

August 2021

E.B 2021-05

**Hired Labor on New York State
Dairy Farms
Cost, Efficiency & Change from
2011 Through 2020**



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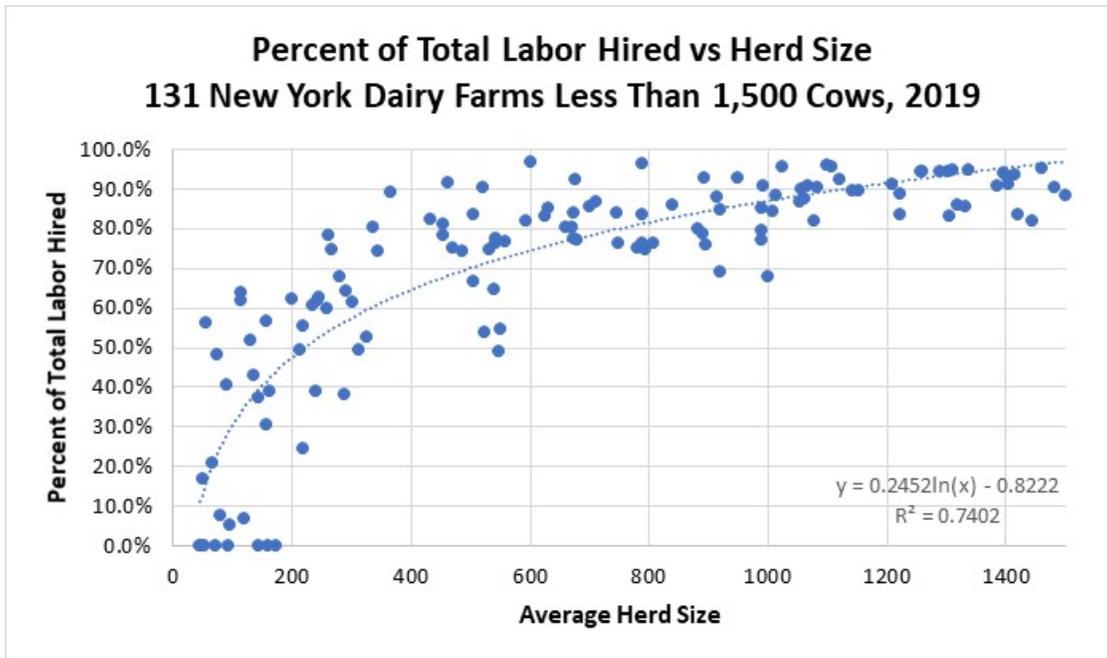
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**Hired Labor on New York State Dairy Farms
Cost, Efficiency & Change From 2011 Through 2020**
Jason Karszes and Chris Wolf¹

Hired labor plays a significant role on dairy farms. As farms size grows, hired employees provide a larger percent of the labor needed to work the farm. In 2019, on 159 farms participating in the Dairy Farm Business Summary and Analysis Program (DFBS),² hired labor sources provided an average of 85.7 percent of the labor hours used to work the farm. The remaining labor is provided by the farm owners or un-paid family labor. Looking at hired labor as a percent of total labor utilized by herd size (Figure 1), as herd size grows to 600 cows, hired labor exceeds 60 percent of the total workforce across all participating farms. As herd sizes grow beyond 1,000 cows, hired labor is between 80 to 95 percent of the total workforce.

Figure 1.



With the increasing reliance on hired labor on dairy farms, the cost associated with the hired workforce is a significant expense. On most farms participating in the DFBS, hired labor is the second largest expense category after purchased grain and concentrates. This report focuses on how hired labor costs and labor efficiency have changed from 2011 to 2020 across farms participating in the DFBS that utilized hired labor, and is comprised of summaries of the following periods:

- All participating farms, last 10 years (2011-2020) with the number of farms changing over time.
- Last 7 years, (2014-2020), summarizing farms participating in DFBS for all 7 years.
- Last 5 years (2016-2020), summarizing farms participating in DFBS for all 5 years.
- Last 2 years (2019-2020), summarizing farms participating in DFBS for both years.

¹ The authors would like to thank Caroline Potter for her assistance in preparing data along with Mary Kate MacKenzie and Richard Stup for their comments, edits, and improvements to this project.

² The Dairy Farm Business Summary and Analysis Program (DFBS) is an applied research and educational extension program offered in partnership between Cornell University, Cornell Cooperative Extension, and the PRO-DAIRY program with the College of Agriculture and Live Sciences. Participating farms provide annual financial and production information for their businesses. This information forms the basis for financial analysis of dairy farm performance overtime.

Trends in Labor Factors Over the Last 10 Years, All Participating Farms

Over the last 10 years, there has been considerable change on dairy farms. Table 1 highlights selected farm and labor metrics for the 2011 through 2020 business years for all farms participating in the DFBS. The annual average is for those farms that participated in both the current year and the prior year. The percent change from the previous year is also calculated and is based on farms that participated in both years. By focusing on farms that participated in the prior and current year for the percent change calculation, there is no impact associated with different farms participating across years.

