



**Rising Labor Costs: Strategies and Approaches**

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As dairy farms have been increasing herd size over time, hired labor has become a key management component of the farm and a larger expense, with hired labor being the second largest expense item on many farms. With this increased reliance on hired labor, the impact that changing labor costs can have on the profit of the dairy business is substantial. Currently there are many factors that are likely to put upward pressure on labor costs and leading to significant changes in dairy farms’ labor expenses. Some of these factors are:

- Raising of the minimum wage
- OSHA Regulations
- Increased competition
- Immigration reform
- Health Insurance
- Compliance with labor regulations

These factors have already impacted the cost structure of dairy farms. Table 1 highlights selected factors associated with labor for the 136 dairy farms that participate in the Dairy Farm Business Summary and Analysis Project through Cornell University from 2010-15.

Table 1

**Recent Labor Trends – DFBS\*  
 Same 136 Farms, 2010-2015**

	2010	2011	2012	2013	2014	2015
Cows per Worker Equivalent	45.3	45.2	44.1	44.7	44.2	44.6
Milk sold per Worker Equivalent	1,122,132	1,125,859	1,127,422	1,151,934	1,122,413	1,147,955
Labor Cost per Hired Worker Equivalent	\$35,386	\$37,138	\$37,330	\$38,724	\$39,535	\$40,849
Hired Labor Cost per Cwt.	\$2.63	\$2.76	\$2.79	\$2.83	\$2.98	\$3.05

\*Dairy Farm Business Summary and Analysis Project, New York

Hired labor costs per worker equivalent increased from \$35,386 to \$40,849, an increase of 15% over 5 years. On a per cwt basis, the costs increased by 16%. This equates to an annual increase of 3%, compared to a 1.7% increase in inflation as measured by the Consumer Price Index (CPI) for the same



period<sup>1</sup>. Considering the number of factors placing pressure on labor costs, the annual increases over the next 5 years may be higher than this, putting pressure on the profitability of dairy farms. In an analysis of the impact on minimum wage increase on dairy farms in New York<sup>2</sup>, the percent change in labor costs thru 2021 was projected at 34%, a doubling of the increase that has been occurring. This leads to a projected decrease in net farm income of 33%, a decrease 2/3<sup>rd</sup> higher than what would be projected without the minimum labor increase. This increase in labor costs is projected to decrease the economic value added, or the profit generated after all costs are accounted for, to near zero for larger farms and to move this measure to negative for smaller farms that utilize hired labor. The impacts of these changes is before any management responses by businesses to the increased costs. Minimum wage increases are predicted to lead an increased focus of management on labor costs and efficiencies, and may also accelerate long-term trends towards large and more productive farms and/or capital-intensive or labor-saving production methods.

### **Strategies and Approaches**

With labor costs increasing at a faster rate and the impact that this will have on farm earnings, the labor question is becoming an increasing important focus of management. Many questions have been asked at meetings over the last few years regarding where all the labor hours are utilized, how to decrease the number of hours required, and how can the business afford to pay more. From these questions, five areas have been identified that can change the impact that the rising labor costs will have on the dairy farm: capital investment, lean manufacturing, labor effectiveness, custom services, and joint ventures/collaboration.

As farm managers have been thinking about what management changes to make, a key question is where labor hours are being utilized on the farm. During the summer of 2016, 36 farms participated in a PRO-DAIRY study (Howlett & Karszes) on allocating labor hours to different activities across the farm. Table 2 and chart 1 summarizes some of the preliminary data from this study. While not representing labor utilization for all dairy farms, the data does provide descriptive measures for what time was spent performing different activities across these farm. The mature dairy herd, or taking care of the milking and dry cows every day, utilized 63% of all labor on the farm. The milking process was the largest individual use of labor, representing 50% of the labor utilized within the mature dairy herd and 32% of all labor on the dairy farm. By identifying where labor is being utilized on the farm, appropriate management strategies can be adopted to change the impact associated with raising labor costs.

