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POWER COSTS INCREASED ON GRAIN FARMS

Power costs on Illinois grain farms have increased over the last five years. In 2005, power costs averaged \$68 per acre for grain farms located in northern and central Illinois who were enrolled in Illinois Farm Business Farm Management (FBFM). Power costs in 2009 averaged \$94 per acre, an increase of \$26 per acre over 2005 costs. The \$26 per acre increase represents a 38% increase in costs over the five-year period.

Reasons for cost increases

Power costs relate mainly to machinery and include categories for machinery hire and leasing, utilities, machinery repairs, fuel and oil, light vehicle (e.g., pickup trucks), and machinery depreciation (see Table 1). Two cost categories contributing the most to the power cost increases were depreciation and repairs.

Table 1. Power Costs by Year, Northern and Central Illinois Grain Farms Enrolled in Illinois Farm Business Farm Management.

	Year				
	2005	2006	2007	2008	2009
	\$ per Acre				
Machine hire/lease	\$9	\$10	\$11	\$12	\$12
Utilities	5	5	6	6	6
Machine repair	17	18	21	24	24
Fuel and oil	15	17	19	24	16
Light vehicle	3	3	3	3	3
Machine depreciation	19	20	23	27	33
Power costs	\$68	\$73	\$83	\$96	\$94
Capital purchases	\$40	\$41	\$58	\$86	\$85

Depreciation costs increased from \$19 per acre in 2005 up to \$33 per acre in 2009, an increase of \$14 per acre (see Table 1). The \$14 per acre increase represents a 73 percent increase over the five-year period. During the five-year period, increases in capital purchases led to the depreciation increase. Capital purchases, which are predominately related to machinery acquisitions on grain farms, increased from \$40 and \$41 per acre in 2005 and 2006 up to \$86 and \$85 per acre in 2008 and 2009 (see Table 1).

Increasing capital purchases are related to two items. The first is increases in machinery prices. Purchase prices of combines typically used in Illinois are illustrative of price increases. A 305 horsepower combine capable of handling an 8-row corn head and a 30 foot grain platform had an estimated purchase price of \$217,000. A 305 horsepower combine had a price of \$293,000 in 2010. From 2005 to 2010, this combine increased in price by 35%. On a yearly basis, this equals a 6% yearly increase in the price. Other pieces of equipment have experienced similar price increases.

The second reason for increasing capital purchases relates to farm incomes. Typically, capital purchases are higher in higher income years. Grain farm incomes in 2006 through 2008 were relatively high when compared to incomes in

prior years. These higher incomes in 2007 and 2008 likely contributed to higher capital purchase which, in turn, led to higher depreciation costs.

The second category leading to power cost increases was machinery repairs. Machinery repairs increased from \$17 per acre in 2008 up to \$24 per acre in 2009, an increase of \$7 per acre. The \$7 increase represents a 41% increase over the five-year period. The increase in repairs is somewhat counter-intuitive given the increase in capital purchase. Usually, machinery repairs decrease as the overall age of the equipment line is decreasing. Recent higher capital purchases suggest that the machinery is being replaced with newer equipment, which then typically leads to lower machinery repairs. Given this, the higher machinery repairs suggest that equipment dealers are charging higher rates for machinery repairs.

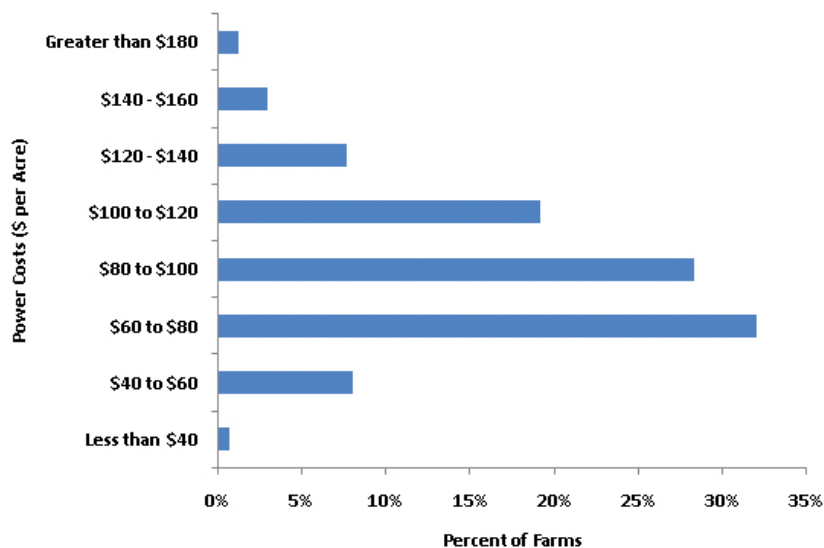
Fuel and oil

Fuel and oil costs increased from \$15 in 2005, up to \$17 in 2006, up to \$19 in 2007, up to \$24 in 2008. Then fuel costs declined to \$16 per acre in 2009. While exhibiting swings in the five-year period, there is little difference in fuel costs in 2005 and 2009. Fuel costs averaged \$15 in 2005 and \$16 in 2009.

