

Costs to Produce Milk in Illinois—2017

Brandy M. Krapf, Dwight D. Raab, Jenna Moore and Bradley L. Zwilling
Illinois FBFM Association and
Department of Agricultural and Consumer Economics
University of Illinois at Urbana-Champaign
December, 2018

Higher milk prices still resulted in continued negative economic returns for Illinois dairy producers in 2017, according to figures summarized by the Illinois Farm Business Farm Management Association. The average net price received per 100 pounds of milk was \$18.60, which was less than total economic costs of \$18.87. The price received for milk in 2017 was the highest it has been since 2014. On a per cow basis, total returns from milk were \$4,201 compared to the total cost to produce milk of \$4,261 per cow. Total returns from milk per cow increased from 2016, but still lower than 2014, which was the highest on record at \$5,730. The net returns per cow in 2017 were a negative \$60. Total returns have exceeded total economic costs only once out of the last ten years.

A detailed breakdown by herd size of 2017 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—88 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 \$3.41 per bushel and oats at \$2.54. 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 22,585 pounds. The average was 1,374 pounds less per cow than in 2016. This was the first time since 2011 that pounds of milk per cow has decreased. 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. Total costs for each 100 pounds of milk produced were \$1.10 higher for the smaller herds. Feed costs were \$1.57 more, while non-feed costs were 47 cents less per 100 pounds produced for the smaller herds. The trend in total costs and returns per cow for all herds is given from 2014 to 2017 (Table 2) and from 2008 to 2017 (Figure 1). When cash and noncash costs are figured, the profit margin (return above all cost) increased— from a negative \$437 in 2016 to negative \$60 per cow in 2017. The last five-year returns above all costs has averaged a negative \$189 per cow. During this period, returns above all costs per cow have varied from \$662 in 2014 to negative \$701 in 2013. 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 2017 returns were \$1.59 per 100 pounds produced higher than the 2016 returns. The average net price received for milk was \$18.60 per 100 pounds. This is \$2.32 per 100 pounds or 14 percent higher than the average price received in 2016. Based on 22,585 pounds of milk produced per cow, this increase in price increased total returns per cow by \$524. The average net price received for milk for the last five-year period is \$19.61 per hundred pounds. Dairy assistance payments from the Farm Service Agency and patronage returns related to the dairy enterprise would add about 39 cents per 100 pounds of milk produced to returns in 2017.

While the price received increased, feed costs as well as non-feed costs per 100 pounds of milk produced increased. Feed costs in 2017 averaged \$9.08 per 100 pounds of milk produced as compared to \$8.81 in 2016. Feed costs were at their highest level ever in 2012. Feed costs have averaged \$10.45 the last five years. The 2016 feed costs were \$1.37 below the last five-year average. Feed costs were about 48 percent of the total cost to produce milk. Non-feed costs per 100 pounds of milk produced were \$9.79 in 2017 compared to \$9.33 in 2016. 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 2017 was 614 pounds. The average price received per 100 pounds sold was \$110.73. The last five-year average price received for beef has been \$98.28 per 100 pounds sold.

2018 and 2019 milk prices are projected lower than 2017 and will not exceed economic costs resulting in continued negative profit margins for dairy producers. Lower milk prices will be the main reasons for the decrease in returns. The average price received for milk in 2017 was 14.3 percent higher than the average in 2016. The average milk price for 2018 is projected to be about 11 percent less or about \$2.10 per hundredweight lower than the average for 2017. Steady to lower domestic demand, increased production, tariffs, and lower butter prices will lead to lower prices. United States milk production is expected to increase about 1.01 percent in 2018 even with higher feed costs. 2019 projections from the United States Department of Agriculture show milk production increasing 1.02 percent from 2018 and milk prices increasing 2 percent from 2018 estimates.

While milk prices decrease, feed costs for 2018 are expected to increase. Corn prices will increase in 2018 while soybean prices decreased. Feed costs per 100 pounds of milk produced would average about \$9.08 using prices of \$3.50 per bushel for corn, 16 cents a pound for protein and \$130 a ton for hay. This is based on annual feed consumption per cow, including replacement animals, of 98 bushels of corn, 6,057 pounds of protein, and 8.6 tons of hay or hay equivalents. If non-feed costs per 100 pounds of milk produced averaged \$9.60, total costs to produce 100 pounds of milk would be \$18.95. An 11 percent decrease in milk prices in 2018 for Illinois producers would result in an annual price of about \$16.50 per 100 pounds. If total economic costs averaged \$18.95 per 100 pounds of milk produced, the average Illinois producer would have returns below total economic costs by \$2.45 per 100 pounds of milk produced.