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<sup>1</sup> Consumer Price Index, 1913 - Current, Federal Reserve Bank of Minneapolis, <https://www.minneapolisfed.org/community/teaching-aids/cpi-calculator-information/consumer-price-index-and-inflation-rates-1913>

<sup>2</sup> E.B. 2016-02: Potential Impacts on Minimum Wage Increases on New York Dairy Farms, Ifft & Karszes, Charles H. Dyson School of Applied Economics and Management, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY. <http://publications.dyson.cornell.edu/outreach/extensionpdf/2016/Cornell-Dyson-eb1602.pdf>



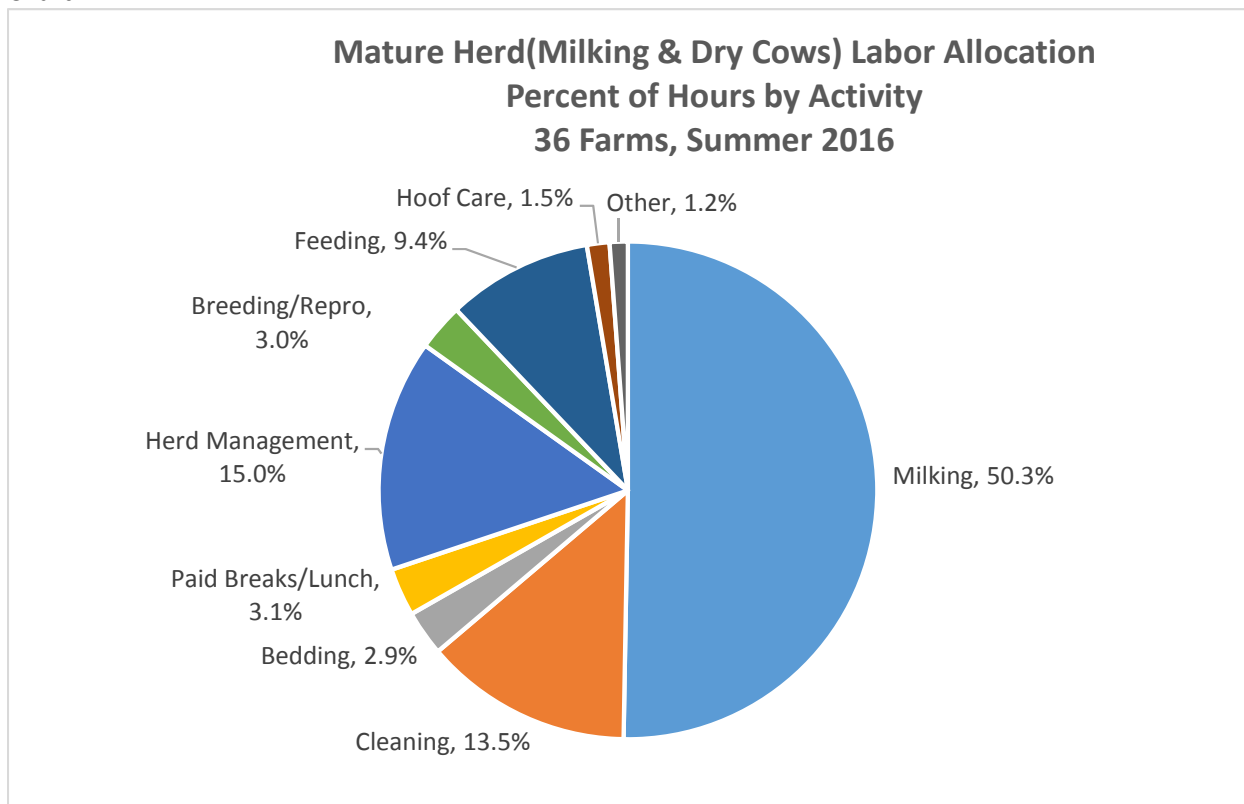
Table 2

## Labor Allocation Report: Summary

Average, 36 Farms, Summer 2016

<b>Labor Allocation by Primary Category</b>					
	Annualized Hours	Worker Equivalents	Cows/Worker 1149.363636	Milk Sold/Wkr. Equiv. 315,926.9	% of Total Labor
<b>Dairy Herd Total</b>	<b>42,925</b>	<b>15.6</b>	<b>60.8</b>	<b>1,654,450</b>	<b>74.5%</b>
Mature Herd	36,179	13.1	73.6	1,999,299	62.8%
Pre-Weaned Heifers	3,697	1.3	956.6	26,082,668	6.4%
Post-Weaned Heifers	3,050	1.1	1,365.9	38,080,726	5.3%
<b>Total Crop Hours</b>	<b>4,103</b>	<b>1.5</b>	<b>6,636.0</b>	<b>NA</b>	<b>7.1%</b>
Hay/Haylage	1,710	0.6	3,950.9	110,172,945	3.0%
Corn Silage/Grain	2,181	0.8	6,545.6	NA	3.8%
Small Grain/Straw	213	0.1	14,221.3	405,816,220	0.4%
<b>Manure Handling</b>	<b>2,264</b>	<b>0.8</b>	<b>3,022.2</b>	<b>84,177,831</b>	<b>3.9%</b>
<b>Shop &amp; Maintenance</b>	<b>4,288</b>	<b>1.6</b>	<b>1,031.9</b>	<b>27,450,871</b>	<b>7.4%</b>
<b>Management &amp; Office</b>	<b>4,050</b>	<b>1.5</b>	<b>1,356.1</b>	<b>36,392,816</b>	<b>7.0%</b>
<b>Total</b>	<b>57,631</b>	<b>20.9</b>	<b>45.8</b>	<b>1,247,180</b>	<b>100.0%</b>

Chart 1





## *Capital Investment*

Investing capital to replace labor is a historic strategy that has been utilized in agriculture, starting when domestic animals were used to pull farm implements and carry products and supplies. Investing capital in machinery, equipment, facilities, and technology impacts labor costs in different ways. The total number of hours of labor needed may be reduced, or the amount of work or output that is performed with a labor hour increases, leading to increased output for the same number of labor hours. Some investments may accomplish both. Examples of capital investments that farms have made to change the labor requirements include:

