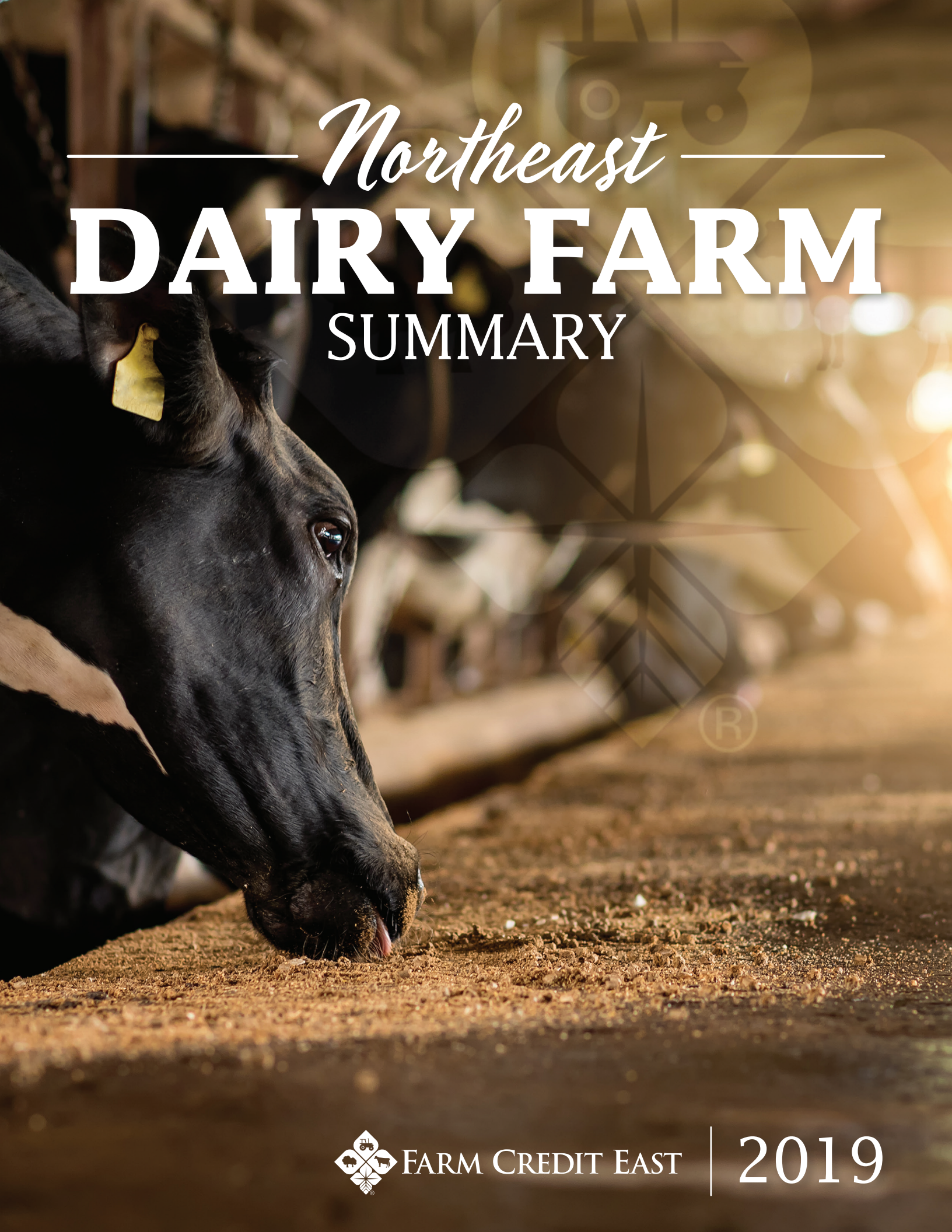

Northeast DAIRY FARM SUMMARY

FARM CREDIT EAST | 2019

2019 *Northeast* DAIRY FARM SUMMARY

Prepared by:
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July 2020

FARM CREDIT EAST

ACKNOWLEDGMENTS

No research project of the scope of the *Northeast Dairy Farm Summary (DFS)* would be possible without the collaboration and hard work of many individuals. The current author would like to thank the authors who preceded him in writing the *DFS* over the past 40 years, as well as Farm Credit Financial Partners, Inc. for the creation of the benchmark software and their assistance in compiling data.

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.

HIGHLIGHTS OF THE *2019 NORTHEAST DAIRY FARM SUMMARY*

- 267 dairy farms participated in the *2019 Northeast Dairy Farm Summary*.[1]
- Profitability increased in 2019 from 2018. Net earnings increased to an average of $447 per cow in 2019,[2] from a loss of -$40 per cow in 2018. This is largely due to an increase in farm milk price of $1.99 per hundredweight (cwt.) to $19.18.
- Costs declined slightly from 2018 to 2019. Total expenses per cwt. decreased by $0.16 per cwt. to $20.20 in 2019.[3]
- Net cost of production[4] increased to $17.81 per cwt., $0.09 greater than 2018.
- Some specific cost categories which changed in 2019 are:
  - Feed expense, a farm's largest cost, decreased from $1,630 per cow in 2018 to $1,625 in 2019.
  - Labor, a dairy farm's second largest expense, increased 4.5% per cow, and 2.3% per cwt.
  - Fuel expenses decreased by -6.3% per cow after several years of increases.
- Productivity increased. Per cow production in our sample herds was 2.0% greater than the prior year. Milk sold per worker increased 6.5% 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 $1.43.[5] This was a positive shift after four consecutive years of challenging cash margins.
- Percent net worth in our sample increased to 67%. Total debt-per-cow decreased from $4,257 to $4,061.

PROFILE OF THE AVERAGE NORTHEAST DAIRY FARM

	2018	2019
Number of Cows	478	600
Milk Sold per Cow	25,264 lbs.	25,793 lbs.
Milk Sold per Worker	1,255,688 lbs.	1,337,028 lbs.
Milk Price per Cwt.	$17.19	$19.18
NCOP per Cwt.	$17.72	$17.81
Net Worth	66%	67%
Net Earnings per Cow	$-40	$447
Net Household Income per Cow	$-7	$469
Return on Assets	1.2%	5.2%

[1]This year's *DFS* contains data from Connecticut, Maine and New York.
[2]On an accrual basis, after family living, not including nonfarm income.
[3]Including family living.
[4]Total farm expense, plus family living, less non-milk income.
For more information, see page 8
[5]See figure 7

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INTRODUCTION

The purpose of Farm Credit'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 40 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 283 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 267 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 *2019 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 283 farms submitted, 16 were excluded as outliers, or due to data irregularity, resulting in a benchmark of 267 farms.

This continues to be true in a year such as 2019. While the "average farm" had $447 per cow in net earnings, nearly 20% 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 $1,200 per cow.

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

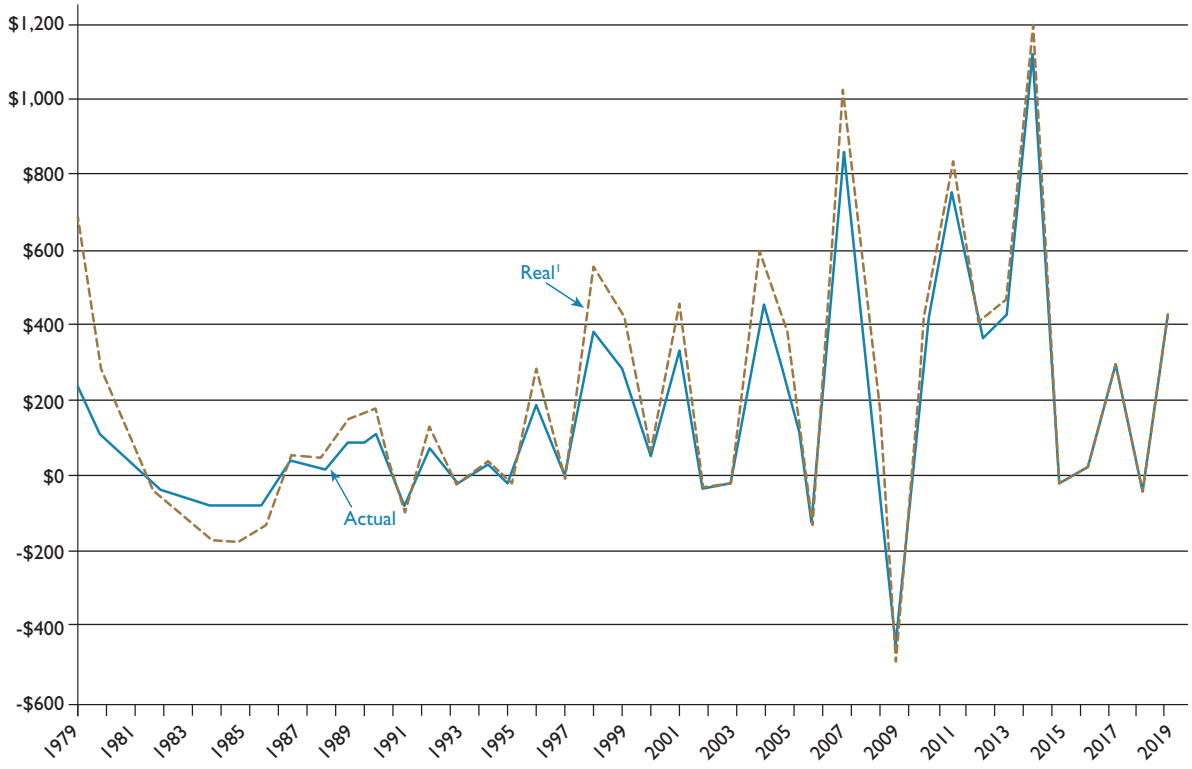
Dairy Farm Profitability

	Net Earnings Per Cow[1]	Standard Deviation	Return on Assets[2]	Return on Equity[3]
2015	$ -30	$599	0.6%	-0.3%
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%
3-Year Average	$ 259		3.4%	2.8%
5-Year Average	$ 170		2.4%	1.7%

[1]Net earnings does not include nonfarm income
[2]Return on assets = (net earnings + interest)/average total assets
[3]Return on equity = net earnings / average net worth

Figure 2A

Net Earnings Per Cow 1979-2019



[1] Real price is actual price adjusted for inflation – 2019 dollars.