Table 1. Costs and Returns for Illinois Dairy Enterprises, by Herd Size, 2017

	40 to 80 Cows per herd	More than 80 cows per herd	All units
Number of farms	5	24	29
Average tillable acres per farm	243	511	465
Average number of cows per farm.....	53	232.5	201.5
Average milk per cow, pounds	22,589	22,584	22,585
Average beef produced per cow, pounds	788	578	614
Costs per cow, milk plus beef.....	\$5,238	\$4,787	\$4,864
Average returns from beef	769	569	603
Net costs for milk per cow	4,469	4,218	4,261
Return from milk per cow.....	4,260	4,189	4,201
Return above all cost.....	(\$ 209)	(\$ 29)	(\$ 60)
Cash costs per 100 pounds of Milk produced:			
Feed.....	\$ 10.38	\$ 8.81	\$ 9.08
Operating expenses:			
Maintenance and power	\$1.87 ^a	\$2.47 ^a	\$2.37 ^a
Livestock expense.....	2.60	2.73	2.71
Insurance, taxes, and overhead	<u>0.32</u>	<u>0.24</u>	<u>0.25</u>
TOTAL operating expenses.....	\$4.79	\$5.44	\$5.33
Other costs per 100 pounds of Milk produced:			
Depreciation.....	\$0.71 ^b	\$0.87 ^b	\$0.84 ^b
Labor	3.43	2.56	2.71
Interest charge on all capital	<u>0.47</u>	<u>1.00</u>	<u>0.91</u>
TOTAL other costs	\$4.61	\$4.43	\$4.46
Total non-feed costs per 100 pounds of milk produced	\$9.40	\$ 9.87	\$ 9.79
Total all costs per 100 pounds of milk produced	\$19.78	\$18.68	\$18.87
Net price received per 100 pounds of milk produced	\$18.86	\$18.55	\$18.60
Return above all costs per 100 pounds of milk produced	(\$ 0.92)	(\$ 0.13)	(\$ 0.27)

^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, 2014 to 2017

	2014	2015	2016	2017
Number of farms	36	36	35	29
Number of cows	179	180	197	202
Net cost for milk, per cow.....	\$5,068	\$4,463	\$4,332	\$4,261
Return from milk, per cow.....	5,730	4,053	3,895	4,201
Return above all costs, per cow	(\$662)	(\$410)	(\$437)	(\$ 60)
Price received per 100 pounds of milk	\$25.19	\$17.35	\$16.28	\$18.60
Price received per 100 pounds of beef	\$187.49	\$229.61	\$140.61	\$110.73
Milk produced per cow, pounds.....	22,728	23,355	23,959	22,585

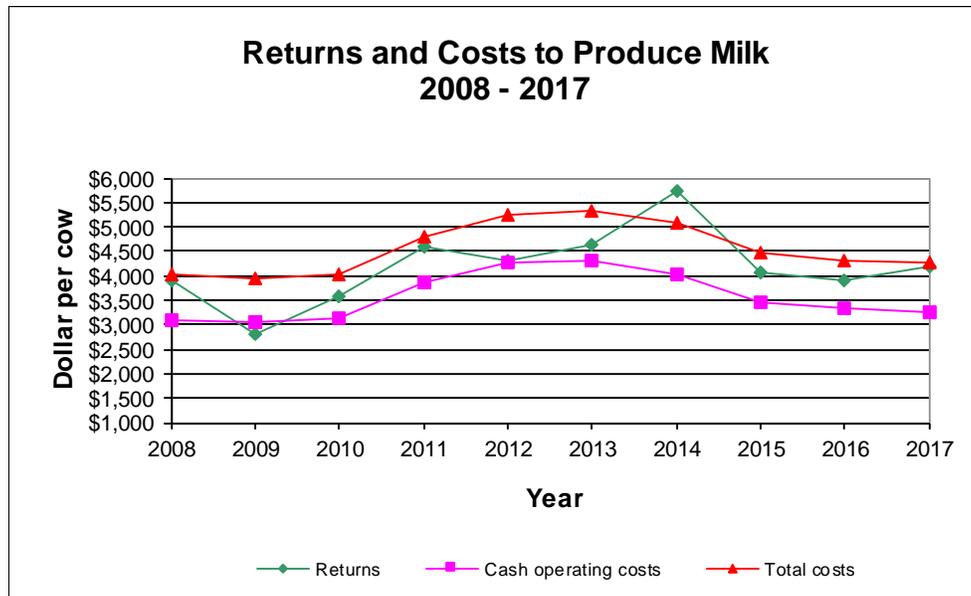


Figure 1. Returns and costs to produce milk, 2008 to 2017. Interest, depreciation, and labor charges included only in total costs.

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 64 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.