



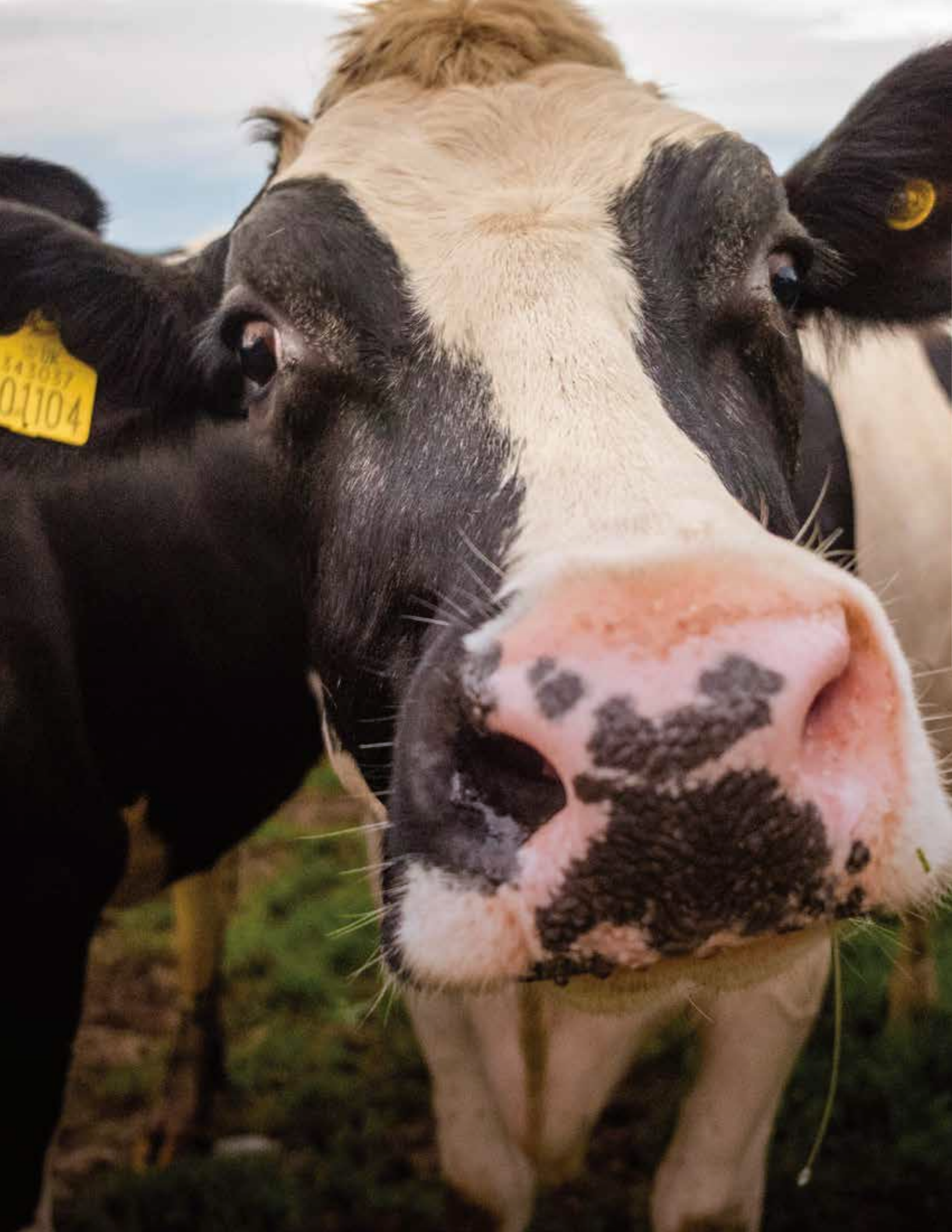
FARM CREDIT EAST

2020



NORTH
EAST

*Dairy Farm
Summary*



2020 NORTH EAST

Dairy Farm Summary

Prepared by:
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June 2021



FARM CREDIT EAST

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In addition, thanks are due to all Farm Credit East lending and financial services staff, who reconciled reams of farm financial data from hundreds of farms and entered the information into the system. Every year, their hard work provides the raw material for creating the *DFS*.

Most importantly, the entire Farm Credit East team extends our sincere thanks to the hardworking Northeast dairy producers who entrusted their farm data to this project. We hope the end product is helpful in your continual pursuit of improved farm management. You inspire us all with the valuable work that you do.

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HIGHLIGHTS OF THE 2020 NORTHEAST DAIRY FARM SUMMARY

- ❖ 209 dairy farms participated in *2020 Northeast Dairy Farm Summary*.¹
- ❖ Net earnings increased to an average of \$663 per cow in 2020,² from \$447 per cow in 2019. Government payments, including COVID-19 relief programs, made a significant contribution to earnings.
- ❖ Total costs increased by 3% from 2019 to 2020. Total expenses per cwt. increased by \$0.59 per cwt. to \$20.79 in 2020.³
- ❖ Net cost of production⁴ (NCOP) increased to \$18.11 per cwt., \$0.30 greater than 2019.
- ❖ Some specific cost categories which changed in 2020 are:
 - › Feed expense, a farm's largest cost, increased from \$1,625 per cow in 2019 to \$1,718 in 2020.
 - › Labor, a dairy farm's second largest expense, increased overall by 3.0% per cow, and 2.6% per cwt. However, when family labor is taken out, hired labor costs rose by 6.6% per cow.
 - › Fuel expenses decreased by -23% per cow as a result of lower oil prices.
- ❖ Productivity increased slightly. Per cow production in our sample herds was 0.4% greater than the prior year. Milk sold per worker increased 4.1% due to more cows per worker, as well as greater per-cow production.
- ❖ Cash flow was sufficient, on average, to meet financial commitments (e.g., operating expenses, debt repayment, family living and income taxes), resulting in an average cash margin per cwt. of \$0.35.⁵ This was a smaller cash margin than 2019's \$1.43/cwt.
- ❖ Percent net worth in our sample increased to 69%. Total debt-per-cow decreased from \$4,061 to \$3,981.

PROFILE OF THE AVERAGE NORTHEAST DAIRY FARM

	2019	2020
Number of Cows	600	685
Milk Sold per Cow	25,793 lbs.	25,884 lbs.
Milk Sold per Worker	1,337,028 lbs.	1,391,525 lbs.
Milk Price per Cwt.	\$19.18	\$18.48
NCOP per Cwt.	\$17.81	\$18.11
Net Worth	67%	69%
Net Earnings per Cow	\$447	\$663
Net Household Income per Cow	\$469	\$682
Return on Assets	5.2%	6.4%

¹Five farms were excluded due to data irregularities, resulting in a benchmark of 204 farms. This year's DFS contains data from Connecticut, Massachusetts, Maine and New York.

²On an accrual basis, after family living, not including nonfarm income.

³Including family living.

⁴Total farm expense, plus family living, less non-milk income. For more information, see page 12.

⁵See figure 7.



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INTRODUCTION

The purpose of Farm Credit East's annual *Dairy Farm Summary (DFS)* is to assess the financial health and progress of dairy farm businesses within the Northeast. It is intended to provide dairy producers, Farm Credit staff, Northeast public policymakers and dairy industry leaders with a better understanding of the current status of the Northeast's largest farm sector.

As a major regional summary of actual dairy farm business results, the *Dairy Farm Summary* is a unique annual project within the U.S. dairy industry. The *DFS* has been published for 41 consecutive years, beginning in 1980 with 1979 financial data. Past editions are available upon request.

This report is the result of cooperation and hard work by many people. We are grateful, first and foremost, to the 209 dairy producers who allowed their financial and production records to be used in this study.⁶ Further, we appreciate the teamwork and timeliness of Farm Credit East staff who helped customers provide that information. This report contains five years of financial data for Northeast dairy farms with the majority of the farms from New York.

We believe this sample of 204 farm operations represents a solid cross section of better-than-average Northeast dairy farm businesses, most of which maintain loan relationships with Farm Credit. While the *DFS* summarizes the actual financial results of a wide range of Northeast dairy producers, it is important to note that our sample is skewed towards farms that are larger than the average of all dairy producers in the region. All farms included in the study received the majority of their income from milk sales, but many farms have additional business income, such as custom work, maple sugaring or crop sales. We have purposely not excluded these farms from the sample (unless such income exceeds 50% of total farm income) as we believe it reflects the diverse face of Northeast dairying, where many producers have supplementary income streams.

If such ancillary business activity constitutes a separate enterprise from the main dairy farming activity, and both revenue and expenses can be broken out, the net return is included in *nonfarm income*, along with income from off-farm employment. If the expenses of this ancillary activity cannot be separated from the dairy farming expenses (labor costs are often co-mingled), such revenue is included in *other farm income*. Thus, the total farm income represented in this report often includes some return from these affiliated business ventures, increasing the income that would have been generated from the dairy enterprise alone. This is typically more significant for the farms with smaller herd sizes.

Partnerships and corporations have been adjusted to a sole proprietor basis for consistency. Farms with unusual events, such as a natural disaster, a major herd-health problem, a significant inheritance, significant unexplained gains or losses (>10 percent of total assets), or other types of business anomalies were excluded from the sample. Each farm's data was carefully reviewed to ensure both cash flow and net worth reconciled within a limited margin of error. This approach ensures a high level of integrity for the financial results presented in the *2020 Northeast Dairy Farm Summary*.

The *DFS* tends to focus discussion on the "average farm." While there is no single farm which is exactly "average," focusing on the average allows us to highlight changes of Northeast dairy farms over time. While the use of averages may lead to an effective discussion with respect to change and overall industry trends, it tends to minimize the best and worst conditions experienced by farms within the sample.

⁶ Of the 209 farms submitted, five were excluded as outliers, or due to data irregularity, resulting in a benchmark of 204 farms.

This continues to be true in a year such as 2020. While the “average farm” had \$663 per cow in net earnings, 12% of the farms in our sample had negative net earnings. Results ranged from just over \$2,000 in net earnings per cow, to a loss of nearly \$1,900 per cow. The standard deviation of net earnings was \$582, indicating a great deal of variability within the sample.

Focusing on average results discounts the fact that while many producers are able to achieve positive earnings, others, of all sizes, struggle to make a profit in this challenging industry. For this reason, we also look at the data within individual herd-size groups and within the top and bottom profitability groups.

Figure 1

Dairy Farm Profitability

	Net Earnings Per Cow ¹	Standard Deviation	Return on Assets ²	Return on Equity ³
2016	\$ 15	\$554	1.1%	0.2%
2017	\$ 291	\$644	3.7%	3.5%
2018	\$ -40	\$535	1.2%	-0.5%
2019	\$ 447	\$518	5.2%	5.4%
2020	\$ 663	\$582	6.4%	7.6%
3-Year Average	\$ 357		4.3%	4.2%
5-Year Average	\$ 275		3.5%	3.2%

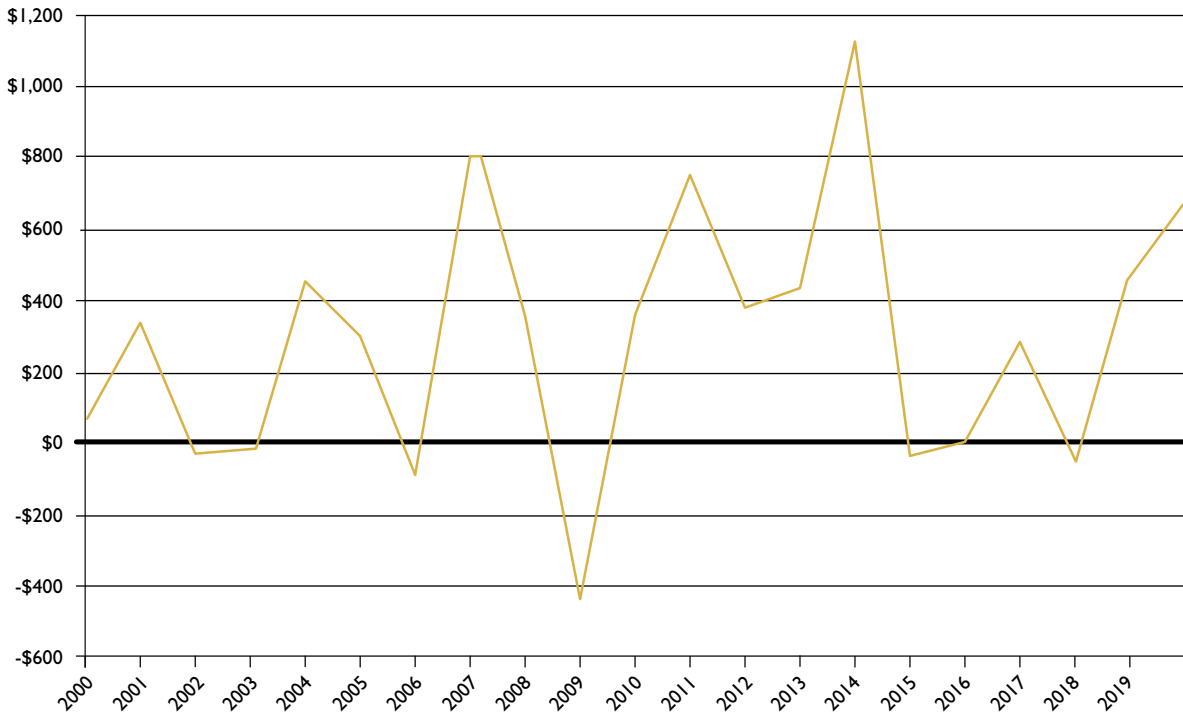
¹Net earnings does not include nonfarm income

²Return on assets = (net earnings + interest)/average total assets

³Return on equity = net earnings / average net worth

Figure 2A

Net Earnings Per Cow 2000-2020





Analysis of 2020

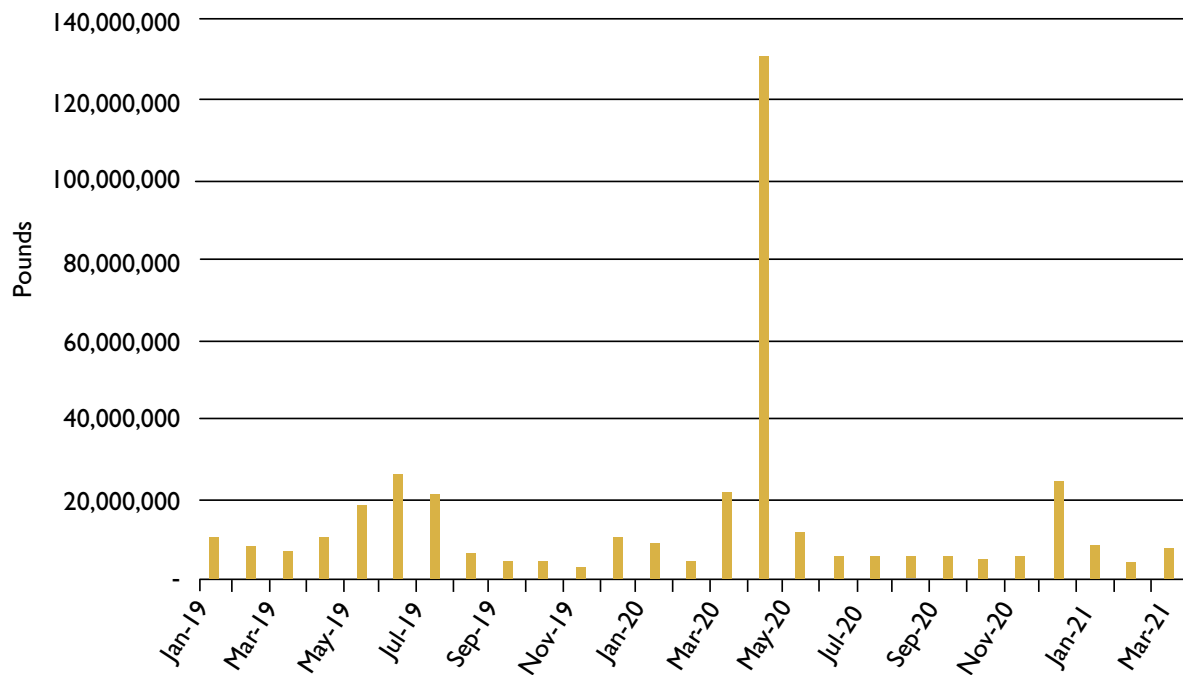
Even though significant variations in earnings from year-to-year and market volatility have become the norm in the dairy sector, one would be hard pressed to imagine a more unusual year than 2020. The COVID-19 pandemic significantly changed our daily lives, and with that, turned food supply chains, markets, and the overall economy upside-down in a matter of just a few weeks in early 2020.