Analysis of 2019

A RECOVERY YEAR

Due to the significant disruptions caused by the COVID-19 virus, this edition of the *Northeast Dairy Farm Summary* was delayed several months. As of this writing, in mid-2020, dairy markets have changed significantly from 2019, due to the near-total loss of food service markets and a shift toward grocery store sales and food being consumed primarily at home. With the Federal Milk Order One Statistical Uniform Price for May 2020 coming in at only $13.47/cwt., it is easy to forget that 2019 was a good year for many Northeast dairy producers.

The positive net income realized in 2019 will be important as farmers face significant challenges in 2020, due to the market impacts of COVID-19, as well as the operational challenges it has brought. Producers are now facing lower milk prices, supply management restrictions in some cases, dealing with the challenge of keeping their workforce healthy, and conducting business remotely, due to social distancing. A lot has changed in just a few months. Despite an extremely difficult first half of 2020, we are beginning to see some positive developments. The number of new cases of COVID-19 seems to be reaching a plateau, at least in the Northeast, and the economy is gradually reopening. Class III milk futures show the potential for higher milk prices in the coming months. Still, considerable uncertainty remains.

In the meantime, this report provides an analysis of Northeast dairy farm performance in the year 2019, before the significant market disruptions seen due to COVID-19.

Following several challenging years, 2019 marked a rather substantial recovery for the Northeast dairy industry, largely driven by higher milk prices. Milk prices increased by nearly $2 from 2018's average price of $17.19/cwt. to $19.18 in 2019.

Other reasons for 2019's higher net earnings were lower feed costs and general cost consciousness on the part of producers. Despite modest-but-steady inflation in the general economy, Northeast dairy farmers have been able to keep expenses in check in recent years. This was again true in 2019, when producers kept the Net Cost of Production (NCOP) increase to a modest $0.09 per cwt., or one-half of one percent. From figure 4A, NCOP annual change over the last four years was -9%, +2%, +3% and +0.5%. A 2.4% decline in feed costs per cwt. helped contribute to this modest change in NCOP. Also, an increase in average herd size, coupled with productivity gains in milk produced per cow, drove down fixed costs compared to 2018.

Looking back over a five-year period, average net farm earnings ranged from -$29 in 2015, $15 in 2016, $292 in 2017, -$40 in 2018 and $447 in 2019 (not counting nonfarm income). This brings the five-year average earnings to $170 per cow.

The increase in average net earnings in 2019 was due to a combination of higher milk prices and increased production per cow. The milk price received increased by $1.99 per cwt., while the net cost of production increased by $0.09 per cwt. to $17.81. In addition to receiving higher milk prices, producers saw a 2.1% gain in per-cow productivity, on average.

In the 40-year history of the *DFS*, 2019 ranks 5th in terms of profitability in nominal terms, or 9th 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 40 years of the *DFS*.

This summary uses three primary measures of profitability, each of which provides a useful perspective on a dairy farm's 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 we have seen in recent years. To further illustrate, in the last eleven 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 2B). 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	$259	$170	$412
Return on Assets	3.4%	2.4%	4.2%
Return on Equity	2.8%	1.7%	4.3%

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.

MILK PRICE INCREASES FROM PRIOR YEAR

The average farm milk price at $19.18 per cwt. was $1.99, or 11.6% greater than 2018's $17.19. It was $1.22 greater than the five-year average of $17.96 per cwt. (Figure 3A). In terms of actual (nominal dollars, not adjusted for inflation) milk prices, 2019 ranked 7th 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, 2019 drops to 33rd. The first year of the *DFS*, 1979, ranks first, with an inflation-adjusted milk price of $36.36/cwt. in 2019 dollars.

Figure 3A

Farm Milk Prices Per Cwt.

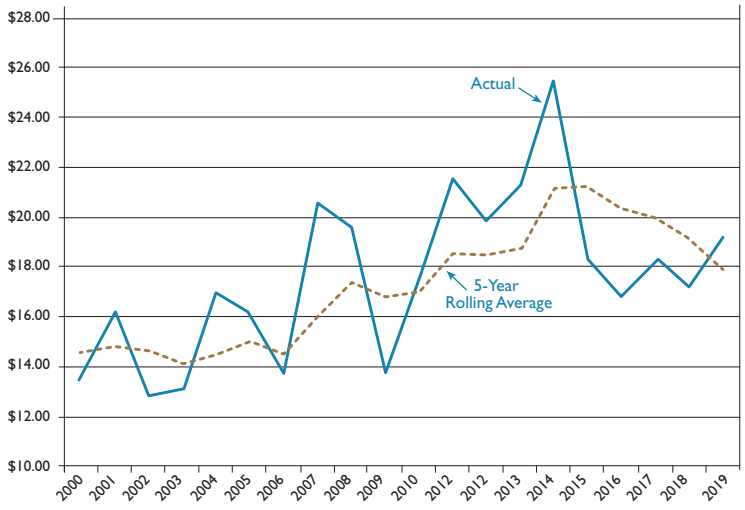
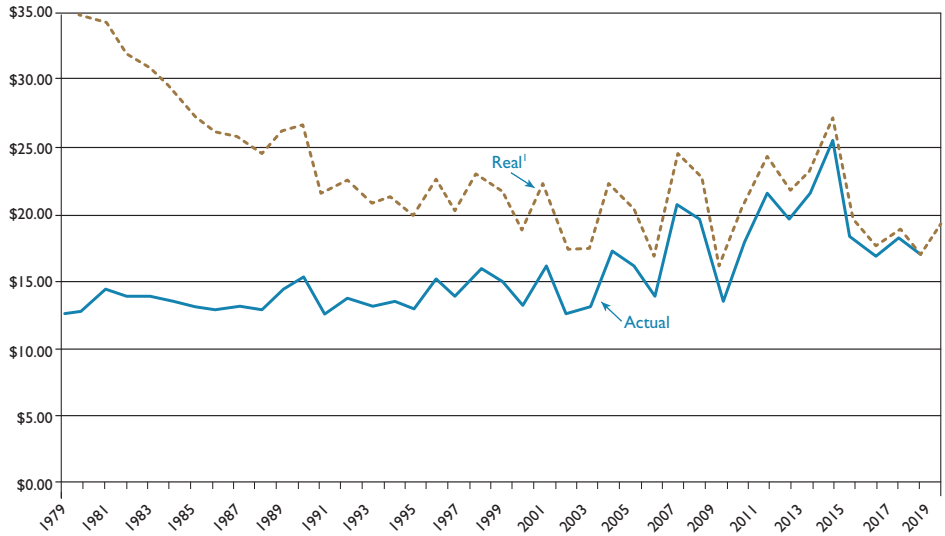


Figure 3B

Farm Milk Prices Per Cwt.



[1]Actual price adjusted for inflation - 2019 dollars.

The Federal Milk Marketing Order One Statistical Uniform Price (SUP) began 2019 at $16.42/cwt. (Boston blend at 3.5% butterfat). The price steadily increased thereafter, eventually climbing to $19.28 in December. The average SUP for 2019 was $18.12/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, trade and tariff disputes with major trading partners have significant influence on U.S. milk prices. Recently, the impact of COVID-19, and the disruptions to food service markets has caused significant hardship to dairy producers across the country. This unusual 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. NCOP barely increased, rising by only $.09/cwt to $17.81/cwt.

Three key figures to review for 2019's cost of production analysis of the average dairy farm in the *DFS* include:

- Cash operating expenses were $18.59 per cwt., virtually unchanged from 2018.[7]
- Total costs, including depreciation and family living, were $20.20 per cwt., $0.16 per cwt. less than 2018.
- Non-milk income for 2019 was lower than in 2018. After subtracting non-milk farm income, NCOP was $17.81 per cwt., $0.09 above the previous year.[8]

[7]Not including family living.
[8]Nonfarm income and government payments are not factored into NCOP.

Figure 4A

Cost of Producing Milk – Accrual Basis

	2015	2016	2017	2018	2019
Feed	$ 7.12	$ 6.25	$ 6.24	$ 6.45	$ 6.30
Labor	3.27	3.20	3.33	3.19	3.26
Interest	0.47	0.52	0.63	0.76	0.80
Freight & Trucking	0.97	0.98	1.05	1.14	1.14
Crop	1.40	1.21	1.20	1.14	1.06
Other Expenses	6.77	6.09	6.09	5.92	6.03
Adjusted Cash Operating Expenses	$20.00	$18.24	$18.54	$18.60	$18.59
+ Depreciation	1.44	1.38	1.30	1.28	1.20
+ Family Living	0.69	0.58	0.49	0.48	0.41
Total Costs	$22.13	$20.20	$20.33	$20.36	$20.20
- Non-Milk Income[1]	3.77	3.41	3.15	2.64	2.39
Net Cost of Production[2]	$18.36	$16.79	$17.18	$17.72	$17.81

[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 $0.32 added to the NCOP for 2019. For a 6% ROE, NCOP would be $19.73

Despite a substantial increase in milk prices in 2019, Northeast dairy producers managed to limit cost increases, and even saw reduced costs in some areas. Categories where costs increased included labor, supplies and repairs. Rent showed a substantial 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. Categories with notable decreases included feed, fuel and crop inputs. Lower feed costs were due to lower quantities of feed purchased, due to higher forage quality in 2019, as well as per-cow productivity gains. Minimum wage increases in many Northeast states and an overall tightening of the labor market have significantly pushed up labor costs per hour, leading to a push for efficiency and lower staffing levels per cow on many farms.

Repair expense, typically one of the top four expenses on a dairy farm, increased significantly (9.5% per cow), to $312 per cow, close to the 5-year average of $317.

