Crop Production Input Outlook 2006

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Crop production input prices have increased relentlessly during 2005 as fuel and fertilizer price increases have caused already small profit margins to shrink. Unfortunately, 2006 promises more of the same as fuel and fertilizer prices continue to climb. Although these input prices are causing margins to shrink, it is imperative that farmers plan with the best possible information available. The outlook numbers laid out in this article can be used a starting point in creating budgets for 2006. Outlook information presented here was developed with data from the Energy Information Administration, USDA, university research, futures markets and retail sector surveys.

Fuel

Fuel prices continue to increase in the U.S. driven by sharply higher crude oil prices and these increases have had a major impact on crop production input costs. The major fuels used directly in crop production are diesel and propane (LP). Indirectly, natural gas is very important to crop input costs as it is used in the production of ammonia (NH3) which is used as a nitrogen fertilizer and as an ingredient in the manufacture of other nitrogen and phosphorous fertilizers. Natural gas is also a major ingredient in the manufacture of propane.

Diesel is a distillate produced through the crude oil refinery process. Recent increases in diesel prices can be attributed to four major causes. First, the price of oil has caused all petroleum based products to suffer price increases. Second, the strong demand for distillates worldwide has contributed to high diesel prices with Europe and Asia seeing the largest demand increases. (This is the primary reason why diesel prices have been at a premium to gasoline prices.) Third is the short term disruption of refining capacity due to the devastating Gulf hurricanes. A fourth, but somewhat less important factor in fuel price increases has been the weakening of the U.S. dollar compared to many foreign currencies.

Propane is a by-product of natural gas production and to a lesser extent the crude oil refinery process. Although propane is produced from both natural gas production and the crude oil refinery process, it's price is mainly influenced by the price of crude oil. This is because propane competes mostly with crude oil based fuels.

Natural gas and propane prices have been increasing dramatically along with the price of other fuels. The primary reason for price increases is strong demand for these clean burning fuels for use in electricity generation, and increased demand for crop fertilizers in Asia and South America.

As of December 6th, the Energy Information Administration (EIA) is pegging the average price for Crude Oil at $63.33 per barrel for 2006. The EIA indicates the Henry Hub Natural Gas prices are expected to average $9.30 per thousand cubic feet in 2006.

Examining oil and gas futures together with Ohio State University Extension Budgets and Outlook shows us that the average price of off-road diesel increased 54% from 2004 to 2005. With off-road diesel pegged at $1.85/gal average for 2005, prices are expected to increase 19-35% in 2006. Two scenarios are offered. The first scenario is a more optimistic one with off-road diesel averaging $2.20/gal giving us a price increase of 19% over 2005.

The second scenario is more costly with off-road diesel averaging $2.50/gal giving us a price increase of 35% from 2005 to 2006.

Propane prices increased approximately 20% from 2004 to 2005. The price of propane is expected to increase 17% and average $1.40/gallon in 2006.

Fertilizer

Fertilizer prices have increased dramatically over the last two years due to higher energy costs (primarily natural gas), strong world demand, transportation costs and U.S. currency devaluation.

Nitrogen

All major nitrogen (N) fertilizers begin with the fixation of nitrogen (N_2) into ammonia (NH_3). Anhydrous ammonia (NH_3) is manufactured with natural gas and air as the primary ingredients. Urea's components include carbon dioxide (CO2) and anhydrous ammonia ($2NH_3$). Ammonium nitrate is produced with nitric acid (HNO_3) and NH_3. Urea Ammonium Nitrate (UAN) Solutions, more commonly referred to as 28%, are made by combining urea and ammonium nitrate in water. All of these N fertilizers have natural gas or a derivative as an important ingredient and we can see how energy prices, particularly natural gas, play an important role in the price of our N fertilizers.

The average price of nitrogen increased 15% from 2004 to 2005. Evaluating Natural Gas, DAP, Urea and UAN Futures together with surveys of industry personnel leads to the conclusion of higher N prices again in 2006. Using anhydrous ammonia as our base for projections, N is expected to average $0.335 per pound in 2006. (NH3 price of $550/ton equals price per actual pound N of $0.335.) This is a 22% increase over 2005. A second and more optimistic scenario pegs N at $0.30 per pound which equals an NH3 price of $480/ton.

Nitrogen fertilizer prices are expected to remain relatively high in the next 12-24 months. One possible bright spot is the construction of new ammonia and urea manufacturing plants in the world. Ammonia production capacity is expected to increase 9% by 2008 and urea capacity by 17% which may ease some of the tightness in the market in the latter part of this decade and allow N prices to decrease or remain flat.

Phosphorous (P_2O_5)

Phosphorous fertilizers originate from rock phosphate deposits found primarily in North Carolina and Florida. The rock phosphate is then treated with sulfuric acid to form ag grade phosphoric acid. The phosphoric acid is reacted with anhydrous ammonia to form our primary phosphorous fertilizers: mono-ammonium phosphate (MAP), di-ammonium phosphate (DAP), and ammonium phosphate (APP or 10-34-0). The U.S. not only supplies most of our own P fertilizer needs, but we are also the world's largest exporter of P fertilizers.

The average price of phosphorous fertilizers increased around 24% from 2004 to 2005. Increases in anhydrous ammonia prices and transportation costs together with strong world demand continue to pressure phosphorous fertilizer prices. These pressures will lead to more price increases for the 2006 crop production year with the price for P_2O_5 expected to average $0.3125 per pound or a 5% increase over 2005. (This equates to a MAP price of around $325/ton).

