

Are dairy farms capturing labor efficiency?

by Alvaro Garcia

LABOR is a critical component on all dairy farms. Not only are reliable employees in short supply, but their wages also require a significant portion of the milk check. The larger the dairy, the less hired labor weighs on the milk check as a percentage of the operating cost of production.

The opportunity cost of unpaid labor is also highly significant on small dairies. Unpaid labor drops drastically up to 500 cows and continues to diminish with size, although at a more moderate pace.

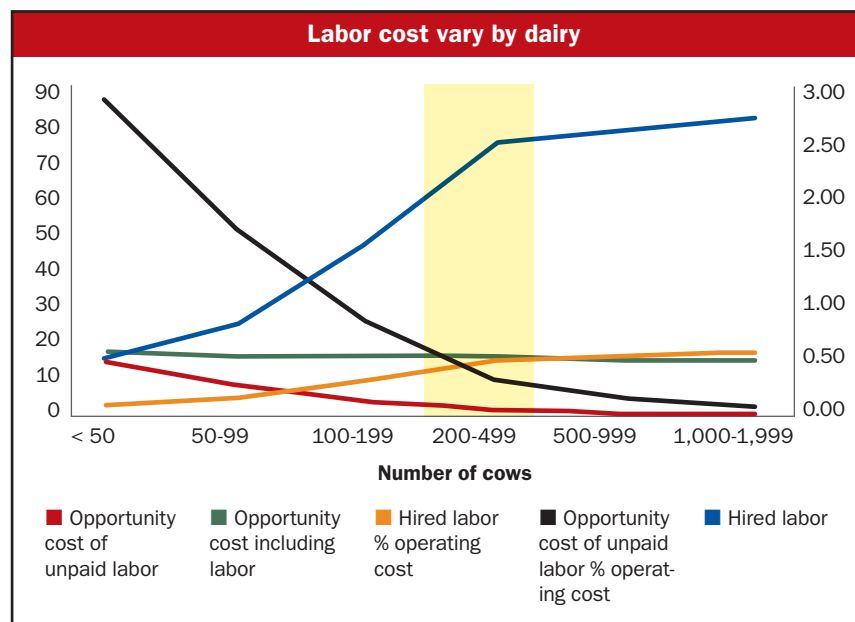
The table shows the operating cost of production and hired labor, and the opportunity cost of unpaid labor, both in absolute terms and as a percentage of the operating cost of production. It's based on information compiled by the USDA Economic Research Service during 2020 for different sized dairies.

The cost of hired labor climbs with herd size from a low of 53 cents per hundred pounds of milk in herds with less than 50 cows to \$2.75 in the 1,000-to-2,000-cow category. As a percentage of the operating cost, it also grows gradually from 3% of the operating costs on the 50-cow dairy, up to 18% in dairies between 1,000 and 2,000 cows, only to drop again on dairies larger than that.

It is interesting to note that the largest increase in hired labor, as a percentage of the operating costs, occurs between 100 and 200 cows. In this area it increases by 100%, from 5% to 10%. The explanation is that when smaller dairies incorporate employees, they do so out of borderline needs that are likely still not reflected in a more efficient use of labor.

On farms milking 50 or fewer cows,

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	Less than 50 cows	51-99	100-199	200-499	500-999	1,000-1,999
Hired labor, \$ per cwt.	0.53	0.86	1.59	2.53	2.65	2.75
Opportunity cost, unpaid labor	15.46	8.76	4.36	1.66	0.75	0.33
Operating costs, including labor	17.81	16.93	16.67	16.46	15.35	15.14
Hired labor, % operating costs	3	5	10	15	17	18
Opportunity cost of unpaid labor, % operating costs	87	52	26	10	5	2

Source: USDA ERS 2021

the opportunity cost of unpaid labor represents 87% of the operating cost of production. As these dairies grow to the 51-to-100-cow category, it drops by 60%, constituting nearly half of the operating costs. From then on it continues to drop at a steady rate of 50% to 60% to reach nearly 2% of the operating costs in dairies milking 1,000 to 2,000 cows, as shown in the bottom line of the table.

The operating costs on dairies diminish with scale. As could be expected, the cost of hired labor, both in absolute terms and as a

percent of the operating costs, expands as dairies become larger. They are represented by the blue and yellow lines in the graph. The absolute cost grows exponentially up to the 200-to-499-cow dairies and then continues to climb but at a slower rate.

The opportunity cost of unpaid labor, as a percentage of the operating costs of production, is represented by the black line in the graph. Up to 200 cows, the owner/operator is subsidizing the dairy through its labor to the point that

it constitutes 90%, 52%, and 26% of the operating cost for dairies with 50 or fewer, 51 to 99, and 100 to 199 milking cows, respectively.

There is nothing inherently wrong with this if one is aware of it. In fact, most of us subsidize activities in our lives just for the sake of improving well-being and/or quality of life. What the figures are simply showing is that for the farmer milking 50 cows or less, the opportunity cost of unpaid labor is almost 90% of the operating costs.

Costs vary by size

One interesting aspect of the efficiency of dairy labor can be observed in the area shaded yellow in the graph. Hired labor costs grow exponentially with the number of dairy cows, up to 200 to 499 cows, then it decelerates (linear) as the size of the dairy increases further. The opportunity cost of unpaid labor (personal and family), both in absolute terms and as a percentage of the operating cost of production, appears to continue to be exponential as dairies increase in size.

This confirms what has been witnessed elsewhere in 2020. Labor costs climb with the size of the dairy, both in absolute terms and as a percentage of the operating cost of production. This increase, however, weighs more heavily on the small and medium-sized dairies (under 500 cows).

It is interesting to note that, initially, there is an exponential elevation in hired labor costs with size of the dairy, which slows down after 200 to 500 milking cows, suggesting the greater efficiency of labor in dairies above this scale. Similarly, but inversely, there is a continued exponential reduction in the opportunity cost of unpaid labor as percentage of the operating costs as dairies grow in size. 🐄

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