Figure 4B

Specific Cost Categories

	2018		2019		Percent Change	
	per Cow	per Cwt.	per Cow	per Cwt.	per Cow	per Cwt.
Feed	$1,630	$6.45	$1,625	$6.30	-0.3%	-2.4%
Labor	$ 805	$3.19	$ 841	$3.26	4.5%	2.3%
Fuel	$ 174	$0.69	$ 163	$0.63	-6.3%	-8.2%
Supplies	$ 225	$0.89	$ 237	$0.92	5.3%	3.2%
Rent	$ 107	$0.42	$ 130	$0.50	21.5%	19.0%
Repairs	$ 285	$1.13	$ 312	$1.21	9.5%	7.2%
Crop Inputs	$ 286	$1.13	$ 274	$1.06	-4.2%	-6.2%
Other Expenses	$1,509	$5.97	$1,526	$5.92	1.1%	-0.9%

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 Depreciation[9] + Family Living Expense] - Non-Milk Farm Income[10] = Net Cost of Production.

It is important to note that the $17.81/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. For the average *DFS* producer in 2018, each one percent return on equity is equivalent to an additional $0.32 per cwt. If we were to include a six percent ROE goal as part of NCOP, for example, this would be equivalent to a $19.73 NCOP, well above average milk prices.

Figure 4C compares NCOP between New York and New England in 2018 and 2019. New York producers typically have an advantage in lower costs and higher production per cow over producers in New England. 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 State 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.[11] However, even taking state support programs into account, New York farms' NCOP would still be $2.42 per cwt. lower than New England farms. Areas of significant difference included spending on purchased feed, labor and other expenses.

[9]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 be able to compare consistent numbers from year to year and avoid variations driven by accounting and changes in tax laws.
[10]Non-milk income includes cattle, crop and other income adjusted for inventory changes, but does not include nonfarm income or government payments.
[11]Government payments are included on the income statement, and are part of net earnings calculations.

Figure 4C

NCOP By Region

Cost per CWT.	New York		New England	
	2018	2019	2018	2019
Feed	$ 6.33	$ 6.21	$ 7.61	$ 7.64
Labor	3.15	3.19	3.90	4.31
Interest	0.78	0.81	0.62	0.74
Freight & Trucking	1.15	1.12	1.13	1.42
Crop Inputs	1.16	1.07	1.12	0.87
Other Expenses	5.87	6.01	6.58	6.29
Adjusted Cash Operating Expenses	$18.44	$18.41	$20.96	$21.27
+ Depreciation	1.29	1.21	1.33	1.22
+ Family Living	0.47	0.40	0.52	0.44
Total Costs	$20.20	$20.02	$22.81	$22.93
- Non-milk Income	2.74	2.42	2.39	1.60
Net Cost of Production	$ 17.46	$ 17.59	$20.42	$21.33
Total NCOP Increase/cwt.		$0.13 0.7%		$0.91 4.5%

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 understate the true value of their family labor, but on paper, several of them showed strong net returns.

Figure 4D

NCOP By Herd Size

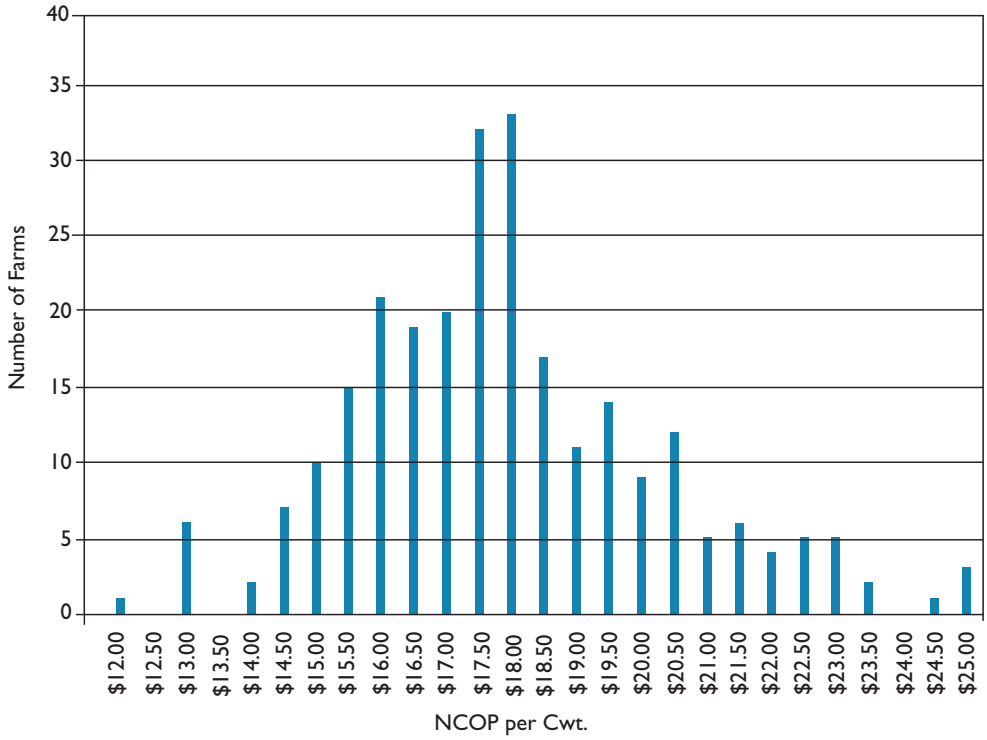
Cost per CWT.	< 100 Cows	100-299 Cows	300-699 Cows	700+ Cows
Feed	$ 5.03	$ 6.27	$ 6.07	$ 6.40
Labor	0.92	2.58	3.26	3.39
Interest	0.94	0.82	0.80	0.80
Freight & Trucking	1.41	1.19	1.09	1.14
Crop Inputs	1.74	1.38	1.21	0.97
Other Expenses	7.26	6.72	6.25	5.90
Adjusted Cash Operating Expenses	$17.30	$18.96	$18.68	$18.60
+ Depreciation	2.50	2.10	1.43	1.02
+ Family Living	2.46	1.28	0.53	0.23
Total Costs	$22.26	$22.34	$20.64	$19.85
- Non-Milk Income*	3.69	2.43	2.84	2.23
Net Cost of Production	$18.57	$19.91	$17.80	$17.62

*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

NCOP Distribution



We often speak of NCOP as if it is a single number. But as we can see in Figure 4E, in reality 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.[12] In past years, 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 478 head in 2018 to 600 in 2019. 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 2019 sample is 299 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 25% 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	61	73	65	68
Volume of Milk Produced[1]	2.0%	7.2%	18.8%	72.0%

[1] As a percent of all farms in the 2019 *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 enhanced by better labor efficiency. While there are some ups and downs 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. 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 $19,864, but on a per cwt. basis, their cost is $4.64 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 $2.97, 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.

[12]This year's study does not include farms from Vermont. Vermont farms were included in 2015 and 2016.

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 which 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.

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	5%	71	26	16,480	$ 19,864	$ 37
600,000-799,000	10%	89	36	18,054	$ 22,797	$ 416
800,000-999,000	11%	173	38	21,378	$ 37,007	$ 283
1 to 1.19 million	9%	304	42	22,649	$ 39,184	$ 497
1.2 to 1.39 million	22%	615	46	24,894	$ 42,273	$ 383
1.4 to 1.59 million	19%	678	51	25,663	$ 48,192	$ 430
1.6 to 1.79 million	10%	1,268	57	26,133	$ 47,930	$ 637
1.8 to 1.99 million	7%	902	64	26,105	$ 50,053	$ 682
2.0 million or more	7%	1,214	73	25,613	$ 55,480	$ 408

[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 nearly double the investment per cwt. sold ($99 versus $48). 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	715,169	20,365	$ 99	0.23	1.5%
100 to 299	1,028,427	22,798	70	0.32	1.0%
300 to 699	1,283,873	25,233	54	0.41	4.1%
700 or More	1,429,660	26,498	43	0.50	6.6%
All Farms	1,337,028	25,793	48	0.45	5.2%

[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 RETURNS TO POSITIVE TERRITORY

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 principal payments and family living. The remainder can be used for capital investment, to build liquidity or to invest in a retirement fund. Cash margin significantly improved in 2019, averaging $1.43/cwt. compared to a deficit of -$0.49 in 2018, -$0.01 in 2017, -$0.10 in 2016, and -$0.09 in 2015 (Figure 7). 2019 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 had positive cash flow in 2019, they may still be recovering from the results of multiple years of deficits.

Figure 7

Cash Flow Analysis Per Cwt.

	2015	2016	2017	2018	2019
Actual Milk Price	$18.24	$16.85	$18.32	$17.19	$19.18
Cash Required	$22.14	$20.34	$21.64	$20.66	$20.62
- Other Income	3.81	3.39	3.31	2.98	2.87
Breakeven Milk Price	$18.33	$16.95	$18.33	$17.68	$17.75
Cash Margin	$-0.09	$-0.10	$-0.01	$-0.49	$ 1.43

Cash Margin Definitions

Total cash operating expenses
+ Family living expense and income tax
+ Scheduled principal payments
= Cash required

Cattle sales
+ Capital sales
+ Crop sales
+ Other farm income
= Other income

Figure 7 shows the range of cash margins for the average Northeast dairy farm since 2015. Due to the inflation of farm costs in recent years 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.

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, 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) program, other government programs such as the Dairy Margin Coverage program, 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 be increased above existing levels and still be repaid from that year's cash flow. In 2015, 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

	2015	2016	2017	2018	2019
Average Farm Credit Interest Rate[1]					
Commercial (Intermediate Term)	4.0%	4.1%	4.6%	5.3%	5.7%
Real Estate (Long Term)	4.3%	4.3%	4.7%	5.5%	5.8%
Debt Capacity (per Cow)	$3,053	$3,047	$4,817	$2,672	$5,881
- Capital Debt	3,390	3,620	3,108	3,521	3,405
RESERVE DEBT CAPACITY (per Cow)	$-337	$-573	$1,709	$-849	$2,476
3-Year Average Reserve Debt Capacity	$3,647	$2,455	$266	$96	$1,112
5-Year Average Reserve Debt Capacity	$3,664	$2,522	$2,416	$1,645	$485
Debt Payments as Percent of Milk Sales	13%	14%	13%	15%	11%

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

Current debt capacity is impacted by interest rates, which, while they have increased, remain at 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 has reduced short-term rates in response to the 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 $240 per cow.

