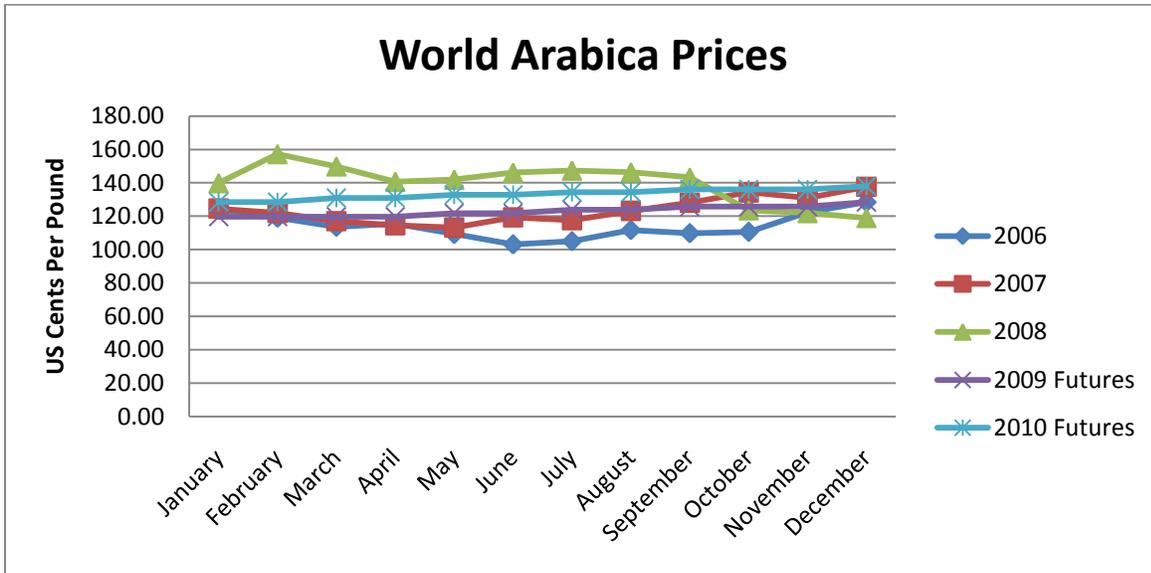
Unit: U.S. Dollars per Metric Ton, FOB
Data Source: International Cocoa Association, New York Mercantile Exchange (NYMEX)

The International Cocoa Organization (ICCO) monthly report for December of 2008 attributes the 2008 price volatility and future pricing to the following factors:⁵

- Lower than expected production from the Ivory Coast in the spring of 2008 caused a spike in summer prices of cocoa beans.
- Tightening availability of cocoa beans are again becoming a concern at the end of 2008, primarily due to bad weather in the Ivory Coast, the top producer of cocoa beans. Documenting this drop, a survey of U.S. and European warehouse stocks conducted by the ICCO secretariat found a 19% and 36% drop, respectively, from the end of 2007 to the end of 2008.
- The Ivory Coast has seen a 40% reduction in production in the first quarter of 2009. Demand for cocoa has been reduced at the end of 2008 because of the global recession but prices are expected to steadily increase in 2009 because of a reduction in supply.

⁴ Data from the New York Mercantile Exchange (NYMEX) was taken on January 26th, 2009.

⁵ ICCO Market Review for December can be found at: <http://www.icco.org/economics/market.aspx>.