Automatic Milking Systems	Oversized Milking Parlors
Automatic Calf Feeders	Free-choice Mob Feeders
Larger Feeding Equipment	Automatic Scrapers
Larger Harvesting Equipment	Manure Irrigation Systems
Larger Planters/Spring Tillage Equipment	New Barn Designs for Animal Handling
Activity Monitoring Systems	Grain Bins

Capital investment impacts the cost structure on the farm by increasing certain cost categories, such as depreciation, interest, maintenance, and insurance. As labor costs increase, the potential to decrease the total cost of labor thru decreasing the number of hours, or decreasing the labor cost per cwt. by increasing efficiency, can offset or justify higher levels of investment. Management time spent planning and budgeting the capital investment and changes in operations is critical if utilizing this approach to control labor costs.

## *Lean Manufacturing*

A major focus of manufacturing firms is the continuous improvement of the manufacturing process. One management approach to improving the process is Lean Manufacturing. Lean Manufacturing is defined as: "A strategy, which strives to embed a culture of continuous improvement, whereby everyone seeks to identify and eliminate waste, enabling the business to deliver customer expectations at a minimal cost and lead time."<sup>3</sup> Many tools and processes associated with Lean Manufacturing, but a key component is the active assessment of activities and the formal design of workflow, protocols, and standard operating procedures to remove waste and improve output. While certain areas of the farm have structured routines that were developed over time to achieve certain goals, such as milking routines, many other activities being performed may never have been actually designed. There may be an opportunity to study different activities on the farm and by making changes to workflow, protocols, and standard operating procedures, the same task may be accomplish with the same if not better performance , with less hours of labor and potentially less waste of other supplies and products. With a focus on improving the process, this may lead to additional capital investment also. With a management focus on lean manufacturing, some of the key questions are:

- How long does the current activity take?
- What is the protocols and standard operating procedures for the activity?
- Are the protocols and operating procedures being followed?