Figure 8 shows the annual fluctuations and the average for reserve debt capacity over the last five years. In 2019, it was $485 per cow. "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 $379,200, in line with the five-year average of $375,142. While average capital purchases were $632 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 $496 per cow.

Figure 9

Capital Purchases

	Per Farm	Per Cow	% of Total Assets[1]
2015	$304,062	$ 813	6.2%
2016	$272,296	$ 674	5.1%
2017	$362,840	$ 772	6.3%
2018	$383,386	$ 802	6.6%
2019	$379,200	$ 632	5.1%
3-Year Average	$375,142	$ 735	6.0%
5-Year Average	$340,357	$ 739	5.9%

[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

	2015	2016	2017	2018	2019
Sources			Dollars per Cow		
Net Cash Farm Income[1]	$ 432	$ 451	$ 671	$ 342	$ 811
Sale of Capital Assets	67	55	108	201	78
Paid-in Capital[2]	40	59	51	58	31
Money Borrowed	906	730	515	787	257
TOTAL SOURCES	$1,445	$1,295	$1,345	$1,388	$1,177
Uses					
Family Living	$ 166	$ 146	$ 125	$ 123	$ 105
Capital Purchases	813	674	772	802	632
Debt Principal Payments	466	475	448	463	440
TOTAL USES	$1,445	$1,295	$1,345	$1,388	$1,177
Percent Capital Purchases Financed[3]	111%	108%	67%	98%	41%

[1] Cash basis – No accrual adjustment to expenses
[2] Includes savings withdrawn, gifts, inheritances, grants, debt forgiven, insurance settlements and other extraordinary income
[3] Money borrowed / capital purchases

Total sources of cash decreased by $211 in 2019 to $1,177 per cow, primarily because farms borrowed fewer funds on a per cow basis. Net cash farm income increased in 2019, to $811 per cow, and farms spent less per cow on capital purchases, thus requiring fewer borrowed funds.

NET WORTH INCREASES

Net worth, or owner's equity, measures the wealth of the farm business owner. 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 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 2019 compared to 2018 increased by $133 from $8,190 to $8,323 per cow and percent net worth increased to 67% (Figure 11). Both assets and liabilities per cow decreased, but liabilities decreased to a greater extent. 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]
2015	$ -813	72%	2.8	1.1	0.50
2016	$ -453	68%	1.8	0.5	0.40
2017	$ -561	69%	2.5	0.7	0.44
2018	$ -193	66%	2.5	0.9	0.41
2019	$ 133	67%	2.8	1.1	0.47

[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 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 2019, the average dairy farm had a current ratio of 2.8, an increase over the prior year (Figure 11). This means that the average farm had 2.8 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 1.1 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, 110% 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 2019, the asset turnover ratio for the average Northeast dairy business was 0.47, greater than 2018. This was largely a result of the increase in milk prices. This means $0.47 of gross revenue was generated for every $1 invested in assets.

NET MARGIN DIFFERENCES INCREASE IN 2019

We again saw a wide range of profits around the $447 per cow average net earnings in 2019. Some farms had negative net income, while a few posted more than a $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 2019 Profits

	Bottom 25%	All Farms	Top 25%
Number of Farms	67	267	67
Average Number of Cows	350	600	693
Milk Sold per Cow (lbs.)	24,586	25,793	26,280
Milk Sold per Worker (lbs.)	1,115,517	1,337,028	1,398,483
Net Earnings			
Per Farm	-$125,650	$269,048	$668,745
Per Cow	-$359	$447	$965
Per Cwt.	-$1.46	$1.73	$3.67
Return on Assets[1]	-1.0%	5.2%	9.6%
Return on Equity[1]	-4.2%	5.4%	11.1%

[1] ROA and ROE calculations do not include asset appreciation.

There was a $1,324 difference in net earnings per cow between the top and bottom quartile groups. This is less than 2018's difference, which stood at $719. Similarly, on a per cwt. basis, the top farms posted $5.13 more in net earnings than the least profitable farms with earnings of $3.67 per cwt., while the bottom group lost -$1.46 per cwt. Several management and exogenous factors contribute to this disparity.

Also shown in Figure 12 are two productivity measures: Milk Sold per Worker and Milk Sold per Cow. The Top 25% group sold 7% more milk per cow and 25% more milk per worker than the Bottom 25%, which contributes to the disparity in the bottom line.

Given correlations between larger herd sizes and greater profitability, it is not surprising that, in 2019, the average herd size of the top profit quartile was larger than that of the group overall. However, 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 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 $4.62, greater than the average difference of the preceding five years.

Figure 13

Cost of Producing Milk by Profit Groups

	2015	2016	2017	2018	2019
NCOP[1]			Dollars per Cwt.		
Bottom 25%	$19.26	$18.39	$18.92	$18.67	$20.74
Top 25%	17.39	15.96	16.23	16.57	16.12
Difference	1.87	2.43	2.69	2.10	4.62

[1]Before 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, buying savvy and labor management are the main factors determining the cost of production.

Figure 14A

Profit vs. Milk Sold Per Cow

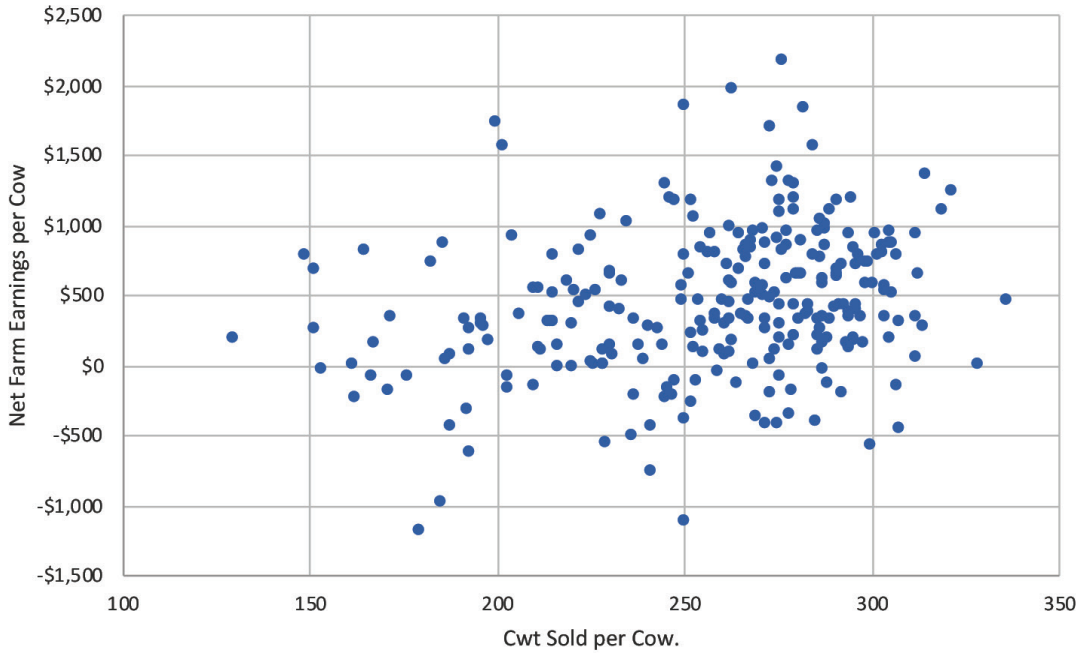
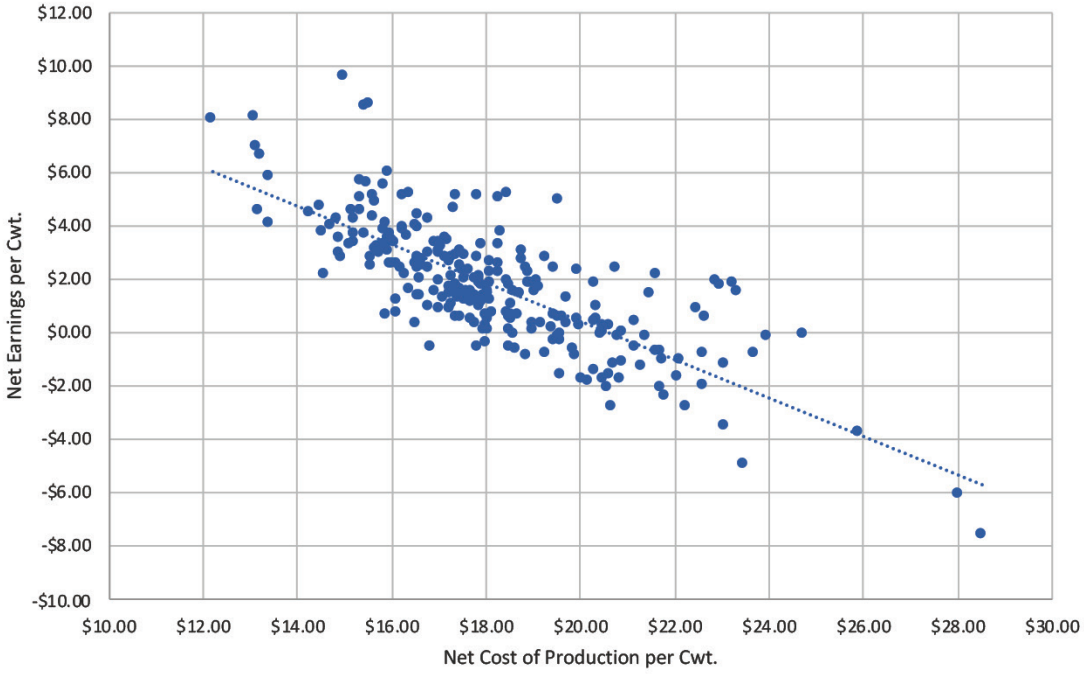


Figure 14B

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	14	23	5	16	9
Average Number of Cows	452	887	435	79	289
Milk Sold per Cow (lbs.)	29,039	28,986	24,947	24,137	24,994
Milk Sold per Worker (lbs.)	1,225,652	1,740,363	1,110,763	972,221	1,093,625
NCOP Per Cwt.	$18.18	$17.14	$19.64	$14.16	$18.30
Milk Price per Cwt.	$19.55	$19.82	$20.90	$18.99	$19.34
Net Earnings per Cow	$799	$788	$687	$887	$709
Net Earnings per Cwt.	$2.75	$2.72	$2.75	$3.67	$2.84
Return on Assets (%)	6.9%	8.1%	7.5%	5.4%	6.0%
Percent Net Worth (%)	74%	74%	79%	79%	76%

Of the 67 farms included in the 2019 top profit quartile, 58 exhibited distinct characteristics, while the remaining nine 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 29,039, the highest among the five styles. High production allowed them to produce and sell 1,225,652 pounds of milk per worker, second only to the Labor Efficient group.

