

Crop Production COST and OUTLOOK



November 2007

Food and Agricultural
Policy Research Institute

MU FAPRI

FAPRI-MU Report #15-07

www.fapri.missouri.edu

(573) 882-3576

Published by the Food and Agricultural Policy Research Institute at the University of Missouri–Columbia, 101 Park DeVille Suite E; Columbia, MO 65203 in November 2007. FAPRI is part of the College of Agriculture, Food and Natural Resources.

<http://www.fapri.missouri.edu>

Contact authors for FAPRI-MU Report #15-07 are Brent Carpenter (carpenterb@missouri.edu) and Melvin Brees (breesm@missouri.edu) regarding FAPRI-MU Crop Budgets. For information regarding national cost trends, contact Lori Wilcox (wilcoxl@missouri.edu).

Permission is granted to reproduce this information with appropriate attribution to the author(s) and the Food and Agricultural Policy Research Institute. For more information, contact Pamela Donner, Coordinator Publications & Communications (donnerp@missouri.edu).

The University of Missouri–Columbia does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, age, disability or status as a qualified protected veteran. For more information, call Human Resource Services at 573-882-4256 or the U.S. Department of Education, Office of Civil Rights.

Crop Production Cost and Outlook

In late 2007, it appears that the general trend of production input price inflation will continue for the 2008 crop. From the farmer's perspective, the end result is that profit margins for corn, grain sorghum, wheat, and soybeans are projected to be positive, but tighter in the upcoming crop year.

Farmers considering what varieties to plant may select from increasingly complex choices that include a wide range of genetic traits and prices. In particular, seed prices at the leading edge of bio-technology development, and presumably improved yield potential, have moved up rapidly. A short five years ago, typical seed corn prices in Missouri fit a range of about \$75 to \$120 per bag. That range is \$115 to \$260 this fall. Seed costs for other major Midwest crops are also tracking higher in the three-to-eight percent range annually.

Perhaps the biggest sticker shock for producers is the cost of fertilizer. Recent reports from country dealers indicate that anhydrous ammonia is level to slightly higher than this time last year. Current bids are about \$500 per ton or \$0.335 per pound of nitrogen. However, the spread over the past year between anhydrous and other nitrogen sources has widened as urea and ammonium nitrate prices have increased on the order of 30 percent. Urea is approximately \$0.50 per pound of nitrogen right now, while ammonium nitrate, which is increasingly difficult to source in many areas, is \$0.57 per pound of nitrogen where available. The explosive characteristics of ammonium nitrate increases risk and liability concerns, causing reluctance among dealers to continue handling this product. Additional issues related to rail transport of this product also compound an already tight supply situation.

Phosphorus and potash prices that were considered to be reliably steady a few years ago continue to climb at double-digit rates as worldwide demand for fertilizer continues to grow. Di- and mono-ammonium phosphate (DAP and MAP) are the primary sources for plant phosphate in the Midwest. Much of the DAP for the 2008 crop has been booked at about \$500 per ton which is approximately \$0.38 per pound for the phosphorus component. This is a 40 percent increase over prices last fall. Potash is approximately \$0.28 per pound, or 25 percent above last year's prices.

