Cost-of-Production Report*: *"The Rising Cost of Inputs"

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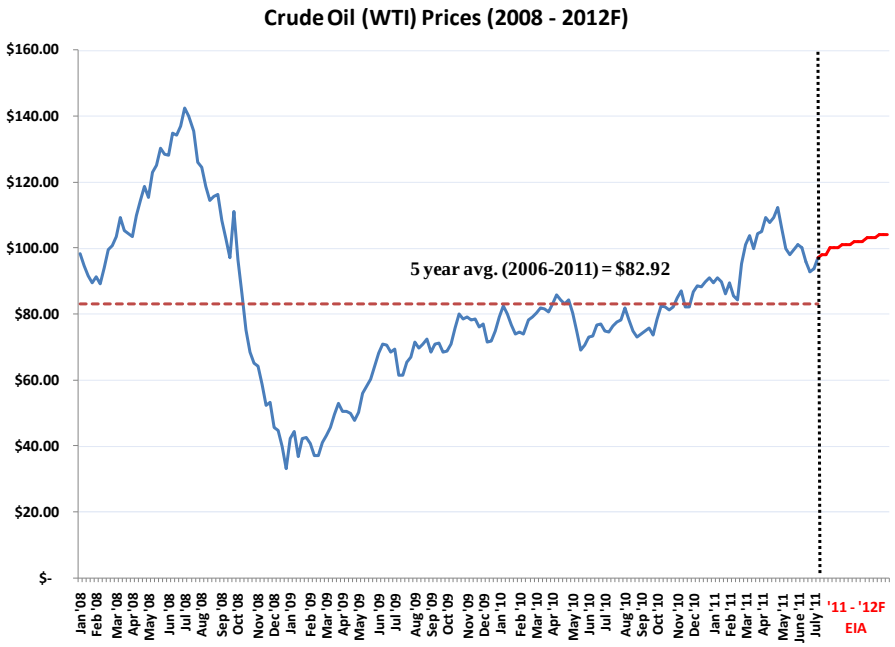
As most economists would say, the most certain thing in economics is uncertainty. And so far, 2011 hasn't steered away from course. In 2011, the global economy has experienced a crisis in the Middle East, a tsunami in Japan, a debt sovereign crisis in Europe, a failed attempt to increase global oil production from OPEC and a budget crisis in the United States. Now, ask yourself: Did you ever predict that these events would ever impact you directly in your pocketbook? If you think these events haven't affected you, then you must not buy fuel for your car or food at the grocery store (or even food in general). The fact is that no one can hide from higher energy costs whether you're a farmer or not. With planting season complete, U.S. farmers and ranchers were confronted with a heavy cost burden of getting that commodity into the ground. The premise of this report is to provide an update from the April 2011 Fuel and Fertilizer report and to place a perspective of the costs associated with various inputs by U.S. major field crops.

The Story of Oil

Thus far in 2011, daily oil prices have ranged from a low of $83.13 per barrel to $113.39 per barrel, a range of 36 percent. Increases in oil prices were headlined by the continued conflict in the North Africa and Middle East region, the tsunami disaster in Japan, global demand in China and a weak U.S. dollar. Since the beginning of the year, the dollar relative to the Euro has weakened by 9 percent. A weaker U.S. dollar makes dollar denominated commodities less expensive for many foreign buyers to purchase, driving increased global demand. Expectation of oil markets tightening through 2012 by means of world oil demand growth and slowing growth in supply from non-OPEC countries continue to raise forecasted prices for oil through 2012. The July outlook forecast has prices for WTI spot crude oil averaging $98.43 per