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 more than 1.7 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 $20.90 per cwt. for their milk, $1.45 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.

Tight With A Buck These operators excel at cost control, achieving the lowest cost of production at $14.16 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 $536 net earnings per cow in 2019 (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	65	179	474	1,651
Milk Sold Per Cow (lbs.)	20,635	22,798	25,233	26,498
Milk Sold Per Worker (lbs.)	715,169	1,028,427	1,283,873	1,429,660
Net Cost of Production per Cwt.	$ 18.55	$ 19.91	$ 17.81	$ 17.62
Milk Price per Cwt.	$ 18.52	$ 19.05	$ 18.78	$ 19.32
Assets per Cow	$20,336	$15,972	$13,585	$ 11,367
Asset Turnover	0.21	0.29	0.37	0.46
Percentage Net Worth	78%	76%	70%	64%
Net Earnings per Cow	$ 106	$ -25	$ 356	$ 536
Return on Assets %	1.5%	1.0%	4.1%	6.6%

CONCLUSION

While 2019 was a reasonably good year for many Northeast dairy producers, it was preceded by several challenging years, and has been followed in 2020 by significant market disruptions due to the COVID-19 crisis. Therefore, drawing long-term conclusions based on the information in this report alone would be a mistake. Despite the positive cash flow from 2019, many producers had seen significant balance sheet erosion due to the negative cash flows of 2015, 2016 and 2018. Additionally, many dairy farmers in the region have expended their cash reserves to deal with the low prices and supply management limitations of 2020. In this context, 2019 looks like an anomaly in a stretch of difficult years.

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. This is largely how they have managed to get by, in spite of persistent low prices.

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-cow[13] 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 briefly declined below the $4,000 threshold in 2017, to $3,814, this was entirely a function of larger herd sizes to spread the farm debt over, and in 2018 debt-per-cow increased again to $4,257. In 2019, we saw a similar effect. Due to the increase in herd size, average debt-per-cow declined slightly, to $4,061, but remained above the $4,000 threshold. Total farm debt increased by more than $400,000 to nearly $2.5 million.

[13]Total liabilities per cow, including current liabilities.

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 difficult for the industry. While it remains to be seen how long these disruptions will continue, and what the long-term effects will be, already there are signs that supply chains are adapting to the situation. The amount of milk being dumped has been sharply curtailed from April levels, and futures markets have shown some promise for higher prices in the months to come.

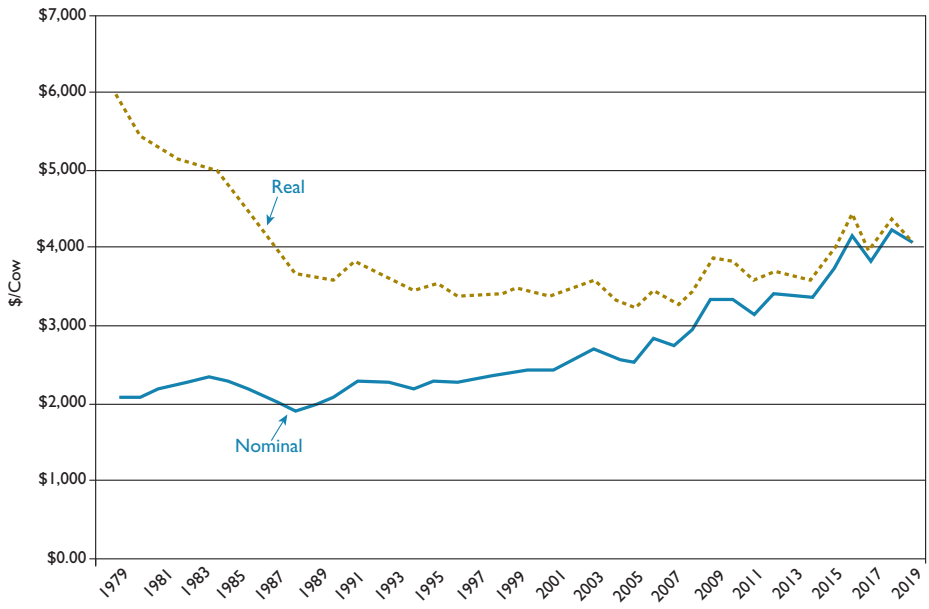
Still, 2020 has tested the fortitude of even the most prepared dairy farms. Milk prices (Boston blend) fell from $19.28/cwt. in December 2019, to a low of $13.45 in May 2020. Projections are for milk prices to recover through the end of the year, but the average milk price for 2020 is still forecast to come in $0.81/cwt. lower than 2019. This is a significant difference from pre-COVID projections, which suggested we might see significantly higher milk prices in 2020 compared to 2019.

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 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/MSC – 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 2015-to-2019 data series includes farms in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey 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

	2015	2016	2017	2018	2019
Number of Farms	487	457	320	305	267
Average Number of Cows	374	403	470	478	600
Receipts					
Milk Sales	$ 1,662,185	$ 1,714,362	$ 2,197,778	$ 2,076,327	$ 2,966,932
Cattle Sales	197,941	184,171	162,649	143,115	173,905
Crop Sales	44,799	50,778	70,293	61,039	61,240
Government Payments	27,947	36,270	33,211	45,007	59,904
Other	51,745	51,584	72,810	83,936	101,902
CASH RECEIPTS	$ 1,984,617	$ 2,037,165	$ 2,536,741	$ 2,409,424	$ 3,363,883
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$ 21,523	$ 23,777	$ 35,791	$ 30,251	$ 31,735
VALUE OF FARM PRODUCTION (a)	$ 2,006,140	$ 2,060,942	$ 2,572,532	$ 2,439,675	$ 3,395,618
COST OF GOODS SOLD					
Chemicals & Sprays	$ 18,632	$ 18,538	$ 23,252	$ 22,642	$ 30,463
Custom Hire	67,315	64,077	75,777	88,371	125,235
Purchased Feed	648,148	635,128	747,258	779,129	974,821
Fertilizer & Lime	61,829	56,823	59,211	57,980	65,732
Freight & Trucking (Marketing)	88,766	99,541	125,489	137,634	176,247
Gasoline, Fuel & Oil	62,094	53,196	71,125	83,120	97,545
Hired Labor	298,246	325,624	399,182	384,723	504,463
Seed & Plants	46,404	47,554	62,649	56,312	67,810
Supplies	107,466	111,228	122,696	107,725	142,134
Veterinary, Medicine & Breeding	76,649	80,600	101,340	90,583	117,363
Cow Replacements	1,611	6,851	3,978	1,161	3,028
Total Cost of Goods Sold	$ 1,477,160	$ 1,499,160	$ 1,791,957	$ 1,809,380	$ 2,304,841
Gross Margin	$ 528,980	$ 561,782	$ 780,575	$ 630,295	$ 1,090,777
OVERHEAD					
Insurance	26,756	27,404	29,830	28,990	36,247
Interest	43,080	53,196	75,299	91,889	124,507
Rent	41,130	39,897	48,891	50,921	78,175
Repairs	130,927	124,930	153,994	136,172	187,387
Property & Misc. Taxes	25,680	28,613	37,039	34,090	45,177
Utilities	42,831	43,121	43,598	46,135	52,370
Other	35,610	39,091	40,557	48,118	48,600
Accrual Adjustments					
+ Depreciation	131,249	140,647	155,430	154,112	186,303
Total Overhead Expenses	$ 477,263	$ 496,899	$ 584,638	$ 590,427	$ 758,766
Total Farm Production Costs (b)	$ 1,954,423	$ 1,996,059	$ 2,376,595	$ 2,399,807	$ 3,063,607
NET FARM EARNINGS (a) - (b)	$ 51,717	$ 64,883	$ 195,937	$ 39,868	$ 332,011
- Family Living & Income Taxes	62,711	58,838	58,930	58,815	62,963
NET EARNINGS	**$ -10,994**	**$ 6,045**	**$ 137,007**	**$ -18,947**	**$ 269,048**
+ Net Nonfarm Income	16,289	17,329	10,660	15,660	13,357
NET HOUSEHOLD INCOME	$ 5,295	$ 23,374	$ 147,667	$ -3,287	$ 282,405

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.