Descriptive Statistics

For farms participating in the DFBS, average herd size for 2011 was 611 cows and grew to 1,200 cows by 2020. Over this period, the number of participating farms in the project declined from 165 to 121 farms for 2020. Some of the change in herd size across the 10-year period reflects changes in which farms participated over time. Year over year growth in average herd size ranged from a low of 2.9 percent in 2011 to a high of 6.8 percent in 2018. From 2015 to 2019, average herd size grew at 4.5 percent or more each year.

Pounds sold per cow grew at a much lower rate over the 10 years, with the average annual milk production per cow increasing from 24,817 to 26,368 pounds. While there were years with percent increases over 2.5 percent, there were three years with decreases in milk sold per cow, reflecting the impact that forage quality and weather conditions have on milk production.

As farm size grew, the number of hired worker equivalents³ also increased. The increase in hired worker equivalents year over year ranged from a low of 2.0 percent in 2020 to a high of 8.3 percent in 2014. The amount of hired labor added each year reflects the needs of the farm along with the ability of the farm to hire additional labor. In 2014, average herd size grew by 5.4 percent while average hired workers increased by 8.3 percent. This may reflect the ability of the farm to hire extra workers as 2014 was the highest profit year over this 10-year period.

Labor Efficiency

As herd size increased along with amount of hired worker equivalents, labor efficiency metrics changed on the farm. From 2011 through 2014, average cows per worker decreased in three of the four years. Average cows per worker then showed positive increases for the remaining time frame. From 2016 through 2019, the efficiency increases averaged 2.5 percent or higher a year.

Milk sold per worker is a second labor efficiency metric calculated for dairy farms. This number captures both the cows per worker and the milk sold per cow, we consider it the more important measure of labor efficiency. From 2011 to 2020, only one year did efficiency decrease from the previous year. While cows per worker did decrease in more than one year, if there was an increase in milk sold per cow, milk sold per worker may still increase, which occurred in 2011 and 2012. The largest increase occurred in 2019 when milk sold per cow increased 1.6 percent and cows per worker increased 3.4 percent, leading to an average increase of 5.1 percent in milk sold per worker equivalent.

The improvements in labor efficiency occurring from 2016 to 2020 were more significant than occurred in the previous 5 years. This may reflect an increased emphasis on improving labor efficiency by farm management team due to increasing labor costs that started to appear.

³ One worker equivalent equal's 2,760 hours a year as defined by the Dairy Farm Business Summary.

Labor Costs

Total payroll costs encompass all costs that the farm incurred related to hired labor, including gross wages, employment taxes (social security, unemployment, etc.), workman's compensation, and any other benefits that are provided to employees. Total payroll expense increased on participating farms from 2011 to 2020, with the total dollars of payroll more than doubling. The average annual increase in payroll from the previous year for the same participating farms was 7.5 percent, with only one year showing less than a 6 percent increase. The increase in total payroll is a function of farms hiring more hours of labor as farm size grew along with the rising cost of labor per hired labor hour. On average, the amount of hired labor as measured by hired worker equivalents increased by 3.9 percent a year over the 10 years.

Table 1

Year	Summary of Selected Labor Metrics with Year over Year Changes Participating Dairy Farms, DFBS, New York State									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Descriptive Statistics										
Number of Farms ¹	165	159	162	152	154	156	147	142	143	121
Herd Size	611	663	703	795	821	859	926	1,003	1,072	1,200
%Change	2.9%	3.6%	3.8%	5.4%	4.5%	5.0%	5.6%	6.8%	5.6%	3.8%
Lbs. Sold per Cow	24,817	25,479	25,697	25,524	25,547	26,288	25,936	25,817	26,317	26,368
% Change	0.5%	2.7%	0.8%	-0.6%	0.3%	2.8%	-1.1%	-0.7%	1.6%	0.2%
# of Hired Worker Equivalents	11.3	12.6	13.2	15.4	15.6	16.0	16.8	17.8	18.4	20.4
% Change	3.6%	6.5%	2.7%	8.3%	3.7%	2.2%	3.3%	3.8%	2.7%	2.0%
Labor Efficiency										
Cows per Worker	44.6	44.0	44.8	44.5	45.3	46.1	47.6	48.8	50.5	51.7
%Change	-0.4%	-1.9%	1.1%	-1.2%	0.9%	2.9%	2.5%	3.1%	3.4%	2.1%
Milk Sold per Worker	1,107,941	1,122,224	1,150,596	1,136,655	1,157,549	1,211,175	1,234,456	1,258,423	1,327,816	1,364,895
%Change	0.2%	0.7%	1.9%	-1.8%	1.3%	5.7%	1.4%	2.3%	5.1%	2.4%
Labor Costs										
Total Payroll, Dollars	\$423,618	\$475,903	\$512,956	\$610,110	\$635,840	\$653,924	\$715,397	\$769,424	\$838,015	\$974,792
% Change	8.5%	7.5%	6.2%	10.8%	7.1%	3.2%	9.0%	6.7%	7.6%	8.1%
Cost per Hired Labor Hour	\$13.54	\$13.63	\$14.04	\$14.35	\$14.75	\$14.78	\$15.45	\$15.70	\$16.46	\$17.34
% Change	4.7%	1.0%	3.4%	2.3%	3.3%	1.0%	5.5%	2.8%	4.7%	6.0%
Cost per Cwt. of Milk Sold	\$2.79	\$2.82	\$2.84	\$3.01	\$3.03	\$2.90	\$2.98	\$2.97	\$2.97	\$3.08
% Change	4.9%	1.1%	1.4%	6.0%	2.0%	-4.3%	4.6%	0.7%	0.3%	4.1%
Hired Labor Costs as % of										
Total Operating Expenses	15.4%	14.9%	14.5%	14.7%	16.0%	16.8%	17.0%	17.0%	17.0%	17.1%
Hired Labor Costs as % of										
Total Farm Expenses	14.2%	13.7%	13.4%	13.5%	14.6%	15.2%	15.3%	15.5%	15.5%	15.6%
Earnings										
Percent Rate of Return on All										
Capital w/o Apprec.	11.37%	5.46%	7.60%	13.62%	1.25%	1.01%	3.74%	1.08%	5.63%	6.73%