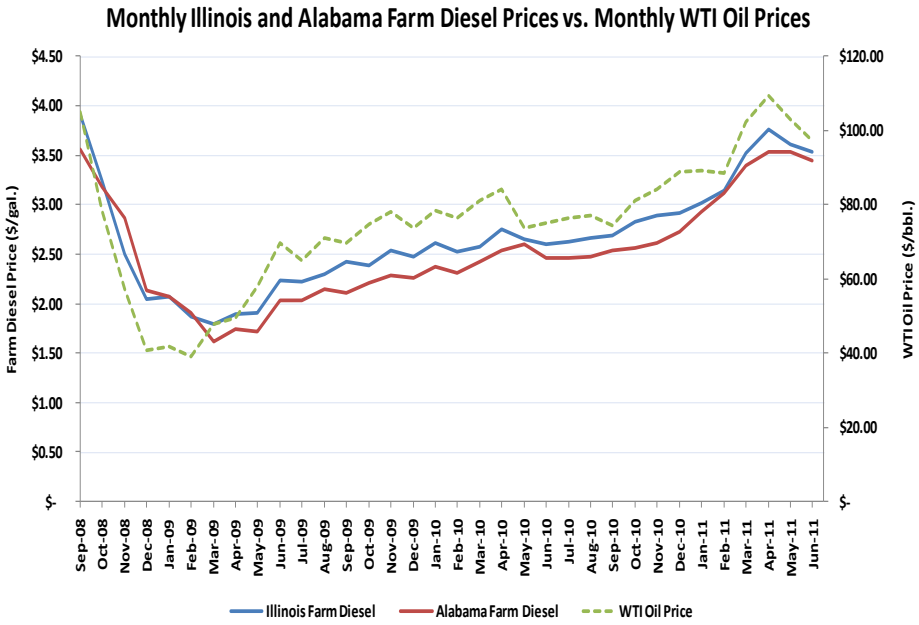


barrel for 2011 and increasing to $102.50 per barrel in 2012. Currently for 2011, crude oil prices are averaging just short of the $100 per barrel benchmark at $97.98 per barrel. Comparing the current 2011 average crude oil price against the July forecast for 2011 and 2012, respectively, EIA expects average crude oil prices to increase 0.5 percent for the rest of 2011 and 4.6 percent in 2012.

Farm Diesel Prices

One major cost farmers and ranchers face during planting and harvesting seasons is farm diesel. Since planting season has ended in most parts of the country, it only seems appropriate to look at the cost associated to fill up a tractor with farm diesel. Let's use a tractor with a 270 gallon diesel fuel tank as an example. Using the current cost for Illinois farm diesel at $3.58 per gallon, the cost for each fill-up is approximately $967. Using yearly average farm diesel prices in Illinois for 2010 and 2009, this cost is 33 percent more than the $726 cost to fill up in 2010 and 64 percent more than the $588 cost to fill up in 2009. Now put the situation in perspective and put yourself in the shoes of a farmer during the middle of planting season. Taking the average price of farm diesel reported in Illinois from late April to mid-May of $3.74 per gallon, the cost to fill up a 270 gallon tractor now costs approximately $1,010. This cost is 39 percent higher than the 2010 average and 72 percent higher than the 2009 average.

Looking ahead to harvest season, let's say you own a combine which contains a 277 gallon diesel tank. When farm diesel prices reported in Illinois (excluding forward contracting) reached their 2011 high at $3.76 per gallon in April, it would cost approximately $1,041 every time the combine needed to be filled. Now mind you, this is only for one combine and excludes a second combine and all the other farm machinery needed to complete a successful harvest! Even with farm diesel prices decreasing slightly in July, it would still cost a farmer with that same combine $992 per fill-up.