	2015	2016	2017	2018	2019
Number of Farms	487	457	320	305	267
Average Number of Cows	374	403	470	478	600
Receipts	DOLLARS PER CWT. OF MILK				
Milk Sales	$ 18.24	$ 16.85	$ 18.32	$ 17.19	$ 19.18
Cattle Sales	2.17	1.82	1.36	1.18	1.12
Crop Sales	0.49	0.50	0.59	0.51	0.40
Government Payments	0.31	0.36	0.28	0.37	0.39
Other	0.56	0.50	0.62	0.70	0.65
CASH RECEIPTS	$ 21.77	$ 20.03	$ 21.17	$ 19.95	$ 21.74
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$ 0.24	$ 0.24	$ 0.30	$ 0.25	$ 0.21
VALUE OF FARM PRODUCTION (a)	$ 22.01	$ 20.27	$ 21.47	$ 20.20	$ 21.95
COST OF GOODS SOLD					
Chemicals & Sprays	$ 0.21	$ 0.18	$ 0.19	$ 0.19	$ 0.20
Custom Hire	0.74	0.63	0.63	0.73	0.81
Purchased Feed	7.12	6.25	6.24	6.45	6.30
Fertilizer & Lime	0.68	0.56	0.49	0.48	0.42
Freight & Trucking (Marketing)	0.97	0.98	1.05	1.14	1.14
Gasoline, Fuel & Oil	0.68	0.53	0.59	0.69	0.63
Hired Labor	3.27	3.20	3.33	3.19	3.26
Seed & Plants	0.51	0.46	0.52	0.47	0.44
Supplies	1.18	1.09	1.02	0.89	0.92
Veterinary, Medicine & Breeding	0.84	0.80	0.84	0.75	0.76
Cow Replacements	0.03	0.07	0.03	0.01	0.02
Total Cost of Goods Sold	$ 16.23	$ 14.75	$ 14.93	$ 14.99	$ 14.90
Gross Margin	$ 5.78	$ 5.52	$ 6.54	$ 5.21	$ 7.05
OVERHEAD					
Insurance	0.29	0.27	0.25	0.24	0.23
Interest	0.47	0.52	0.63	0.76	0.80
Rent	0.45	0.39	0.41	0.42	0.51
Repairs	1.43	1.23	1.28	1.13	1.21
Property & Misc. Taxes	0.28	0.28	0.31	0.28	0.29
Utilities	0.47	0.43	0.36	0.38	0.34
Other	0.38	0.38	0.36	0.40	0.31
Accrual Adjustments					
+ Depreciation	1.44	1.38	1.30	1.28	1.20
Total Overhead Expenses	$ 5.21	$ 4.88	$ 4.90	$ 4.89	$ 4.89
Total Farm Production Costs (b)	$ 21.44	$ 19.63	$ 19.83	$ 19.88	$ 19.79
NET FARM EARNINGS (a) - (b)	$ 0.57	$ 0.64	$ 1.64	$ 0.32	$ 2.16
- Family Living & Income Taxes	0.69	0.58	0.49	0.48	0.41
NET EARNINGS	$ -0.12	$ 0.06	$ 1.15	$ -0.16	$ 1.75
+ Net Nonfarm Income	0.18	0.18	0.09	0.13	0.09
NET HOUSEHOLD INCOME	$ 0.06	$ 0.24	$ 1.24	$ -0.03	$ 1.84

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

	2015	2016	2017	2018	2019
Number of Farms	487	457	320	305	267
Average Number of Cows	374	403	470	478	600
	DOLLARS PER FARM				
Assets					
Livestock	$ 887,198	$ 969,036	$ 1,079,116	$ 1,023,346	$ 1,307,664
Feed & Crops	434,736	457,579	508,234	567,738	672,930
Machinery & Equipment	857,528	905,862	933,406	994,758	1,107,211
Farm–Land & Buildings	1,974,315	2,231,620	2,523,745	2,612,937	3,296,203
All Other	737,271	735,038	688,229	750,839	1,046,802
TOTAL ASSETS	4,891,048	5,299,135	5,732,730	5,949,618	7,430,810
TOTAL LIABILITIES	1,376,593	1,689,998	1,792,421	2,034,833	2,436,846
TOTAL NET WORTH	3,514,455	3,609,137	3,940,309	3,914,785	4,993,964
	DOLLARS PER COW				
Assets					
Livestock	$ 2,372	$ 2,405	$ 2,296	$ 2,141	$ 2,179
Feed & Crops	$ 1,162	$ 1,135	$ 1,081	$ 1,188	$ 1,122
Machinery & Equipment	$ 2,293	$ 2,248	$ 1,986	$ 2,081	$ 1,845
Farm-Land & Buildings	$ 5,279	$ 5,538	$ 5,370	$ 5,466	$ 5,494
All Other	$ 1,971	$ 1,824	$ 1,464	$ 1,571	$ 1,745
TOTAL ASSETS	$ 13,078	$ 13,150	$ 12,197	$ 12,447	$ 12,385
TOTAL LIABILITIES	$ 3,681	$ 4,194	$ 3,814	$ 4,257	$ 4,061
TOTAL NET WORTH	$ 9,397	$ 8,956	$ 8,384	$ 8,190	$ 8,323
	DOLLARS PER CWT. OF MILK				
Assets					
Livestock	10.09	9.52	9.01	8.47	8.45
Feed & Crops	4.95	4.50	4.24	4.70	4.35
Machinery & Equipment	9.76	8.90	7.79	8.24	7.16
Farm–Land & Buildings	22.46	21.93	21.06	21.64	21.31
All Other	8.39	7.22	5.74	6.22	6.77
TOTAL ASSETS	$ 55.65	$ 52.07	$47.85	$49.27	$48.04
TOTAL LIABILITIES	$ 15.66	$ 16.61	$ 14.96	$ 16.85	$ 15.75
TOTAL NET WORTH	$ 39.99	$ 35.46	$ 32.89	$ 32.42	$ 32.28
PERCENT NET WORTH	72%	68%	69%	66%	67%

TABLE A-4.

Comparison Between Years / Evaluation Factors

	2015	2016	2017	2018	2019
Number of Farms	487	457	320	305	267
Average Number of Cows	374	403	470	478	600
Worker Equivalents	8.1	8.4	10.0	9.6	11.6
Cows Per Worker	47	48	47	50	52
Pounds of Milk Sold Per Worker	1,134,300	1,210,871	1,200,611	1,255,688	1,337,028
Pounds of Milk Sold	9,142,456	10,171,317	11,981,710	12,076,192	15,469,414
Pounds of Milk Sold Per Cow	24,365	25,239	25,493	25,264	25,793
Milk Price Per Cwt.	$ 18.24	$ 16.85	$ 18.32	$ 17.19	$ 19.18
Total Crop Acres	825	898	1,020	1,009	1,194
Crop Acres Per Cow	2.2	2.2	2.2	2.1	2.0
Feed Cost Per Cow	$ 1,733	$ 1,576	$ 1,590	$ 1,630	$ 1,625
Feed as a Percent of Milk Sales	39%	37%	34%	38%	33%
Feed & Crop Expense Per Cow*	$ 2,072	$ 1,882	$ 1,899	$ 1,916	$ 1,898
Feed & Crop Expense Per Cwt.	$ 8.51	$ 7.46	$ 7.45	$ 7.59	$ 7.36
Machinery Costs Per Cow**	$ 898	$ 813	$ 814	$ 966	$ 837
Machinery Costs Per Cwt.	$ 3.69	$ 3.22	$ 3.19	$ 3.83	$ 3.24
Labor & Family Living Per Cow	$ 958	$ 947	$ 973	$ 928	$ 941
Labor & Family Living Per Cwt.	$ 3.93	$ 3.75	$ 3.82	$ 3.67	$ 3.65
Assets Per Cow	$ 13,078	$ 13,150	$ 12,198	$ 12,447	$ 12,385
Debt Per Cow	$ 3,681	$ 4,194	$ 3,814	$ 4,257	$ 4,061
Net Worth Per Cow	$ 9,397	$ 8,956	$ 8,384	$ 8,190	$ 8,323
Percent Net Worth	72%	68%	69%	66%	67%

*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	2015	2016	2017	2018	2019
Current Assets	$ 745,987	$ 743,492	$ 818,377	$ 871,787	$ 1,121,123
Intermediate Assets	1,998,014	2,141,809	2,327,493	2,339,888	2,900,261
Fixed Assets	2,147,047	2,413,833	2,586,860	2,737,943	3,409,427
TOTAL ASSETS	$ 4,891,048	$ 5,299,134	$ 5,732,730	$ 5,949,618	$ 7,430,811
Change (+ or -) from Prior Years	$ 170,791	$ 408,086	$ 433,596	$ 216,888	$ 1,481,193
Current Liabilities	$ 271,247	$ 410,227	$ 332,010	$ 352,043	$ 393,568
Intermediate Liabilities	544,019	645,338	733,696	876,538	1,051,316
Long-Term Liabilities	561,327	634,433	726,715	806,252	991,963
TOTAL LIABILITIES	$ 1,376,593	$ 1,689,998	$ 1,792,421	$ 2,034,833	$ 2,436,847
Change (+ or -) from Prior Years	$ 209,376	$ 313,405	$ 102,423	$ 242,412	$ 402,014
NET WORTH	$ 3,514,455	$ 3,609,136	$ 3,940,309	$ 3,914,785	$ 4,993,964
Change (+ or -) from Prior Years	$ -38,585	$ 94,681	$ 331,173	$ -25,524	$ 1,079,179
% Net Worth	72%	68%	69%	66%	67%

I & E Farm (Cash Basis)	2015	2016	2017	2018	2019
Sales - Milk	$ 1,662,185	$ 1,714,756	$ 2,197,778	$ 2,076,327	$ 2,966,932
Sales - Livestock	197,941	184,692	162,649	143,115	173,905
Other Farm Income	124,491	139,408	176,314	189,982	223,047
TOTAL FARM INCOME	$ 1,984,617	$ 2,038,856	$ 2,536,741	$ 2,409,424	$ 3,363,884
FARM CASH EXPENSES	$ 1,823,174	$ 1,856,466	$ 2,221,165	$ 2,245,695	$ 2,877,303
NET CASH FARM INCOME	$ 161,443	$ 182,390	$ 315,576	$ 163,729	$ 486,581
ADD: Interest	$ 43,080	$ 52,914	$ 75,299	$ 91,889	$ 124,507
TOTAL AVAILABLE - Farm	$ 204,523	$ 235,304	$ 390,875	$ 255,618	$ 611,088
ADD: Net Nonfarm Income	$ 16,289	$ 17,717	$ 10,660	$ 15,660	$ 13,357
Sale Capital Assets	$ 25,033	$ 22,231	$ 23,658	$ 96,150	$ 44,671
TOTAL FUNDS AVAILABLE (a)	$ 245,845	$ 275,252	$ 425,193	$ 367,428	$ 669,116
Family Living + Income Taxes	$ 62,711	$ 59,207	$ 58,930	$ 58,835	$ 63,026
Debt Service Requirement	$ 219,747	$ 244,790	$ 285,790	$ 308,826	$ 374,707
TOTAL FUNDS REQUIRED (b)	$ 282,458	$ 303,997	$ 344,720	$ 367,661	$ 437,733
EXCESS (a – b)	$ -36,613	$ -28,745	$ 80,473	$ -233	$ 231,383

TABLE B-1.