¹ Number of farms with hired labor that participated in DFBS project for both the year reported and the prior year

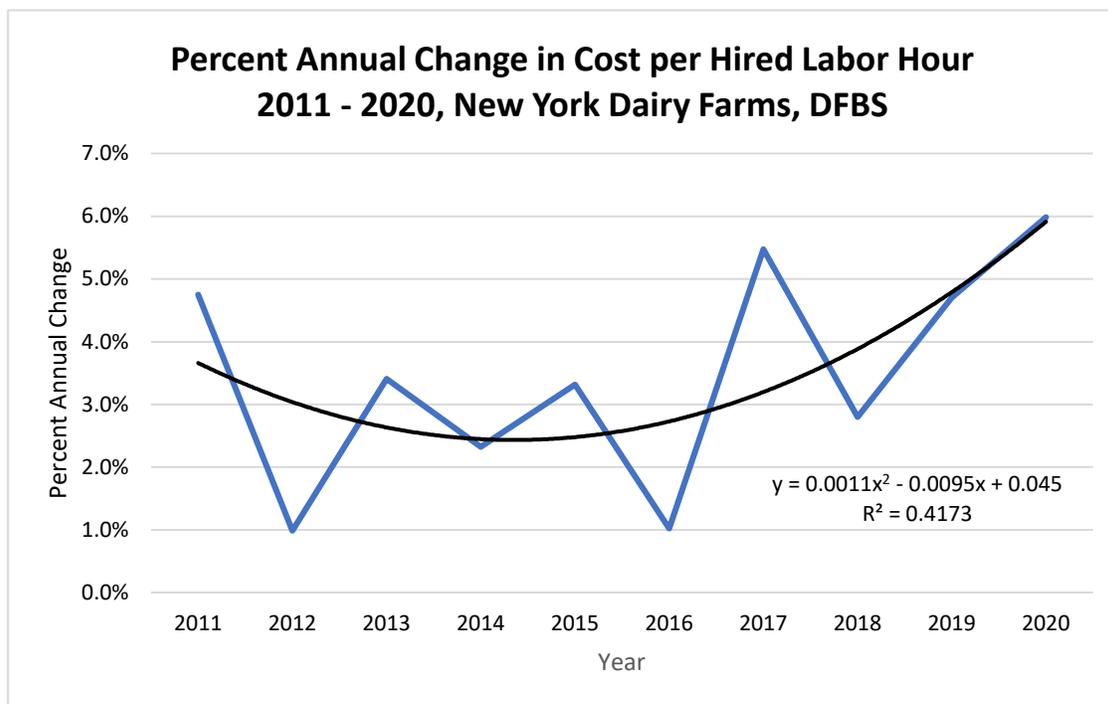
Over the 10 years, the cost per hired labor hour increased on average 3.5 percent a year, from \$12.92 an hour in 2010 to \$17.34 in 2020. The annual increase in the cost per hour ranged from a low of 1.0 percent, in both 2012 and 2016, to a high of 6.0 percent in 2020. The increasing cost per hired labor hour on participating farms coupled with the growth in the amount of hired labor led to a 7.5 percent average annual increase in total payroll expense.

A second measure of labor costs reported is the cost per hundredweight of milk sold. Labor costs increased from an average of \$2.66 to \$3.08 per hundredweight, an increase of 15.8 percent over 10 years. The cost per hundredweight accounts for the management changes undertaken by the farm to increase labor efficiency as measured by both cows per worker and milk sold per worker. If there had been no change in labor efficiency as measured by cows per worker on these farms, the cost per hundredweight for hired labor would have increased to \$3.62 per hundredweight, an increase of 36.1 percent over 10 years. In other words, improvements to labor efficiency on participating farms partially offset the rising costs associated with both the cost and the amount of hired labor.

A third measure of labor is a comparison to the total operating costs of the dairy farm, reported as a percent. From 2011 through 2015, the percent of total operating costs that was attributed to hired labor ranged from 14.5 to 15.4 percent. Over the next 5 years, from 2016 through 2020, hired labor comprised 16.8 to 17.1 percent of total operating costs. Over time, a larger percent of the total costs of the farm went to hired labor.

A second way to look at the change in labor metrics over time is the rate of change from one year to the next. Figure 2 displays the annual percent increase in cost per hired labor hour from 2011 through 2020. The trendline for this figure shows that the rate of change decreased from 2011 through till 2014, and then from 2015 on the rate of change began increasing each year at a faster pace.

Figure 2.