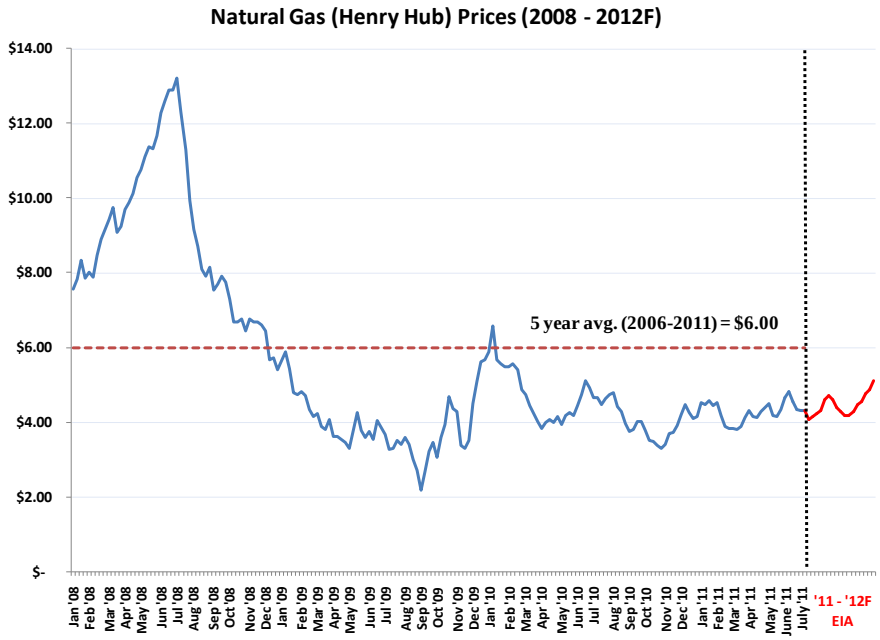


Currently, the average price for farm diesel in Illinois is $3.58 per gallon and $3.48 per gallon in Alabama. Nevertheless, the price of farm diesel over the past couple months has declined with the price

of oil. As you can see from the above graph, the trend indicates that the price for farm diesel increases/decreases with the price of oil. By analyzing price trends, the correlation is strong between oil price and farm diesel prices; 92 percent of the farm diesel price in Illinois can be explained by the price of oil and 70 percent of the farm diesel price in Alabama can be explained by the price of oil. As previously mentioned, weekly oil prices have increased 8 percent since the beginning of 2011. Likewise, the monthly price for Illinois farm diesel has increased 17 percent and the monthly price for Alabama farm diesel has increased 18 percent. Expect farm diesel prices to continue to increase with projections of increased oil prices as forecasted by EIA.

Natural Gas

Natural gas prices have been below the 5-year average of $6.00 per MMBtu for all of 2011. Since the beginning of 2011, weekly natural gas prices have decreased 5 percent mainly due to an abundance of supply with the shale gas industry developing in the United States. Recently, natural gas remains bearish as production continues to climb, weather becomes milder and nuclear plants return to use after routine spring maintenance. Recently (ending June 2011), working natural gas inventories were at a healthy level of 2.5 Tcf, however, 8 percent below the 2010 end-of-June level.



Even with healthy working natural gas inventory levels, global events could tighten the global natural gas market, creating higher prices and increased competition between Europe and Asia. Global events contributing to the shortage include the crisis in the North Africa and Middle East region, the Fukushima plant disaster in Japan and the global backlash in nuclear energy that has increased the demand for natural gas. Moreover, it is important to keep an eye on the upcoming hurricane season in the United States. In April, Colorado State University predicted that 16 named storms may form in the Atlantic and tropical cyclone activity may be about 175 percent of average.[1] If you recall back to December 2005, natural gas prices peaked at $15.39 per MMBtu

[1] Deloitte Center for Energy Solutions. Weekly Oil & Gas Market Highlights. Thursday, April 7, 2011.

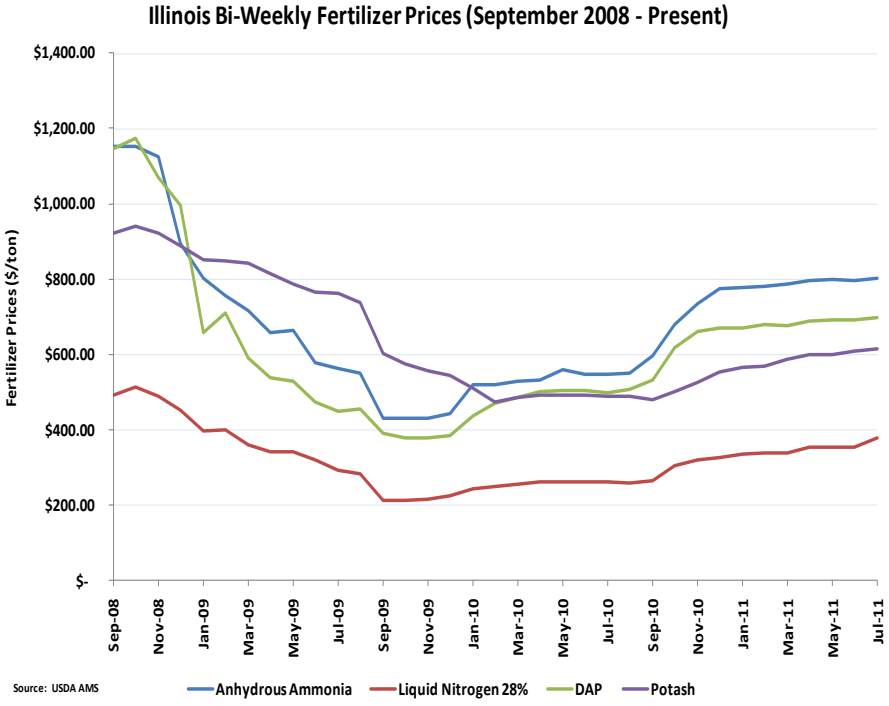
due to Hurricane Katrina impacting the Gulf Region. With natural gas expected to contribute in a larger capacity in the world markets due to a growing base of resources, competition will increase followed by the potential for higher prices.

