

Costs to Produce Milk in Illinois—2016

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Lower milk prices resulted in continued negative economic returns for Illinois dairy producers in 2016, according to figures summarized by University of Illinois agricultural economists in cooperation with the Illinois Farm Business Farm Management Association. The average net price received per 100 pounds of milk was \$16.28, which was less than total economic costs of \$18.14. The price received for milk in 2016 was the lowest since 2010. On a per cow basis, total returns from milk were \$3,895 compared to the total cost to produce milk of \$4,332 per cow. Total returns from milk per cow were the lowest since 2010. 2014 was the highest on record at \$5,730. The net returns per cow in 2016 were a negative \$437. Total returns have exceeded total economic costs two out of the last ten years.

A detailed breakdown by herd size of 2016 milk production costs and returns for dairy farms is shown in Table 1. Farms included had no other livestock, with all costs accounted for either in crops or in the dairy enterprise. Total costs for the dairy enterprise were reduced by income from sales of dairy animals or from an increase in inventory in pounds of beef produced during the year. The value of the added pounds was figured at the average price received for all weights of dairy animals sold in the past five years. The residual costs—87 percent

of the total enterprise costs—were the net cost of producing milk. The feed cost includes on-the-farm grains evaluated at average Illinois market prices for the year, with corn at \$3.55 per bushel and oats at \$2.30. Commercial feeds were listed at actual cost, hay and silage at farm values, and pasture at 40 cents per animal per pasture day.

Milk production per cow for all herds averaged 23,959 pounds. The average was 604 pounds more per cow than in 2015. This is the highest level in milk production per cow. Herds with more than 80 cows produced milk at a lower cost than herds with less than 80 animals when looking at per cow numbers. Also, total costs for each 100 pounds of milk produced were \$1.71 higher for the smaller herds. Feed costs were 74 cents more, while non-feed costs were 97 cents more per 100 pounds produced for the smaller herds. The trend in total costs and returns per cow for all herds is given from 2013 to 2016 (Table 2) and from 2007 to 2016 (Figure 1). When cash and noncash costs are figured, the profit margin (return above all cost) decreased—from a negative \$410 in 2015 to negative \$437 per cow in 2016. The last five-year returns above all costs has averaged a negative \$364 per cow. During this period, returns above all costs per cow have varied from a negative \$935 in 2012 to \$662 in

2014. In Figure 1, labor and interest charges are included in total costs only. Most dairy producers will incur hired labor and cash interest expense and would include them as cash operating costs.

The 2016 returns were 3 cents per 100 pounds produced lower than the 2015 returns due to lower milk prices even with lower total costs. The average net price received for milk was \$16.28 per 100 pounds. This is \$1.07 per 100 pounds or 6 percent lower than the average price received in 2015. Based on 23,959 pounds of milk produced per cow, this decrease in price decreased total returns per cow by \$256. The average net price received for milk for the last five-year period is \$19.75 per hundred pounds. Dairy assistance payments from the Farm Service Agency and patronage returns related to the dairy enterprise would add about 25 cents per 100 pounds of milk produced to returns.

While the price received and non-feed costs per 100 pounds of milk decreased, feed costs decreased as well per 100 pounds of milk produced. Feed costs in 2016 averaged \$8.81 per 100 pounds of milk produced as compared to \$9.40 in 2015. Feed costs were at their highest level ever in 2012. Feed costs have averaged \$11.40 the last five years. The 2016 feed costs were \$2.59 below the last five-year average. Feed costs were 49 percent of the total cost to produce milk. Non-feed costs per 100 pounds of milk produced were \$9.33 in 2016 compared to \$9.78 in 2015. Total non-feed costs were the highest recorded in 2014.

Along with producing milk, dairy enterprises also produce beef. The average pounds of beef produced per cow in 2016 was 666 pounds. The average price received per 100 pounds sold was \$140.61. The last five-year average price received for beef has

been \$96.76 per 100 pounds sold.

Milk prices will likely exceed costs in 2017 resulting in positive profit margins for dairy producers. Higher milk prices will be the main reasons for the increase in returns. The average price received for milk in 2016 was 6 percent lower than the average in 2015. The average milk price for 2017 is projected to be about 12 percent more or about \$2.02 cents per hundredweight higher than the average for 2016. Steady domestic demand and higher butter prices will lead to higher prices. United States milk production is expected to increase about 1.01 percent in 2017 due to low feed costs, higher milk prices and increased milk production per cow. 2018 projections from the United States Department of Agriculture show milk production increasing 1.01 percent from 2017 and milk prices decreasing 2 percent from 2017 estimates.

While milk prices will increase, feed costs for 2017 are expected to decrease slightly. Corn and soybean prices will remain lower than 2016 most of the year. Feed costs per 100 pounds of milk produced would average about \$8.60 using prices of \$3.20 per bushel for corn, 20 cents a pound for protein and \$130 a ton for hay. This is based on annual feed consumption per cow, including replacement animals, of 99 bushels of corn, 4,862 pounds of protein, and 8.3 tons of hay or hay equivalents. If non-feed costs per 100 pounds of milk produced averaged \$8.90, total costs to produce 100 pounds of milk would be \$17.50. A 12 percent increase in milk prices in 2017 for Illinois producers would result in an annual price of about \$18.30 per 100 pounds. If total economic costs averaged \$17.50 per 100 pounds of milk produced, the average Illinois producer would have returns above total economic costs by 80 cents per 100 pounds of milk produced.