With the average values for these various labor metrics changing, the difference in the average values is influenced by the change in farms participating from year to year along with changes within the business. However, the percent change from year to year is calculated using the same farms data from one year to the next, so the percentage change reported represents the change from one year to the next due to changes on the farms and not by a change in participating farms.

Trends From Same Participating Farms, Last 7 Years

To look at change based on the same farms over time, 104 farms that participated in the DFBS every year from 2014 through 2019 that utilized hired labor were identified and summarized. Table 2 reports the average values and percent change of selected hired labor metrics from 2014. By only including farms that participating every year, there is no change in the metrics based on which farms may have participated across years.

Table 2.

Summary of Selected Labor Metrics with Year over Year Changes							
Same 104* Farms, 7 years, 2014 through 2020, New York State, DFBS							
	2014	2015	2016	2017	2018	2019	2020
Descriptive Statistics							
Herd Size	913	959	998	1,057	1,125	1,188	1,231
%Change		5.0%	4.1%	5.9%	6.4%	5.6%	3.6%
Lbs. Sold per Cow	25,708	25,756	26,469	26,157	25,998	26,352	26,431
% Change		0.2%	2.8%	-1.2%	-0.6%	1.4%	0.3%
# of Hired Worker Equivalents	17.6	18.4	18.6	19.3	20.1	20.6	21.0
% Change		4.7%	0.9%	4.0%	3.9%	2.6%	1.8%
Labor Efficiency							
Cows per Worker	45.2	45.5	46.8	47.8	49.1	50.7	51.8
%Change		0.6%	3.0%	2.0%	2.8%	3.3%	2.1%
Milk Sold per Worker	1,163,744	1,171,294	1,239,463	1,249,391	1,276,661	1,337,771	1,369,682
%Change		0.6%	5.8%	0.8%	2.2%	4.8%	2.4%
Labor Costs							
Total Payroll, Dollars	\$684,655	\$737,271	\$754,927	\$821,285	\$874,782	\$938,495	\$1,009,831
% Change		7.7%	2.4%	8.8%	6.5%	7.3%	7.6%
Cost per Hour, Hired	\$14.11	\$14.52	\$14.73	\$15.40	\$15.80	\$16.52	\$17.46
% Change		2.9%	1.5%	4.6%	2.6%	4.6%	5.7%
Cost per Cwt. of Milk Sold	\$2.91	\$2.98	\$2.86	\$2.97	\$2.99	\$3.00	\$3.10
% Change		2.4%	-4.1%	4.0%	0.6%	0.2%	3.6%
Hired Labor Costs as % of Total Operating Expenses	14.5%	15.9%	16.7%	17.1%	17.2%	17.3%	17.3%
Hired Labor Costs as % of Total Farm Expenses	13.3%	14.5%	15.1%	15.3%	15.6%	15.7%	15.8%
Earnings							
Percent Rate of Return on All Capital w/o Apprec.	14.4%	1.8%	1.5%	4.0%	1.4%	5.9%	6.8%

* Number of farms with hired labor that participated in DFBS project every year 2014-2020

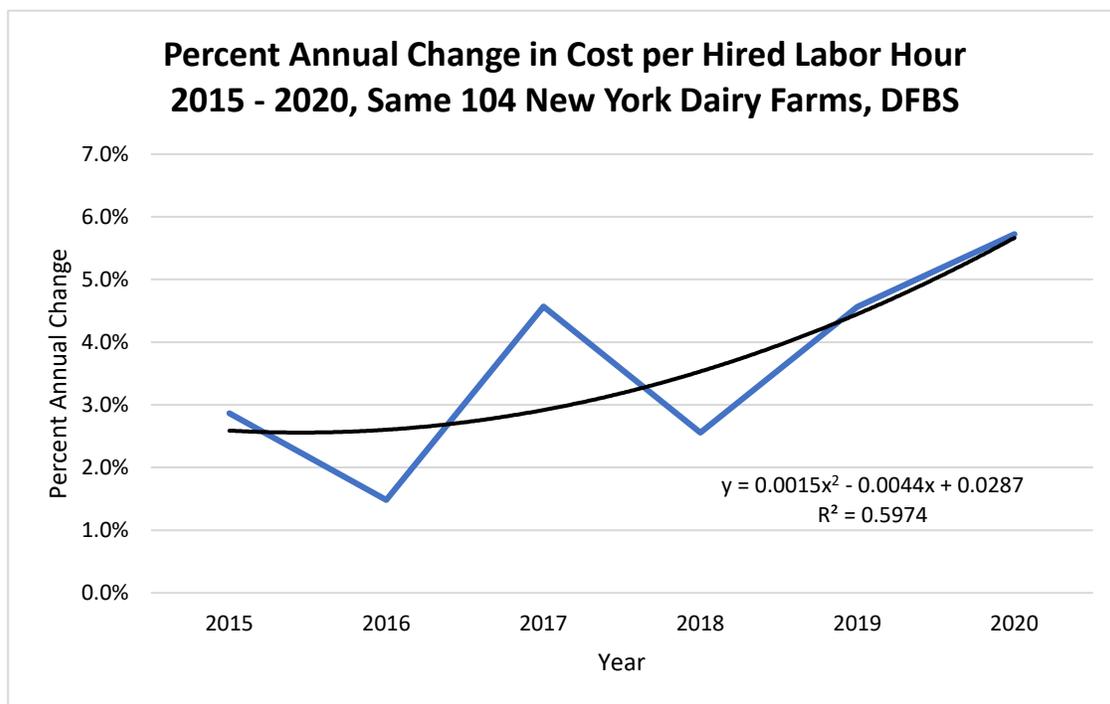
Starting with an average herd size of 913 cows for 2014, these farms grew on average of 5.1 percent a year, with 2018 showing the highest growth of 6.4 percent and 2020 having the smallest change in growth of 3.6 percent. Herd size averaged 1,231 cows in 2020.