Natural gas is important for fertilizer production, primarily for ammonia. The average natural gas consumed for every ton of anhydrous ammonia produced is approximately 33.5 MMBtus. Clearly the price of natural gas is closely tied to the production cost of ammonia as natural gas accounts for approximately 70 to 90 percent the cost of ammonia.[2] In addition, incremental costs for manufacturing, storage and transportation further increase the retail price for fertilizer, making oil prices a secondary factor in the cost structure for fertilizer.

Fertilizer Prices

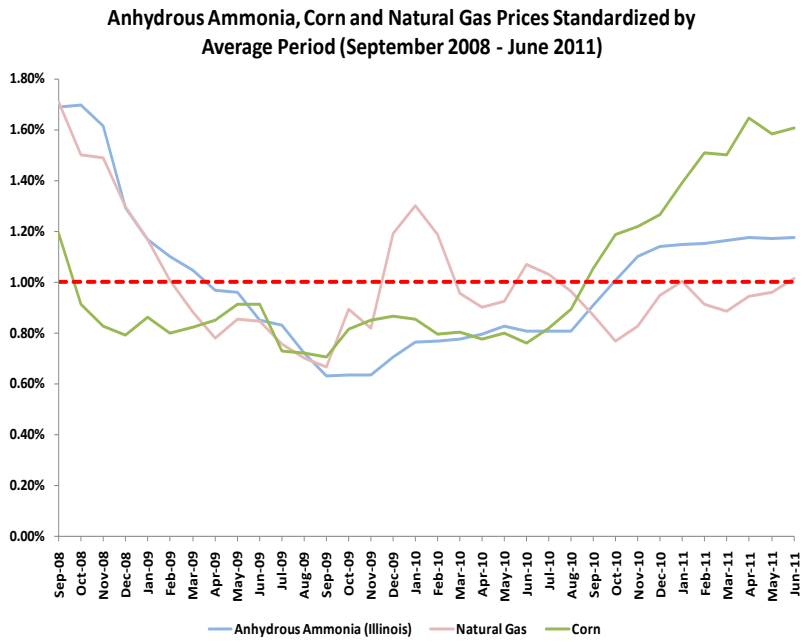
Fertilizer prices for Illinois have increased slightly since the beginning of 2011: Anhydrous ammonia by 3 percent, nitrogen (28 percent) by 13 percent, DAP by 4 percent and potash by 9 percent. Bi-weekly average fertilizer prices in Illinois reported anhydrous ammonia at $801.11 per ton, nitrogen (28 percent) at $380 per ton, DAP at $697.78 per ton and potash at $615.63 per ton. Fertilizer prices for Alabama also increased since the beginning of 2011: Nitrogen (28 percent) by 11 percent, DAP by 4 percent and potash by 15 percent. Weekly average prices in Alabama reported nitrogen (28 percent) at $425.00 per ton, DAP at $722.50 per ton and potash by $640.00 per ton.

One reason fertilizer prices have increased is demand for fertilizer given the current tight supplies for grain commodities, primarily corn. In the current situation of tight supplies for grain, fertilizer is a necessity as acreage production in the U.S. is at a max. Similarly, higher grain prices increase the demand for fertilizer in international markets.



[2] Sawyer, J.E. "Natural Gas Prices Affect Nitrogen Fertilizer Costs." Department of Agronomy. Iowa State University. January 2001.

