

Dairy Heifer Cost Variation

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Dairy heifer replacement costs represent a large investment for all dairy operations. The heifer and crop enterprises are two major components of the dairy business. Comparable to the variation in costs to produce home-raised feeds, heifer costs can vary significantly across farms.

During 2016 and 2017, the Extension Dairy Business Management Team worked with a group of 23 dairy producers in a project called “Crops to Cow”. Goals for the project were to examine the impact of corn silage quality parameters on the profitability of dairy operations. To conduct the profitability assessment for the farms, the team used the Year-End Analysis (FINAN®) software developed by the University of Minnesota. This software allows the user to conduct detailed enterprise analysis on the livestock and crop enterprises on the farm.

Table 1 presents data from 1,208 farms with dairy replacement heifer budgets in the database for 2016 through 2018. These are primarily farms in the upper Midwest with a majority from Minnesota. Table 2 shows the same measures for the 64 Pennsylvania dairy farms included in the Extension Dairy Team's study. This information represents three years of repeated measures for the same farms from 2016 through 2018.

In the larger data set, the average total cost per head to raise heifers was \$1,662 for the Midwest Group (MG), versus the Pennsylvania (PA) farms of \$2,026. An important item to note between the two data sets is the difference in the herd dynamics. The MG on average transferred 53% of their heifers into the milking herd during these years compared to 48% for the PA farms. This 5% difference in transfer rate means more days spent in the heifer enterprise accumulating additional costs before they freshen. The age at first calving is not available in this data but warrants further investigation. Another possible explanation for the lower turnover rate for the PA herds is that the heifer herd size may have been rapidly growing. With the use of sexed semen and more females being born, many of the younger animals being added to the enterprise haven't yet been balanced by heifers leaving the system. As more animals mature and freshen, a larger percentage may enter the milking herd in future years. This would reduce the cost to raise heifers because the costs would be divided over more animals.

Feed expenditures represent a large portion of the costs required to raise a heifer. Annual feed costs were similar between the MG and PA datasets: \$405/head/year versus \$409/head/year. The slower turnover rate for the PA farms equated to the Total Feed Cost per head being higher at \$857 compared to \$767 for the MG farms. The most profitable farms (Top 20%) were very similar with the MG at \$574/head and the PA farms at \$580/head. This observation can be broadened to many of the measures included in each table. The most profitable PA farms were very similar to the MG in Total Costs at \$1,333/head versus \$1,344/head. While the heifer turnover rate impacted the Total Feed costs adversely for the PA farms, the Feed Cost was remarkably similar on a per head basis: PA farms at \$1.12/head/day versus the MG at \$1.11/head/day. While the similarity per day exists, more days on feed for the PA animals explains the higher Total Feed Cost per heifer raised.

The Low Profit (40% and lower) farms in the PA data had considerably higher feed costs than the MG (\$1,544 versus \$984). Another factor to consider is the farms' available feed sources. In the PA data set, farms with the highest amount of home-raised feeds including all grass hay and corn grain are consistently among the highest profit farms. The amount of purchased heifer supplements for each group suggests this is true for the heifer enterprises. The Low Profit MG farms spent \$205/head on purchased heifer feeds, while the Low Profit PA farms spent \$378/head for the same feeds. This suggests the MG farms may have a closer match of forages and grains for their dairy compared to PA operations. This is further supported by the PA High Profit group (Top 20%) having nearly identical purchased heifer feeds to the MG farms (\$117/head versus \$112/head). This supports a conclusion the Extension Dairy Team has drawn from many years of financial planning with dairy producers: farms that have a good match of crop acres to the total animal units on the farm are positioned

for higher profitability. They buy smaller amounts of purchased feed and raise forages and grains at competitive costs well below the market value of the feedstuff.

While feed cost explains some of the difference between profitability of these operations, there are other costs that can't be ignored. The average "Costs other than feed" of \$895/head for the MG compared to the \$1,168/head for the PA farms is a concern. This difference represents other dairy expenses (breeding, vet, bedding, supplies, contract heifer raising) attributed to the heifer enterprise. It also includes overhead expenses (fuel, repairs, labor, insurance, utilities and depreciation). Across all costs required to raise a heifer, the MG farms had lower costs per head. The lower turnover rate for the PA farms means more days on feed and more time to incur a larger share of all other costs as well. All costs including a labor and management charge for the MG farms was \$2.40/head/day while the PA farms spent \$2.65/head/day to raise a heifer. The range was large for each group: \$3.11 to \$2.00/head/day (MG) and \$3.31 to \$1.90/head/day for the PA farms.

Based on data compiled by the business management team for many years, the results on the heifer enterprise are not unexpected. Comparable to the cropping enterprise, it appears the cost of heifer raising is frequently overlooked as a significant profitability gap in the dairy business. Further study of this data seems to be warranted. The next step is drilling down to the differences of the profitability groups identifying "management practices" that are either helping or hindering the heifer raising cost for the dairy operation. This information would help guide producers to the most important management items to address for improved profitability.

Table 1. Dairy Replacement Heifers—Average per Head (2016-18, 1208 farms)

	Avg. Of All Farms	Low 20%	20-40%	40-60%	60-
Number of farms	1208	241	242	241	242
Net return over labor & mgt	\$(278)	\$(697)	\$(414)	\$(270)	\$(1
Feed cost per average head	\$405	\$544	\$429	\$402	\$37
Feed cost/head sold/trans	\$767	\$984	\$833	\$776	\$72
Total cost/head sold/trans	\$1,662	\$2,056	\$1,867	\$1,673	\$1,
Feed cost per head per day	\$1.11	\$1.49	\$1.18	\$1.10	\$1.
% sold or transferred out	53%	55%	52%	52%	51%
Purchased heifer feeds	\$147	\$205	\$165	\$133	\$13
Costs other than feed	\$895	\$1,072	\$1,034	\$897	\$74

Cost of Production Per Head Per Day					
With labor and management	\$2.40	\$3.11	\$2.64	\$2.37	\$2.1

FINBIN (2019). Center for Farm Financial Management: University of Minnesota. Retrieved from [FINBIN](#) (originally created December 3, 2019).

Table 2. Dairy Replacement Heifers—Average per Head (2016-18, 64 PA farms)

	Avg. Of All Farms	Low 20%	20-40%	40-60%	60-
Number of farms	64	12	13	13	13
Net return over labor & mgt	\$(274)	\$(606)	\$(400)	\$(290)	\$(1
Feed cost per average head	\$409	\$641	\$450	\$352	\$37
Feed cost/head sold/trans	\$857	\$1,544	\$942	\$734	\$78
Total cost/head sold/trans	\$2,026	\$2,908	\$2,321	\$2,036	\$1,
Feed cost per head per day	\$1.12	\$1.76	\$1.23	\$.96	\$1.
% sold or transferred out	48%	42%	48%	48%	47%
Purchased heifer feeds	\$213	\$378	\$240	\$166	\$21
Costs other than feed	\$1,168	\$1,364	\$1,380	\$1,302	\$1,
Cost of Production Per Head Per Day					
With labor and management	\$2.65	\$3.31	\$3.04	\$2.67	\$2.

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