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<sup>3</sup> <http://www.educational-business-articles.com/lean-manufacturing-definition/>



- Could the amount of time be decreased while achieving the same or better results? For example:
  - Placement of tools and supplies
  - Order of tasks and procedures
  - Training of staff
  - More or less tasks and procedures
  - Different tools or supplies

With the focus of lean manufacturing is to improve the current systems, additional costs may be associated with increased management. The time spent by management observing, timing, developing, testing, and training of new protocols and standard operating procedures can be a significant expense. Additional investment and different tools and supplies may also increase the cost structure of the business.

### *Labor Effectiveness*

A relatively new concept that has appeared in the manufacturing world, labor effectiveness, centers on the impact that the labor force has on productivity and costs, and the corresponding impacts on profitability<sup>4</sup>. Labor effectiveness isn't the same as labor efficiency. For a dairy business this is not measuring cows per worker or milk sold per worker, but focusing on the things that may end up being unnecessary expenses or disruptions to activities, which impacts both costs and output. Applying this concept to a dairy farm and milk production, how well are the proper things done in the proper order every day? Any disruption can increase costs and decrease performance. Some questions to assess labor effectiveness on a dairy farm include:

- How often are cow groups mixed up due to improper gate opening and closing during movement of groups?
- How often is there an equipment or facility repair due to operator error?
- How often does daily routine change due to someone being late or not able to work that day?
- How often is equipment left idling for no reason?
- How many tools are lost and need to be replaced?
- How much time is spent finding a tool or supply needed to perform a job?

To improve labor effectiveness, management focus is on decreasing disruptions, decreasing the waste of inputs and supplies, and improving performance. What can be done with employee hiring, training, process, protocols, and tools and equipment to minimize disruptions, lower costs, and increase performance? This leads to increased focus on human resource management for the business and how well leadership, communication, and training can build a desired culture within the workforce. If through higher labor effectiveness can lower costs and improve productivity, the business may be able to support higher wages.

### *Custom Services*

A fourth area that can impact the labor cost on the farm is the use of custom service providers, which may decrease the number of payroll hours for the farm. With custom services, there are other aspects of the decision that may also impact farm performance, including the quality of job done, other cost

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<sup>4</sup> Overall Labor Effectiveness (OLE): Achieving a Highly Effective Workforce, <http://www.workforceinstitute.org/tool-kit/overall-labor-effectiveness-achieving-a-highly-effective-workforce/>



savings, and the opportunity to reduce capital investments. If some aspect of the business is inefficient, utilizing custom services might be a wise decision as the cost savings in labor may offset much of the custom service bill and other benefits may improve performance even further. Many business currently use custom services for different activities on the farm, including preparing taxes, repairing equipment, spreading manure, and trimming feet. With labor costs increasing, customs services may be utilized even more.

### *Joint Venture/Collaboration*

Joint ventures and collaboration can provide opportunities to reduce labor costs on the farm. By collaborating with another business (or businesses), or forming a joint venture, the business may be able to access technology or equipment, or achieve a size that provides the ability to perform tasks more efficiently. As with utilizing custom services, there are other aspects besides the impact on payroll labor hours that would need be evaluated to determine the total impact of the venture on the business.

Examples of joint ventures and collaboration are:

- Owning large specialized equipment between farms(drill, roller, bale grinder)
- Heifer raising operation
- Joint hiring of professional staff(veterinarian, reproduction specialist, chief financial officer, human resource management specialist)
- Forming a crop operations company to conduct crop operations across participating farms

### Summary

There is increasing upward pressure on labor costs from many different directions that may very well increase labor costs at a faster pace that what has been occurring recently. This increase in labor costs can have significant impacts on farm earnings pending management changes that the farm may consider. While not new, five areas that can be focused on to minimize the impact of rising labor costs are: capital investment, lean manufacturing, labor effectiveness, custom services, and joint ventures/collaboration. For farms to continue to meet business and family goals, the management focus on controlling labor costs and improving performance will be critical for the continued success of the business.