Looking ahead to 2012, fluctuations in production costs will depend on fertilizer prices, namely anhydrous ammonia. Many analysts suggest that price movements in anhydrous ammonia can be dictated with supply and demand factors associated with anhydrous ammonia. Taking this into consideration, historical anhydrous ammonia prices for Illinois will be correlated with the historical price of corn (demand factor) and the historical price of natural gas (supply factor) since September 2008. From September 2008 to June 2011, the anhydrous ammonia price to corn price correlation was 0.43. Since corn is an energy intensive crop, this demand relationship would suggest that higher corn prices indicate the need for more corn acreage, thus requiring more use of nitrogen fertilizer. On the supply side, the anhydrous ammonia price to natural gas price correlation was 0.65 from September 2008 to June 2011. As mentioned above, natural gas serves as a key input, accounting for approximately 70 to 90 percent the cost of ammonia. So, higher natural gas prices would suggest higher costs of ammonia production.



Looking at the chart above, June monthly prices for corn, natural gas and anhydrous ammonia have been above their September 2008 to June 2011 average: corn by 61 percent, natural gas by 2 percent and anhydrous ammonia by 18 percent. From September 2008 to September 2009, natural gas prices and anhydrous ammonia prices generally decreased with one another. However, beginning in November 2009, natural gas and anhydrous ammonia prices generally increased with one another. But beginning in August 2010, anhydrous ammonia began to increase as the price for corn increased while natural gas prices decreased. The fall of 2010 was the time that we learned that stocks were low for corn, creating a higher demand for more corn acreage for the 2011 planting year, thus creating a higher demand for nitrogen. In fact, from August 2010 to June 2011, the anhydrous to corn price correlation increased to 0.91 indicating that higher corn prices lead to a higher demand for nitrogen. By looking at the EIA forecast for natural gas prices above, prices are not expected to increase drastically through 2012. However, with stocks to use for corn expected to be relatively low for the 2011-12 marketing year (currently projected at 6.4 percent), expect corn prices to stay above average, followed by slight increases in anhydrous ammonia prices.

Fertilizer and Fuel Impacts by Commodity

With the spring planting season completed, energy prices were burdensome for farmers and ranchers across the United States. However, the overall cost is highly variable depending on the commodity and area planted. To be completely clear, this exercise analyzes the costs of production for five major U.S. field crops on a dollar per planted acre basis and does not attempt to look at the specific commodity budget or a specific state. USDA's Economic Research Service (ERS) compiles specific commodity production reports that analyze cash costs associated with various commodities on a dollar per planted acre basis. It is important to note that the forecasts below were developed in May 2010. Corn, soybeans, wheat, rice and cotton will be examined to serve a geographical representation of agricultural commodities throughout the United States.

Corn[3]

Corn is an energy intensive crop, especially for fertilizer, with nitrogen being the primary cost. Fertilizer and fuel related costs for corn are expected to increase this year compared to 2010. USDA-ERS forecasts for the 2011 operating year that total fertilizer costs for corn will average $127.00 per acre and $46.65 per acre for fuel related items, up 27 percent and 31 percent, respectively, from 2010. Corn seed costs are also expected to undergo dramatic increases from 2010 to 2011. U.S. average seed costs are forecasted to average $94.72 per planted acre for 2011, up 14 percent from 2010. Furthermore, total operating costs for corn are expected to average $324.96 per planted acre, up 18 percent from 2010. Looking ahead to 2012, USDA forecasts indicate that per acre costs are expected to increase from 2011 to 2012: fertilizer by 3 percent, fuel items by 4 percent and seed costs by 1 percent. Overall, total operating costs are expected to increase approximately 2.1 percent from 2011 to 2012.

U.S. Corn Operating Costs per Planted Acre

	2008	2009	2010	2011F	2012F
Seed	60.02	78.92	83.23	94.72	95.65
Fertilizer	139.18	132.72	100.30	127.00	130.36
Chemicals	25.19	27.68	27.39	27.08	27.19
Fuel, lube, and electricity	42.64	29.00	35.73	46.65	48.45
Other variable expenses	28.66	28.24	28.60	29.51	30.23
Total, operating costs	***295.69***	***296.56***	***275.25***	***324.96***	***331.88***

Data Source: USDA ERS

[3] From USDA ERS website: ERS has revised 2010 corn cost and return estimates based on a correction to NASS seed corn prices for March 2010 released on June 29, 2011. The revision affects the preliminary annual estimates released on May 1 and the cost of production forecast released on June 25, 2011.