Milk production also showed a small increase over the period examined, increasing from 25,798 pounds per cow to 26,431 pounds per cow, an increase of 2.8 percent from 2014.

With the increase in cow numbers, the amount of hired labor also increased to reflect the larger labor needs. Average hired labor equivalents increased from 17.6 to 21.0. While average herd size increased 34.8 percent from 2014, the hired labor being utilized increased only 19.2 percent. With herd size increasing at a faster pace than hired labor, labor efficiency metrics improved. Average cows per worker increased from 45.2 to 51.8 for the period, an increase of 14.6 percent. Milk sold per worked increased 17.7 percent, reflecting the increase in milk per cow along with the increase in cows per worker equivalent.

With the businesses growing in herd size from 2014 to 2020, the total payroll cost to the business increased by 47.5 percent. This increase was due to the combination of increases in the total hours of hired labor utilized by the farms and the average cost per hour. Average cost per hour increased from \$14.11 in 2014 to \$17.46 per hour in 2020, an increase of 23.8 percent. The annual percent change in cost per worker ranged from a low of 1.5 percent in 2016 to a high of 5.7 percent in 2020, with an average annual increase of 3.6 percent. For these same farms, the percent increase year over year rose over time as shown in Figure 3. The increase in cost per hour coupled with the increase in total hours of hired labor drove the increase in total payroll costs.

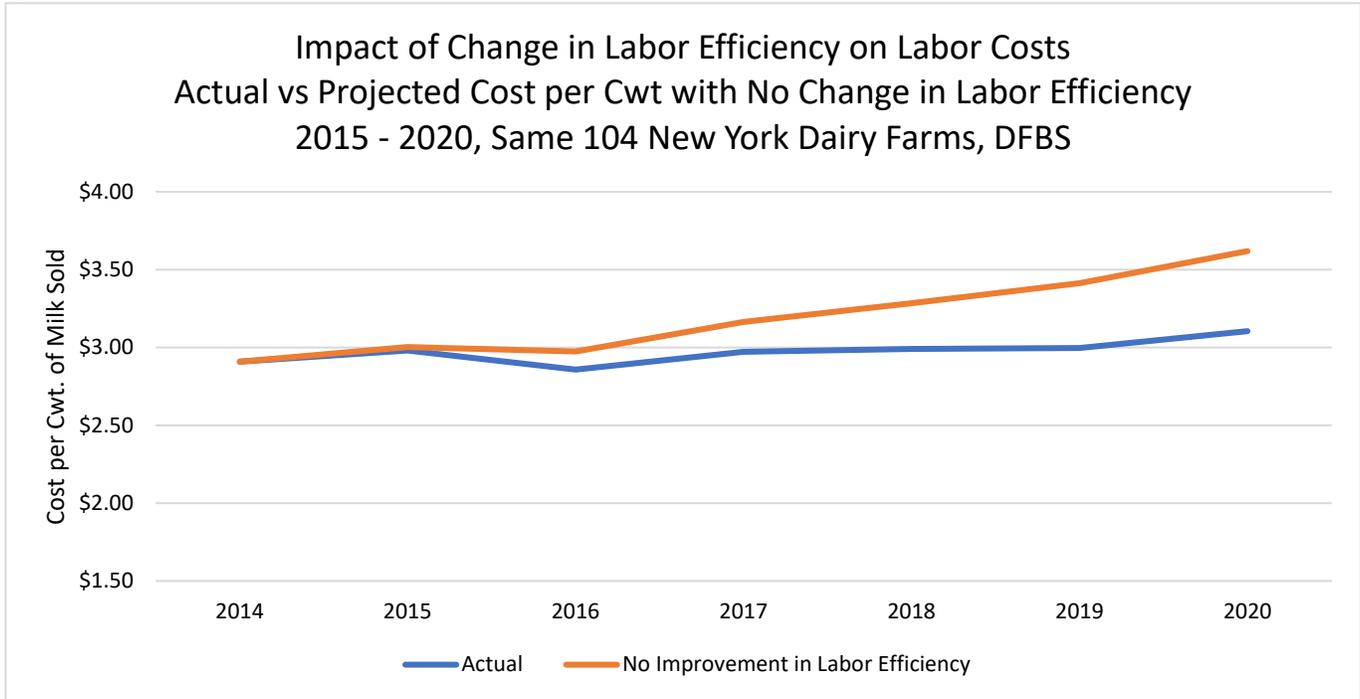
Figure 3.