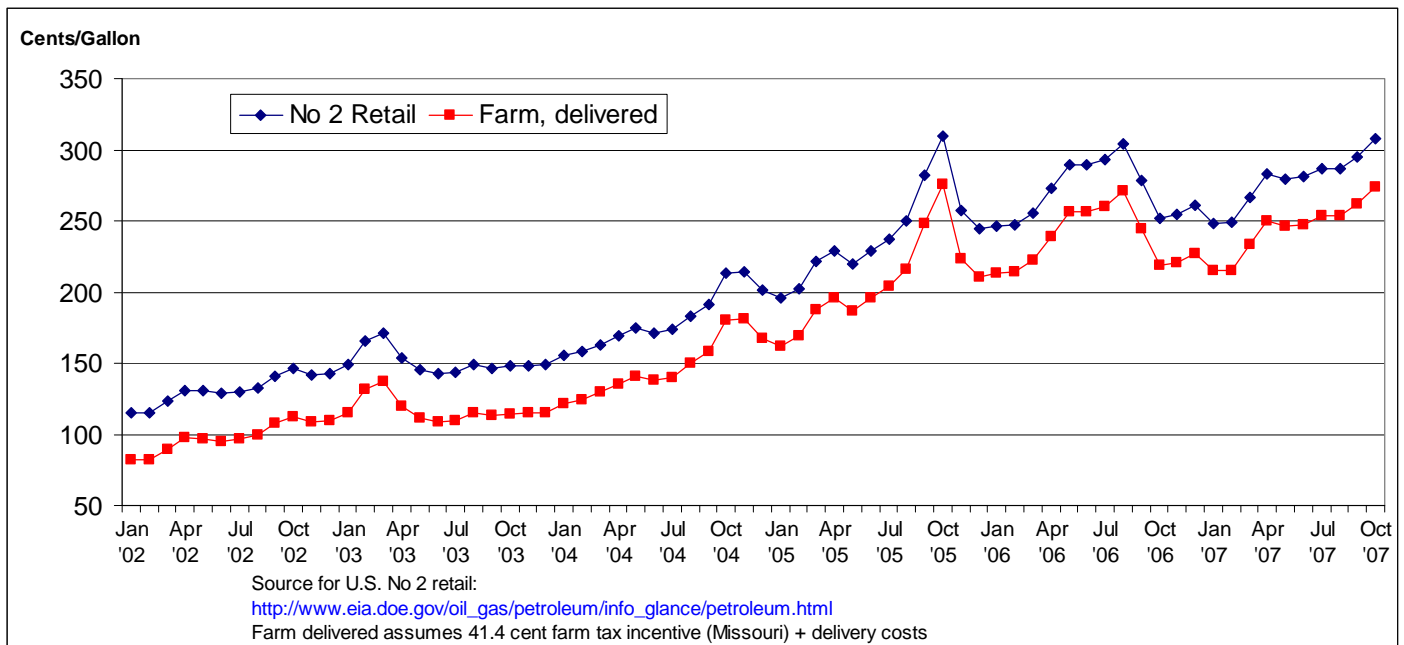
Competition has limited price increases for crop chemicals. The cost of popular pesticide products has been relatively flat and is projected to remain so for the 2008 crop. In addition, the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri–Columbia (MU) is not currently projecting major impacts on soybean chemical costs as a result of increased fungicide use across the nation. Increases anticipated over the past two years have not come to fruition and other market forces have helped to keep per acre chemical costs in check.

Oil prices and corresponding fuel related prices continue to represent a significant increase in input costs for all agricultural products. The Energy Information Administration (EIA) estimates West Texas Intermediate (WTI) crude oil prices to remain in the \$70 to \$80 a barrel range throughout 2008. This price averaged in the \$20 per barrel range throughout the 1990's and has been on a steady increase since 2002 reaching all-time record highs over \$90 per barrel in October 2007. The significant increase in diesel prices can be seen in figure 1. FAPRI-MU is using \$2.70 per gallon for farm diesel and \$2.90 for over the road fuel for 2008 crop budgets.

Tight world supplies, infrastructure and transportation costs and bottlenecks are a few factors adding volatility to the market. Strong world economic growth and fuel demand contribute to this volatility and to the potential for additional price increases for the fuel market for 2008.

Figure 1. Monthly US No. 2 Retail Diesel Prices and Corresponding Delivered Farm Diesel Price*

Jan. 2002 – Oct. 2007



Machinery and equipment costs have increased about four to six percent annually in recent years and are expected to continue at that pace. Prices for specialized equipment and new technology can be well above this range. High grain prices have increased demand for new and used machinery. This strong demand is outpacing manufacturing capacity so delivery delays can be expected for some new purchases. This will likely also provide upward pressure on the prices for good used equipment. For a mid-sized Missouri crop farm, FAPRI-MU estimates that the economic cost of owning tillage, planting, and harvest machinery in 2008 will be approximately \$62 per acre for dryland corn, \$40 for soybeans and \$32 per acre for wheat. Annual growth in construction costs for grain handling and storage facilities has moved six to eight percent in recent years. But it is expected to slow to four percent growth in 2008.

Expectations for higher ownership returns to capital invested in land and competition for land is expected to continue providing upward pressure on land rents in 2008. Upward pressure on land values and cash rents is occurring as crop returns increase and non-agriculture (recreation, etc.) demand pull up land prices. Land control decisions are often linked to risk management decisions. In Missouri, crop insurance premiums are paid on the majority of planted corn, grain sorghum, and soybean acres and almost a majority of the wheat crop. Farmers have a wide range of choices in coverage levels and therefore premiums. Typical premiums paid are \$15-\$28 per acre for corn, \$8 to \$12 for soybeans, \$5 to \$7 for grain sorghum and \$7 to \$10 for wheat.