Prior to the pandemic, Americans had been spending just over half of their food dollars outside the home.⁷ Foodservice, ranging from bars and restaurants, to schools, universities and other institutions consumed nearly half of all products in the supply chain. This market channel shrank almost to zero as dining establishments and schools closed in the early days of the pandemic. Meanwhile, consumers shifted the majority of their food purchases to the grocery store channel which struggled to keep the shelves stocked due to both the shift to home food consumption as well as some degree of panic buying.

Impacts of this dramatic change were felt across the food system. Producers, processors and distributors struggled to deal with the changes required both in terms of the food supply chain as well as the operational changes required to keep workers safe from COVID-19 in their businesses. Some fruit and vegetable growers had to dump or plow under crops, and some dairy producers had to dump milk. While a small amount of milk dumping is normal, for a number of reasons, the amount of milk classified as used for “Animal Feed, Dumpage, and Other Uses” soared from a normal baseline of approximately five million pounds in February, to a peak of more than 130 million pounds in April.

Figure 2A-1

Milk Dumped, Federal Order One



Source: Federal Order One

⁷ USDA Economic Research Service

While the amount of milk dumped in April was unusually large, thankfully, processors were able to adjust their operations relatively quickly. By May 2020, the dumping had largely subsided, totaling 12.3 million pounds. In addition to this rapid shift in packaging and distribution, many processors and cooperatives in the Northeast stepped up and increased their donations to food banks and other nonprofit distribution channels to help the rising numbers of people who were experiencing food insecurity due to the pandemic.

Although the dairy processing industry was able to adjust their operations over a few months, given the severe nature of the disruption, it took a toll on the industry. Supply greatly exceeded processing capacity and prices plummeted for several months, dropping from \$19.28/cwt. (Boston Blend) in December 2019 to a low of \$13.47/cwt. in May 2020, a decline of nearly \$6, before gradually recovering. In response, some cooperatives placed supply restrictions or penalties on their members to help balance supply and demand.

Dairy farmers were not alone in terms of those impacted by the COVID-19 related shutdowns. U.S. GDP contracted by an unprecedented -31.4% in the second quarter.⁸ Unemployment spiked to a peak of 14.8% in April as employers closed storefronts and laid off workers.⁹ In response to this dramatic economic downturn, the Federal government stepped in with a number of relief and stimulus programs. Some of these, such as the Paycheck Protection Program, were directed at the general economy and available to all businesses (including dairy producers), while others, such as the Coronavirus Food Assistance Program (CFAP), were focused more specifically at the agricultural sector.

In any case, the response from the Federal government was swift and significant. The result of some of these relief programs can be seen in the financial tables in the back of the book. Government payments increased from an average of \$100 per cow in 2019, to \$565 per cow in 2020, and were responsible for a large portion of the average earnings of \$663 per cow. If government payments were not a factor, average net earnings would have been only \$98 per cow.

Because government support was so significant in 2020, a discussion of how these payments were accounted for in this report is important. For consistency, the method of accounting for government programs used in past years was continued in 2020.

- ❖ Significant one-time grants or forgivable loans, such as EQIP, REAP, and other such programs, as well as (in 2020) Paycheck Protection Program (PPP) and SBA Economic Injury Disaster Loans (EIDL) expected to be forgiven, were entered as “Paid in Capital.”¹⁰
- ❖ Crop Insurance payouts were entered as Crop Revenue.
- ❖ Milk Insurance program payments (or similar FSA programs), such as DMC, DRP and LGM, were entered as Milk Revenue.
- ❖ State support payments, such as those from CT, ME and MA are entered as Government Programs.
- ❖ USDA Coronavirus Food Assistance Program (CFAP) payments were entered as Government Programs.
- ❖ Any other government program payments not otherwise specified, were entered as Government Programs.

This level of government support brings additional uncertainty to the 2021 forecast. While some government programs continue to inject support to both the general and agricultural economies, it appears unlikely that they will continue at the same rate as in 2020. Meanwhile, while milk prices in 2021 are forecast to average \$1.11/cwt. greater than 2020’s annual average, that includes the impact of the COVID-19 pandemic on the first half of 2020. If we consider the final six months of 2020, milk prices averaged \$17.72/cwt., while the 2021 forecast is for prices to average \$18.21, \$0.49/cwt. greater than the second half of 2020.¹¹ Dairy producers’ profitability will be much more dependent on milk prices in 2021 than they were in 2020.

⁸ Source: U.S. Bureau of Economic Analysis. Seasonally adjusted annual rate.

⁹ U.S. Bureau of Labor Statistics

¹⁰ Paid in Capital does not affect income statement earnings, but is accounted for in Figure 10.

¹¹ Boston Blend forecast May 11, 2021

The milk price farmers received in 2020 decreased by \$0.70 per cwt. compared to the prior year, while the net cost of production increased by \$0.30 per cwt. to \$18.11, narrowing margins compared to 2019. While producers received lower milk prices, this was partially mitigated by a 0.4% gain in per-cow productivity, on average.

Looking back over a five-year period, average net farm earnings ranged from \$15 in 2016, \$292 in 2017, -\$40 in 2018, \$447 in 2019, and \$663 in 2020 (not counting nonfarm income). This brings the five-year average earnings to \$275 per cow.

In the 41-year history of the *DFS*, 2020 ranks 4th in terms of profitability in nominal terms, or 5th when adjusted for inflation. While the cumulative return for *DFS* farms over the life of the study remains positive, the average farm has lost money in 15 out of the 41 years of the *DFS*. Farms that have shown multiple years of net losses have tended to drop out of the study, often exiting the industry, leaving more profitable farms remaining.

This summary uses three primary measures of profitability, each of which provides a useful perspective on dairy farm financial performance:

- ❖ **Net earnings per cow** measures sheer dollars of profit earned and includes all farm business sources of income.
- ❖ **Return on assets (ROA)** measures profit earned relative to the present market value of total farm assets. This indicates the earning power of each dollar invested in the farming operation, regardless of whether it comes from the farm operator or was borrowed from a lender.
- ❖ **Return on equity (ROE)** measures profit earned relative to the farmer's equity investment in the operation. This measure is the best indicator of how the dairy producer's investment is paying off compared to the potential return if the funds were invested another way.

A single year does not provide an accurate picture of the dairy industry's long-term operating performance, especially given the volatility in recent years. To further illustrate, in the last 12 years we have seen two of the top three years for profitability in *DFS* history (2014 and 2011) as well as the greatest loss in *DFS* history (2009). Given these extremes, multi-year averages yield a more accurate picture of the industry. If we look at both shorter- and longer-term averages, we see similar results (Figure 2A). Continued year-to-year volatility confirms the challenges and opportunities that Northeast dairy producers face.

Figure 2B

Comparison of Multiyear Averages

	Three-Year Average	Five-Year Average	Ten-Year Average
Net Earnings per Cow	\$357	\$275	\$372
Return on Assets	4.3%	3.5%	4.4%
Return on Equity	4.2%	3.2%	4.5%

It is important to differentiate net earnings (profit) from cash flow. Farm businesses rely on cash flow to pay ongoing bills, but cash flow is not an accurate measure of profitability. Net earnings are an accrual measure of profit, which represents a farm business's ability to provide an economic return for the operator's investment and management. It offers the best measure of a farm's profitability by adjusting cash farm income and expenses to reflect changes in inventories, accounts receivable, accounts payable and prepaid expenses. It is important to note that principal payments on debt, while a significant cash obligation, are not a deductible expense and must be paid out of earnings. Thus both accrual net earnings, and positive cash flow are essential for a dairy farm to survive and grow.

MILK PRICE DECREASES FROM PRIOR YEAR

The average farm milk price at \$18.48 per cwt. was \$0.70, or 3.8% below 2019's \$19.18. It was \$0.48 greater than the five-year average of \$18.00 per cwt. (Figure 3A). In terms of actual (nominal dollars, not adjusted for inflation) milk prices, 2020 ranked 8th in the 40 years of the *DFS*. However, to better understand the true story of how milk prices have changed over time, we must account for the impact of inflation (Figure 3B). In terms of "real," inflation-adjusted rankings, 2020 drops to 36th. The first year of the *DFS*, 1979, ranks first, with an inflation-adjusted milk price of \$36.85/cwt. in 2020 dollars.

Figure 3A

Farm Milk Prices Per Cwt.

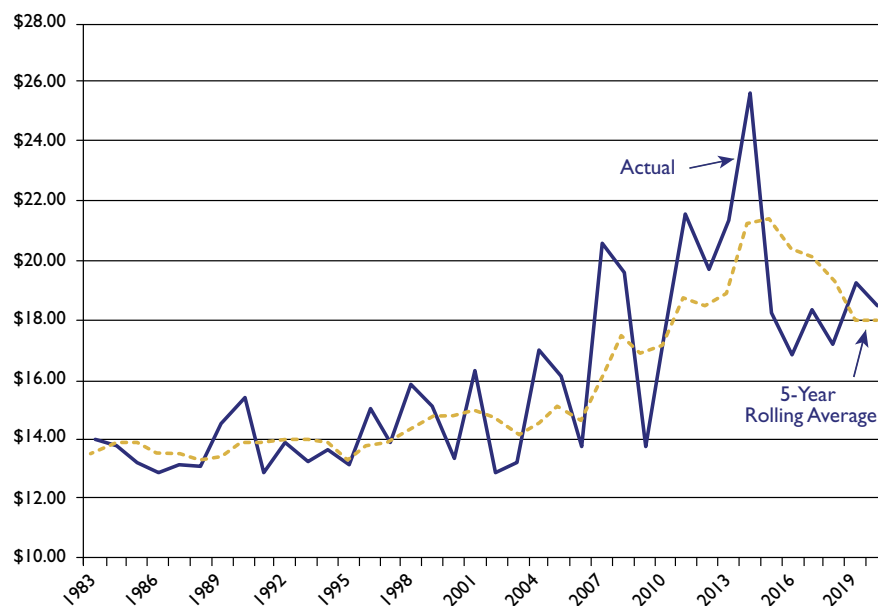
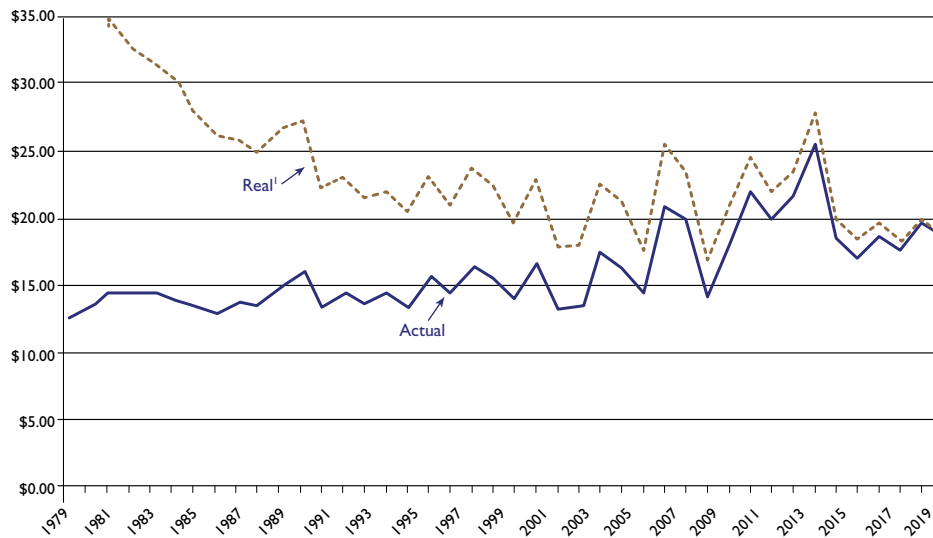


Figure 3B

Farm Milk Prices Per Cwt.



¹Actual price adjusted for inflation - 2020 dollars.

The Federal Milk Marketing Order One Statistical Uniform Price (SUP) began 2020 at \$18.78/cwt. (Boston blend at 3.5% butterfat). The price declined as COVID-19 affected markets, bottoming out at \$13.47 in May. The milk price then recovered, peaking at \$19.08 in July, and finished the year at \$17.26. The average SUP for 2020 was \$17.10/cwt.

Several factors have contributed to increased milk price volatility in recent years. Changes in export markets and domestic demand as well as shifts in supply affect prices. Global market activity and relations with major trading partners have significant influence on U.S. milk prices. In 2020, the impact of COVID-19 and the disruptions to food service markets caused significant hardship to dairy producers across the country. This unusual and unexpected event made the importance of risk management strategies more apparent than ever.



COST OF PRODUCTION INCREASE IS MODEST DUE TO COST CONTROL

The net cost of production (NCOP) peaked in 2014 at \$20.84 per cwt. in nominal terms. It fell by 12% in 2015 to \$18.36, and by an additional 9% in 2016 to \$16.79, more than \$4 per cwt. lower than in 2014. In 2017, NCOP increased, but by less than the increase in the price of milk, climbing \$0.39/cwt., to \$17.18, while the milk price increased by \$1.47 to \$18.32/cwt. In 2018, milk prices declined, while NCOP increased, resulting in losses for many producers. NCOP increased to \$17.72, while the average milk price received declined to \$17.19/cwt. In 2019, milk prices increased by \$1.99/cwt. to \$19.18/cwt. 2019 NCOP increased marginally, rising by only \$.09/cwt. to \$17.81/cwt. In 2020, milk prices declined to \$18.48/cwt, and NCOP rose to \$18.11/cwt., leaving a narrower, but still positive, margin for producers.

Three key figures to review for 2020's cost of production analysis of the average dairy farm in the *DFS* include:

- ❖ Cash operating expenses were \$19.29 per cwt., \$0.70 greater than 2019.¹²
- ❖ Total costs, including depreciation and family living, were \$20.79 per cwt., \$0.59 per cwt. greater than 2019.
- ❖ Non-milk farm income for 2020 was greater than in 2019. After subtracting non-milk farm income, NCOP was \$18.11 per cwt., \$0.30 above the previous year.¹³

Figure 4A

Cost of Producing Milk – Accrual Basis

	2016	2017	2018	2019	2020
	Dollars per Cwt.				
Feed	\$ 6.25	\$ 6.24	\$ 6.45	\$ 6.30	\$ 6.64
Labor	3.20	3.33	3.19	3.26	3.35
Interest	0.52	0.63	0.76	0.80	0.57
Freight & Trucking	0.98	1.05	1.14	1.14	1.22
Crop	1.21	1.20	1.14	1.06	1.22
Other Expenses	<u>6.09</u>	<u>6.09</u>	<u>5.92</u>	<u>6.03</u>	<u>6.29</u>
Adjusted Cash Operating Expenses	\$18.24	\$18.54	\$18.60	\$18.59	\$19.29
+ Depreciation	1.38	1.30	1.28	1.20	1.16
+ Family Living	<u>0.58</u>	<u>0.49</u>	<u>0.48</u>	<u>0.41</u>	<u>0.34</u>
Total Costs	\$20.20	\$20.33	\$20.36	\$20.20	\$20.79
- Non-Milk Income ¹	<u>3.41</u>	<u>3.15</u>	<u>2.64</u>	<u>2.39</u>	<u>2.68</u>
Net Cost of Production ²	\$16.79	\$17.18	\$17.72	\$17.81	\$18.11

¹ Non-milk income includes cattle, crop and other income adjusted for inventory changes.