Soybeans

In comparison to corn and most other crops, soybeans are neither an energy intensive crop nor a high maintenance crop. In terms of fertilizer application, potassium and potash will be the primary costs as there is no need to apply nitrogen to soybeans. Seed costs are expected to be the largest contributor to increased input costs from 2010 to 2011. U.S. average seed costs for soybeans are forecasted to average $67.37 per planted acre for 2011, up 14 percent from 2010. Fertilizer and fuel related costs for soybeans are also expected to increase this year compared to 2010. Even though the nominal per planted acre cost for fertilizer and fuel items for soybeans is much smaller than that of corn, fertilizer and fuel costs from 2010 to 2011 are expected to increase 27 percent and 31 percent, respectively. Furthermore, total operating costs for soybeans are expected to average $149.62 per planted acre, up 13 percent from 2010. Looking ahead to 2012, USDA forecasts indicate that per acre costs are expected to increase from 2011 to 2012: fertilizer by 3 percent, fuel items by 4 percent and seed costs by 1 percent. Overall, total operating costs are expected to increase approximately 1.8 percent from 2011 to 2012.

U.S. Soybean Operating Costs per Planted Acre

	2008	2009	2010	2011F	2012F
Seed	44.35	55.26	59.20	67.37	68.03
Fertilizer	25.12	23.65	17.87	22.63	23.23
Chemicals	15.73	17.38	17.04	16.85	16.92
Fuel, lube, and electricity	20.20	13.48	16.75	21.87	22.71
Custom operations	22.39	20.72	21.43	20.90	21.44
Total, operating costs	***127.79***	***130.49***	***132.29***	***149.62***	***152.33***

Data Source: USDA ERS

Wheat (All Types)

Production costs for wheat are highly variable depending on the variety of wheat grown and the region planted. Regardless, wheat producers should expect increases in per acre costs of production for 2011 and heading into 2012. Fertilizer and fuel related costs for wheat are expected to be the largest contributors of input cost increases between 2010 and 2011. USDA-ERS forecasts for the 2011 operating year that fertilizer costs for wheat will average $52.20 per acre and $28.16 per acre for fuel related items, up 27 percent and 31 percent, respectively, from 2010. Seed costs for wheat are expected to increase from 2010 to 2011, however only very slightly and below 2008 and 2009 levels. U.S. average seed costs for wheat are forecasted to average $13.38 per planted acre for 2011, up 14 percent from 2010 but down 16 percent from 2008. Furthermore, total operating costs for wheat are expected to average $127.16 per planted acre, up 18 percent from 2010 and up 1.2 percent from 2008. Even though seed costs for wheat are expected to be lower than 2008 levels, increases in fertilizer and fuel related items are the main drivers in input cost increases for wheat between 2008 and 2011. Looking ahead to 2012,

USDA forecasts indicate that per acre costs for wheat are expected to increase from 2011 to 2012: fertilizer by 3 percent, fuel items by 4 percent and seed costs by 1 percent. Overall, total operating costs are expected to increase approximately 2.5 percent from 2011 to 2012.

U.S. Wheat Operating Costs per Planted Acre					
	2008	2009	2010	2011F	2012F
Seed	16.02	15.82	11.76	13.38	13.51
Fertilizer	52.51	53.45	41.23	52.20	53.59
Chemicals	9.32	10.25	10.37	10.25	10.30
Fuel, lube, and electricity	25.25	17.13	21.57	28.16	29.25
Other variable expenses	22.58	22.17	22.49	23.17	23.71
Total, operating costs	***125.68***	***118.82***	***107.42***	***127.16***	***130.36***
Data Source: USDA ERS					

Rice (All Grain Types)

Rice is a very energy intensive crop in terms of fertilizer application and fuel related items. Flooding the fields for production purposes, irrigating and working the fields under wet conditions during harvest create large energy costs for farmers implementing rice into their crop production practice. With rice being a heavy fertilizer and fuel related crop, fuel and fertilizer were 44 percent of total per acre operating costs in 2010 and are forecasted to increase to 49 percent for 2011. From 2010 to 2011, it is expected that fertilizer and fuel costs will experience the largest increases for rice production. It is forecasted for 2011 that fertilizer costs for rice will average $100.28 per acre and $150.18 per acre for fuel related items, up 27 percent and 31 percent, respectively, from 2010. Furthermore, total operating costs for rice are expected to average $513.75 per planted acre in 2011, up 15 percent from 2010. Looking ahead to 2012, forecasts indicate that fertilizer is expected to increase 3 percent from 2011 levels. In addition, per acre fuel items for rice are expected to increase 4 percent from 2011 levels. Overall, total operating costs are expected to increase approximately 2.2 percent from 2011 to 2012.