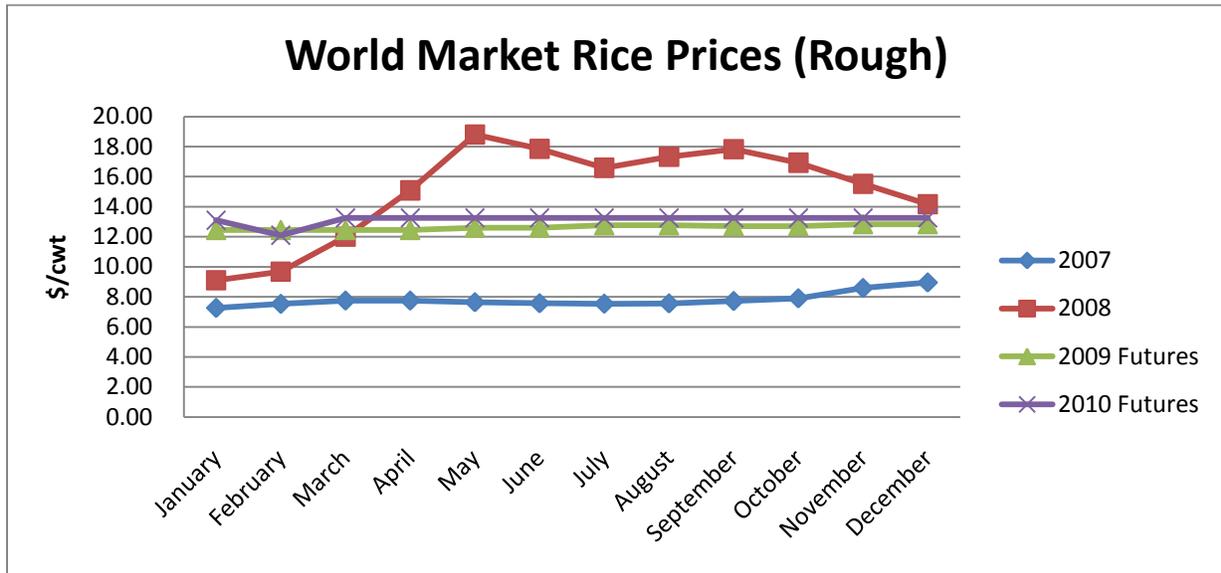
Both Robusta and Arabica coffee prices ended 2008 with an average monthly price below the December average for the previous year. March of 2008 marked the market high for Robusta with an average price of \$1.21 a pound. After March, Robusta showed a downward price trend with sharp price reductions after September. Arabica coffee showed less volatility in 2008 than Robusta, but ended the year on a downward trend that created an average price below the average for December of 2006.

Unit: U.S. Cents per Pound, FOB
Data Source: International Cocoa Organization, New York Mercantile Exchange (Arabica), New York Stock Exchange Euronext (Robusta).

Some of the key factors in the price volatility and future pricing are the following:⁶

- The large rise and fall of prices throughout 2008 was affected by the rise and fall of the dollar. Speculators bought heavily in the beginning of the year due to the declining value of the dollar.
- Bumper crops in November of 2008 increased production and applied downward pressure on prices for both Robusta and Arabica, particularly production increases originating from Ethiopia, Brazil, India, and Vietnam. There will be an estimated 15% increase in global coffee production in 2009 based on early production numbers.
- World consumption remained steady in 2008 and current reports from retailers have not shown a major dip in coffee sales, unlike the market trend for other commodities.
- Despite recent production gains, the forecast for 2009/2010 predicts reduced production in Brazil as production returns to normal annual levels. Heavy rains in Central America and Colombia are also expected to slightly reduce production in these countries.

⁶ Information primarily derived from the International Coffee Organization (ICO) December 2008 Coffee Market Report. This document can be accessed at: <http://dev.ico.org/documents/cmr1208e.pdf>



Unit: U.S. Cents per Hundredweight, FOB
Data Source: USDA Economic Research Center (ERS), Chicago Board of Trade (CBOT)

2008 marked a major increase in world rice prices culminating in a record monthly average in May of \$18.81 cents per hundredweight. Overall, the prices at the end of 2008 represented a 58% increase over the world price from December of 2007. As of mid-January 2008, the prices on the Chicago Board of Trade (CBOT) are selling at a reduced price of \$12.54 cwt and futures are currently being sold at a steadily accumulating rate of between \$12.5 cwt and \$13.5 cwt between 2009 and 2010. (Rice futures on CBOT are only sold through March of 2010.)

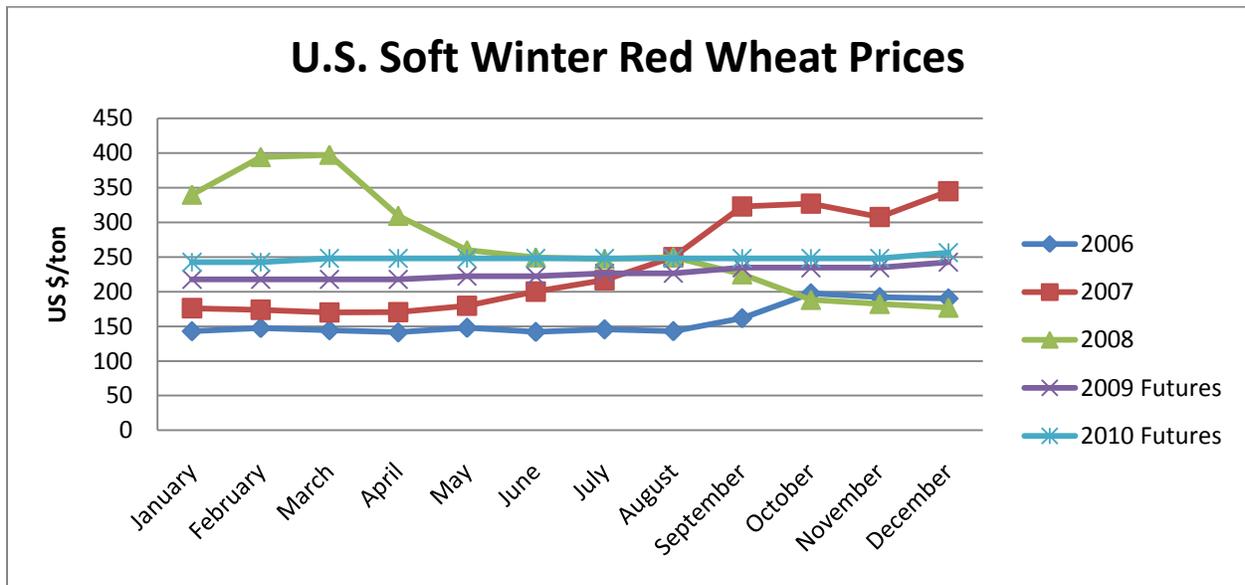
Market research has indicated several primary factors for the dramatic price swings in 2008 and forecast in 2009:⁷