Potassium (K_20)

Potassium (K) salts are mined from the earth or from brines found in lakes and used to manufacture K fertilizers (potash). The U.S. imports practically 100% of our K fertilizer needs, primarily from Sasketchewan, Canada (93%). Although world potash production continues to increase, demand has increased at a faster pace. Demand in growth areas such as Asia and South America have contributed heavily to price increases in farm-gate potash. Potash prices increased 19% from 2004 to 2005. Potash prices for the 2006 crop year are expected to average $0.205 per pound compared to $0.155 per pound in 2005. This is a price increase of 32% over 2005. (K_2O price of $0.205 per pound equals Potash at $250/ton.)

Seed
Seed prices are expected to increase marginally from 2005. Expect corn and soybean seed prices to keep pace with inflation and increase an average of 2.5%.

Crop Protection Chemicals
Crop protection chemical prices as a group are expected to remain relatively constant as downward price pressure from generic products keeps prices in check.

Interest Rates
Fed increases in the prime lending rate have caused most underlying lending rates to increase. Farm operating lines of credit are no exception as the cost of borrowing will continue to climb. Operating loan rates are expected to average 7.75% in 2006 compared to 6.5% in 2005.

Cash Rent
With smaller profit margins forecasted for this year and beyond, land rental rates should see little to no increase in 2006, although it may vary by region. Areas with exceptional crop yields in '05 may see more competition for available land and increases in land rents while areas suffering from drought may see stable to lower rents. Rental rate increases should be lower than the 2.5% increase seen from 04' to 05'. Land rents for Ohio as a whole are expected to increase 0-1%.

Summary of Crop Production Costs Outlook for 2006

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	Amount		Increase
Diesel (Off Road)	**$2.20**	**/gal**	**19%**
Propane	**$1.40**	**/gal**	**17%**
Nitrogen	**$0.335**	**/lb.**	**22%**
P2O5	**$0.3125**	**/lb.**	**5%**
K2O	**$0.205**	**/lb.**	**32%**
Seed			**2.5%**
Crop Protection Chem.			**0%**
Operating Loan Rate	**7.75%**		**19%**
Land Cash Rental Rates			**0-1%**

Budgets -2006
Looking at each input separately doesn't have the same impact that the total increase in variable costs shows. The following is my summary of what total variable costs will look like in our corn and soybean budgets for 2006. Keep in mind that these total variable costs don't include cost of land, machinery and other capital investment, labor, or management charge.

2006 CORN PRODUCTION BUDGET
Conservation Till and NoTill Practices

		2004	2005	2006P	2006P	2006P	2006P	2006P
		160 Bushel Yield Goal					$2.50 Diesel	$0.30/lb. Nitrogen
VARIABLE COSTS					NoTill	NoTill High Chem		$2.20/g D
Seed (kernels)		$36.40	$37.40	$38.34	$38.34	38.34	$38.34	$38.34
Fertilizer								
N (lbs.)		$38.54	$41.76	$53.80	$53.80	53.80	$53.80	$48.18
P2O5(lbs)		$14.21	$17.76	$18.50	$18.50	18.50	$18.50	$18.50
K2O(lbs)		$8.22	$11.38	$12.96	$12.96	12.96	$12.96	$12.96
Lime		$5.50	$5.50	$5.50	$5.50	5.50	$5.50	$5.50
Chemicals		$24.42	$24.42	$24.42	$24.42	33.00	$24.42	$24.42
Drying - Fuel & Electric only		$17.60	$20.80	$24.00	$24.00	24.00	$24.00	$24.00
Trucking - Fuel Only		$6.29	$6.41	$6.47	$6.47	6.47	$6.84	$6.47
Fuel, Oil, Grease		$6.75	$8.71	$10.36	$8.10	8.10	$11.77	$10.36
Repairs		$11.63	$11.63	$11.63	$10.11	10.11	$11.63	$11.63
Crop Insurance		$6.06	$6.06	$6.06	$6.06	6.06	$6.06	$6.06
Miscellaneous		$8.00	$8.00	$8.00	$8.00	8.00	$8.00	$8.00
Int. on Oper. Cap.		$6.54	$6.54	$8.57	$7.04	7.37	$8.63	$8.32
TOTAL VARIABLE COSTS	**per acre**	$190.16	$206.37	$228.60	$223.29	232.19	$230.45	$222.73
	per bushel	$1.19	$1.29	$1.43	$1.40	1.45	$1.44	$1.39

2006 ROUNDUP READY SOYBEAN PRODUCTION BUDGET
No-Tillage Practices

	2004	2005	2006P
	55 Bushel Yield Goal		
VARIABLE COSTS			
Seed	$35.15	$36.00	$36.90
Fertilizer			
P2O5(lbs)	$10.56	$13.20	$13.75
K2O(lbs)	$12.61	$17.46	$19.89
Lime(ton)	$5.50	$5.50	$5.50
Chemicals	$21.10	$21.10	$21.10
Trucking - Fuel Only	$2.16	$2.20	$2.22
Fuel, Oil, Grease	$3.34	$5.15	$6.12
Repairs	$9.39	$9.39	$9.39
Crop Insurance	$4.70	$4.70	$4.70
Miscellaneous	$7.00	$7.00	$7.00
Int. on Oper. Cap.	$3.24	$3.24	$4.02
TOTAL VARIABLE COSTS	$114.75	$124.94	$130.59
	$2.09	$2.27	$2.37