² Before any return on equity. If we assume a return on equity to be an imputed cost, each 1 percent return on equity would be equivalent to another \$0.34 added to the NCOP for 2020. For a 6% ROE, NCOP would be \$20.15.

¹² Not including family living.

¹³ Nonfarm income and government payments are not factored into NCOP.

Despite increases in many expenses, Northeast dairy producers managed to limit cost-of-production increases. Categories where costs increased included feed, labor, crop inputs and repairs. Rent showed an increase, which was likely due to a shift in the *DFS* sample to farms with more rented acreage rather than a significant increase in average rent paid per acre. Additional costs for cleaning supplies, personal protective equipment (PPE) and other worker safety measures may also have added to higher costs in 2020.

Fuel was the category with the most notable decrease, along with interest costs as variable rates declined in response to the Federal Reserve's monetary actions designed to help boost the economic recovery during the pandemic.

Minimum wage increases in many Northeast states and an overall tightening of the labor market have put upward pressure on labor costs per hour, leading to a push for efficiency and lower staffing levels per cow on many farms. In addition, 2020 saw the implementation of mandatory overtime pay for agricultural workers in New York State, with a 60-hour threshold for time-and-one-half pay.

The New York requirement to pay time-and-one-half for any hours worked beyond 60 hours per week was new in 2020, and came on top of significant increases in minimum wage as well as a tightening labor market. Given hired labor is typically the second greatest expense on most dairy farms, managing labor efficiently is a significant contributor to the profit (or loss) of a farm.

With milk prices declining from 2019 to 2020, while expenses increased, farms were forced to implement various strategies to control costs and gain efficiencies in order to remain profitable. Farms responded to increased labor costs in different ways. Some smaller farms reduced either the hours worked by hired labor or the number of hired workers, and increased their usage of family labor. Some larger farms tried to become more efficient in their use of hired workers by increasing the number of cows per worker and by reducing hours to the 60-hour threshold or close to it. Some attempted to hire additional workers to manage the amount of overtime per worker, with varying degrees of success. The scarcity of both local resident and migrant workers, as well as housing limitations, made this tactic a challenge.

The significant usage of family labor on Northeast farms somewhat masks the impact of increasing hired labor costs, most notably on smaller farms. Many farms using mostly family labor show zero, or a very small amount, for hired labor expense, relying on the family living draw for compensation. While overall labor costs increased by 3.0% per cow in 2020, when family labor is taken out of the equation, the increase in labor costs comes to 6.6%.

Many New York dairy producers were able to adapt to the 60-hour overtime threshold, by one or more of the methods noted above. However, others struggled to adjust worker schedules. It is early in the adaptation process and hard to know the full impact of the changes required by the Farm Laborer Fair Labor Practices Act (FLFLPA). As one example, New York soil conditions in 2020 generally allowed for highly efficient field work, compared to prior years. This allowed producers to generally avoid significant overtime for their crop workers and equipment operators. It is unknown what would have happened if soil conditions had been closer to normal and more hours were required for crop work, which could have significantly increased crop labor expenses.

If the overtime threshold is reduced further, the impact will be greater and will require more significant changes to scheduling and operations of dairy farms, which could make labor costs dramatically higher unless the agricultural labor pool is significantly increased.

Repair expense, typically one of the top four expenses on a dairy farm, increased by 24.7% per cow, to \$389 per cow, \$64 greater than the five-year average of \$325. This could indicate that dairy producers used their 2020 revenues to catch up on deferred maintenance that had been put off in prior years. Fuel expenses declined by -23.6% due to lower oil prices in 2020, but these prices have already returned to the levels seen in 2019, or higher, so this savings will be temporary.

Figure 4B

Specific Cost Categories

	2019		2020		Percent Change	
	per Cow	per Cwt.	per Cow	per Cwt.	per Cow	per Cwt.
Feed	\$1,625	\$6.30	\$1,718	\$6.64	5.7%	5.4%
Labor	\$ 841	\$3.26	\$ 866	\$3.35	3.0%	2.6%
Fuel	\$ 163	\$0.63	\$ 125	\$0.48	-23.3%	-23.6%
Supplies	\$ 237	\$0.92	\$ 240	\$0.93	1.3%	0.9%
Rent	\$ 130	\$0.50	\$ 139	\$0.54	6.9%	6.5%
Repairs	\$ 312	\$1.21	\$ 389	\$1.50	24.7%	24.2%
Crop Inputs	\$ 274	\$1.06	\$ 313	\$1.21	14.2%	13.8%
Other Expenses	\$1,526	\$5.92	\$1,500	\$5.80	-1.7%	-2.0%

The formula used in the *DFS* for calculating NCOP is as follows:

[Cash Operating Expenses (with accrual adjustments made for pre-pays, accounts payable, etc.)
+ Calculated Depreciation¹⁴ + Family Living Expense] - Non-Milk Farm Income¹⁵ = Net Cost of Production.

It is important to note that the \$18.11/cwt. average NCOP includes no return on the producer's equity investment. While it may be debatable what an appropriate return on equity (ROE) might be, earning some level of return should be a business objective, and is indeed necessary for the repayment of debt and for reinvestment in the business. For the average *DFS* producer in 2020, each one percent return on equity is equivalent to an additional \$0.34 per cwt. If we were to include a six percent ROE goal as part of NCOP, for example, this would be equivalent to a \$20.15 NCOP, well above average milk prices.

¹⁴ For the *DFS*, all farms have their submitted depreciation restated by applying a standard percentage of straight-line depreciation to various asset classes in order to compare consistent numbers from farm to farm and avoid variations driven by accounting and changes in tax laws.

¹⁵ Non-milk income includes cattle, crop and other income adjusted for inventory changes, but does not include nonfarm income or government payments.

Figure 4C compares NCOP between New York and New England in 2019 and 2020. New York producers typically have an advantage in lower costs and higher production per cow over New England producers. Additionally, with the ability to grow more crops, New York farms generally have higher crop sales and are able to grow a greater percentage of their feed. A transportation expense differential of about 10-15% in Eastern New England compared to New York contributes to higher feed costs in that region.

Connecticut, Maine and Massachusetts have state support programs for dairy farmers, which help supplement farm income. Income from these support programs is included under “Government Payments” in the tables in the back of the report, but is not factored into their NCOP.¹⁶ Areas of significant difference included spending on purchased feed, labor and other expenses.¹⁷

Figure 4C

NCOP By Region

Cost per CWT.	New York		New England	
	2019	2020	2019	2020
Feed	\$ 6.21	\$ 6.55	\$ 7.64	\$ 7.87
Labor	3.19	3.31	4.31	3.95
Interest	0.81	0.57	0.74	0.52
Freight & Trucking	1.12	1.22	1.42	1.18
Crop Inputs	1.07	1.22	0.87	1.06
Other Expenses	<u>6.01</u>	<u>6.25</u>	<u>6.29</u>	<u>7.02</u>
Adjusted Cash Operating Expenses	\$18.41	\$19.12	\$21.27	\$21.60
+ Depreciation	1.21	1.16	1.22	1.11
+ Family Living	<u>0.40</u>	<u>0.34</u>	<u>0.44</u>	<u>0.40</u>
Total Costs	\$20.02	\$20.62	\$22.93	\$23.11
- Non-milk Income	<u>2.42</u>	<u>2.70</u>	<u>1.60</u>	<u>2.12</u>
Net Cost of Production	\$ 17.59	\$ 17.92	\$ 21.33	\$ 20.99
Total NCOP Increase/cwt.		\$0.33 +1.9%		-\$0.34 -1.6%

¹⁶ Government payments are included on the income statement, and are part of net earnings calculations.

¹⁷ It is worth noting that our sample of New England farms was only 13 in 2020, reducing the statistical significance of this data.

Figure 4D shows NCOP by herd size. Generally, larger herds have an advantage in spreading fixed costs over more units, driving per-unit cost down through higher production per cow and greater capital efficiency. Smaller herds typically have lower labor costs and higher non-milk income per unit; however, family living and other costs are usually higher, on a per-unit basis. Some of the herds with fewer than 100 cows were among the most profitable per unit in the study due to their high non-milk income and low labor costs, even when family living expenses are accounted for. This may significantly understate the true value of their family labor, but on paper, several of them showed strong net returns.

Figure 4D

NCOP By Herd Size

Cost per CWT.	< 100 Cows	100-299 Cows	300-699 Cows	700+ Cows
Feed	\$ 5.32	\$ 6.20	\$ 6.48	\$ 6.73
Labor	0.99	2.41	3.27	3.48
Interest	0.97	0.68	0.63	0.54
Freight & Trucking	1.54	1.23	1.22	1.21
Crop Inputs	1.86	1.60	1.39	1.13
Other Expenses	<u>7.00</u>	<u>6.97</u>	<u>6.53</u>	<u>6.19</u>
Adjusted Cash Operating Expenses	\$17.68	\$19.09	\$19.53	\$19.28
+ Depreciation	2.56	2.07	1.49	0.99
+ Family Living	<u>2.26</u>	<u>1.10</u>	<u>0.51</u>	<u>0.21</u>
Total Costs	\$22.50	\$22.26	\$21.53	\$20.48
- Non-Milk Income*	<u>3.70</u>	<u>2.58</u>	<u>2.16</u>	<u>2.90</u>
Net Cost of Production	\$18.80	\$19.68	\$19.38	\$17.59

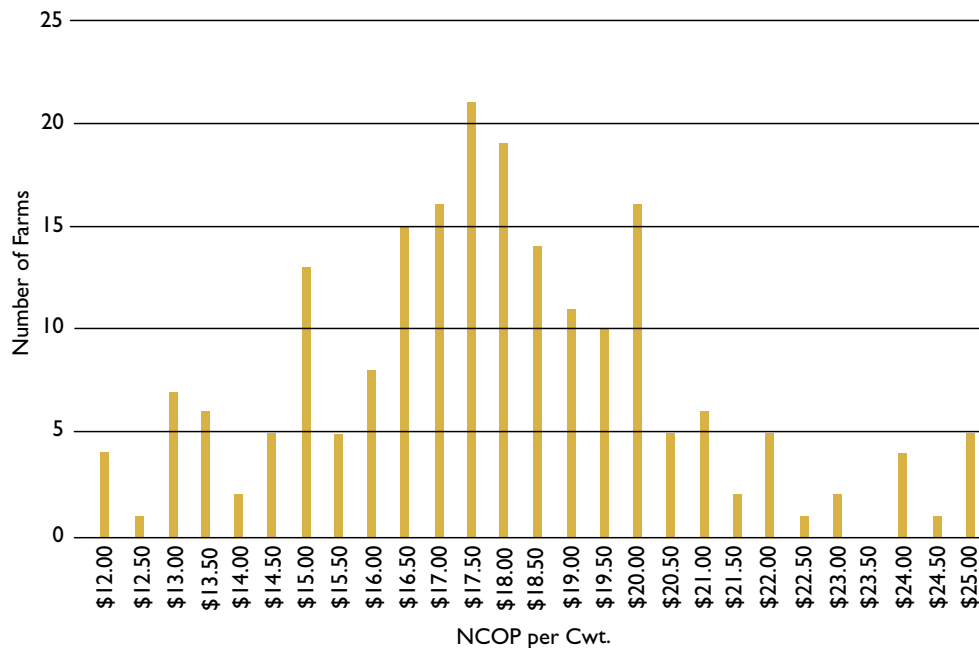
*Non-milk income includes cattle, crop and other income adjusted for inventory changes.



Given the uncertainty of milk prices from year to year, the ability to control expenditures, improve efficiency and adjust to changing input costs is critical to a dairy producer's financial performance.

Figure 4E

Net Cost of Production Distribution, 2020



We often speak of NCOP as if it is a single number. But as we can see in Figure 4E, each farm has its own unique cost of production. The distribution of NCOP roughly follows a bell-shaped curve, with a cluster around the *DFS* average per cwt. and outliers on either side. Some of the farms with unusually high or low NCOP values have significant non-milk business expenses or revenues that influence their NCOP. Farms with very high NCOP and few unusual sources of income will generally lose equity quickly if they can't change their operations to bring costs down.



HERD SIZE CHANGES

The farms that participate in the *Dairy Farm Summary* change slightly from year to year.¹⁸ From 2010 to 2016, the average number of cows per farm has ranged between 300 and 400 milking head in the *DFS*, even as average farm size has increased in the region. In recent years, the average farm size in our sample has significantly increased. The *DFS* average increased from 600 head in 2019 to 685 in 2020. This is the highest average farm size in the history of the *DFS* report, and is a result of continued expansion on the part of some long-time *DFS* participants, as well as changes in the farm sample. The median farm size (the middle in terms of number of participants' cows) of the 2020 sample is 333 cows.

As shown in Figure 5A, the largest size group is responsible for the greatest percentage of milk production, and that percentage is increasing. While farms with 700 or more cows were only 31% of the farms in the report, they were responsible for a majority of the milk produced.

Figure 5A

Farm Size and Milk Production

	99 Cows or Fewer	100-299 Cows	300-699 Cows	700 Cows or More
Number of Farms	43	54	44	63
Volume of Milk Produced¹	1.6%	6.2%	15.0%	77.2%

¹ As a percent of all farms in the 2020 *DFS*

Figure 5B illustrates the relationship between labor productivity, cow productivity and overall dairy farm profitability. As more cows are handled per worker, milk sold per worker increases. Milk sold per worker and per cow are closely correlated. More milk per cow is generally favorable in terms of greater productivity and total production and also drives gross revenue, a key factor in profitability.

While milk sold per cow correlates positively with adjusted net earnings per cow, low NCOP is a more important factor, which is improved by better labor efficiency. While there are some variations in the data, Figure 5A also shows generally increasing labor and family living expenses as milk sold per worker increases. Farms with higher labor efficiency tend to have a lower cost per cwt. for labor and family living.¹⁹ For example, those farms selling less than 600,000 pounds of milk per worker have the lowest average combined labor and family living expense per person at \$15,375, but on a per cwt. basis, their cost is \$4.82 per cwt. In contrast, those selling two million or more pounds of milk per person have a lower labor and family living cost per cwt., at \$2.36, despite paying nearly three times more per person. Thus the efficiency gained also allows for greater flexibility with respect to employee compensation and family living draws.

Note that while adjusted net earnings per cow generally trends higher with increased labor productivity, it does not follow a continuous gradient from one group to the next, indicating that labor productivity is only one factor in determining overall profitability. Increased labor efficiency can also be achieved by varying business models, such as boarding out heifers, outsourcing more services or buying more forages. As a result, their revenues per worker may be greater than those farms that choose to do most things in-house. This of course, may come with a cost, and could be part of the reason net earnings per cow varies from one group to the next.

¹⁸ This year's study does not include farms from Vermont. Vermont farms were included in 2015 and 2016.
¹⁹ Family living costs are included as a proxy for the cost of unpaid family labor.

Figure 5B

Labor Productivity Influences Profits

Pounds of Milk Sold per Worker	Percent of Farms	Number of Cows	Cows per Worker	Milk Sold per Cow	Avg. Labor & Family Living Per Person ¹	Adjusted Net Earnings Per Cow
599,000 or less	7%	63	23	18,117	\$ 15,375	\$ 139
600,000-799,000	15%	103	35	20,788	\$ 27,830	\$ 459
800,000-999,000	9%	240	39	23,107	\$ 38,304	\$ 493
1 to 1.19 million	15%	555	46	24,624	\$ 41,735	\$ 523
1.2 to 1.39 million	24%	908	51	25,887	\$ 48,668	\$ 834
1.4 to 1.59 million	11%	1,214	56	26,523	\$ 51,949	\$ 703
1.6 to 1.79 million	8%	904	65	26,441	\$ 58,688	\$ 693
1.8 to 1.99 million	6%	856	79	25,246	\$ 57,087	\$ 719
2.0 million or more	4%	1,836	95	25,455	\$ 55,546	\$ 916

¹ Includes operator and other family labor

CAPITAL EFFICIENCY

When viewed on a per cow or per cwt. basis, larger farms are generally able to spread costs and investments over more units. For example, the 99 cows or fewer group produced almost 50% less milk per worker than the average of all farms and had just over double the investment per cwt. sold (\$110 versus \$49). Return on assets was positive for all groups, though the 700 or more cows group had the highest return on assets.