The average hired labor cost per hundredweight of milk produced increased from \$2.91 per hundredweight to \$3.10 per hundredweight, an increase of 6.7 percent over the 6 years. The average annual percent change was quite variable, ranging from a decrease of 4.1 percent in 2016 to an increase of 3.6 percent in 2020. This reflects the labor efficiency improvements implemented during the year partially offsetting the increase in hired labor costs per hour. If there had been no change in labor efficiency, hired labor equivalents would have increased by an additional 3.5 worker equivalents and total payroll would have grown an additional \$167,368. This increase would have resulted in a cost per hundredweight of \$3.62, an increase of 24.4 percent from 2014. Figure 4 highlights the difference in

projected vs actual hired labor costs if no improvements in labor efficiency had occurred. Across the 104 farms, the increase in labor efficiency resulted in a total of 364 less hired worker equivalents needed by 2020 than if labor efficiency stayed the same as 2014.

Figure 4.



For these same farms from 2014 to 2020, hired labor cost is also reported as a percent of total operating costs. Operating expenses on dairy farms are continually changing as prices change, different mixes of inputs are utilized, and production output changes. Hired labor as a percent of total operating costs increased from 14.5 percent in 2014 to 17.3 percent in 2020, averaging over 17 percent from 2017. This increase is a combination of the cost per hour increasing at a faster rate than other expenses along with an increase in hired labor on the farms as herd size increased.

Trends from Same Participating Farms, Last 5 Years

From the labor cost changes shown in Figures 2 and 3, the rate of change, or the percent increase in cost per hour, increased at a faster rate over the last 4 years. With the rate of change from one year to the next increasing, Table 3 looks at the key business and labor metrics for the same farms that participated in the DFBS for 2016 through 2020 and calculates the percent change over the last 4 years.

Over the period, average herd size increased 23.7 percent, from 995 cows to 1,230 cows. With this increase in herd size, additional hired workers equivalents were added. An additional 2.3 hired worker equivalents were added to the average farm, an increase of 12.9 percent over the 5 years. With the percentage increase in business size greater than the percentage increase in hired labor, labor efficiency increased. Cows per worker increase 10.9 percent to 52.0 and milk sold per worker increased 11 percent to 1,373,808.

Meanwhile, hired labor cost per hour increased from \$14.63 to \$17.47, and increase of 19.4%. The average annual increase was 4.6 percent, with the last three years increase ranging from 4.9 to 6.8 percent a year.

Table 3.

Summary of Selected Labor Metrics with Year over Year Changes Same 113* Farms, 5 years, 2016 through 2020, New York State, DFBS					
	2016	2017	2018	2019	2020
Descriptive Statistics					
Herd Size	995	1,055	1,123	1,185	1,230
%Change		6.1%	6.4%	5.5%	3.8%
Lbs. Sold per Cow	26,399	26,080	25,889	26,332	26,411
% Change		-1.2%	-0.7%	1.7%	0.3%
# of Hired Worker Equivalents	18.5	19.2	20.0	20.5	20.8
% Change		4.0%	4.3%	2.4%	1.8%
Labor Efficiency					
Cows per Worker	46.9	48.0	49.1	50.8	52.0
%Change		2.3%	2.4%	3.4%	2.3%
Milk Sold per Worker	1,237,839	1,251,420	1,272,419	1,338,850	1,373,808
%Change		1.1%	1.7%	5.2%	2.6%
Labor Costs					
Total Payroll, Dollars	\$745,676	\$817,320	\$869,226	\$933,106	\$1,005,149
% Change		9.6%	6.4%	7.3%	7.7%
Cost per Hour, Hired	\$14.63	\$15.43	\$15.74	\$16.51	\$17.47
% Change		5.4%	2.0%	4.9%	5.8%
Cost per Cwt. of Milk Sold	\$2.84	\$2.97	\$2.99	\$2.99	\$3.09
% Change		4.6%	0.7%	0.0%	3.5%
Hired Labor Costs as % of Total Operating Expenses	16.7%	17.0%	17.2%	17.2%	17.2%
Hired Labor Costs as % of Total Farm Expenses	15.1%	15.3%	15.7%	15.7%	15.7%
Earnings					
Percent Rate of Return on All Capital w/o Apprec.	1.7%	4.0%	1.4%	5.8%	6.8%
Capital Investment Per Cow	\$889	\$869	\$545	\$581	\$821
% Change		-2.3%	-37.3%	6.8%	41.2%

* Number of farms with hired labor that participated in DFBS project every year 2016-2020

While the average increase in hired labor was 4.6 percent from one year to the next, the cost per hundredweight of milk produced increased at a lower rate, only increasing a total of 8.9 percent from 2016 to 2020. This total increase was lower due to the increase in labor efficiency that occurred on these farms.