- The market has already begun to incorporate large anticipated future increases in production (as much as 10% by 2017), mainly driven by South and Southeast Asia. This is coupled with rapid income growth and forecasts of decreased demand for rice in much of Asia.⁸
- High prices in 2008 were attributed to significant shortages on the world market. Shortages were caused by a variety of factors including natural disasters and adverse weather, high fuel prices that added to transport costs, and hoarding and smuggling of rice and wheat to take advantage of higher prices across national borders. India banned and Vietnam restricted certain types of rice exports in the beginning of 2008 based on production concerns.
- Rice production is expected to rise to 439.1 million tons in 2009, a two percent increase over 2008. The increase in supply is anticipated to come mostly from gains in China and a global

⁷ This information was derived from the USDA *Rice Outlook*, a publication that is produced monthly and has extensive information on both the US and world rice market. This document can be accessed at: <http://www.ers.usda.gov/Briefing/Rice/>

⁸ OECD-FAO Agricultural Outlook 2008-2017

increase in the area cultivated for rice. The average yield in 2009 is predicted to be 4.2 tons per hectare matching the record yields of 2008.



2008 saw a dramatic dip in wheat prices from significant price gains in 2007. This chart shows the prices movements of US Soft Winter Red Wheat, traded on the Chicago Board of Trade (CBOT).⁹ Futures on CBOT are currently forecast to trend upwards from \$217 a ton to over \$250 a ton by the end of 2010.

Unit: U.S. Dollars per Ton, FOB
Data Source: FAO Commodity Outlook, Chicago Board of Trade (CBOT)

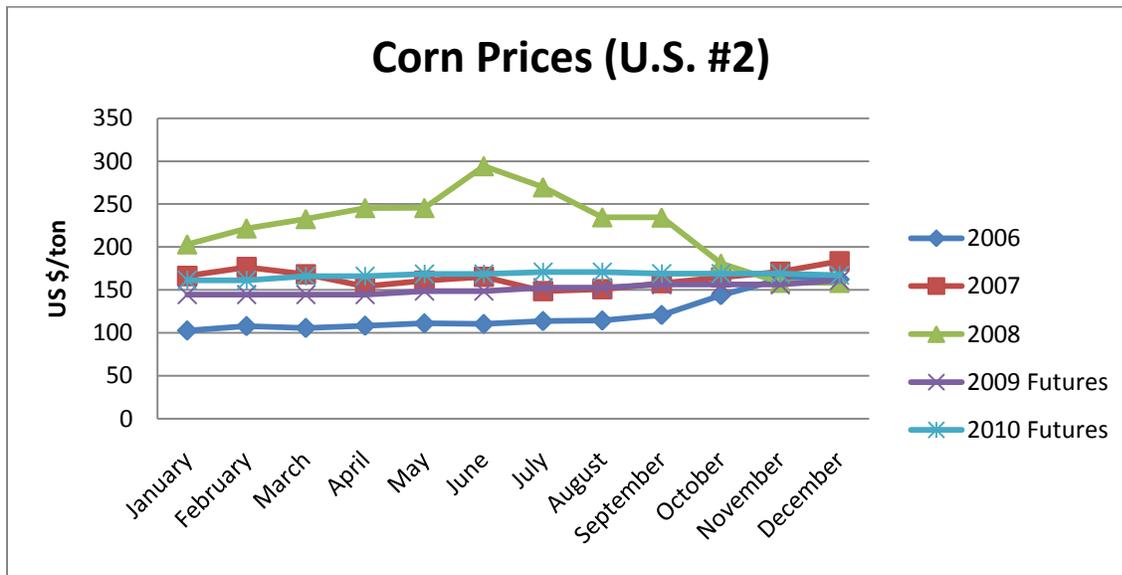
Wheat futures have a seasonal tendency to trade lower from January to May and trade higher from August to the end of the year. Monthly crop reports are a big market mover. The reports are released from the USDA around the 10th of each month and move prices based on revisions of production forecasts and input costs. The forecasts are especially important because wheat prices and production affect corn prices due to their competing uses for livestock feed.