Figure 6

Capital Efficiency

Herd Size (No. of Cows)	Pounds Sold Per Worker	Pounds Sold Per Cow	Total Assets Per Cwt. Sold ¹	Asset Turnover (Per Year) ²	Return on Assets ³
99 or Fewer	553,502	21,108	\$ 110	0.20	0.7%
100 to 299	1,074,996	23,216	71	0.33	3.1%
300 to 699	1,378,399	25,986	55	0.42	4.3%
700 or More	1,473,879	26,236	45	0.52	7.9%
All Farms	1,391,525	25,884	49	0.47	6.4%

¹ Total assets divided by cwt. of milk sold

² Total assets divided by cash receipts = turnover per year

³ Return on assets = (net earnings + interest) / average farm assets

CASH FLOW FROM MILK INCOME DECLINES, BUT REMAINS POSITIVE

Cash flow is another measure of financial health for a dairy operation or any business. Each business has a minimum cash requirement to meet its ongoing commitments, such as operating costs, overhead, debt service payments and family living. The remainder can be used for capital investment, such as to replace older equipment, build liquidity, or invest in a retirement fund. Cash margin from milk income declined from the prior year in 2020, averaging \$0.35/cwt. compared to \$1.43 in 2019, -\$0.49 in 2018, -\$0.01 in 2017, and -\$0.10 in 2016 (Figure 7). 2019 had marked the first year of positive cash flows after four straight years of negative cash flows. This means that although the average farm in our sample has had positive cash flow for the last two years, they may still be recovering from the results of multiple years of cash deficits.

Figure 7

Cash Flow Analysis Per Cwt.

	2016	2017	2018	2019	2020
Actual Milk Price	\$16.85	\$18.32	\$17.19	\$19.18	\$18.48
Cash Required	\$20.34	\$21.64	\$20.66	\$20.62	\$21.18
- Other Income	3.39	3.31	2.98	2.87	3.05
Breakeven Milk Price	\$16.95	\$18.33	\$17.68	\$17.75	\$18.13
Cash Margin	\$-0.10	\$-0.01	\$-0.49	\$ 1.43	\$ 0.35

Cash Margin Definitions	
Total cash operating expenses + Family living expense and income tax + Scheduled principal payments	Cattle sales + Capital sales + Crop sales + Other farm income
= Cash required	= Other income

Figure 7 shows the range of cash margins from milk income for the average Northeast dairy farm since 2016. Due to cost inflation and increasing debt levels, the breakeven milk price has increased significantly from approximately \$14 per cwt., which was common prior to 2007, to a peak of over \$20 in 2014. Milk prices also increased for a time, setting new records in 2011 and 2014. Since that period, however, the average milk price has declined significantly, while the breakeven milk price fell by a lesser amount, resulting in a cash deficit in many years. Note that this calculation looks at milk income only and does not account for government payments, which were more significant in 2020 than in prior years.

Given the variation in average cash margins, making a financial decision based on a single year's performance would be difficult. Figure 7 further illustrates this point: While the cash margin was positive in 2019 and 2020, it has been negative in some prior years.

This level of variability makes financial management more challenging, underscoring the importance of a long-range view of cash flow. Timing of major capital expenditures, managing debt load, building liquidity for the tight years, and adjusting family withdrawals are all means of managing volatility. Some producers have adopted risk management

strategies involving both input costs and milk prices using a combination of crop insurance programs, such as Livestock Gross Margin (LGM-Dairy) and the Dairy Revenue Protection (DRP) coverage, other government programs such as the Dairy Margin Coverage (DMC), as well as hedging strategies.

DEBT CAPACITY

Debt capacity measures the maximum amount of capital debt a farmer could repay from cash generated from the farm business. It is determined primarily by cash flow as well as by interest rates. Reserve debt capacity is the difference between current debt capacity and the actual amount of capital debt invested in the business. It is a buffer against financial adversity which could occur within the business, such as herd health problems or crop failure, or from the marketplace, such as low milk prices or high feed costs. It represents the amount by which capital debt could theoretically increase above existing levels and still be repaid from that year's cash flow. In 2016 and 2018, weak farm earnings provided inadequate cash flow to service all financial obligations for many *DFS* farms, requiring some to take on additional debt (Figure 8).

Figure 8

Debt Capacity

	2016	2017	2018	2019	2020
Average Farm Credit Interest Rate¹					
Commercial (Intermediate Term)	4.1%	4.6%	5.3%	5.7%	3.2%
Real Estate (Long Term)	4.3%	4.7%	5.5%	5.8%	3.8%
Debt Capacity (per Cow)	\$3,053	\$3,047	\$4,817	\$2,672	\$7,561
- Capital Debt	<u>3,620</u>	<u>3,108</u>	<u>3,521</u>	<u>3,405</u>	<u>3,361</u>
RESERVE DEBT CAPACITY (per Cow)	\$-337	\$-573	\$1,709	\$-849	\$4,200
3-Year Average Reserve Debt Capacity	\$3,647	\$2,455	\$266	\$96	\$1,942
5-Year Average Reserve Debt Capacity	\$3,664	\$2,522	\$2,416	\$1,645	\$1,393
Debt Payments as Percent of Milk Sales	13%	14%	13%	15%	14%

¹ Average interest rates for outstanding debt with Farm Credit, excluding benefit of patronage dividends.

Current debt capacity is impacted by interest rates, which are currently at very low levels by historical standards. The Federal Reserve increased short-term rates in 2018 and 2019, which impacted debt service requirements and capacity for those producers who have variable rate debt. And while in 2020 the Federal Reserve reduced short-term rates in response to the COVID-19 pandemic, in planning for the future, it is important not to assume that today's interest rates will last indefinitely. If the average producer had to repay today's debt at 2007 interest rates (approximately 7.7%), it would reduce both debt capacity and reserve debt capacity by about \$1,235 per cow.

Figure 8 shows the annual fluctuations and the average for reserve debt capacity over the last five years. In 2020, it was \$4,200 per cow. Given that bank loans are generally for a period of several years, it is important to consider reserve debt capacity as a multi-year average, rather than from a single year. “Never borrow your last dollar during a good year” is time-tested financial wisdom in the farming community. The implication is that it is important to preserve significant liquidity in unused borrowing capacity to fall back on during years of low income or other adversity. The lack of reserve debt capacity in the last three years puts some farms in a challenged position where their ability to borrow additional funds is limited.

In today's dairy business climate, liquidity is a critical factor to achieve long-term business viability and financial flexibility to deal with tough years. Whether it is cash in a savings account, prepaid expenses, inventories that can be quickly turned into cash or substantial unused capacity on a line of credit, strong liquidity is critical to dairy business success.

PRODUCERS REINVEST WITH CAPITAL PURCHASES

Northeast dairy farmers' capital spending has remained remarkably steady given the significant economic challenges facing the industry (Figure 9). Capital purchases include replacement machinery and equipment, as well as buildings and land acquisition. Total capital purchases per farm were \$706,235, significantly above the five-year average of \$420,791. While average capital purchases were \$1,031 per cow, it should be noted that this reflects substantial expansion investments by some farms, and significantly lower spending by others. The median level, or midpoint, of capital purchases was much lower, at \$610 per cow, and the standard deviation was large, at \$1,377.

Figure 9

Capital Purchases

	Per Farm	Per Cow	% of Total Assets ¹
2016	\$272,296	\$ 674	5.1%
2017	\$362,840	\$ 772	6.3%
2018	\$383,386	\$ 802	6.6%
2019	\$379,200	\$ 632	5.1%
2020	\$706,235	\$ 1,031	8.1%
3-Year Average	\$489,607	\$ 822	6.6%
5-Year Average	\$420,791	\$ 782	6.2%

¹ Capital purchases as a percent of total assets show an approximate rate of reinvestment in the farm enterprise.

Figure 10 shows a cash flow statement on a per-cow basis for the average Northeast dairy producer in the study. It includes sources and uses of cash for the business, including what was available to cover capital purchases.

Figure 10

Cash Sources and Use Statement

	2016	2017	2018	2019	2020
Sources					
	Dollars per Cow				
Net Cash Farm Income ¹	\$ 451	\$ 671	\$ 342	\$ 811	\$ 987
Sale of Capital Assets	55	108	201	78	161
Paid-in Capital ²	59	51	58	31	128
Money Borrowed	<u>730</u>	<u>515</u>	<u>787</u>	<u>257</u>	<u>309</u>
TOTAL SOURCES	\$1,295	\$1,345	\$1,388	\$1,177	\$1,585
Uses					
Family Living	\$ 146	\$ 125	\$ 123	\$ 105	\$ 89
Capital Purchases	674	772	802	632	1,031
Debt Principal Payments	<u>475</u>	<u>448</u>	<u>463</u>	<u>440</u>	<u>465</u>
TOTAL USES	\$1,295	\$1,345	\$1,388	\$1,177	\$1,585
Percent Capital Purchases Financed³	108%	67%	98%	41%	30%

¹ Cash basis – No accrual adjustment to expenses

² Includes savings withdrawn, gifts, inheritances, grants, debt forgiven, insurance settlements and other extraordinary income. In 2020, this included forgivable loans such as those from the Paycheck Protection Program.

³ Money borrowed / capital purchases

Total sources of cash increased by \$408 in 2020 to \$1,585 per cow because of increases in net cash farm income, sale of assets, and an increase in paid-in capital on a per cow basis. A significant portion of this increased net farm income was due to government payments, such as those from the CFAP program. Net cash farm income increased in 2020, to \$987 per cow, but farms spent significantly more per cow on capital purchases, thus requiring additional borrowed funds.

NET WORTH INCREASES

Net worth, or owner's equity, measures how the farm business is capitalized. It is measured at the end of each year in the *DFS* in order to consider changes from year to year. Net worth is an indicator of the ability of the business to absorb financial losses and to collateralize additional borrowing. It is also a theoretical measure of the amount of money that could be redeployed toward other endeavors if the business was liquidated.

The average *DFS* dairy farmer's net worth in 2020 compared to 2019 increased by \$375 from \$8,323 to \$8,698 per cow and percent net worth ticked up to 69% (Figure 11). Assets per cow increased and liabilities per cow decreased, resulting in increased net worth. Solvency still remains solid for the average *DFS* farm, meaning that the average participant has more than enough farm assets to satisfy all farm debts, selling costs and the resulting income tax liability.

Figure 11

Change In Financial Position

	Change in NW per Cow	Percent Net Worth ¹	Current Ratio ²	Quick Ratio ³	Asset Turnover ⁴
2016	\$ -453	68%	1.8	0.5	0.40
2017	\$ -561	69%	2.5	0.9	0.44
2018	\$ -193	66%	2.5	0.9	0.41
2019	\$ 133	67%	2.8	1.1	0.47
2020	\$ 375	69%	3.4	1.5	0.48

¹ Percent net worth = Owner's net worth / total assets

² Current ratio = Current assets / current liabilities

³ Quick ratio = Current assets - inventory / current liabilities

⁴ Asset turnover = Value of farm production / average total assets

There is an important distinction between growth in net worth resulting from earnings versus market revaluation. Net earnings are the result of profits from dairy farming. Market revaluation generally occurs in farm real estate and, sometimes, cattle, while machinery and equipment ordinarily depreciate.

Liquidity is the ability of the farm operator to convert short-term assets (current assets) to cash to meet short-term obligations (current liabilities) as they become due. Current and quick ratios are two important measures of liquidity. In 2020, the average dairy farm had a current ratio of 3.4, an increase over the prior year (Figure 11). This means that the average farm had 3.4 times the value of current assets compared to its current liabilities.

However, since inventory on a dairy farm is primarily feed for on-farm use and not intended to be directly converted into cash to pay bills, subtracting inventory from current assets provides a closer look at a dairy farm's true short-term liquidity situation. The quick ratio takes the result (current assets minus inventory) and divides by current liabilities. The quick ratio of 1.5 at the end of the year demonstrates that the average farm had sufficient near-cash assets (such as cash and accounts receivable) to meet the current year's financial obligations. This indicates that producers had, on average, 150% of the value of short-term liabilities available in cash or assets that could be quickly converted to cash.

Finally, asset turnover is commonly used to measure the efficiency of total capital invested in the business by determining gross revenue dollars generated for every dollar invested. The higher the asset turnover ratio, the more efficiently the investment is working for the business. Thus greater asset turnover should translate into a higher return on assets (ROA). In 2020, the asset turnover ratio for the average Northeast dairy business was 0.48, slightly higher than 2019. This was a result of a greater increase in cash receipts relative to the increase in assets of the farms in the sample with \$0.48 of gross revenue generated for every \$1 invested in assets.

NET MARGIN DIFFERENCES REMAIN LARGE IN 2020

Northeast producers again showed a wide range of profits around the \$663 per cow average net earnings in 2020. Some farms had negative net income, while a few posted more than \$1,000 profit per cow. Figure 12 demonstrates the range of profitability between the top, bottom and all farms profit groups. Farms in the *DFS* are ranked by profit margin and divided into four quartiles.

Figure 12

Range of 2020 Profits

	Bottom 25%	All Farms	Top 25%
Number of Farms	51	204	51
Average Number of Cows	586	685	932
Milk Sold per Cow (lbs.)	25,765	25,884	26,385
Milk Sold per Worker (lbs.)	1,388,359	1,391,525	1,553,488
Net Earnings			
Per Farm	-\$43,364	\$454,155	\$1,165,932
Per Cow	-\$74	\$663	\$1,251
Per Cwt.	-\$0.29	\$2.56	\$4.74
Return on Assets ¹	0.6%	6.4%	10.1%
Return on Equity ¹	-1.0%	7.6%	12.5%

¹ ROA and ROE calculations do not include asset appreciation.

There was a \$1,325 difference in net earnings per cow between the top and bottom quartile groups. This is almost exactly the same as 2019's difference, which stood at \$1,324. Similarly, on a per cwt. basis, the top farms showed \$5.03 more in net earnings than the least profitable farms with earnings of \$4.74 per cwt., while the bottom group had a net loss of -\$0.29 per cwt.

Also shown in Figure 12 are two productivity measures: Milk Sold per Worker and Milk Sold per Cow. The Top 25% group sold 2.4% more milk per cow and 11.9% more milk per worker than the Bottom 25%, which contributes to their differences in profitability.

Interestingly, some of the most profitable farms, at least on a per cow basis, were found at both the high end and at the low end of herd sizes. The large herd dairy farms were able to capitalize on economies of scale, while some of the small herd farms were able to keep a tight rein on expenses, had significant non-milk business income, and utilized a significant amount of family labor. There were farms from all four size categories represented in the top profit quartile.

Another area where the top profit group excels is in NCOP. Figure 13 shows the difference in the cost of producing milk between the most and least profitable groups. The difference between the two came to \$3.66 per cwt. in 2020, significantly greater than the average difference of the preceding five years.

Figure 13

Cost of Producing Milk by Profit Groups

	2016	2017	2018	2019	2020
NCOP¹	Dollars per Cwt.				
Bottom 25%	\$18.39	\$18.92	\$18.67	\$18.77	\$20.12
Top 25%	15.96	16.23	16.57	16.81	16.46
Difference	2.43	2.69	2.10	1.96	3.66

¹Before any return on equity

Certainly, high milk production per cow influences profitability. However, Figure 14A illustrates that by itself, high production per cow does not guarantee superior earnings. A significant number of high production farms are in the lower profit groups. However, fewer of the low production farms fall in the top profit group.