2019 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	61	73	65	68	267
Average Number of Cows	65	179	474	1,651	600
Receipts	DOLLARS PER COW				
Milk Sales	$ 3,827	$ 4,348	$ 4,722	$ 5,119	$ 4,945
Cattle Sales	285	223	337	277	290
Crop Sales	257	78	146	87	102
Government Payments	107	165	128	85	100
Other	210	232	182	158	170
CASH RECEIPTS	$ 4,686	$ 5,046	$ 5,515	$ 5,726	$ 5,607
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$ 9	$ 22	$ 51	$ 69	$ 53
VALUE OF FARM PRODUCTION (a)	$ 4,695	$ 5,068	$ 5,566	$ 5,795	$ 5,660
COST OF GOODS SOLD					
Chemicals & Sprays	$ 42	$ 48	$ 52	$ 51	$ 51
Custom Hire	120	106	182	231	209
Purchased Feed	1,037	1,430	1,532	1,695	1,625
Fertilizer & Lime	161	136	126	100	110
Freight & Trucking (Marketing)	290	269	275	302	294
Gasoline, Fuel & Oil	178	178	176	157	163
Hired Labor	189	589	823	899	841
Seed & Plants	156	130	127	106	113
Supplies	247	252	262	228	237
Veterinary, Medicine & Breeding	123	172	195	201	196
Cow Replacements	38	10	13	10	5
Total Cost of Goods Sold	$ 2,581	$ 3,320	$ 3,763	$ 3,980	$ 3,844
Gross Margin	$ 2,114	$ 1,748	$ 1,803	$ 1,815	$ 1,816
OVERHEAD					
Insurance	77	88	77	52	60
Interest	193	188	203	212	208
Rent	68	113	110	140	130
Repairs	306	312	296	317	312
Property & Misc. Taxes	141	99	83	68	75
Utilities	111	93	97	83	87
Other	89	110	85	76	81
Accrual Adjustments					
+ Depreciation	515	478	362	270	311
Total Overhead Expenses	$ 1,500	$ 1,481	$ 1,313	$ 1,218	$ 1,264
Total Farm Production Costs (b)	$ 4,081	$ 4,801	$ 5,076	$ 5,198	$ 5,108
NET FARM EARNINGS (a) - (b)	$ 614	$ 267	$ 490	$ 597	$ 552
- Family Living & Income Taxes	508	292	134	61	105
NET EARNINGS	**$ 106**	**$ -25**	**$ 356**	**$ 536**	**$ 447**
+ Net Nonfarm Income	180	101	41	2	22
NET HOUSEHOLD INCOME	$ 286	$ 76	$ 397	$ 538	$ 469

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.

2019 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	61	73	65	68	267
Average Number of Cows	65	179	474	1,651	600
	ASSETS PER COW				
Cash & Accounts Receivable	$ 640	$ 735	$ 519	$ 492	$ 521
Feed & Crop Inventory	1,143	1,135	1,121	1,120	1,122
Supplies & Prepaid Expenses	175	118	197	116	133
Other Current Assets	95	190	230	45	93
TOTAL CURRENT ASSETS	$ 2,053	$ 2,178	$ 2,067	$ 1,773	$ 1,869
Dairy Livestock	$ 1,797	$ 2,015	$ 2,103	$ 2,235	$ 2,179
Machinery & Equipment	3,841	3,111	2,312	1,501	1,845
Other Intermediate Assets	1,056	1,183	1,086	681	810
TOTAL INTERMEDIATE ASSETS	$ 6,694	$ 6,309	$ 5,501	$ 4,417	$ 4,834
Farm Real Estate	$ 11,187	$ 7,279	$ 5,857	$ 4,990	$ 5,494
Other Fixed Assets	402	206	160	187	188
TOTAL FIXED ASSETS	$ 11,589	$ 7,485	$ 6,017	$ 5,177	$ 5,682
TOTAL ASSETS	$ 20,336	$ 15,972	$ 13,585	$ 11,367	$ 12,385
	LIABILITIES PER COW				
Accounts Payable	$ 38	$ 112	$ 124	$ 90	$ 97
Farm Credit Short-Term Loans	10	71	59	70	66
Other Current Liabilities	506	456	468	503	493
TOTAL CURRENT LIABILITIES	$ 554	$ 639	$ 651	$ 663	$ 656
Farm Credit Intermediate Term	$ 1,028	$ 990	$ 1,362	$ 1,617	$ 1,501
Other Intermediate Liabilities	327	414	309	214	251
TOTAL INTERMEDIATE LIABILITIES	$ 1,355	$ 1,404	$ 1,671	$ 1,831	$ 1,752
Farm Credit Long-Term Real Estate	$ 1,521	$ 1,582	$ 1,506	$ 1,498	$ 1,506
Other Long-Term Liabilities	$ 971	218	240	84	147
TOTAL LONG-TERM LIABILITIES	$ 2,492	$ 1,800	$ 1,746	$ 1,582	$ 1,653
TOTAL LIABILITIES	$ 4,401	$ 3,843	$ 4,068	$ 4,076	$ 4,061
	NET WORTH PER COW				
OWNER'S NET WORTH	$ 15,935	$ 12,129	$ 9,517	$ 7,291	$ 8,324
TOTAL LIABILITIES & NET WORTH	$ 20,336	$ 15,972	$ 13,585	$ 11,367	$ 12,385
PERCENT NET WORTH	78%	76%	70%	64%	67%

TABLE B-3.

2019 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	61	73	65	68	267
Average Number of Cows	65	179	474	1,651	600
Worker Equivalents	1.9	4.0	9.3	30.6	11.6
Cows Per Worker	35	45	51	54	52
Pounds of Milk Sold Per Worker	715,169	1,028,427	1,283,873	1,429,660	1,337,028
Pounds of Milk Sold Per Farm	1,344,518	4,082,855	11,965,696	43,750,173	15,469,414
Pounds of Milk Sold Per Cow	20,635	22,798	25,233	26,498	25,793
Milk Price Per Cwt.	$18.52	$19.05	$18.78	$19.32	$19.18
Total Crop Acres	242	490	1,112	2,885	1,194
Crop Acres Per Cow	3.7	2.7	2.4	1.8	2.0
Crop Acres Per Worker	129	123	119	94	103
Feed Cost Per Cow	$ 1,037	$ 1,430	$ 1,532	$ 1,695	$ 1,625
Feed Cost Per Cwt.	$ 5.03	$ 6.27	$ 6.07	$ 6.40	$ 6.30
Feed as a Percent of Milk Sales	27%	33%	32%	33%	33%
Feed & Crop Expense Per Cow[1]	$ 1,396	$ 1,744	$ 1,837	$ 1,952	$ 1,898
Feed & Crop Expense Per Cwt.	$ 6.77	$ 7.65	$ 7.28	$ 7.37	$ 7.36
Machinery Cost Per Cow[2]	$ 982	$ 907	$ 869	$ 815	$ 837
Machinery Costs Per Cwt.	$ 4.76	$ 3.98	$ 3.44	$ 3.08	$ 3.25
Labor & Family Living Per Cow	$ 694	$ 876	$ 951	$ 955	$ 941
Labor & Family Living Per Cwt.	$ 3.36	$ 3.84	$ 3.77	$ 3.60	$ 3.65
Assets Per Cow	$ 20,336	$ 15,972	$ 13,585	$ 11,367	$ 12,385
Debt Per Cow	$ 4,401	$ 3,843	$ 4,069	$ 4,076	$ 4,061
Net Worth Per Cow	$ 15,935	$ 12,129	$ 9,516	$ 7,291	$ 8,324
Percent Return on Assets[3]	1.5%	1.0%	4.1%	6.6%	5.2%
Percent Return on Equity[4]	0.7%	-0.2%	3.7%	7.6%	5.4%

[1]Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Sprays.
[2]Machinery Cost = Machinery Repairs + Custom Hire + Fuel & Oil + Machinery & Equipment Depreciation.
[3]Return on Assets = (Net Earnings + Interest) ÷ Average Farm Assets.
[4]Return on Equity = Net Earnings ÷ Average Farm Net Worth.

TABLE C-1.

2019 Data By Profit Groups / Earnings Worksheet

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	66	67	67	67	267
Average Number of Cows	350	604	743	693	600
Receipts	DOLLARS PER COW				
Milk Sales	$ 4,562	$ 4,746	$ 5,111	$ 5,133	$ 4,945
Cattle Sales	265	222	285	369	290
Crop Sales	3	41	147	155	102
Government Payments	179	111	85	68	100
Other	168	218	160	141	$ 170
CASH RECEIPTS	$ 5,177	$ 5,338	$ 5,788	$ 5,866	$ 5,607
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$ -15	$ 27	$ 31	$ 155	$ 53
VALUE OF FARM PRODUCTION (a)	$ 5,162	$ 5,365	$ 5,819	$ 6,021	$ 5,660
COST OF GOODS SOLD					
Chemicals & Sprays	$ 40	$ 60	$ 44	$ 55	$ 51
Custom Hire	162	168	321	148	209
Purchased Feed	1,662	1,521	1,685	1,635	1,625
Fertilizer & Lime	132	107	106	104	110
Freight & Trucking (Marketing)	288	258	307	314	294
Gasoline, Fuel & Oil	177	175	156	151	163
Hired Labor	849	906	785	841	841
Seed & Plants	117	123	99	118	113
Supplies	257	263	231	212	237
Veterinary, Medicine & Breeding	190	200	192	198	196
Cow Replacements	19	7	17	0	5
Total Cost of Goods Sold	$ 3,893	$ 3,788	$ 3,943	$ 3,776	$ 3,844
Gross Margin	$ 1,269	$ 1,577	$ 1,876	$ 2,245	$ 1,816
OVERHEAD					
Insurance	74	63	58	55	60
Interest	222	231	244	142	208
Rent	103	122	139	141	130
Repairs	335	297	305	323	312
Property & Misc. Taxes	88	88	62	72	75
Utilities	111	94	86	72	87
Other	99	90	73	73	81
Accrual Adjustments					
+ Depreciation	379	336	287	281	311
Total Overhead Expenses	$ 1,411	$ 1,321	$ 1,254	$ 1,159	$ 1,264
Total Farm Production Costs (b)	$ 5,304	$ 5,109	$ 5,197	$ 4,935	$ 5,108
NET FARM EARNINGS (a) - (b)	$ -142	$ 256	$ 622	$ 1,086	$ 552
- Family Living & Income Taxes	217	93	94	121	105
NET EARNINGS	**$ -359**	**$ 163**	**$ 528**	**$ 965**	**$ 447**
+ Net Nonfarm Income	48	32	8	16	22
NET HOUSEHOLD INCOME	$ -311	$ 195	$ 536	$ 981	$ 469

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.