The volatility in wheat prices during 2007 and 2008 is generally attributed to the following:¹⁰

- High demand created rising price through 2006 and 2007, which prompted a significant supply response and declining prices in the latter half of 2008.
- Major gains in world wheat supply. World wheat output in 2008/2009 is projected to be an all time record of 682.9 million tons. This supply record is a 12 percent increase from the previous year and is attributed to exceptionally favorable weather conditions in the EU, Canada, and former Soviet Union as well as a 3% increase in world wheat area.

⁹ Within the U.S., Hard Winter Red Wheat (Traded on the Kansas City Market) and Spring Wheat are also cultivated and publicly traded. The FAO lists prices for the first two varieties along with the Argentina Up River.

¹⁰ Information derived from the USDA ERS *Wheat Outlook (Jan 14th publication)*. This document can be accessed at: <http://www.ers.usda.gov/Browse/Crops/Wheat.htm>



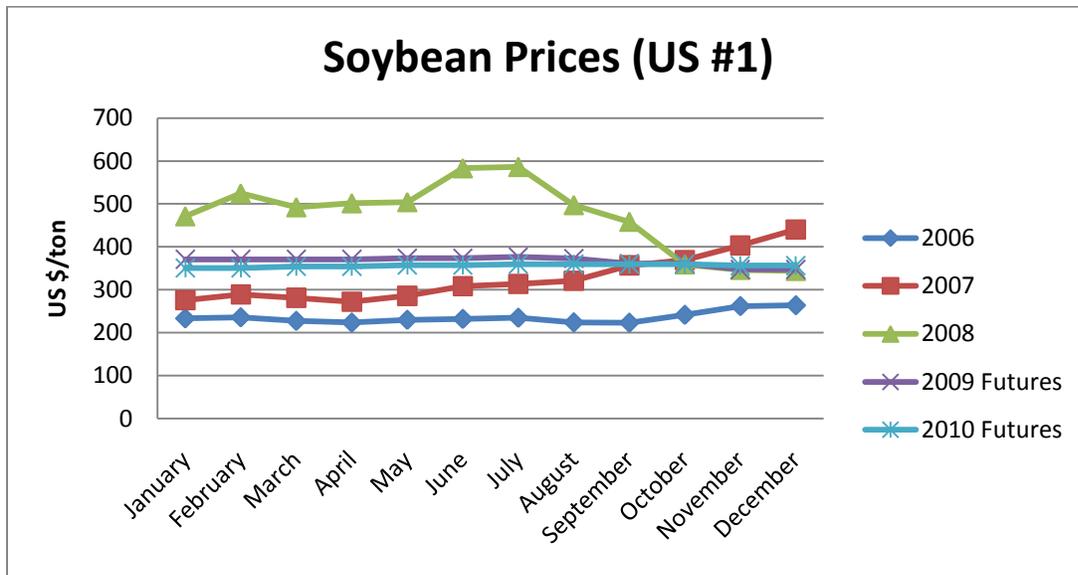
Corn prices showed great price fluctuation in 2008 with a high price in June of \$294 per metric ton. This was followed by a dramatic dip of nearly 32% in prices during the last three months, with December marking the lowest average monthly price for the year at \$158 per metric ton. Prices are projected to have a slight upward trend in 2009 and 2010, but remain below \$160 a metric ton through 2010. This would mark a higher average annual price than 2006 but very close to the average prices in 2007.

Unit: U.S. Dollars per Ton, FOB
Data Source: USDA Economic Research Center (ERS), Chicago Board of Trade (CBOT)

Market research¹¹ has indicated the following reasons for the fluctuation in 2008 and projection for 2009:

- The steady increase in prices from 2006 to mid-2008 was affected by increases in demand for ethanol. It is estimated that more than 30% of U.S. corn production will be diverted to ethanol in 2008, and because the U.S. is the world's largest corn producer, this has a significant impact on prices
- The corn market was additionally affected by overall abundant world grain supplies in 2008, specifically feed quality wheat, which contributed to depressed demand for corn.
- Coarse grain consumption and import projections have been reduced for 2008/9 for a number of countries as the world economic crisis is depressing demand.

