

Energy Prices and Their Impact on Kansas Irrigated Crop Farms

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In December of 2005, Dhuyvetter, Funk, Kastens, and Langemeier analyzed the expected impact on KFMA Farms of energy price increases for the components of an Energy Expense Complex (EEC). The EEC was comprised of the KFMA expense categories of: Fertilizer, Gas-Fuel-Oil, and Irrigation Energy (where appropriate). At that time, the estimated increase in costs per dryland acre in the KFMA Summary from 2004 to 2005 was \$6.33 due to expected prices of EEC components. \$34.15 was the expected rise in per irrigated acre costs from 2004 to 2005.

The summary below updates the data for Irrigated Crop Farms in Dhuyvetter, Funk, Kastens, and Langemeier. In addition, the summary below discusses the impact of changes in acres farmed on energy intensive inputs.

Impact of Energy Price Increases on Expenses

Prices for energy and several production agriculture inputs that are dependent on petroleum or other energy-based components soared in 2005. The impacts were especially noticeable in Kansas on irrigated crop farms. Total farm outlays for more energy sensitive expenses for the years 2003, 2004, and 2005 are summarized in Table 1 from summary data collected on farms categorized as Irrigated Crop Farms in the Kansas Farm Management Association (KFMA).

It is important to note that the increases in the whole farm expenditures are not purely the result of the increased energy prices in 2005. As illustrated in Table 2, significant changes occurred in the number of crop acres for Irrigated Crop Farms. The increased acreage in these farms contributed significantly to overall expenses.

While the total crop acres for the farms classified as Irrigated Crop Farms decreased from 2003 to 2004, the total increased significantly in 2005. Considering that the average number of Total Crop Acres decreased by 7.2% from 2003 to 2004, the increase in whole farm EEC expenditures by 9.6% for the Irrigated Crop Farms demonstrates a marked increase in overall energy expenses.

Table 3 contains the cost per crop acre, or irrigated crop acre in the case of irrigation energy, for the energy intensive expense categories for Irrigated Crop Farms in the KFMA Summary from 2003 to 2005.

Summing the per crop acre charges for Fertilizer, Gas-Fuel-Oil, and the per irrigated crop acre expenses for irrigation energy; the Energy Expense Complex per acre for the 2005 Summary of Irrigated Crop Farms was \$98.46. This represented a rise of \$10.04, an 11.4% increase above the average EEC in 2004 for irrigated crop farms. This came on the heels of a \$9.54 increase from 2003 to 2004, an increase of 12.1%.

Summary Points

- While higher energy prices certainly led to higher costs for irrigated farms in 2005, increased crop acres for farms included in the Irrigated Crop Farm typology for the KFMA Summary resulted in a significant portion of the overall farm-level expense increase for the energy-based components.
- The higher energy prices being faced by producers are not a one year phenomena. They have been escalating for several years. The Energy Expense Complex per acre for Irrigated Crop Farms in the KFMA Summary has increased \$23.91 from 2002 to 2005, a 44.9% increase.
- Pesticide expenses, while a major cost in the whole-farm operation, did not increase on a per acre basis as much as other energy-based expense components. Changes in pesticide expenses are difficult to assess because the adoption of reduced-till practices typically increases per acre pesticide costs. Information directly related to the adoption of reduced-till practices is not available.
- Energy prices and the resulting impacts on expenses will continue to be major areas to examine opportunities and strategies to maximize farm profitability through cost management.

Table 1. Energy intensive expenses from 2003 to 2005 for Irrigated Crop Farms.

Expense Category	2003	2004	2005	Percent Increase (Decrease) From Prior Year	
				'03-'04	'04-'05
Fertilizer	\$35,434	\$39,511	\$53,276	11.5%	34.8%
Gas-Fuel-Oil	\$16,716	\$19,285	\$25,412	15.4%	31.8%
Irrigation Energy (Per Irr. Acre)	\$39,438	\$41,602	\$49,341	5.5%	18.6%
Herbicides	\$26,957	\$28,415	\$34,944	5.4%	23.0%

Source: 2003-2005 Kansas Farm Management Association Summary Data

Table 2. Total Crop Acres, Irrigated Crop Acres and Non-Irrigated Crop Acres for Irrigated Crop Farms in the KFMA Summary.

	2003	2004	2005	Percent Increase (Decrease) From Prior Year	
				'03-'04	'04-'05
Total Crop Acres	1520	1411	1659	-7.2%	17.6%
Irrigated Crop Acres	885	890	967	0.6%	8.7%
Non-Irrigated Crop Acres	687	668	723	-2.8%	8.2%

Source: 2003-2005 Kansas Farm Management Association Summary Data

Table 3. Per crop acre costs for energy intensive expense categories Irrigated Crop Farms.

Expense Category	2003	2004	2005	Percent Increase (Decrease) From Prior Year	
				'03-'04	'04-'05
Fertilizer	\$23.31	\$28.00	\$32.11	20.1%	14.7%
Gas-Fuel-Oil	\$11.00	\$13.67	\$15.32	24.3%	12.1%
Irrigation Energy (Per Irr. Acre)	\$44.56	\$46.74	\$51.02	4.9%	9.2%
Herbicides	\$17.73	\$20.14	\$21.06	13.6%	4.6%

Source: 2003-2005 Kansas Farm Management Association Summary Data