The importance of balancing production with total costs to achieve profitability is much more obvious (Figure 14B). As NCOP decreases, the possibility of higher profits increases on nearly a straight line. Herd management, cost control, purchasing savvy and labor management are the main factors determining the cost of production.



Figure 14A

Profit vs. Milk Sold Per Cow

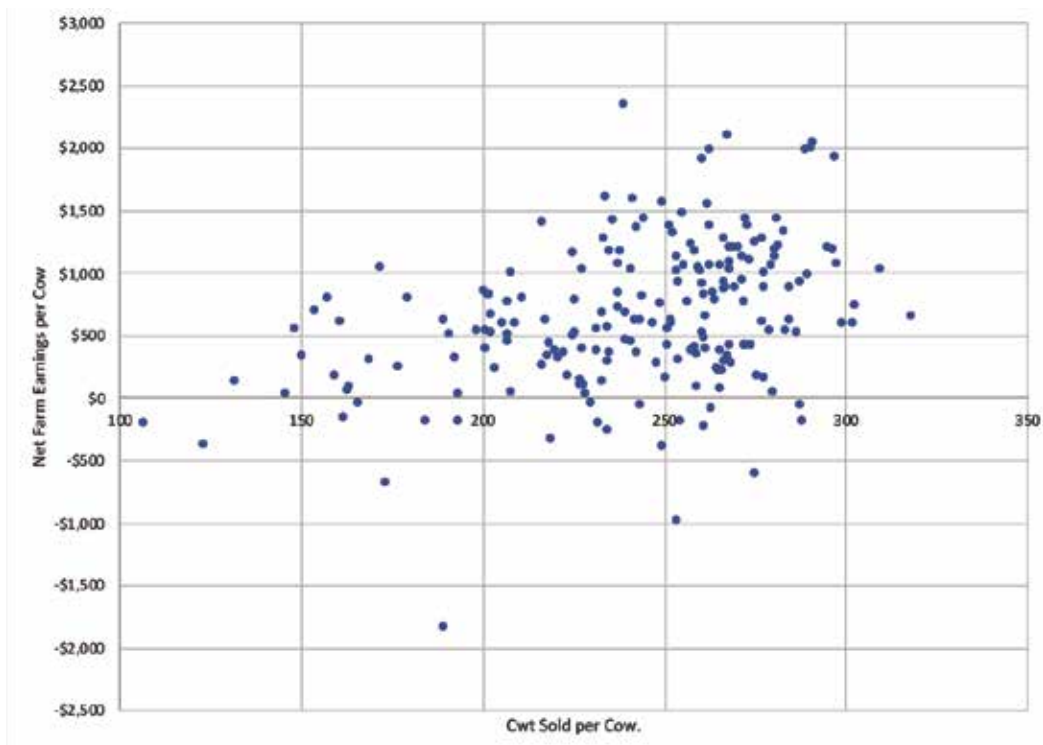
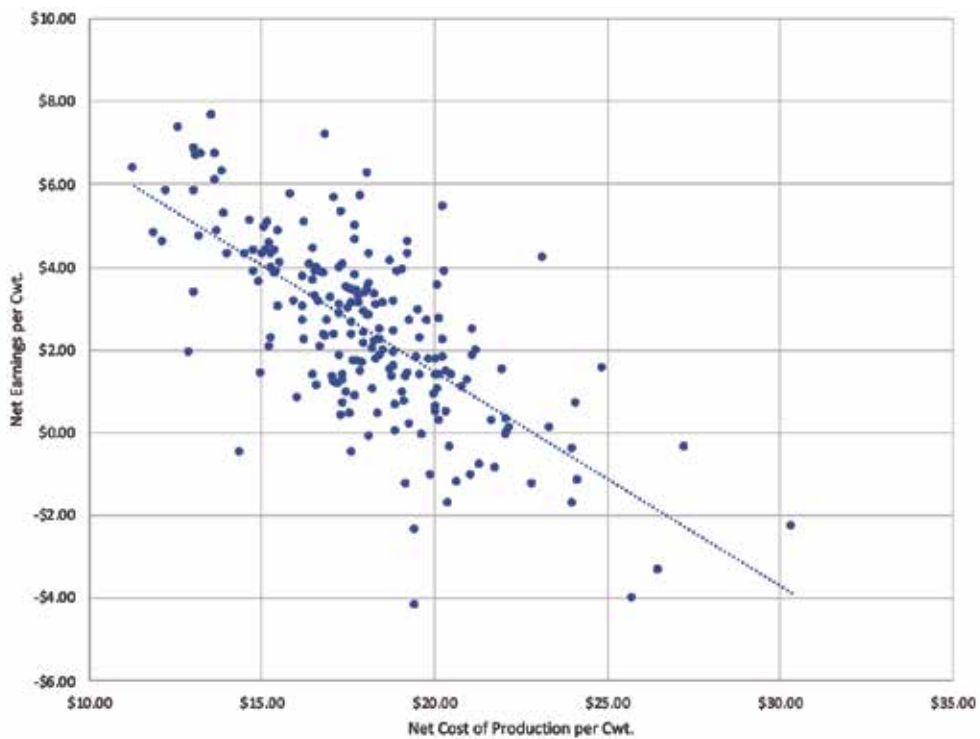


Figure 14B

Profit vs. NCOP



MANAGEMENT STYLE AND DAIRY PROFITS

Above average management is critical to profits, but “above average” can encompass a range of styles. Successful managers demonstrate different individual management strengths on which to build a profitable dairy business. In short, these managers have developed a management strategy that fits their personalities and resources.

Figure 15

Winning Management Styles of The Top 25%

	Great with Cows	Labor Efficient	Better Milk Price	Tight With a Buck	Balanced
Number of Farms	10	15	8	11	7
Average Number of Cows	831	1,571	661	290	1,030
Milk Sold per Cow (lbs.)	28,383	26,676	25,932	24,942	25,462
Milk Sold per Worker (lbs.)	1,347,913	1,999,032	1,395,766	938,389	1,232,079
NCOP Per Cwt.	\$16.58	\$16.69	\$18.43	\$13.45	\$18.29
Milk Price per Cwt.	\$18.41	\$19.26	\$21.06	\$18.12	\$18.73
Net Earnings per Cow	\$1,248	\$1,333	\$1,321	\$1,444	\$1,100
Net Earnings per Cwt.	\$4.40	\$5.00	\$5.09	\$5.79	\$4.32
Return on Assets (%)	9.8%	10.3%	9.2%	7.7%	8.8%
Percent Net Worth (%)	77%	74%	74%	75%	66%

Of the 51 farms included in the 2020 top profit quartile, 44 exhibited distinct characteristics, while the remaining seven farms displayed a more balanced approach, doing well in all areas, without any single dominant factor. Figure 15 breaks down these successful farm styles according to the corresponding management factor. For example, farms included in the Great-with-Cows group outperformed all others in producing the most milk per cow.

Great with Cows These farmers likely spend more time and money on cow productivity. The average pounds of milk sold per cow was 28,383, the highest among the five styles. High production allowed them to produce and sell 1,347,913 pounds of milk per worker, ranking third among the top profit farms.

Labor Efficient Effective labor management, highly productive cows and a large herd size enabled this group to be the most labor efficient, with milk sold per worker of nearly two million pounds. In addition to labor efficiency, this group reported the second highest milk sold per cow. This management style typically gains labor efficiencies from economies of scale and high output per cow.

Better Milk Price This group received \$21.06 per cwt. for their milk, \$2.05 more than average for the top profit group. Higher milk prices could be the result of high milk fat or protein content, negotiated premiums for quality, specialty markets, or direct-to-consumer sales. This category likely contains some non-Holstein herds within the top profit group. It is also worth noting that dairy revenue insurance indemnities are included in milk income, and could result in an apparent increase in milk price for some farms.

Tight With A Buck These operators excel at cost control, achieving the lowest cost of production at \$13.45 per cwt. Although milk per cow and milk per worker are below the top profit group average, these farmers have implemented tight cost control to achieve superior results. With the smallest average herd size, this group likely utilizes a lot of family labor. Some of these farms also have significant non-milk business income, which influences NCOP. The rewards of managing costs are easily seen in the highest earnings per cwt.

Balanced These managers are performing well in all areas. Although profits are less than some of the other styles, the data indicate that these farmers are good all-around managers.

The common theme is that top-profit farms have reached a profitable balance between milk production per cow and costs through a variety of management styles.

FARM SIZE AND PROFITABILITY

Average farm sizes in the Northeast and across the country have continually increased for many decades. The *DFS* has illustrated that all size farms can be profitable, and that it's more important to be 'better' than it is to be 'bigger.' However, there are still strong correlations in the data regarding size of farm, efficiency, pounds of milk sold per cow, cost of production and, ultimately, profitability.

On average, the largest size group was by far the most profitable of the four size categories with \$787 net earnings per cow in 2020 (Figure 16). In addition, compared to the rest of the sample, members of this group were:

- ❖ The most productive on a milk-sold-per-cow and per-worker measure.
- ❖ The lowest per-cow investor in productive assets. As a result, this group had the highest asset turnover ratio.
- ❖ The lowest cost producers per cwt., based on net cost of production.

It is noteworthy that all four size categories were represented in the top profit quartile, while only about one-third of the 700+ cow size group had that distinction. This is important because it shows there is opportunity to achieve superior profitability over a range of farm sizes. It also shows, however, that, as a group, the largest farms also have the highest average earnings per cow.

Figure 16

Farm Size and Profitability

	99 Cows or Fewer	100-299 Cows	300-699 Cows	700 Cows or more
Average Number of Cows	62	178	476	1,690
Milk Sold Per Cow (lbs.)	21,108	23,216	25,986	26,236
Milk Sold Per Worker (lbs.)	553,502	1,074,996	1,378,399	1,473,879
Net Cost of Production per Cwt.	\$ 20.12	\$ 18.83	\$ 18.29	\$ 16.46
Milk Price per Cwt.	\$ 17.19	\$ 18.00	\$ 17.89	\$ 18.66
Assets per Cow	\$22,234	\$16,599	\$14,170	\$ 11,774
Asset Turnover	0.21	0.33	0.43	0.52
Percentage Net Worth	76%	75%	70%	67%
Net Earnings per Cow	\$ -38	\$ 353	\$ 440	\$ 787
Return on Assets %	0.7%	3.1%	4.3%	7.9%



CONCLUSION

While 2019 and 2020 were reasonably good years for many Northeast dairy producers, it was preceded by several challenging years from 2015-2018, and producers face uncertainty as the world emerges from the COVID-19 crisis. Therefore, readers should consider the results of multiple years if drawing long-term conclusions. Despite the positive cash flow from 2020, many producers had seen significant balance sheet erosion due to the negative cash flows of 2015, 2016 and 2018. While low milk prices and supply management limitations negatively affected producers, particularly in the first half of the year, government programs played a significant role in shoring up producer liquidity.

Despite these significant challenges, Northeast dairy farmers have responded with a remarkable ability to economize, cut costs and gain further efficiencies in their already well-run operations, all while keeping their workers and families safe. This is largely how they have managed to get by in spite of persistent low prices, earnings volatility and market disruptions.

We noted in 2016 that total liabilities exceeded \$4,000 per cow for the first time in DFS history. This was worth mentioning because while it took 29 years for average debt-per-cow²⁰ to climb from \$2,000 to \$3,000, it took only eight years to exceed \$4,000 per cow. Of course there is some impact from inflation during this period, but it still raises concerns about the leverage of the average farm, and their ability to maintain debt service and cash flow during periods of low margins. While debt-per-cow subsequently declined below the \$4,000 threshold in 2017, to \$3,814, this was largely a function of larger herd sizes allowing debt to be spread out over more cows, and in 2018 debt-per-cow increased again to \$4,257. In 2019 and 2020, we saw similar effects. Due to continued increases in herd size, average debt-per-cow declined to \$4,061, and then to \$3,981, but remained near the \$4,000 threshold. Total farm debt now exceeds \$2.7 million for the average DFS farm.

During these periods of unpredictable markets and low prices, managing risk is more important than ever, given the high levels of debt carried by many farms, and the uncertainty they face in commodity prices on both the input and output sides.

The greatest risk management tool remains smart management and cost control. By continuing to invest in property, livestock and equipment, despite cash-flow challenges, Northeast producers entered 2020 as well prepared as they could have been. Nonetheless, the serious disruptions to dairy markets related to COVID-19 have been a challenge for the whole industry.

Still, 2020 tested the fortitude of even the most prepared dairy farms. Milk prices (Boston Blend) fell from \$19.28/cwt. in December 2019, to a low of \$13.47 in May 2020. Prices subsequently recovered through the end of the year, but the average milk price for 2020 still came in \$0.70/cwt. lower than 2019. This was a significant difference from pre-COVID projections, which suggested we might see significantly higher milk prices in 2020 compared to 2019.

These challenges notwithstanding, the *Northeast Dairy Farm Summary* shows us that there are multiple paths to dairy farm profitability. Strategies are as different as the individual characteristics of farms within this study. Positioning your farm for success will be crucial to meeting the challenges of today and tomorrow. This summary presented various management strategies that have consistently resulted in above-average performance. Working closely with your Farm Credit loan officer and/or business consultant to assess your strengths and weaknesses and develop a strategy to position your farm to meet industry challenges is now more critical than ever.

If you are interested in improving your profitability, the DFS is only the beginning. Farm Credit's Success Strategies Dairy Benchmarks delves much deeper into not only farm financial data, but a host of production and herd management

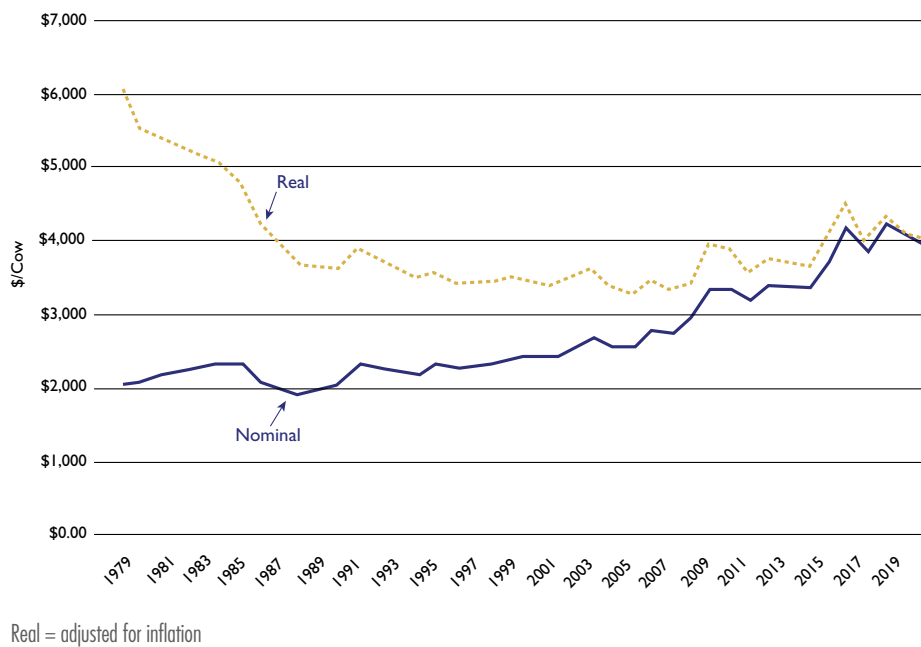
²⁰ Total liabilities per cow, including current liabilities.

metrics as well. Membership includes a personalized profit assessment of your farm. For more information on this program, a joint project between Farm Credit East, Yankee Farm Credit, AgChoice Farm Credit and the Pennsylvania Farm Bureau/MSB – Business Services, contact a representative of one of those partner organizations.