¹¹ Data compiled from the USDA December 2008 *Market Outlook* which can be found at: <http://www.ers.usda.gov/Briefing/Corn/marketoutlook.htm>



Unit: U.S. Dollars per Ton, FOB
 Data Source: FAO Commodity Outlook, Chicago Board of Trade (CBOT)

Similar to other commodities, the world soybean market exhibited dramatic price swings in 2008. Soybean prices rose steadily, from a price of \$320 per metric ton in September of 2007 to a price of \$586 per metric ton in July 2008, an 83% gain. Since July of this year, prices have fallen to \$347 a metric ton, a 41% drop from July of 2008.

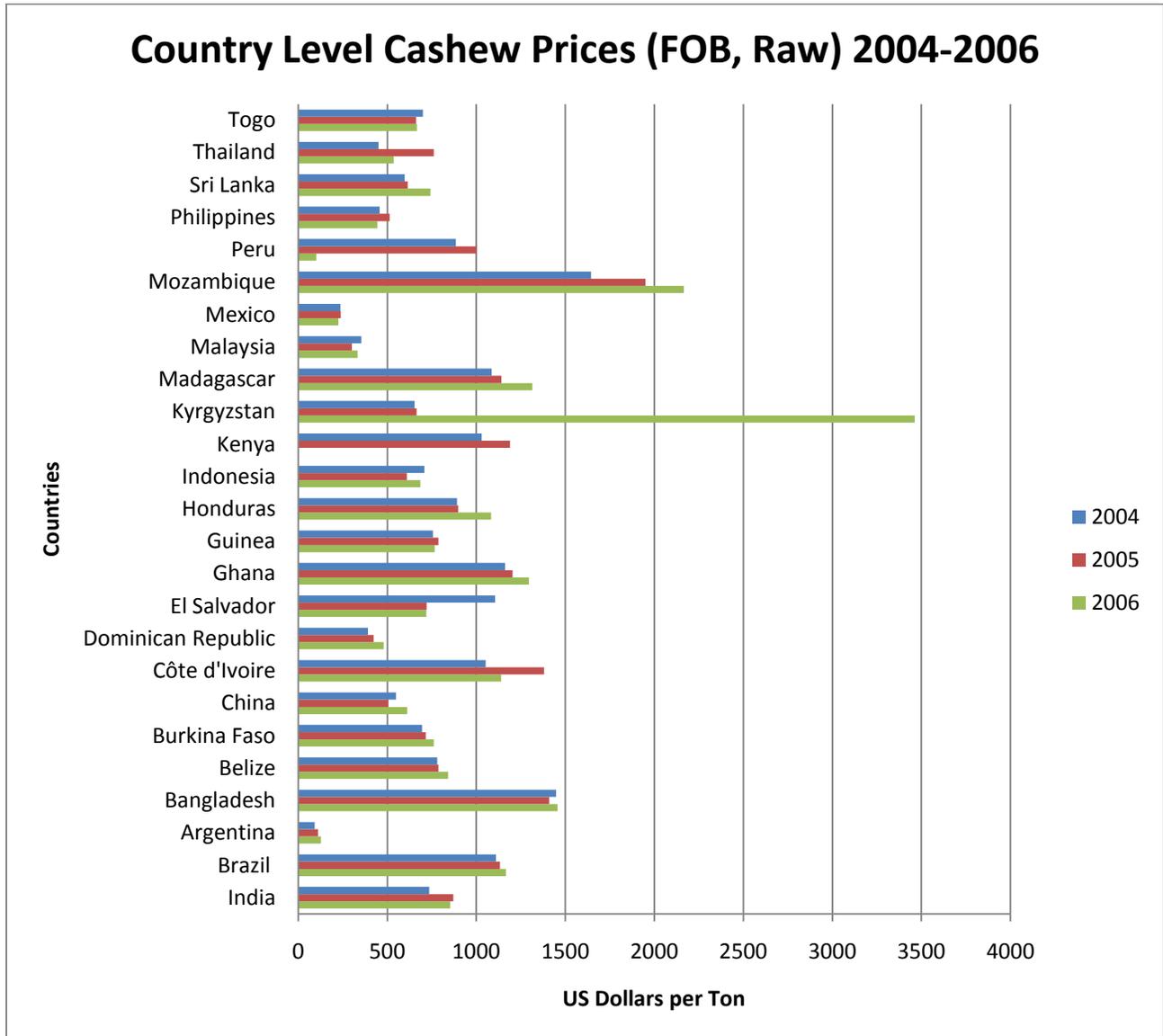
Traditionally there is the most movement in the future markets in the summer months, including the futures markets for soybeans. The summer months will be the most active and volatile for trading. Monthly crop reports are a big market mover as they revise their production forecasts and analyze connected linkages that affect prices such as the ethanol market and currency exchanges.