Figure 5

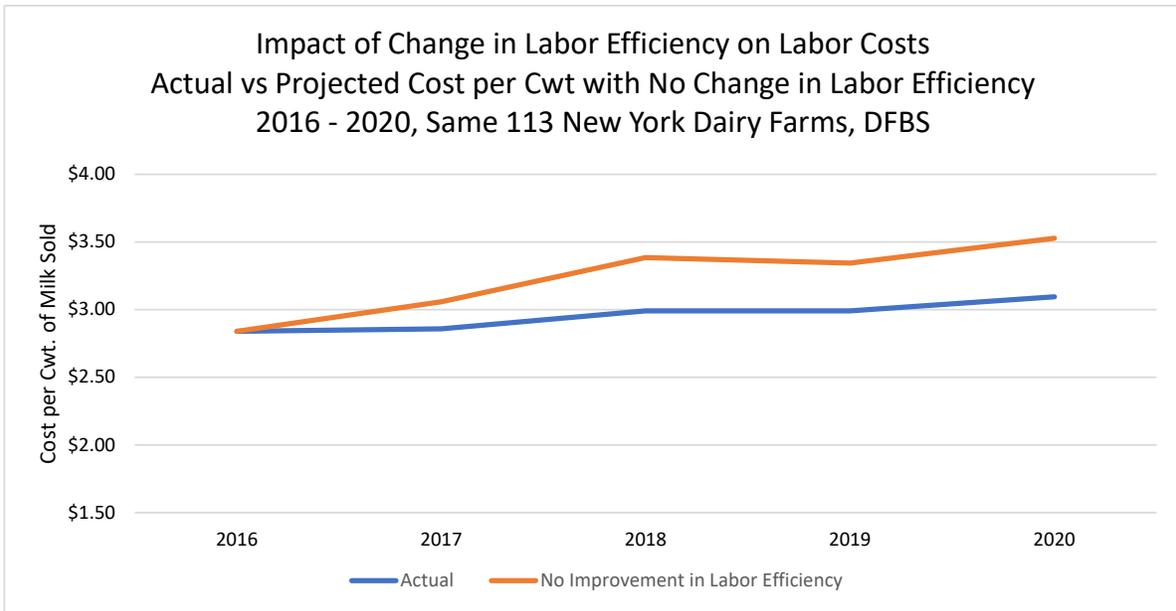
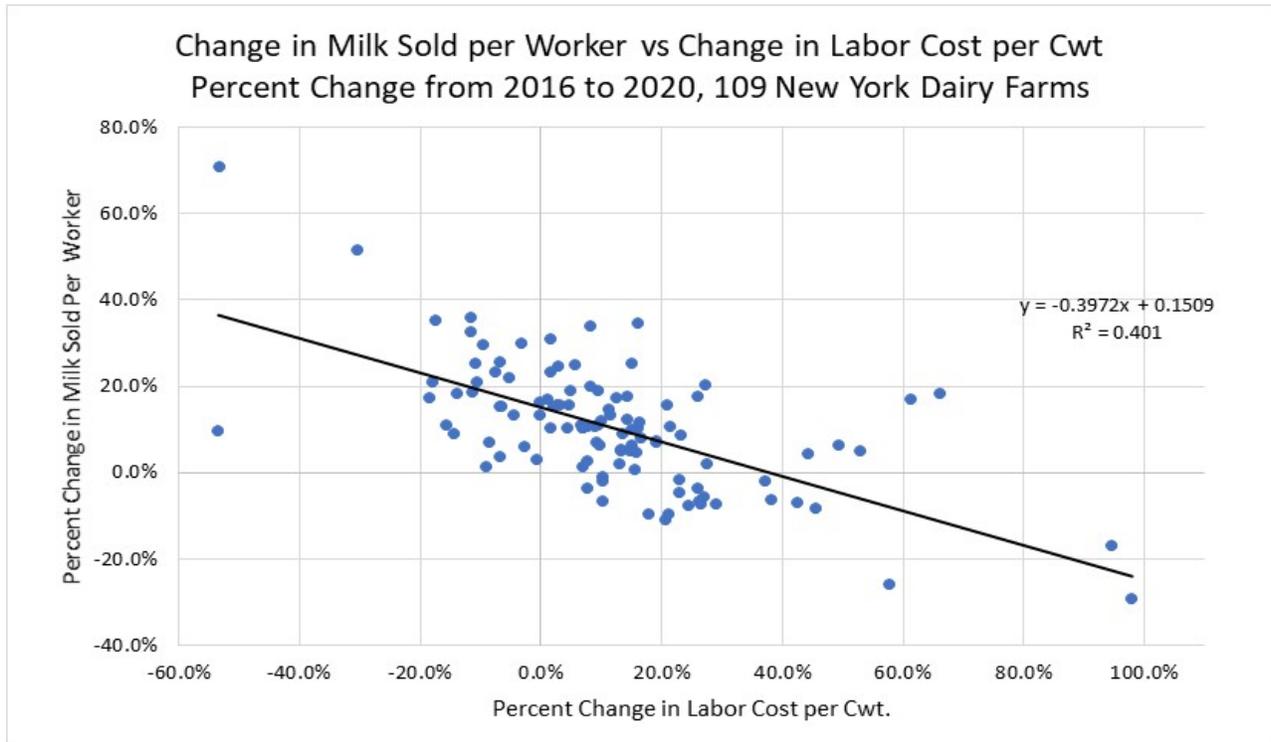


Figure 5 displays the change in hired labor cost per hundredweight of milk sold for what occurred on these farms from 2016 to 2020 and shows what the labor costs would have been without improvement in labor efficiency as measured by cows per worker. For these same farms, if labor efficiency had not improved, an additional 2.9 hired worker equivalents would have been needed on average, or a total of 330.2 additional worker equivalents for all 113 farms. For the average farm, using the average cost of \$17.47 per hired labor hour, if no change in labor efficiency total payroll would have been \$140,892 higher in 2020 than it was.