Range in power costs

Power costs varied across grain farms (see Figure 1). One percent of the farms had average power costs between 2007 through 2009 of less than \$40 per acre, 8% between \$40 and \$60 per acre, 32% between \$60 and \$80 per acre, 28% between \$80 and \$100 per acre, 19% between \$100 and \$120 per acre, 8% between \$120 and \$140 per acre, and 4% above \$160 per acre.

Figure 1. Percent of Farms by Range of Power Costs, Northern and Central Illinois Grain Farms Enrolled in Illinois FBFM, 2007-2009.



Some of the range in power costs is explained by farm size. On average, farms with less than 500 acres have higher power costs than farms with more tillable acres. Farms with less than 500 acres average \$97 per acres in machinery costs while farms with between 500 to 1,000 acreages \$92 per acre. Larger farm sizes had average costs in the \$80 per acre range (see Table 2).

While a decreasing trend exists up to the 2,000 to 2,500 per acre range, there is considerable range in power costs within tillable acres categories. There are farms with less than 500 acres who have lower farm costs than farms with more acres. Hence, more tillable acres do not guarantee lower power costs.

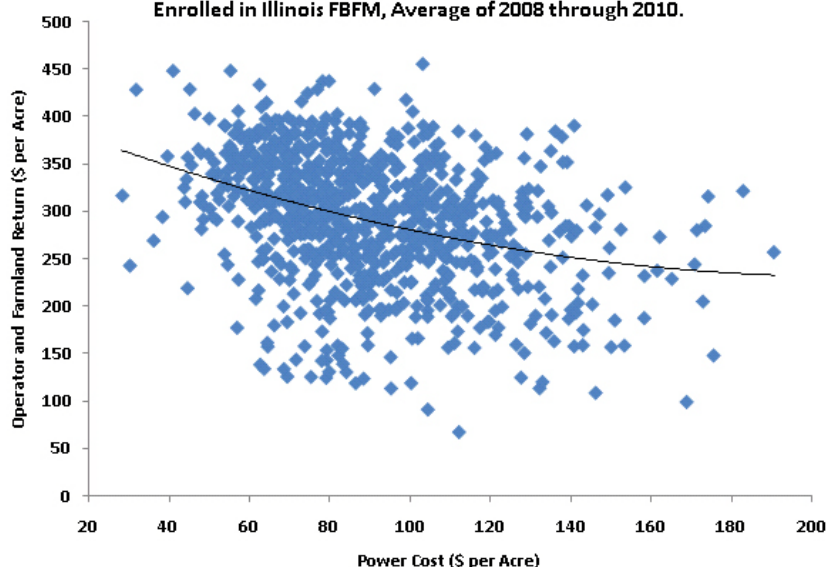
Table 2. Power Costs for Different Tillable Acre Ranges, Northern and Central Illinois Grain Farms In Illinois FBFM.

Tillable acre range	\$ per acre
Less than 500 acre	97
500 to 1,000 acres	92
1,000 to 1,500 acres	87
1,500 to 2,000 acres	86
2,000 to 2,500 acres	82
2,500 to 3,500 acre	87
Over 3,500 acres	88

Relationship between power costs and farm returns

There is a statistically significant relationship between power costs and farm profits. As power costs increase, farm returns tend to decline. This relationship is illustrated in Figure 2, which shows a scatter graph of average power costs and operator and farmland returns. Data in this figure are averages from 2007 to 2009. Each dot represents a farm. The solid line shows a fitted relationship between returns and power costs. As can be seen, operator and farmland returns tend to decrease as power costs increase. This relationship is one of the strongest relationships that explains profit differences across farms.

Figure 2. Scatter Graph of Per Acre Operator and Farmland Returns to Per Acre Power Costs on Northern and Central Illinois Grain Farms Enrolled in Illinois FBFM, Average of 2008 through 2010.



Summary

Power costs have increased in the past several years, partially due to increasing machinery prices and partially due to higher farm incomes. A portion of the power cost increase signals a buildup in machinery capacity that may be drawn down in future years if farm incomes decline. This draw down could then lead to lower machinery depreciation and power costs in future years. It is not likely though that power costs will decrease to 2005 levels, as new machinery prices have increases substantially.

Acknowledgments: Much of the data used in these budgets comes from the local Farm Business Fam Management (FBFM) Associations across the State of Illinois. Without their cooperation, information as comprehensive and accurate as this would not be available for educational purposes. FBFM, which consists of 5,500 plus farmers and 60

professional field staff, is a not-for-profit organization available to all farm operators in Illinois. FBFM field staff provides on-farm counsel with computerized recordkeeping, farm financial management, business entity planning and income tax management. For more information, please contact the State FBFM Office located at the University of Illinois Department of Agricultural and Consumer Economics at [217-333-5511](tel:217-333-5511) or visit the FBFM website at www.fbfm.org.

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