The following are some of the key price drivers:¹²

- The diversion of crop acreage from soybeans to corn in the United States (19% acreage increase in corn and 16% acreage decrease in soybean at the end of 2007 compared to the beginning of 2006) decreased soybean supply and caused significant price increases.
- Yields were higher than expected in 2008, thus increasing supply and reducing prices at the end of 2008.
- Droughts in Argentina are expected to decrease supply in 2009; however, the market has still not fundamentally changed its price for soybean futures because early supply projections have been higher than expected and are creating a slight downward trend in the futures market.

¹² Carter, C., Rausser G., and A. Smith. "The Food Price Boom and Bust." Giannini Foundation of Agricultural Economics. (2008). This document can be found at:

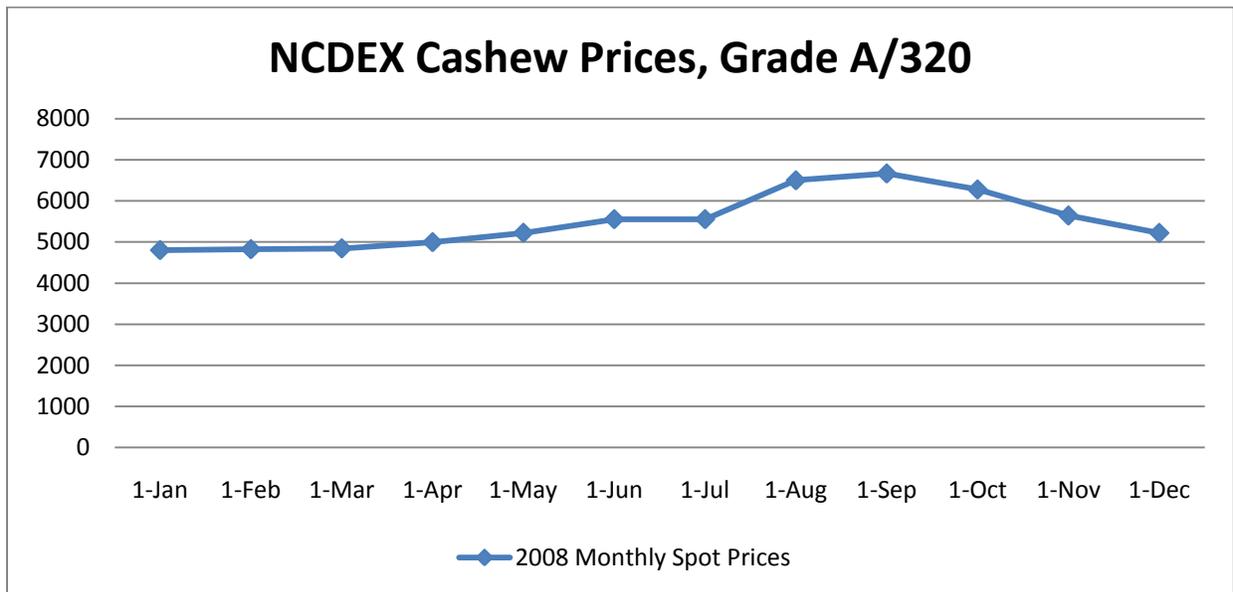
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Cashews are sold in many different grades and prices varying depending on the country. Currently four countries, India, Vietnam (not listed in FAO data), Nigeria, and Brazil, produce by far the most cashews, accounting for over 75% of the world production. India, despite having been overtaken by Nigeria and Vietnam as the largest producer of cashew nuts, is still the largest exporter in the world, accounting for 50% of all world exports. India also does much of the processing for cashew production for African cashews which are imported into India.¹³

Unit: U.S. Dollars per Ton, FOB
 Data Source: FAO Price Stat

¹³ Information received from Commodity Online, which can be found at: <http://www.commodityonline.com/commodities/plantation/cashew.php>