Table 1. Costs and Returns for Illinois Dairy Enterprises, by Herd Size, 2016

	40 to 80 Cows per herd	More than 80 cows per herd	All units
Number of farms	7	28	35
Average tillable acres per farm	140	490	420
Average number of cows per farm.....	61.7	230.3	196.6
Average milk per cow, pounds	21,680	24,528	23,959
Average beef produced per cow, pounds	600	682	666
Costs per cow, milk plus beef.....	\$4,842	\$5,007	\$4,974
Average returns from beef	636	644	642
Net costs for milk per cow	4,205	4,363	4,332
Return from milk per cow.....	3,492	3,996	3,895
Return above all cost.....	(\$ 713)	(\$ 368)	(\$ 437)
Cash costs per 100 pounds of Milk produced:			
Feed.....	\$ 9.40	\$ 8.66	\$ 8.81
Operating expenses:			
Maintenance and power	\$2.39 ^a	\$2.25 ^a	\$2.28 ^a
Livestock expense.....	2.80	2.53	2.58
Insurance, taxes, and overhead	<u>0.19</u>	<u>0.24</u>	<u>0.23</u>
TOTAL operating expenses.....	\$5.38	\$5.02	\$5.09
Other costs per 100 pounds of Milk produced:			
Depreciation.....	\$0.89 ^b	\$0.87 ^b	\$0.87 ^b
Labor	3.09	2.44	2.57
Interest charge on all capital	<u>0.75</u>	<u>0.81</u>	<u>0.80</u>
TOTAL other costs	\$4.73	\$4.12	\$4.24
Total non-feed costs per 100 pounds of milk produced	\$10.11	\$ 9.14	\$ 9.33
Total all costs per 100 pounds of milk produced	\$19.51	\$17.80	\$18.14
Net price received per 100 pounds of milk produced	\$16.22	\$16.30	\$16.28
Return above all costs per 100 pounds of milk produced	(\$ 3.29)	(\$ 1.50)	(\$ 1.86)

^a Includes utilities, machinery, equipment and building repairs, machines

^b Includes machinery, equipment, and building depreciation.

Table 2. Costs and Returns per Cow for Illinois Dairy Enterprises, 2013 to 2016

	2013	2014	2015	2016
Number of farms	39	36	36	35
Number of cows	177	179	180	197
Net cost for milk, per cow.....	\$5,343	\$5,068	\$4,463	\$4,332
Return from milk, per cow.....	4,642	5,730	4,053	3,895
Return above all costs, per cow	(\$701)	\$662	(\$410)	(\$ 437)
Price received per 100 pounds of milk	\$20.63	\$25.19	\$17.35	\$16.28
Price received per 100 pounds of beef	\$111.67	\$187.49	\$229.61	\$140.61
Milk produced per cow, pounds.....	22,484	22,728	23,355	23,959

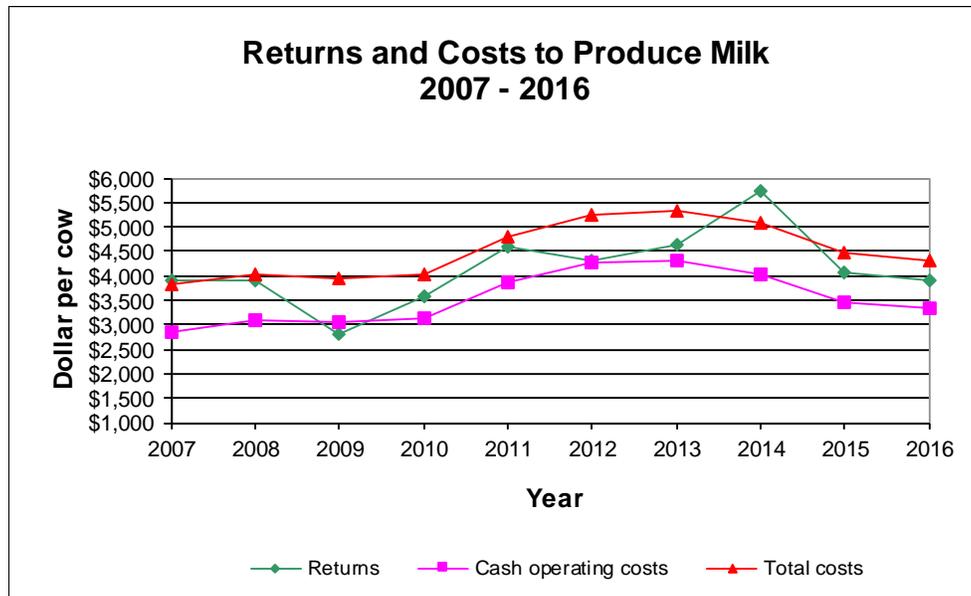


Figure 1. Returns and costs to produce milk, 2007 to 2016. Interest, depreciation, and labor charges included only in total costs.

The author would like to acknowledge that data used in this study comes from the local Farm Business Farm 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 5,600 plus farmers and 62 professional field staff, is a not-for-profit organization available to all farm

operators in Illinois. FBFM field staff provide 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 or visit the FBFM website at www.fbfm.org.