Figure 6



Change in labor efficiency plays a critical role in determining the impact of changes in costs per hour for hired labor on total costs to the farm. From 2016 to 2020, farms that were able to show the highest increases in labor efficiency tended to have lower increases, or decreases, in labor costs per hundredweight as shown in Figure 6.

Trends from Same Participating Farms, Last 2 Years

With 2020 showing the highest annual percent increase in hired labor costs per hour over the last 10 years, the same farms that participated in the DFBS for both 2019 and 2020 were identified to look at the change from 2019 to 2020. (Table 4)

Table 4

Summary of Selected Labor Metrics with Year over Year Changes Same 125* Farms, 2019 & 2020, New York State, DFBS			
	2019	2020	Percent Change
Descriptive Statistics			
Herd Size	1,147	1,190	3.8%
Lbs. Sold per Cow	26,348	26,422	0.3%
# of Hired Worker Equivalents	19.8	20.2	2.0%
Labor Efficiency			
Cows per Worker	50.6	51.7	2.1%
Milk Sold per Worker	1,334,417	1,365,956	2.4%
Labor Costs			
Total Payroll, Dollars	\$899,075	\$969,270	7.8%
Cost per Hour, Hired	\$16.46	\$17.40	5.7%
Cost per Cwt. of Milk Sold	\$2.98	\$3.08	3.6%
Hired Labor Costs as % of Total Operating Expenses	17.1%	17.1%	
Hired Labor Costs as % of Total Farm Expenses	15.6%	15.7%	
Earnings			
Percent Rate of Return on All Capital w/o Apprec.	5.8%	6.7%	
Capital Investment Per Cow	\$584	\$857	46.8%

* Number of farms with hired labor that participated in DFBS project in both 2019 and 2020.

The addition of more farms analyzed for changes from 2019 to 2020 doesn't change the theme that has been shown in earlier tables looking at the longer time periods. Hired labor cost per hour increased by 5.7 percent to \$17.40. This increase is driven by a combination of higher gross wages and increases to the business share of employment taxes, workman's compensation, and other benefits provided to employees. Along with this increase in cost per hour, additional hired hours of labor were utilized with an increase of 2.0 percent in hired worker equivalents. This led to an increase of total payroll on participating farms of 7.8 percent.

The increase in additional hired labor utilized on the farms is associated with an increase in farm size. From 2019 to 2020, farm size increased by 3.8 percent to an average of 1,138 milking and dry cows. With the increase in herd size

greater than the increase in hired labor utilized, labor efficiency as measured by cows per worker equivalent increased by 2.1 percent to 51.7. If cows per worker had stayed the same in 2020 as 2019, the farms would have had to increase hired labor by an additional 4.3 percent versus the 2.0 percent that was needed with the increase in cows per worker equivalent. This increase in cows per worker coupled with a small increase in milk sold per cow resulted in an increase of 2.4% in milk sold per worker equivalent, a second measure of labor efficiency.

Total labor cost per hundredweight of milk sold increased 3.6 percent to \$3.08. This increase in cost per hundredweight is less than the increase in cost per hired hour of labor due to the improvement in labor efficiency, measured by the 2.4 percent increase in milk sold per worker. If the farms had not been able to improve labor efficiency, the increase in cost per hired hour would have resulted in a cost of \$3.21 per hundredweight, an increase of 14 cents more than what occurred.

Summary

As farm size increased from 2010 to 2020, dairy farms have utilized more hired labor with hired labor providing over 85% of all labor on larger dairy farms in New York. As farm size grew and farms utilized more hired labor over this period, total payroll costs also increased. This change was driven not only by the increase in the amount of hired labor, but also the rising costs of the hired labor. The change in the hourly cost of hired labor did vary from year to year. However, the rate of change has been increasing over the last five years with the highest jump in the hourly cost of hired labor occurring from 2019 to 2020.

While labor costs have been increasing as measured by total payroll and cost per hired labor hour, cost per hundredweight of milk has also risen, but at a slower rate. Dairy farms have offset some of the increase in cost per hired labor hour by improvements in labor efficiency. Without these increases in labor efficiency, increasing costs associated with hired labor would have had a much larger negative impact on earnings.

While improvements in labor efficiency have partially offset the increase in hired labor cost per hour and resulted in a lower increase in cost per hundredweight of milk sold, any costs associated with achieving the improvements in labor efficiency are not captured or analyzed within this report. Many different areas may impact labor efficiency on a dairy farm, such as farm size, growth of farm, technology, automation, improved training & retention of employees, utilization of custom services, etc., but the costs associated with the improvement may offset any cost saving due to improvements in labor efficiency and may lead to decreases in farm earnings.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2021-05	Hired Labor on New York State Dairy Farms: Cost, Efficiency & Change from 2011 through 2020		Karszes, J. and Wolf, C.
2021-04	The Economic Contributions of Agriculture to the New York State Economy: 2019		Schmit, T.
2021-03	2020 New York Berry Price Information		Yang, Z., Park, K.S., and Gómez, M.I.
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2021-01	“Six Year Trend Analysis 2019, New York State Dairy Farms, Selected Financial and Production Factors”, Dairy Farm Business Summary		Karszes, J. and Augello, L.
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