We hope that this year’s Northeast Dairy Farm Summary is a useful tool for managing your farm and business. It remains essential that dairy farmers and those who serve them continue to have good data upon which to make decisions in order to have a healthy, economically sustainable Northeast dairy industry. The entire Farm Credit team of loan officers, farm accounting professionals and business consultants are eager and prepared to help Northeast dairy farmers achieve financial success. On behalf of our entire team, thank you for your interest and participation.

Figure 17

Total Liabilities Per Cow



FINANCIAL RECORDS

The following 17 tables present the detailed financial data on which this summary was based. These tables are organized into four sets:

- ❖ Tables A-1 through A-5 are COMPARISONS BETWEEN YEARS
- ❖ Tables B-1 through B-3 are DATA BY HERD SIZES
- ❖ Tables C-1 through C-6 are DATA BY PROFIT GROUPS
- ❖ Tables D-1 through D-3 are DATA BY REGIONS

Each set includes a condensed earnings worksheet, a balance sheet summary and a page of evaluation factors. The 2016-to-2020 data series includes farms in Connecticut, Maine, Massachusetts and New York.

Please note the following in order to properly use this data:

- ❖ Cattle purchased for replacements are considered operating expenses, but cattle purchased for expansion are capital purchases. The accrual adjustment change in the inventory of raised livestock is calculated by subtracting purchases for expansion from the total increase in cattle inventory value.
- ❖ Depreciation has been restated by applying a standard percentage of depreciation to various asset classes in order to compare consistent numbers from year to year and avoid variations driven by changes in tax laws.
- ❖ Incorporated farms were adjusted to sole proprietor status, and owner draw was recorded as Family Living Expense. If there was more than one owner, the largest draw was recorded as Family Living, and other owner salaries were recorded under Hired Labor.
- ❖ Appreciation and revaluation of capital assets do not appear in the earnings statements. They are, however, included on the balance sheets.
- ❖ Current liabilities on the balance sheet include both current debts as well as the current portion of intermediate-term and long-term liabilities.
- ❖ Government payments include state program payments and those from FSA programs. Crop insurance indemnities are recorded as Crop Revenue.

Your Farm Credit team of ag finance specialists encourages you to review the following financial data thoughtfully and thoroughly. It allows you to identify your strengths and weaknesses and to improve your operation for the future.



TABLE A-1.

COMPARISON BETWEEN YEARS / Earnings Worksheet

	2016	2017	2018	2019	2020
Number of Farms	457	320	305	267	204
Average Number of Cows	403	470	478	600	685
Receipts					
Milk Sales	\$ 1,714,362	\$ 2,197,778	\$ 2,076,327	\$ 2,966,932	\$ 3,277,366
Cattle Sales	184,171	162,649	143,115	173,905	222,798
Crop Sales	50,778	70,293	61,039	61,240	86,660
Government Payments	36,270	33,211	45,007	59,904	387,006
Other	51,584	72,810	83,936	101,902	121,123
CASH RECEIPTS	\$ 2,037,165	\$ 2,536,741	\$ 2,409,424	\$ 3,363,883	\$ 4,094,953
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	\$ 23,777	\$ 35,791	\$ 30,251	\$ 31,735	\$ 43,538
VALUE OF FARM PRODUCTION (a)	\$ 2,060,942	\$ 2,572,532	\$ 2,439,675	\$ 3,395,618	\$ 4,138,491
COST OF GOODS SOLD					
Chemicals & Sprays	\$ 18,538	\$ 23,252	\$ 22,642	\$ 30,463	\$ 40,486
Custom Hire	64,077	75,777	88,371	125,235	146,854
Purchased Feed	635,128	747,258	779,129	974,821	1,176,693
Fertilizer & Lime	56,823	59,211	57,980	65,732	86,408
Freight & Trucking (Marketing)	99,541	125,489	137,634	176,247	216,074
Gasoline, Fuel & Oil	53,196	71,125	83,120	97,545	85,308
Hired Labor	325,624	399,182	384,723	504,463	593,447
Seed & Plants	47,554	62,649	56,312	67,810	87,770
Supplies	111,228	122,696	107,725	142,134	164,164
Veterinary, Medicine & Breeding	80,600	101,340	90,583	117,363	133,869
Cow Replacements	6,851	3,978	1,161	3,028	11,897
Total Cost of Goods Sold	\$ 1,499,160	\$ 1,791,957	\$ 1,809,380	\$ 2,304,841	\$ 2,742,970
Gross Margin	\$ 561,782	\$ 780,575	\$ 630,295	\$ 1,090,777	\$ 1,395,521
OVERHEAD					
Insurance	27,404	29,830	28,990	36,247	40,344
Interest	53,196	75,299	91,889	124,507	101,153
Rent	39,897	48,891	50,921	78,175	95,207
Repairs	124,930	153,994	136,172	187,387	266,248
Property & Misc. Taxes	28,613	37,039	34,090	45,177	47,416
Utilities	43,121	43,598	46,135	52,370	59,696
Other	39,091	40,557	48,118	48,600	65,418
Accrual Adjustments					
+ Depreciation	140,647	155,430	154,112	186,303	204,913
Total Overhead Expenses	\$ 496,899	\$ 584,638	\$ 590,427	\$ 758,766	\$ 880,395
Total Farm Production Costs (b)	\$ 1,996,059	\$ 2,376,595	\$ 2,399,807	\$ 3,063,607	\$ 3,623,365
NET FARM EARNINGS (a) - (b)	\$ 64,883	\$ 195,937	\$ 39,868	\$ 332,011	\$ 515,126
- Family Living & Income Taxes	58,838	58,930	58,815	62,963	60,795
NET EARNINGS	\$ 6,045	\$ 137,007	\$ -18,947	\$ 269,048	\$ 454,331
+ Net Nonfarm Income	17,329	10,660	15,660	13,357	13,063
NET HOUSEHOLD INCOME	\$ 23,374	\$ 147,667	\$ -3,287	\$ 282,405	\$ 467,394

Note: Expenses are adjusted for changes in accounts payable, prepaid expenses, and supply inventories to remove the effects of tax planning and reflect only 1 year's expenses.

TABLE A-2.

COMPARISON BETWEEN YEARS / Earnings Worksheet Per Cwt.

	2016	2017	2018	2019	2020
Number of Farms	457	320	305	267	204
Average Number of Cows	403	470	478	600	685
Receipts	DOLLARS PER CWT. OF MILK				
Milk Sales	\$ 16.85	\$ 18.32	\$ 17.19	\$ 19.18	\$ 18.48
Cattle Sales	1.82	1.36	1.18	1.12	1.25
Crop Sales	0.50	0.59	0.51	0.40	0.49
Government Payments	0.36	0.28	0.37	0.39	2.18
Other	0.50	0.62	0.70	0.65	0.69
CASH RECEIPTS	\$ 20.03	\$ 21.17	\$ 19.95	\$ 21.74	\$ 23.09
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	\$ 0.24	\$ 0.30	\$ 0.25	\$ 0.21	\$ 0.25
VALUE OF FARM PRODUCTION (a)	\$ 20.27	\$ 21.47	\$ 20.20	\$ 21.95	\$ 23.34
COST OF GOODS SOLD					
Chemicals & Sprays	\$ 0.18	\$ 0.19	\$ 0.19	\$ 0.20	\$ 0.23
Custom Hire	0.63	0.63	0.73	0.81	0.83
Purchased Feed	6.25	6.24	6.45	6.30	6.64
Fertilizer & Lime	0.56	0.49	0.48	0.42	0.49
Freight & Trucking (Marketing)	0.98	1.05	1.14	1.14	1.22
Gasoline, Fuel & Oil	0.53	0.59	0.69	0.63	0.48
Hired Labor	3.20	3.33	3.19	3.26	3.35
Seed & Plants	0.46	0.52	0.47	0.44	0.50
Supplies	1.09	1.02	0.89	0.92	0.93
Veterinary, Medicine & Breeding	0.80	0.84	0.75	0.76	0.76
Cow Replacements	0.07	0.03	0.01	0.02	0.07
Total Cost of Goods Sold	\$ 14.75	\$ 14.93	\$ 14.99	\$ 14.90	\$ 15.50
Gross Margin	\$ 5.52	\$ 6.54	\$ 5.21	\$ 7.05	\$ 7.84
OVERHEAD					
Insurance	0.27	0.25	0.24	0.23	0.23
Interest	0.52	0.63	0.76	0.80	0.57
Rent	0.39	0.41	0.42	0.51	0.54
Repairs	1.23	1.28	1.13	1.21	1.50
Property & Misc. Taxes	0.28	0.31	0.28	0.29	0.27
Utilities	0.43	0.36	0.38	0.34	0.34
Other	0.38	0.36	0.40	0.31	0.34
Accrual Adjustments					
+ Depreciation	1.38	1.30	1.28	1.20	1.16
Total Overhead Expenses	\$ 4.88	\$ 4.90	\$ 4.89	\$ 4.89	\$ 4.95
Total Farm Production Costs (b)	\$ 19.63	\$ 19.83	\$ 19.88	\$ 19.79	\$ 20.45
NET FARM EARNINGS (a) - (b)	\$ 0.64	\$ 1.64	\$ 0.32	\$ 2.16	\$ 2.89
- Family Living & Income Taxes	0.58	0.49	0.48	0.41	0.34
NET EARNINGS	\$ 0.06	\$ 1.15	\$ -0.16	\$ 1.75	\$ 2.55
+ Net Nonfarm Income	0.18	0.09	0.13	0.09	0.07
NET HOUSEHOLD INCOME	\$ 0.24	\$ 1.24	\$ -0.03	\$ 1.84	\$ 2.62

Note: Expenses adjusted for changes in accounts payable, prepaid expenses and supply inventories to remove the effects of tax planning and reflect only one year's expenses.

TABLE A-3.

COMPARISON BETWEEN YEARS / Balance Sheet Summary

	2016	2017	2018	2019	2020
Number of Farms	457	320	305	267	204
Average Number of Cows	403	470	478	600	685
DOLLARS PER FARM					
Assets					
Livestock	\$ 969,036	\$ 1,079,116	\$ 1,023,346	\$ 1,307,664	\$ 1,499,770
Feed & Crops	457,579	508,234	567,738	672,930	775,267
Machinery & Equipment	905,862	933,406	994,758	1,107,211	1,284,178
Farm-Land & Buildings	2,231,620	2,523,745	2,612,937	3,296,203	3,633,060
All Other	735,038	688,229	750,839	1,046,802	1,493,164
TOTAL ASSETS	5,299,135	5,732,730	5,949,618	7,430,810	8,685,439
TOTAL LIABILITIES	1,689,998	1,792,421	2,034,833	2,436,846	2,726,987
TOTAL NET WORTH	3,609,137	3,940,309	3,914,785	4,993,964	5,958,452
DOLLARS PER COW					
Assets					
Livestock	\$ 2,405	\$ 2,296	\$ 2,141	\$ 2,179	\$ 2,189
Feed & Crops	\$ 1,135	\$ 1,081	\$ 1,188	\$ 1,122	\$ 1,132
Machinery & Equipment	\$ 2,248	\$ 1,986	\$ 2,081	\$ 1,845	\$ 1,875
Farm-Land & Buildings	\$ 5,538	\$ 5,370	\$ 5,466	\$ 5,494	\$ 5,304
All Other	\$ 1,824	\$ 1,464	\$ 1,571	\$ 1,745	\$ 2,180
TOTAL ASSETS	\$ 13,150	\$ 12,197	\$ 12,447	\$ 12,385	\$ 12,679
TOTAL LIABILITIES	\$ 4,194	\$ 3,814	\$ 4,257	\$ 4,061	\$ 3,981
TOTAL NET WORTH	\$ 8,956	\$ 8,384	\$ 8,190	\$ 8,323	\$ 8,698
DOLLARS PER CWT. OF MILK					
Assets					
Livestock	9.52	9.01	8.47	8.45	8.46
Feed & Crops	4.50	4.24	4.70	4.35	4.37
Machinery & Equipment	8.90	7.79	8.24	7.16	7.24
Farm-Land & Buildings	21.93	21.06	21.64	21.31	20.49
All Other	7.22	5.74	6.22	6.77	8.42
TOTAL ASSETS	\$ 52.07	\$47.85	\$49.27	\$48.04	\$48.99
TOTAL LIABILITIES	\$ 16.61	\$ 14.96	\$ 16.85	\$ 15.75	\$ 15.38
TOTAL NET WORTH	\$ 35.46	\$ 32.89	\$ 32.42	\$ 32.28	\$ 33.61
PERCENT NET WORTH	68%	69%	66%	67%	69%

TABLE A-4.

COMPARISON BETWEEN YEARS / Evaluation Factors

	2016	2017	2018	2019	2020
Number of Farms	457	320	305	267	204
Average Number of Cows	403	470	478	600	685
Worker Equivalents	8.4	10.0	9.6	11.6	12.7
Cows Per Worker	48	47	50	52	54
Pounds of Milk Sold Per Worker	1,210,871	1,200,611	1,255,688	1,337,028	1,391,525
Pounds of Milk Sold	10,171,317	11,981,710	12,076,192	15,469,414	17,728,029
Pounds of Milk Sold Per Cow	25,239	25,493	25,264	25,793	25,884
Milk Price Per Cwt.	\$ 16.85	\$ 18.32	\$ 17.19	\$ 19.18	\$ 18.48
Total Crop Acres	898	1,020	1,009	1,194	1,314
Crop Acres Per Cow	2.2	2.2	2.1	2.0	1.9
Feed Cost Per Cow	\$ 1,576	\$ 1,590	\$ 1,630	\$ 1,625	\$ 1,718
Feed as a Percent of Milk Sales	37%	34%	38%	33%	36%
Feed & Crop Expense Per Cow*	\$ 1,882	\$ 1,899	\$ 1,916	\$ 1,898	\$ 2,031
Feed & Crop Expense Per Cwt.	\$ 7.46	\$ 7.45	\$ 7.59	\$ 7.36	\$ 7.85
Machinery Costs Per Cow**	\$ 813	\$ 814	\$ 966	\$ 837	\$ 853
Machinery Costs Per Cwt.	\$ 3.22	\$ 3.19	\$ 3.83	\$ 3.24	\$ 3.30
Labor & Family Living Per Cow	\$ 947	\$ 973	\$ 928	\$ 941	\$ 952
Labor & Family Living Per Cwt.	\$ 3.75	\$ 3.82	\$ 3.67	\$ 3.65	\$ 3.68
Assets Per Cow	\$ 13,150	\$ 12,198	\$ 12,447	\$ 12,385	\$ 12,679
Debt Per Cow	\$ 4,194	\$ 3,814	\$ 4,257	\$ 4,061	\$ 3,981
Net Worth Per Cow	\$ 8,956	\$ 8,384	\$ 8,190	\$ 8,323	\$ 8,698
Percent Net Worth	68%	69%	66%	67%	69%

*Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Spray.

**Machinery Costs = Machinery Repairs + Fuel & Oil + Custom Hire + Machinery & Equipment Depreciation.

TABLE A-5.