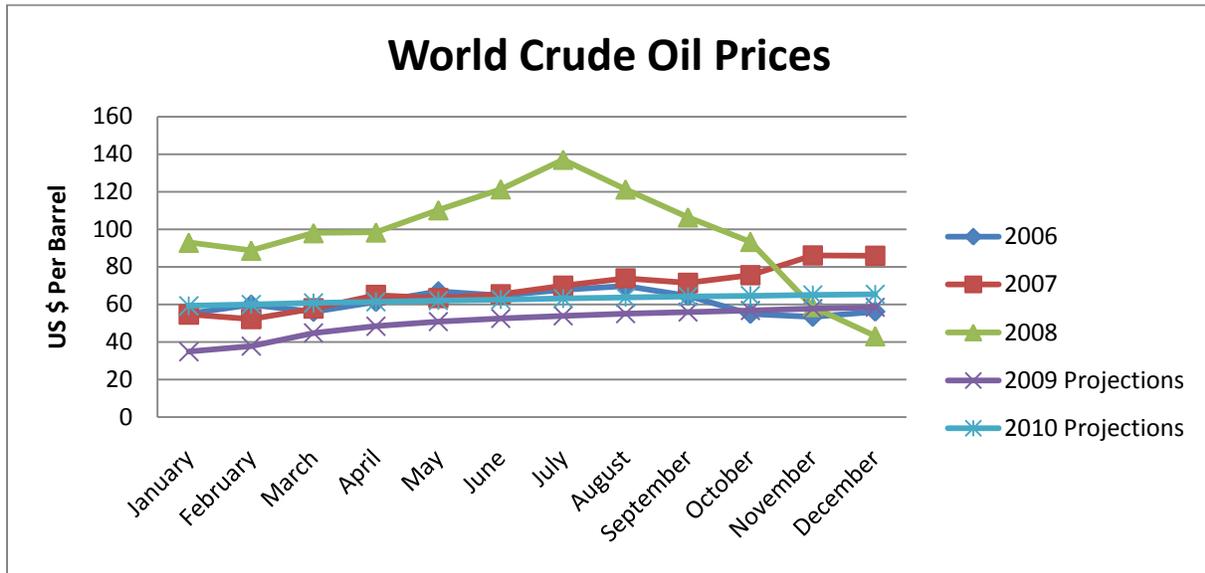
The NCDEX (India) market currently lists cashews as a publicly traded commodity. The exchange showed a late season rise in prices, peaking at \$6600 a metric ton in September before returning to just over \$5000 a ton at the end of the year.

Unit: U.S. Dollars per Ton, FOB
Data Source: National Commodity and Derivatives Exchange (NCDEX)

Cashews are sold publicly on the NCDEX Market but they do not list future prices. The data shown above is their spot price at the beginning of each month in 2008. The following is the world outlook for 2009:¹⁴

- The outlook for 2009 appears to be fairly stable as anticipated production is forecast to be slightly higher than in 2008, mainly in Vietnam.
- Erratic weather patterns in the beginning of 2009 in Vietnam may threaten supply in the coming year.
- India and West Africa are reporting normal production seasons as of January 2009.

¹⁴ Information derives from Commodity Online, "Cashew outlook for 2009 is normal." This information can be accessed at: <http://www.commodityonline.com/futures-trading/market/Cashew-outlook-for-2009-is-normal-9618.html>



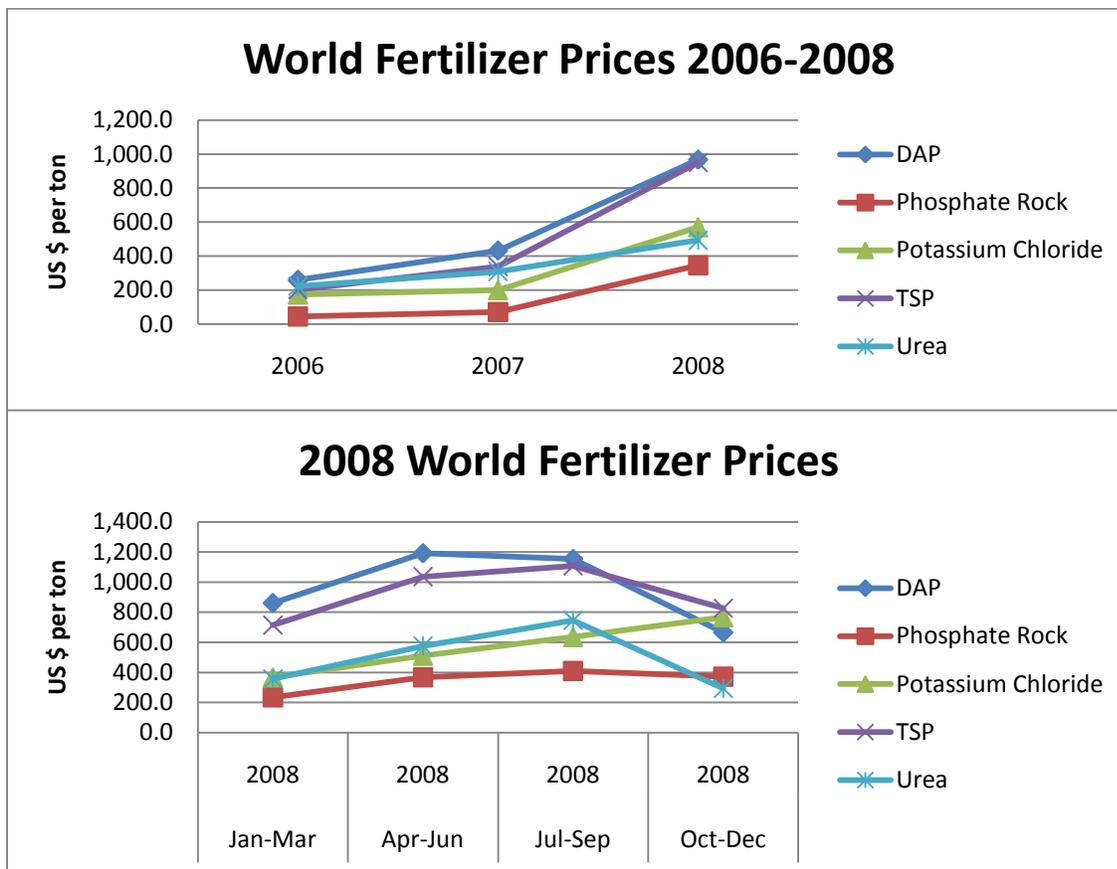
2008 was an extremely volatile year in the crude oil market as prices rose to just under \$140 dollars a barrel in July, a 47% gain from the beginning of the year. Prices then fell to \$43 dollars a barrel, ending the year 54% below the average monthly price at the beginning of the year. The 2008 end of the year average marked the lowest crude price since before 2006. The futures market is currently forecasting steady gains in 2009 with prices expected to rise to above \$60 dollars a barrel. Prices are expected to continue climbing at a slower pace in 2010.

