

Raising heifer replacements – labor costs and labor efficiency

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How much does it cost to raise a heifer from birth to first calving? The costs associated with raising heifers are often overlooked when analyzing expenses on dairy farms. In the summer of 2019, we collected data from 26 Northeast dairy farms. An analysis of this data revealed that the average total cost to raise a heifer from birth to weaning was

\$2,355, with an 80th percentile range of \$1,953 to \$2,824. As expected, feed was the largest cost associated with raising heifers, followed by labor. Labor was the expense with the greatest 80th percentile range and accounted for 13.2 percent of the total raising cost, on average.

With labor costs increasing due to many reasons at a faster rate in New

York state, labor efficiency and management are very important facets of the farm business that should be closely

monitored on dairy farms. According to the third preliminary Dairy Farm Business Summary progress report (analyzing 125 farms) published on April 2, 2021, the hired labor cost per worker equivalent in New York state increased six percent from 2019 to 2020. The hired labor cost per worker equivalent ranged from \$28,887 to \$55,962 on these farms in 2020.

In 2019, 26 Northeast dairy farms completed a comprehensive survey to determine costs and investments associated with their heifer replacement program. The

Continued on page 2

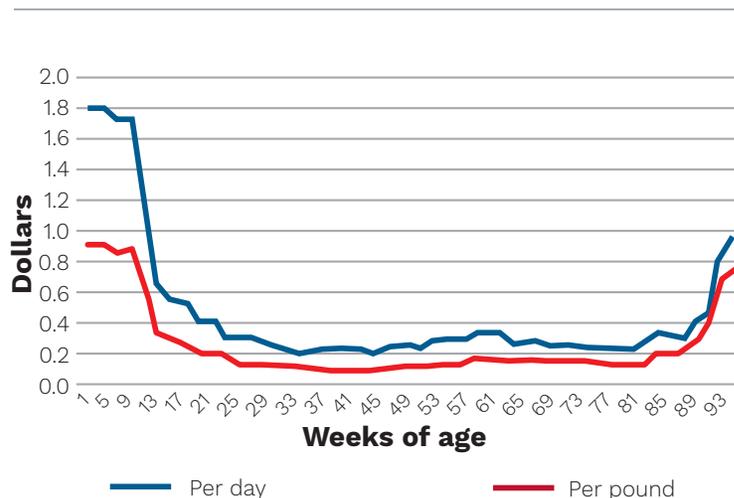
TABLE 1

Labor efficiency evaluation – Dairy Replacement Program
26 Northeast dairy farms, Summer 2019

	Average	Lowest quarter	2nd quarter	3rd quarter	Highest quarter
Number of heifers	969	648	659	1,447	1,148
All heifers per labor hour*	36.0	18.7	28.5	39.6	56.7
Pre-weaned heifers/labor hour*	11.4	10.2	10.8	9.8	14.4
Post-weaned heifers/labor hour*	56.9	28.5	40.9	62.8	93.8
Corresponding labor costs/animal	\$311	\$348	\$367	\$322	\$215
Cost per worker equivalent	\$50,797	\$45,991	\$51,873	\$53,017	\$52,777
Worker equivalents per 1,000 heifers	3.7	7.1	4.6	3.3	2.3

*Labor efficiency measures based on the number of heifers being raised on-farm and not including heifers grown at custom growers.

FIGURE 1
Average labor costs
26 Northeast dairy farms, Summer 2019



Raising heifer replacements – labor costs and labor efficiency, cont'd
from page 1



total number of heifers analyzed was 25,206 between the 26 participating farms. The total number of annual worker equivalents working specifically with the replacements was 79.3. One worker equivalent is defined as one person working 55.2 hours per week for 50 weeks, or a total of 2,760 hours per year.

Analyzing labor efficiency is a common way to measure how well labor is being utilized. In order to measure the labor associated with raising dairy replacements, a measure called “heifers per labor hour” is used. Heifers per labor hour measures how many dairy replacements are taken care of in one labor hour. This measure includes time to feed, clean, bed, move, treat, and manage heifers. The higher the number,

the more efficiently labor is being utilized. To determine this measure, the total number of hours of labor was determined, placed on a per-day basis, and then divided into the average daily number of heifers on the farm. Heifers being raised at a custom grower were not included in the number of heifers for this calculation.