COMPARISON BETWEEN YEARS / Trend Analysis

ADJUSTED FINANCIAL CONDITION AS OF DECEMBER 31	2016	2017	2018	2019	2020
Current Assets	\$ 743,492	\$ 818,377	\$ 871,787	\$ 1,121,123	\$ 1,424,163
Intermediate Assets	2,141,809	2,327,493	2,339,888	2,900,261	3,382,496
Fixed Assets	2,413,833	2,586,860	2,737,943	3,409,427	3,878,780
TOTAL ASSETS	\$ 5,299,134	\$ 5,732,730	\$ 5,949,618	\$ 7,430,811	\$ 8,685,439
Change (+ or -) from Prior Years	\$ 408,086	\$ 433,596	\$ 216,888	\$ 1,481,193	\$ 1,254,628
Current Liabilities	\$ 410,227	\$ 332,010	\$ 352,043	\$ 393,568	\$ 424,830
Intermediate Liabilities	645,338	733,696	876,538	1,051,316	1,147,052
Long-Term Liabilities	634,433	726,715	806,252	991,963	1,155,105
TOTAL LIABILITIES	\$ 1,689,998	\$ 1,792,421	\$ 2,034,833	\$ 2,436,847	\$ 2,726,987
Change (+ or -) from Prior Years	\$ 313,405	\$ 102,423	\$ 242,412	\$ 402,014	\$ 290,140
NET WORTH	\$ 3,609,136	\$ 3,940,309	\$ 3,914,785	\$ 4,993,964	\$ 5,958,452
Change (+ or -) from Prior Years	\$ 94,681	\$ 331,173	\$ -25,524	\$ 1,079,179	\$ 964,488
% Net Worth	68%	69%	66%	67%	69%

I & E Farm (Cash Basis)	2016	2017	2018	2019	2020
Sales - Milk	\$ 1,714,756	\$ 2,197,778	\$ 2,076,327	\$ 2,966,932	\$ 3,277,366
Sales - Livestock	184,692	162,649	143,115	173,905	222,798
Other Farm Income	139,408	176,314	189,982	223,047	594,790
TOTAL FARM INCOME	\$ 2,038,856	\$ 2,536,741	\$ 2,409,424	\$ 3,363,884	\$ 4,094,954
FARM CASH EXPENSES	\$ 1,856,466	\$ 2,221,165	\$ 2,245,695	\$ 2,877,303	\$ 3,418,454
NET CASH FARM INCOME	\$ 182,390	\$ 315,576	\$ 163,729	\$ 486,581	\$ 676,500
ADD: Interest	\$ 52,914	\$ 75,299	\$ 91,889	\$ 124,507	\$ 101,153
TOTAL AVAILABLE - Farm	\$ 235,304	\$ 390,875	\$ 255,618	\$ 611,088	\$ 777,653
ADD: Net Nonfarm Income	\$ 17,717	\$ 10,660	\$ 15,660	\$ 13,357	\$ 13,063
Sale Capital Assets	\$ 22,231	\$ 23,658	\$ 96,150	\$ 44,671	\$ 110,586
TOTAL FUNDS AVAILABLE (a)	\$ 275,252	\$ 425,193	\$ 367,428	\$ 669,116	\$ 901,302
Family Living + Income Taxes	\$ 59,207	\$ 58,930	\$ 58,835	\$ 63,026	\$ 60,795
Debt Service Requirement	\$ 244,790	\$ 285,790	\$ 308,826	\$ 374,707	\$ 474,049
TOTAL FUNDS REQUIRED (b)	\$ 303,997	\$ 344,720	\$ 367,661	\$ 437,733	\$ 534,844
EXCESS (a – b)	\$ -28,745	\$ 80,473	\$ -233	\$ 231,383	\$ 366,458

TABLE B-1.

2020 DATA BY HERD SIZE / Earnings Worksheet

	HERD SIZE				
	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	43	54	44	63	204
Average Number of Cows	62	178	476	1,690	685
Receipts	DOLLARS PER COW				
Milk Sales	\$ 3,641	\$ 4,178	\$ 4,652	\$ 4,896	\$ 4,784
Cattle Sales	367	221	260	376	325
Crop Sales	132	108	143	125	127
Government Payments	290	744	823	505	565
Other	301	281	133	173	177
CASH RECEIPTS	\$ 4,731	\$ 5,532	\$ 6,011	\$ 6,075	\$ 5,978
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	\$ -20	\$ -11	\$ 25	\$ 86	\$ 64
VALUE OF FARM PRODUCTION (a)	\$ 4,711	\$ 5,521	\$ 6,036	\$ 6,161	\$ 6,042
COST OF GOODS SOLD					
Chemicals & Sprays	\$ 46	\$ 55	\$ 48	\$ 62	\$ 59
Custom Hire	90	126	185	231	214
Purchased Feed	1,122	1,440	1,685	1,765	1,718
Fertilizer & Lime	177	172	154	115	126
Freight & Trucking (Marketing)	326	286	318	317	315
Gasoline, Fuel & Oil	128	128	133	123	125
Hired Labor	210	560	851	914	866
Seed & Plants	169	145	159	120	128
Supplies	231	327	272	226	240
Veterinary, Medicine & Breeding	121	169	205	198	195
Cow Replacements	90	5	62	9	17
Total Cost of Goods Sold	\$ 2,710	\$ 3,413	\$ 4,072	\$ 4,080	\$ 4,003
Gross Margin	\$ 2,001	\$ 2,108	\$ 1,964	\$ 2,081	\$ 2,039
OVERHEAD					
Insurance	65	97	74	52	59
Interest	204	157	164	142	148
Rent	70	98	124	147	139
Repairs	327	372	372	395	389
Property & Misc. Taxes	147	109	80	61	69
Utilities	100	90	97	85	87
Other	109	97	93	97	97
Accrual Adjustments					
+ Depreciation	541	480	388	259	299
Total Overhead Expenses	\$ 1,563	\$ 1,500	\$ 1,392	\$ 1,238	\$ 1,287
Total Farm Production Costs (b)	\$ 4,273	\$ 4,913	\$ 5,464	\$ 5,318	\$ 5,290
NET FARM EARNINGS (a) - (b)	\$ 438	\$ 608	\$ 572	\$ 843	\$ 752
- Family Living & Income Taxes	476	255	132	56	89
NET EARNINGS	\$ -38	\$ 353	\$ 440	\$ 787	\$ 663
+ Net Nonfarm Income	257	53	28	8	19
NET HOUSEHOLD INCOME	\$ 219	\$ 406	\$ 468	\$ 795	\$ 682

Note: Expenses adjusted for changes in accounts payable, prepaid expenses, and supply inventories to remove the effects of tax planning and reflect only one year's expenses.

TABLE B-2.

2020 DATA BY HERD SIZE / Balance Sheet Summary

	HERD SIZE				
	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	43	54	44	63	204
Average Number of Cows	62	178	476	1,690	685
	ASSETS PER COW				
Cash & Accounts Receivable	\$ 640	\$ 807	\$ 621	\$ 645	\$ 652
Feed & Crop Inventory	1,113	1,172	1,236	1,110	1,132
Supplies & Prepaid Expenses	212	161	269	172	187
Other Current Assets	124	308	107	89	108
TOTAL CURRENT ASSETS	\$ 2,089	\$ 2,448	\$ 2,233	\$ 2,016	\$ 2,079
Dairy Livestock	\$ 1,779	\$ 1,972	\$ 2,036	\$ 2,250	\$ 2,189
Machinery & Equipment	4,044	3,472	2,459	1,562	1,875
Other Intermediate Assets	744	1,584	1,066	776	874
TOTAL INTERMEDIATE ASSETS	\$ 6,567	\$ 7,028	\$ 5,561	\$ 4,588	\$ 4,938
Farm Real Estate	\$ 13,520	\$ 6,970	\$ 6,344	\$ 4,921	\$ 5,438
Other Fixed Assets	1,058	153	32	249	224
TOTAL FIXED ASSETS	\$ 14,578	\$ 7,123	\$ 6,376	\$ 5,170	\$ 5,662
TOTAL ASSETS	\$ 23,234	\$ 16,599	\$ 14,170	\$ 11,774	\$ 12,679
	LIABILITIES PER COW				
Accounts Payable	\$ 30	\$ 56	\$ 96	\$ 74	\$ 75
Farm Credit Short-Term Loans	5	18	73	66	62
Other Current Liabilities	584	523	487	475	483
TOTAL CURRENT LIABILITIES	\$ 619	\$ 597	\$ 656	\$ 615	\$ 620
Farm Credit Intermediate Term	\$ 1,237	\$ 1,115	\$ 1,041	\$ 1,544	\$ 1,433
Other Intermediate Liabilities	347	489	285	208	242
TOTAL INTERMEDIATE LIABILITIES	\$ 1,584	\$ 1,604	\$ 1,326	\$ 1,752	\$ 1,675
Farm Credit Long-Term Real Estate	\$ 2,164	\$ 1,704	\$ 2,007	\$ 1,408	\$ 1,532
Other Long-Term Liabilities	1,235	176	226	112	154
TOTAL LONG-TERM LIABILITIES	\$ 3,399	\$ 1,880	\$ 2,233	\$ 1,520	\$ 1,686
TOTAL LIABILITIES	\$ 5,602	\$ 4,081	\$ 4,215	\$ 3,887	\$ 3,981
	NET WORTH PER COW				
OWNER'S NET WORTH	\$ 17,632	\$ 12,518	\$ 9,955	\$ 7,887	\$ 8,698
TOTAL LIABILITIES & NET WORTH	\$ 23,234	\$ 16,599	\$ 14,170	\$ 11,774	\$ 12,679
PERCENT NET WORTH	76%	75%	70%	67%	69%

TABLE B-3.

2020 DATA BY HERD SIZE / Evaluation Factors

	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	43	54	44	63	204
Average Number of Cows	62	178	476	1,690	685
Worker Equivalents	2.4	3.8	9.0	30.1	12.7
Cows Per Worker	26	46	53	56	54
Pounds of Milk Sold Per Worker	553,502	1,074,996	1,378,399	1,473,879	1,391,525
Pounds of Milk Sold Per Farm	1,306,265	4,127,985	12,364,239	44,334,280	17,728,029
Pounds of Milk Sold Per Cow	21,108	23,216	25,986	26,236	25,884
Milk Price Per Cwt.	\$17.19	\$18.00	\$17.89	\$18.66	\$18.48
Total Crop Acres	206	484	1,046	2,970	1,314
Crop Acres Per Cow	3.3	2.7	2.2	1.8	1.9
Crop Acres Per Worker	87	126	117	99	103
Feed Cost Per Cow	\$ 1,122	\$ 1,440	\$ 1,685	\$ 1,765	\$ 1,718
Feed Cost Per Cwt.	\$ 5.32	\$ 6.20	\$ 6.48	\$ 6.73	\$ 6.64
Feed as a Percent of Milk Sales	31%	34%	36%	36%	36%
Feed & Crop Expense Per Cow ¹	\$ 1,513	\$ 1,812	\$ 2,046	\$ 2,062	\$ 2,031
Feed & Crop Expense Per Cwt.	\$ 7.17	\$ 7.80	\$ 7.87	\$ 7.86	\$ 7.85
Machinery Cost Per Cow ²	\$ 946	\$ 935	\$ 905	\$ 834	\$ 853
Machinery Costs Per Cwt.	\$ 4.48	\$ 4.03	\$ 3.48	\$ 3.18	\$ 3.30
Labor & Family Living Per Cow	\$ 686	\$ 814	\$ 980	\$ 967	\$ 952
Labor & Family Living Per Cwt.	\$ 3.25	\$ 3.51	\$ 3.77	\$ 3.69	\$ 3.68
Assets Per Cow	\$ 22,234	\$ 16,599	\$ 14,170	\$ 11,774	\$ 12,679
Debt Per Cow	\$ 5,602	\$ 4,081	\$ 4,215	\$ 3,887	\$ 3,981
Net Worth Per Cow	\$ 16,632	\$ 12,518	\$ 9,955	\$ 7,887	\$ 8,698
Percent Return on Assets ³	0.7%	3.1%	4.3%	7.9%	6.4%
Percent Return on Equity ⁴	-0.2%	2.8%	4.4%	10.0%	7.6%

¹Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Sprays.

²Machinery Cost = Machinery Repairs + Custom Hire + Fuel & Oil + Machinery & Equipment Depreciation.

³Return on Assets = (Net Earnings + Interest) ÷ Average Farm Assets.

⁴Return on Equity = Net Earnings ÷ Average Farm Net Worth.

TABLE C-1.

2020 DATA BY PROFIT GROUPS / Earnings Worksheet

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	51	51	51	51	204
Average Number of Cows	586	668	609	932	685
Receipts	DOLLARS PER COW				
Milk Sales	\$ 4,729	\$ 4,597	\$ 4,735	\$ 5,014	\$ 4,784
Cattle Sales	308	329	250	306	325
Crop Sales	0	102	195	215	127
Government Payments	381	609	668	581	565
Other	92	198	191	175	\$ 177
CASH RECEIPTS	\$ 5,510	\$ 5,835	\$ 6,039	\$ 6,291	\$ 5,978
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	\$ 41	\$ -19	\$ 109	\$ 145	\$ 64
VALUE OF FARM PRODUCTION (a)	\$ 5,551	\$ 5,816	\$ 6,148	\$ 6,436	\$ 6,042
COST OF GOODS SOLD					
Chemicals & Sprays	\$ 94	\$ 46	\$ 53	\$ 51	\$ 59
Custom Hire	206	220	191	249	214
Purchased Feed	1,730	1,799	1,792	1,624	1,718
Fertilizer & Lime	112	111	136	138	126
Freight & Trucking (Marketing)	359	318	300	295	315
Gasoline, Fuel & Oil	122	125	125	123	125
Hired Labor	903	879	875	830	866
Seed & Plants	127	114	136	132	128
Supplies	270	261	230	211	240
Veterinary, Medicine & Breeding	182	173	216	206	195
Cow Replacements	108	1	19	0	17
Total Cost of Goods Sold	\$ 4,213	\$ 4,047	\$ 4,073	\$ 3,859	\$ 4,003
Gross Margin	\$ 1,338	\$ 1,769	\$ 2,075	\$ 2,577	\$ 2,039
OVERHEAD					
Insurance	58	59	67	58	59
Interest	138	179	160	127	148
Rent	167	126	96	155	139
Repairs	411	380	427	349	389
Property & Misc. Taxes	64	79	73	65	69
Utilities	96	90	85	80	87
Other	113	81	93	100	97
Accrual Adjustments					
+ Depreciation	275	294	305	309	299
Total Overhead Expenses	\$ 1,322	\$ 1,288	\$ 1,306	\$ 1,243	\$ 1,287
Total Farm Production Costs (b)	\$ 5,535	\$ 5,335	\$ 5,379	\$ 5,102	\$ 5,290
NET FARM EARNINGS (a) - (b)	\$ 16	\$ 481	\$ 769	\$ 1,334	\$ 752
- Family Living & Income Taxes	90	87	92	83	89
NET EARNINGS	\$ -74	\$ 394	\$ 677	\$ 1,251	\$ 663
+ Net Nonfarm Income	25	19	24	8	19
NET HOUSEHOLD INCOME	\$ -49	\$ 413	\$ 701	\$ 1,259	\$ 682

Note: Expenses adjusted for changes in accounts payable, prepaid expenses and supply inventories to remove the effects of tax planning and reflect only one year's expenses.

TABLE C-2.