Missouri Crop Budgets

The budgets in table 1 were recently prepared by FAPRI-MU analysts. These annual budgets are prepared prior to the beginning of each crop year to represent mid-sized Missouri farms outside of the Missouri Bootheel area with above average yields. A multitude of sources are consulted when determining these annual budgets. Input from Missouri producers, agribusinesses and extension specialists, as well as preliminary output from FAPRI-MU's baseline projections, are all utilized.

The annual exercise of reading market signals for the 2008 crop is getting into full swing. Based on these relative production costs and the projected corn-soybean price ratio of roughly 2.5, there is a strong signal favoring soybeans over corn. Corn has the edge over wheat and double-crop soybean. Seed, fertilizer and fuel/energy remain primary operating costs in the crop budgets presented in table 1. Spring planting decisions will be supported by decision tools such as these crop budgets. These budgeting tools are located at http://www.fapri.missouri.edu/farmers_corner/budgets

Table 1 – Missouri Crop Budgets for 2008 Crop

	Dryland Corn	Irrigated Corn	Grain Sorghum	Soybeans	Double Crop Beans	Wheat
<i>Yield, bushels</i>	155	200	110	50	25	60
<i>Price per bushel</i>	3.15	3.15	3.02	7.90	7.90	3.90
Crop sales	488.25	630.00	332.20	395.00	197.50	234.00
Direct payment	14.15	14.15	14.15	14.15	-	14.15
Total income per acre	\$ 502.40	\$ 644.15	\$ 346.35	\$ 409.15	\$ 197.50	\$ 248.15
Seed	60.00	72.00	16.74	36.27	42.67	24.00
Fertilizer	88.10	111.80	67.20	37.80	17.40	69.25
Crop protection	26.85	26.85	27.00	6.07	6.07	7.80
Crop consulting, supplies, and insurance	19.00	1.00	1.00	10.35	1.00	9.70
Custom hire and rental	4.50	4.50	4.50	-	-	9.00
Energy for machinery, drying, hauling, irrig.	32.10	64.65	16.41	12.87	8.37	11.34
Machinery repairs and maintenance	18.74	38.84	12.33	11.25	8.87	9.92
Operator and hired labor	14.80	20.40	12.11	10.58	8.69	10.25
Operating interest	10.56	13.60	6.29	5.01	3.72	6.05
Operating costs per acre	\$ 274.65	\$ 353.65	\$ 163.57	\$ 130.20	\$ 96.79	\$ 157.31
Farm business overhead	3.73	3.73	3.73	4.20	-	3.50
Machinery overhead	26.11	46.22	19.48	17.48	12.81	13.50
Machinery depreciation	35.82	55.97	23.96	22.09	16.28	17.64
Real estate charge	107.50	132.75	84.00	107.50	-	107.50
Ownership costs per acre	\$ 173.17	\$ 238.67	\$ 131.18	\$ 151.27	\$ 29.09	\$ 142.14
Total costs per acre	\$ 447.82	\$ 592.32	\$ 294.75	\$ 281.47	\$ 125.88	\$ 299.45
Income over operating costs per acre	227.75	290.50	182.78	278.95	100.71	90.84
Income over total costs per acre	54.58	51.83	51.60	127.68	71.62	(51.30)
Operating costs per bushel	1.77	1.77	1.49	2.60	3.87	2.62
Ownership costs per bushel	1.12	1.19	1.19	3.03	1.16	2.37
Total costs per unit bushel	2.89	2.96	2.68	5.63	5.04	4.99

National Cost Trends

The costs budgeted for Missouri mid-sized farms for the 2008 crop year follow similar trends expected at the national level. The prices paid by farmers for fuel has doubled since 2002 and is expected to see an additional four to five percent increase in 2008. The prices paid for fertilizer have also experienced substantial increases averaging more than a 10 percent increase per year or 55 percent increase over the past five years. While nitrogen fertilizers have seen a slightly higher increase over the five-year period, potash and phosphate prices have increased just under 50 percent for the same time period.

Technological advances have resulted in over a 30 percent increase in the prices paid for seed since 2002. Building materials such as lumber and metal have experienced similar trends. Farm

machinery prices have also maintained a 20 percent increase over the past five years. Each of these input sectors are expected to experience at least two more years of two to four percent increases before beginning to stabilize a bit in 2010.

The Prices Paid model maintained by FAPRI-MU is the primary driver for national and regional crop cost of production estimates. Figure 2 provides a graphical representation of the percentage of per acre costs associated with various operating costs for corn, soybeans and wheat based on FAPRI-MU preliminary estimates for 2007. These data are based on historical information provided by USDA and will be finalized in January 2008 with FAPRI-MU's final baseline outlook.

Figure 2. US Cost of Production