Unit: U.S. Dollars per Barrel, FOB
Data Source: Energy Information Administration, New York Mercantile Exchange

The Energy Information Administration suggests that the following factors may be contributing to the recent trends and also suggest the following factors could affect future prices:¹⁵

- The sharp decline in prices is generally attributed to the downturn in the economy and decreasing energy demands.
- There is some uncertainty in supply based on the possibility of non-OPEC countries and countries outside the OECD, such as Russia, restricting access to resources.
- Prices are expected to recover significantly in 2010 with the global economy rebounding and demand increasing.
- The Energy Information Administration predicts prices reaching \$130 dollars a barrel (2007 dollars) by 2030.

¹⁵ Information derived from the *Annual Energy Outlook 2009, Early Release Overview*, Published by the Energy Information Administration and can be accessed at: <http://www.eia.doe.gov/oiaf/aeo/>



Unit: U.S. Dollars per Metric Ton, FOB
Data Source: World Bank Monthly Price Commodity Data (Pink Sheet)

Prices skyrocketed in 2008 for all five major types of fertilizer, peaking during the summer months, and showed a steep downward trend in the final quarter. In particular, the annual average price for DAP fertilizer rose from \$433 per metric ton in 2007 to \$968 per metric ton in 2008, a gain of 124%, with similar upward trends in annual averages for other fertilizer types. During 2008, Urea peaked in the summer months at a price of \$745 per metric ton, but ended the year at \$293 per metric ton. The peak prices during the summer significantly affected the annual averages in 2008.

Demand outstripping supply was the primary reason for price gains in first half of 2008. Demand increased in the first half due to increased production demands, particularly in the biofuel/ethanol sector.¹⁶ The world economic situation, specifically the falling energy prices and rising dollar in the second half of 2008 caused a sharp downturn in world prices because farmers are generally wary of investing in agricultural inputs during volatile periods. Inputs such as fertilizer become high risk and have a low cost to benefit ratio of investment during these periods. Farmers generally wait for a more predictable and stable environment. The sharp reversal in prices for nearly all types of fertilizer in 2008 is generally seen as the result of a major slowdown in demand.

¹⁶ Information derived from the *World Agriculture and Fertilizer Demand, Global Fertilizer and Trade 2008-2009*. This document is published by the International Fertilizer Association (IFA) and can be found at: <http://www.fertilizer.org/ifa/Home-Page/FERTILIZERS-THE-INDUSTRY/Market-outlooks.html>

Fertilizer is not sold on the future markets and thus it is difficult to forecast prices in 2009 and 2010. The following information from the International Fertilizer Association (IFA) provides some context to 2008 and beyond:¹⁷

- A 2.2% reduction in fertilizer consumption is tentatively forecast for 2009. The only two regions expected to increase their demand are South Asia and Eastern Europe/Central Asia.
- The FAO expects increased production through 2012.

¹⁷ FAO-OECD. (2008). *OECD-FAO Agricultural Outlook 2008-2017*. OECD/FAO 2008