U.S. Rice Operating Costs per Planted Acre					
	2008	2009	2010	2011F	2012F
Seed	45.09	65.48	65.65	74.71	75.45
Fertilizer	110.80	105.26	79.20	100.28	102.94
Chemicals	68.68	75.39	73.65	72.83	73.12
Fuel, lube, and electricity	138.96	91.80	115.02	150.18	155.98
Other variable expenses	116.90	110.91	111.93	115.75	117.73
Total, operating costs	***480.43***	***448.84***	***445.45***	***513.75***	***525.22***
Data Source: USDA ERS					

Cotton

In terms of fertilizer application, nitrogen is often the most expensive nutrient applied to cotton. However, nitrogen management is extremely important because excess application may lead to increased susceptibility to insects and delayed maturity growth. Fertilizer, fuel related items and seed costs generated the largest increases in input costs for cotton between 2010 and 2011. It is forecasted for the 2011 operating year that fertilizer costs for cotton will average $93.11 per acre and $66.34 per acre for fuel related items, up 27 percent and 31 percent, respectively, from 2010. Seed costs are also expected to see moderate increases from 2010 and 2011. Seed costs are forecasted to increase from $81.38 per acre to $92.62 per acre, a 14 percent year over year increase between 2010 and 2011. Furthermore, total operating costs for cotton is expected to average $504.65 per planted acre in 2011, up 9 percent from 2010. Looking ahead to 2012, USDA forecasts indicate that per acre costs for cotton are expected to increase from 2011 to 2012: fertilizer by 3 percent, fuel items by 4 percent and seed costs by 1 percent. Overall, total operating costs are expected to increase approximately 3 percent from 2011 to 2012.

U.S. Cotton Operating Costs per Planted Acre

	2008	2009	2010	2011F	2012F
Seed	64.78	73.52	81.38	92.62	93.52
Fertilizer	98.25	92.29	73.54	93.11	95.58
Chemicals	62.68	67.97	68.35	67.59	67.86
Fuel, lube, and electricity	61.28	40.15	50.81	66.34	68.90
Other variable expenses	156.64	160.98	188.41	184.99	193.83
Total, operating costs	***443.63***	***434.91***	***462.49***	***504.65***	***519.69***

Data Source: USDA ERS

Cost of Production Summary for U.S. Major Field Crops

The effects of higher oil prices are reducing profits to the agricultural sector. From seed to fertilizer, each commodity is projected to experience higher yearly production costs from 2010 to 2011. In addition, USDA forecasts are suggesting slightly higher prices for 2012, similar to EIA's forecasts for higher oil and natural gas prices. Below is a table that illustrates percentage changes for cost of production values for U.S. major field crops on a yearly basis and a 5 year average basis from 2008 to 2012. For example, costs of production for soybeans increased 2 percent between years 2008 and 2009. For percentage change columns that have the letter "F" after the year, the chart can be interpreted as a projection. For example, costs of production for corn are projected to increase 18 percent between years 2010 and 2011. Overall, U.S. farmers and ranchers experienced higher input costs due in large part to higher energy prices. In addition, these higher costs will reduce the record net farm income for the agricultural sector that is projected by USDA-ERS.

Cost of Production Percentage Changes for U.S. Major Field Crops (2008-2012F)					
	Total Operating Costs (Yearly Percentage Change)				
	2008 - 2009	2009 - 2010	2010 - 2011F	2011F - 2012F	5 year average (2008-2012F)
Corn	0.3%	-7%	18%	2%	12%
Soybeans	2%	1%	13%	2%	19%
Wheat	-5%	-10%	18%	3%	4%
Rice	-7%	-1%	15%	2%	9%
Cotton	-2%	6%	9%	3%	17%