2020 DATA BY PROFIT GROUPS / Balance Sheet Summary

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	51	51	51	51	204
Average Number of Cows	586	668	609	932	685
	ASSETS PER COW				
Cash & Accounts Receivable	\$ 534	\$ 500	\$ 568	\$ 885	\$ 652
Feed & Crop Inventory	1,008	1,101	1,099	1,255	1,132
Supplies & Prepaid Expenses	131	139	235	221	187
Other Current Assets	28	113	94	160	108
TOTAL CURRENT ASSETS	\$ 1,701	\$ 1,853	\$ 1,996	\$ 2,521	\$ 2,079
Dairy Livestock	\$ 2,104	\$ 2,032	\$ 2,235	\$ 2,329	\$ 2,189
Machinery & Equipment	1,621	1,823	1,960	1,962	1,875
Other Intermediate Assets	723	975	780	992	874
TOTAL INTERMEDIATE ASSETS	\$ 4,448	\$ 4,830	\$ 4,975	\$ 5,283	\$ 4,938
Farm Real Estate	\$ 5,012	\$ 5,382	\$ 5,812	\$ 5,472	\$ 5,438
Other Fixed Assets	250	231	27	322	224
TOTAL FIXED ASSETS	\$ 5,262	\$ 5,613	\$ 5,839	\$ 5,794	\$ 5,662
TOTAL ASSETS	\$ 11,411	\$ 12,296	\$ 12,810	\$ 13,598	\$ 12,679
	LIABILITIES PER COW				
Accounts Payable	\$ 132	\$ 60	\$ 92	\$ 37	\$ 75
Farm Credit Short-Term Loans	54	56	46	80	62
Other Current Liabilities	439	554	534	431	483
TOTAL CURRENT LIABILITIES	\$ 625	\$ 670	\$ 672	\$ 548	\$ 620
Farm Credit Intermediate Term	\$ 1,986	\$ 1,571	\$ 1,123	\$ 1,183	\$ 1,433
Other Intermediate Liabilities	260	292	265	169	242
TOTAL INTERMEDIATE LIABILITIES	\$ 2,246	\$ 1,863	\$ 1,388	\$ 1,352	\$ 1,675
Farm Credit Long-Term Real Estate	\$ 1,059	\$ 1,638	\$ 2,065	\$ 1,512	\$ 1,532
Other Long-Term Liabilities	75	154	158	194	154
TOTAL LONG-TERM LIABILITES	\$ 1,134	\$ 1,792	\$ 2,223	\$ 1,706	\$ 1,686
TOTAL LIABILITIES	\$ 4,005	\$ 4,325	\$ 4,283	\$ 3,606	\$ 3,981
	NET WORTH PER COW				
OWNER'S NET WORTH	\$ 7,406	\$ 7,971	\$ 8,527	\$ 9,992	\$ 8,698
TOTAL LIABILITIES & NET WORTH	\$ 11,411	\$ 12,296	\$ 12,810	\$ 13,598	\$ 12,679
PERCENT NET WORTH	65%	65%	67%	73%	69%

TABLE C-3.

2020 DATA BY PROFIT GROUPS / Evaluation Factors

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	51	51	51	51	204
Average Number of Cows	586	668	609	932	685
Worker Equivalents	10.9	13.1	12.0	15.8	12.7
Cows Per Worker	54	51	51	59	54
Pounds of Milk Sold Per Worker	1,388,359	1,299,880	1,307,366	1,553,488	1,391,525
Pounds of Milk Sold Per Farm	15,105,346	17,080,423	15,740,687	24,591,715	17,728,029
Pounds of Milk Sold Per Cow	25,765	25,561	25,843	26,385	25,884
Milk Price Per Cwt.	\$18.34	\$17.97	\$18.31	\$19.01	\$18.48
Total Crop Acres	1,016	1,269	1,240	1,799	1,314
Crop Acres Per Cow	1.7	1.9	2.0	1.9	1.9
Crop Acres Per Worker	93	97	103	114	103
Feed Cost Per Cow	\$ 1,730	\$ 1,799	\$ 1,792	\$ 1,624	\$ 1,718
Feed Cost Per Cwt.	\$ 6.71	\$ 7.04	\$ 6.93	\$ 6.16	\$ 6.64
Feed as a Percent of Milk Sales	37%	39%	38%	32%	36%
Feed & Crop Expense Per Cow ¹	\$ 2,062	\$ 2,069	\$ 2,118	\$ 1,946	\$ 2,031
Feed & Crop Expense Per Cwt.	\$ 8.00	\$ 8.09	\$ 8.20	\$ 7.38	\$ 7.85
Machinery Cost Per Cow ²	\$ 835	\$ 845	\$ 872	\$ 864	\$ 853
Machinery Cost Per Cwt.	\$ 3.24	\$ 3.31	\$ 3.37	\$ 3.27	\$ 3.30
Labor & Family Living Per Cow	\$ 992	\$ 960	\$ 964	\$ 911	\$ 952
Labor & Family Living Per Cwt.	\$ 3.85	\$ 3.76	\$ 3.73	\$ 3.45	\$ 3.68
Assets Per Cow	\$ 11,411	\$ 12,296	\$ 12,810	\$ 13,598	\$ 12,679
Debt Per Cow	\$ 4,005	\$ 4,325	\$ 4,283	\$ 3,606	\$ 3,981
Net Worth Per Cow	\$ 7,406	\$ 7,971	\$ 8,527	\$ 9,992	\$ 8,698
Percent Return on Assets ³	0.6%	4.7%	6.5%	10.1%	6.4%
Percent Return on Equity ⁴	-1.0%	4.9%	7.9%	12.5%	7.6%

¹Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Spray.

²Machinery Cost = Machinery Repairs + Custom Hire + Fuel & Oil + Machinery & Equipment Depreciation.

³Return on Assets = (Net Earnings + Interest) ÷ Average Farm Assets.

⁴Return on Equity = Net Earnings ÷ Average Farm Net Worth.

TABLE C-4.

2020 Cost Of Producing Milk By Profit Groups

	Bottom 25%	All Farm Average	Top 25%
DOLLARS PER CWT.			
Feed	\$ 6.71	\$ 6.64	\$ 6.16
Labor	\$ 3.50	\$ 3.35	\$ 3.15
Interest	\$ 0.54	\$ 0.57	\$ 0.48
Trucking (Marketing)	\$ 1.39	\$ 1.22	\$ 1.12
Crop Expenses	\$ 1.29	\$ 1.22	\$ 1.22
All Other Expenses	\$ 6.97	\$ 6.29	\$ 6.05
Adjusted Cash Operating Expenses	\$ 20.42	\$ 19.29	\$ 18.17
+ Depreciation	1.07	1.16	1.17
+ Family Living	0.35	0.34	0.31
Total Costs	\$ 21.83	\$ 20.79	\$ 19.65
– Non-milk Income*	1.71	2.68	3.19
Net Cost of Production**	\$ 20.12	\$ 18.11	\$ 16.46

*Nonmilk income includes accrual basis cattle, crop, and other farm income

**Before any return on equity.

TABLE C-5.

2020 Cash Margins By Profit Groups

	2016	2017	2018	2019	2020
Bottom Profit Group					
Actual Milk Price	\$ 16.34	\$ 18.06	\$ 16.79	\$ 18.54	\$ 18.34
Break-Even Milk Price	18.69	19.39	18.96	19.91	19.66
CASH MARGIN	\$ -2.35	\$ -1.33	\$ -2.17	\$ -1.37	\$ -1.32
Top Profit Group					
Actual Milk Price	\$ 17.34	\$ 18.65	\$ 17.63	\$ 19.45	\$ 19.01
Break-Even Milk Price	15.89	16.28	16.74	15.91	16.89
CASH MARGIN	\$ 1.45	\$ 2.37	\$ 0.89	\$ 3.54	\$ 2.12

TABLE C-6.

2020 Reserve Debt Capacity By Profit Groups

	Bottom 25%	All Farm Average	Top 25%
DOLLARS PER COW			
Debt Capacity	\$ 1,816	\$ 7,561	\$ 11,894
– Capital Debt	3,380	3,361	3,058
RESERVE DEBT CAPACITY	\$ -1,564	\$ 4,200	\$ 8,836

TABLE D-1.

2020 DATA BY REGIONS / Earnings Worksheet

	REGIONS		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	191	13	204
Average Number of Cows	683	705	685
Receipts	DOLLARS PER COW		
Milk Sales	\$ 4,784	\$ 4,836	\$ 4,784
Cattle Sales	325	283	325
Crop Sales	133	38	127
Government Payments	535	994	565
Other	173	233	177
CASH RECEIPTS	\$ 5,950	\$ 6,384	\$ 5,978
Accrual Adjustments			
+ Change in Inventory-Raised Livestock	\$ 69	\$- 8	\$ 64
VALUE OF FARM PRODUCTION (a)	\$ 6,019	\$ 6,376	\$ 6,042
COST OF GOODS SOLD			
Chemicals & Sprays	\$ 60	\$ 45	\$ 59
Custom Hire	216	194	214
Purchased Feed	1,697	2,030	1,718
Fertilizer & Lime	127	114	126
Freight & Trucking (Marketing)	317	304	315
Gasoline, Fuel & Oil	125	121	125
Hired Labor	857	1,017	866
Seed & Plants	129	114	128
Supplies	237	283	240
Veterinary, Medicine & Breeding	194	222	195
Cow Replacements	17	4	17
Total Cost of Goods Sold	\$ 3,976	\$ 4,448	\$ 4,003
Gross Margin	\$ 2,043	\$ 1,928	\$ 2,039
OVERHEAD			
Insurance	58	75	59
Interest	149	134	148
Rent	143	90	139
Repairs	379	539	389
Property & Misc. Taxes	70	60	69
Utilities	85	124	87
Other	95	98	97
Accrual Adjustments			
Depreciation	300	285	299
Total Overhead Expenses	\$ 1,279	\$ 1,405	\$ 1,287
Total Farm Production Costs (b)	\$ 5,255	\$ 5,853	\$ 5,290
NET FARM EARNINGS (a) - (b)	\$ 764	\$ 523	\$ 752
- Family Living & Income Taxes	88	104	89
NET EARNINGS	\$ 676	\$ 419	\$ 663
+ Net Nonfarm Income	19	14	19
NET HOUSEHOLD INCOME	\$ 695	\$ 433	\$ 682

Note: Expenses adjusted for changes in accounts payable, prepaid expenses and supply inventories to remove the effects of tax planning and reflect only one year's expenses.

TABLE D-2.

2020 DATA BY REGIONS / Balance Sheet Summary

	REGIONS		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	191	13	204
Average Number of Cows	683	705	685
	ASSETS PER COW		
Cash & Accounts Receivable	\$ 667	\$ 452	\$ 652
Feed & Crop Inventory	1,146	940	1,132
Supplies & Prepaid Expenses	183	247	187
Other Current Assets	113	46	108
TOTAL CURRENT ASSETS	\$ 2,109	\$ 1,685	\$ 2,079
Dairy Livestock	\$ 2,213	\$ 1,889	\$ 2,189
Machinery & Equipment	1,893	1,638	1,875
Other Intermediate Assets	871	925	874
TOTAL INTERMEDIATE ASSETS	\$ 4,977	\$ 4,452	\$ 4,938
Farm Real Estate	\$ 5,519	\$ 4,358	\$ 5,438
Other Fixed Assets	237	48	224
TOTAL FIXED ASSETS	\$ 5,756	\$ 4,406	\$ 5,662
TOTAL ASSETS	\$ 12,842	\$ 10,543	\$ 12,679
	LIABILITIES PER COW		
Accounts Payable	\$ 75	\$ 66	\$ 75
Farm Credit Short-Term Loans	52	206	62
Other Current Liabilities	488	437	483
TOTAL CURRENT LIABILITIES	\$ 615	\$ 709	\$ 620
Farm Credit Intermediate Term	\$ 1,487	\$ 679	\$ 1,433
Other Intermediate Liabilities	226	473	242
TOTAL INTERMEDIATE LIABILITIES	\$ 1,713	\$ 1,152	\$ 1,675
Farm Credit Long-Term Real Estate	\$ 1,517	\$ 1,768	\$ 1,532
Other Long-Term Liabilities	158	103	154
TOTAL LONG-TERM LIABILITES	\$ 1,675	\$ 1,871	\$ 1,686
TOTAL LIABILITIES	\$ 4,003	\$ 3,732	\$ 3,981
	NET WORTH PER COW		
OWNER'S NET WORTH	\$ 8,839	\$ 6,811	\$ 8,698
TOTAL LIABILITIES & NET WORTH	\$ 12,842	\$ 10,543	\$ 12,679
PERCENT NET WORTH	69%	65%	69%

*Regions are divided by state not Federal Milk Orders.

TABLE D-3.

2020 DATA BY REGIONS / Evaluation Factors

	REGIONS ¹		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	191	13	204
Average Number of Cows	683	705	685
Worker Equivalents	12.6	14.8	12.7
Cows Per Worker	54	48	54
Pounds of Milk Sold Per Worker	1,404,343	1,230,779	1,391,525
Pounds of Milk Sold Per Farm	17,694,722	18,178,606	17,728,029
Pounds of Milk Sold Per Cow	25,915	25,778	25,884
Milk Price Per Cwt.	\$ 18.46	\$ 18.75	\$ 18.48
Total Crop Acres	1,328	1,110	1,314
Crop Acres Per Cow	1.9	1.6	1.9
Crop Acres Per Worker	105	75	103
Feed Cost Per Cow	\$ 1,697	\$ 2,030	\$ 1,718
Feed Cost Per Cwt.	\$ 6.55	\$ 7.87	\$ 6.64
Feed as a Percent of Milk Sales	35%	42%	36%
Feed & Crop Expense Per Cow ²	\$ 2,014	\$ 2,304	\$ 2,031
Feed & Crop Expense Per Cwt.	\$ 7.77	\$ 8.94	\$ 7.85
Machinery Cost Per Cow ³	\$ 849	\$ 922	\$ 853
Machinery Cost Per Cwt.	\$ 3.28	\$ 3.58	\$ 3.30
Labor & Family Living Per Cow	\$ 942	\$ 1,114	\$ 952
Labor & Family Living Per Cwt.	\$ 3.63	\$ 4.32	\$ 3.68
Assets Per Cow	\$ 12,842	\$ 10,543	\$ 12,679
Debt Per Cow	\$ 4,003	\$ 3,732	\$ 3,981
Net Worth Per Cow	\$ 8,839	\$ 6,811	\$ 8,698
Percent Return on Assets ⁴	6.4%	5.2%	6.4%
Percent Return on Equity ⁵	7.6%	6.2%	7.6%

¹Regions are divided by states not Federal Milk Orders.

²Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Spray.

³Machinery Cost = Machinery Repairs + Custom Hire + Fuel & Oil + Machinery & Equipment Depreciation.

⁴Return on Assets = (Net Earnings + Interest) ÷ Average Farm Assets. In contrast, the Balance Sheet shows the year-end values.

⁵Return on Equity = Net Earnings ÷ Average Farm Net Worth.



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GLOSSARY

Net Cash Farm Income

A measure of farm profitability in terms of cash flow and net cash farm income, reflects the ability of a farm business to meet its cost of production through cash income. It is equal to:

$$\text{Cash Receipts} - \text{Adjusted Cash Operating Expenses}$$

Accrual Adjusted Operating Expenses

Farm operating expenses adjusted to reflect 12 months of operation and to remove the effect of tax planning. Adjustments account for changes in supply inventories, accounts payable and prepaid expenses. Operating expenses do not include family living costs or capital expenditures.

Net Household Income

An accrual measure of overall household earnings, reflecting all revenues and costs, including both farm and non-farm sources. It is equal to:

$$\begin{aligned} &\text{Net Cash Farm Income} \\ &+ \text{Change in Accounts Receivable} \\ &+ \text{Change in Production Inventories} \\ &+ \text{Net Nonfarm \& Noncash Income} \\ &- \text{Depreciation} \\ &- \text{Family Living Expenses \& Taxes} \end{aligned}$$

Return on Assets

Measures profit earned relative to total farm assets, including assets financed with debt and those financed with farm equity. Return on assets is equal to:

$$\frac{\text{Net Earnings} + \text{Interest Expense}}{\text{Average Assets}}$$

Return on Equity

Measures profit earned relative to a farmer's equity investment in the farm operation. Return on equity is equal to:

$$\frac{\text{Net Earnings}}{\text{Average Net Worth}}$$

Debt Capacity

The maximum amount of capital debt that can be repaid from a farm's cash flow, the calculation of debt capacity is described in the summary.

Reserve Debt Capacity

The amount of additional capital debt (beyond that already incurred) that a farm can service from cash flow. Reserve debt capacity represents a farm's buffer against financial adversity. It is equal to:

$$\text{Debt Capacity} - \text{Capital Debt}$$

Overhead Costs

Costs that do not vary with a change in production output, such as depreciation, interest, repairs, taxes and insurance, etc.



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