The average heifer per labor hour for these 26 Northeast dairy farms was 36 heifers, with the 25 percent of farms with the highest labor efficiency averaging 56.7 (Table 1). The average for the farms in the

lowest quartile of labor efficiency was 18.7. To further analyze labor efficiency within the dairy replacement program, heifers per labor hour was determined for pre-weaned and post-weaned animals. The average pre-weaned heifers per labor hour was 11.4, while post-weaned heifers per labor hour was

Continued on page 3

FIGURE 2
Labor efficiency vs labor costs per heifer
26 farms, 3rd quarter 2019

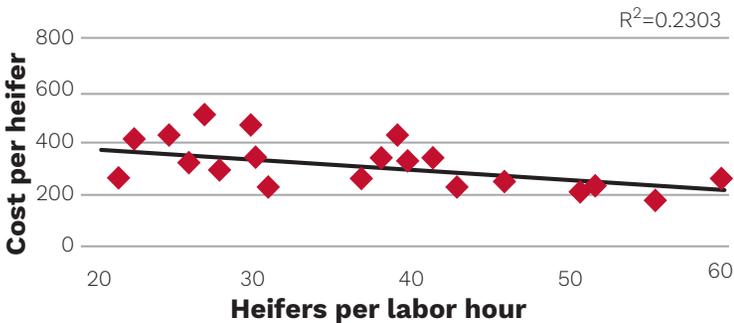


TABLE 2

Selected measures sorted by labor efficiency – Dairy Replacement Program
26 Northeast dairy farms, Summer 2019

	Lowest quarter	2nd quarter	3rd quarter	Highest quarter
Heifers per labor hour	18.7	28.5	39.6	56.7
Number of heifers	648	659	1,447	1,148
Number of heifers custom raised	295	139	0	24
Per animal completing				
Feed costs	\$942	\$1,091	\$1,145	\$1,181
Labor costs	\$348	\$367	\$322	\$215
Custom boarding costs	\$365	\$159	\$0	\$40
Cost per hired worker	\$45,991	\$51,873	\$53,017	\$52,777
Average age of facilities	15.4	24.7	19.1	12.2
Quality measures				
Non-completion rate	15.3%	16.0%	14.5%	13.5%
Mortality rate, pre-weaned	6.9%	3.8%	2.9%	3.8%
Mortality rate, post-weaned	5.0%	2.8%	3.7%	4.1%
Pre-weaned heifers				
Heifers per labor hour	10.2	10.8	9.8	14.4
Labor cost per heifer	\$142	\$103	\$116	\$82
Post-weaned heifers				
Heifers per labor hour	28.5	40.9	62.8	93.8
Labor cost per heifer	\$206	\$264	\$205	\$133

56.9. As expected, post-weaned heifers are associated with greater labor efficiency because they require less daily attention, are housed in larger groups, and fed with larger equipment that requires less hand labor.

For pre-weaned heifers, the highest efficiency group averaged 14.4 heifers per labor hour; this group was a third higher than the other three quartile groups. The difference was even greater for post-weaned heifers, with the lowest group averaging 28.5 heifers per labor hour and the highest group averaging 93.8 heifers per labor hour (**Tables 1 and 2**). The highest labor efficient group for pre-weaned animals had an average mortality rate of 3.8 percent and post-weaned had an average of 4.1 percent, revealing that the higher efficient heifer enterprises did not compromise health and wellness of their animals to minimize labor.

Interestingly, the lowest quarter of labor efficient farms also had the highest number of heifers that were custom raised and the highest custom boarding cost per animal completing the replacement system (**Table 2**). The farms in the highest quarter of labor efficiency were also the same farms that had the newest

heifer facilities and the lowest non-completion rate (**Table 2**).

Labor costs per day were the highest during the pre-weaned stage of growth, as expected given the lower average heifers per labor hour during that stage. After weaning, labor costs per day sharply declined, and stayed fairly steady after the transition period from week 25 to week 50. There was a slight increase per day during breeding, and then a significant incline in cost from week 84 to week 95 as the heifers were closer to freshening (**Figure 1**).

A second method used to measure the total labor requirements for the dairy replacement enterprise is to calculate worker equivalents. On these 26 Northeast dairy farms, an average of 2.14 worker equivalents was used per 1,000 heifers being raised. The number of heifers being raised was standardized to 1,000 head to demonstrate the difference in labor efficiency across farms of various herd sizes. The high efficiency group needed 2.3 worker equivalents. The average low efficiency group needed 7.1 worker equivalents, or an additional 4.8 workers.

The third method used to evaluate labor is total labor cost. Along with the hours of labor as measured for labor efficiency, this measure also

incorporates the cost per hour.

On these 26 farms total labor cost averaged \$311 per animal, and ranged from \$215 to \$367 (**Table 1**). **Figure 2** shows the relationship between labor costs per heifer completing versus labor efficiency.

The relationships among these measures indicate potential cost reductions on dairy farms. As heifers per labor hour increased, worker equivalents decreased and total costs of labor per animal decreased. If labor efficiency can be improved, less labor will be required in the heifer enterprise and the cost of raising heifers will decline.

Overall, the cost to raise dairy replacements should be analyzed closely as the economic performance of the heifer enterprise is an important component of farm profitability. With labor the second-highest cost associated with raising replacements and with labor costs increasing at a faster rate, increasing labor efficiency while maintaining and improving quality of the replacements should be a management focus on dairy farms presently and in the future. ■

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