2019 Data By Profit Groups / Balance Sheet Summary

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	66	67	67	67	267
Average Number of Cows	350	604	743	693	600
	ASSETS PER COW				
Cash & Accounts Receivable	$ 467	$ 480	$ 499	$ 606	$ 521
Feed & Crop Inventory	1,052	1,161	1,105	1,141	1,122
Supplies & Prepaid Expenses	122	95	107	199	133
Other Current Assets	48	121	97	87	93
TOTAL CURRENT ASSETS	$ 1,689	$ 1,857	$ 1,808	$ 2,033	$ 1,869
Dairy Livestock	$ 2,065	$ 2,102	$ 2,216	$ 2,267	$ 2,179
Machinery & Equipment	2,260	1,952	1,667	1,745	1,845
Other Intermediate Assets	749	1,191	686	641	810
TOTAL INTERMEDIATE ASSETS	$ 5,074	$ 5,245	$ 4,569	$ 4,653	$ 4,834
Farm Real Estate	$ 6,220	$ 6,095	$ 5,472	$ 4,658	$ 5,494
Other Fixed Assets	173	303	121	171	188
TOTAL FIXED ASSETS	$ 6,393	$ 6,398	$ 5,593	$ 4,829	$ 5,682
TOTAL ASSETS	$ 13,156	$ 13,500	$ 11,970	$ 11,515	$ 12,385
	LIABILITIES PER COW				
Accounts Payable	$ 214	$ 83	$ 121	$ 28	$ 97
Farm Credit Short-Term Loans	134	112	51	10	66
Other Current Liabilities	520	530	556	381	493
TOTAL CURRENT LIABILITIES	$ 868	$ 725	$ 728	$ 419	$ 656
Farm Credit Intermediate Term	$ 1,147	$ 1,690	$ 1,716	$ 1,286	$ 1,501
Other Intermediate Liabilities	429	202	300	155	251
TOTAL INTERMEDIATE LIABILITIES	$ 1,576	$ 1,892	$ 2,016	$ 1,441	$ 1,752
Farm Credit Long-Term Real Estate	$ 1,967	$ 1,709	$ 1,756	$ 848	$ 1,506
Other Long-Term Liabilities	118	138	185	129	147
TOTAL LONG-TERM LIABILITES	$ 2,085	$ 1,847	$ 1,941	$ 977	$ 1,653
TOTAL LIABILITIES	$ 4,529	$ 4,464	$ 4,685	$ 2,837	$ 4,061
	NET WORTH PER COW				
OWNER'S NET WORTH	$ 8,627	$ 9,036	$ 7,285	$ 8,678	$ 8,324
TOTAL LIABILITIES & NET WORTH	$ 13,156	$ 13,500	$ 11,970	$ 11,515	$ 12,385
PERCENT NET WORTH	66%	67%	61%	75%	67%

TABLE C-3.

2019 Data By Profit Groups / Evaluation Factors

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	66	67	67	67	267
Average Number of Cows	350	604	743	693	600
Worker Equivalents	7.7	12.1	13.3	13.0	11.6
Cows Per Worker	45	50	56	53	52
Pounds of Milk Sold Per Worker	1,115,517	1,258,698	1,472,032	1,398,483	1,337,028
Pounds of Milk Sold Per Farm	8,600,636	15,268,007	19,578,026	18,208,249	15,469,414
Pounds of Milk Sold Per Cow	24,586	25,270	26,348	26,280	25,793
Milk Price Per Cwt.	$18.54	$18.77	$19.45	$19.53	$19.18
Total Crop Acres	794	1,278	1,386	1,308	1,194
Crop Acres Per Cow	2.3	2.1	1.9	1.9	2.0
Crop Acres Per Worker	103	105	104	100	103
Feed Cost Per Cow	$ 1,662	$ 1,521	$ 1,685	$ 1,635	$ 1,625
Feed Cost Per Cwt.	$ 6.76	$ 6.02	$ 6.40	$ 6.22	$ 6.30
Feed as a Percent of Milk Sales	36%	32%	33%	32%	33%
Feed & Crop Expense Per Cow[1]	$ 1,951	$ 1,811	$ 1,935	$ 1,911	$ 1,898
Feed & Crop Expense Per Cwt.	$ 7.94	$ 7.17	$ 7.34	$ 7.27	$ 7.36
Machinery Cost Per Cow[2]	$ 889	$ 812	$ 913	$ 754	$ 837
Machinery Cost Per Cwt.	$ 3.62	$ 3.21	$ 3.47	$ 2.87	$ 3.25
Labor & Family Living Per Cow	$ 964	$ 989	$ 873	$ 961	$ 941
Labor & Family Living Per Cwt.	$ 3.92	$ 3.91	$ 3.31	$ 3.66	$ 3.65
Assets Per Cow	$ 13,156	$ 13,500	$ 11,970	$ 11,515	$ 12,385
Debt Per Cow	$ 4,529	$ 4,464	$ 4,685	$ 2,837	$ 4,061
Net Worth Per Cow	$ 8,627	$ 9,036	$ 7,285	$ 8,678	$ 8,324
Percent Return on Assets[3]	-1.0%	2.9%	6.4%	9.6%	5.2%
Percent Return on Equity[4]	-4.2%	1.8%	7.2%	11.1%	5.4%

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

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

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

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

TABLE C-4.

2019 Cost Of Producing Milk By Profit Groups

	Bottom 25%	All Farm Average	Top 25%
	DOLLARS PER CWT.		
Feed	$ 6.76	$ 6.30	$ 6.22
Labor	$ 3.45	$ 3.26	$ 3.20
Interest	$ 0.90	$ 0.80	$ 0.54
Trucking (Marketing)	$ 1.17	$ 1.14	$ 1.19
Crop Expenses	$ 1.18	$ 1.06	$ 1.05
All Other Expenses	$ 6.57	$ 6.03	$ 5.50
Adjusted Cash Operating Expenses	$ 20.03	$ 18.59	$ 17.71
+ Depreciation	1.54	1.20	1.07
+ Family Living	0.88	0.41	0.46
Total Costs	$ 22.46	$ 20.20	$ 19.24
– Non-milk Income*	1.71	2.39	3.12
Net Cost of Production**	$ 20.74	$ 17.81	$ 16.12

*Nonmilk income includes accrual basis cattle, crop, and other farm income
**Before any return on equity.

TABLE C-5.

2019 Cash Margins By Profit Groups

	2015	2016	2017	2018	2019
Bottom Profit Group					
Actual Milk Price	$ 17.92	$ 16.34	$ 18.06	$ 16.79	$ 18.54
Break-Even Milk Price	18.81	18.69	19.39	18.96	19.91
CASH MARGIN	$ -0.89	$ -2.35	$ -1.33	$ -2.17	$ -1.37
Top Profit Group					
Actual Milk Price	$ 18.41	$ 17.34	$ 18.65	$ 17.63	$ 19.45
Break-Even Milk Price	17.23	15.89	16.28	16.74	15.91
CASH MARGIN	$ 1.18	$ 1.45	$ 2.37	$ 0.89	$ 3.54

TABLE C-6.

2019 Reserve Debt Capacity By Profit Groups

	Bottom 25%	All Farm Average	Top 25%
	DOLLARS PER COW		
Debt Capacity	$ 1,807	$ 5,881	$ 7,346
– Capital Debt	3,661	3,405	2,418
RESERVE DEBT CAPACITY	$ -1,854	$ 2,476	$ 4,928

TABLE D-1.

2019 Data By Regions / Earnings Worksheet

	REGIONS		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	249	18	267
Average Number of Cows	601	577	600
Receipts	DOLLARS PER COW		
Milk Sales	$ 4,963	$ 4,763	$ 4,945
Cattle Sales	294	177	290
Crop Sales	109	8	102
Government Payments	84	324	100
Other	169	187	170
CASH RECEIPTS	$ 5,619	$ 5,459	$ 5,607
Accrual Adjustments			
+ Change in Inventory-Raised Livestock	$ 56	$ 21	$ 53
VALUE OF FARM PRODUCTION (a)	$ 5,675	$ 5,480	$ 5,660
COST OF GOODS SOLD			
Chemicals & Sprays	$ 52	$ 29	$ 51
Custom Hire	213	149	209
Purchased Feed	1,609	1,877	1,625
Fertilizer & Lime	110	103	110
Freight & Trucking (Marketing)	290	349	294
Gasoline, Fuel & Oil	163	162	163
Hired Labor	827	1,058	841
Seed & Plants	115	82	113
Supplies	237	236	237
Veterinary, Medicine & Breeding	196	192	196
Cow Replacements	4	11	5
Total Cost of Goods Sold	$ 3,816	$ 4,248	$ 3,844
Gross Margin	$ 1,859	$ 1,232	$ 1,816
OVERHEAD			
Insurance	61	58	60
Interest	209	183	208
Rent	133	88	130
Repairs	310	347	312
Property & Misc. Taxes	75	74	75
Utilities	86	114	87
Other	79	114	81
Accrual Adjustments			
Depreciation	313	300	311
Total Overhead Expenses	$ 1,266	$ 1,278	$ 1,264
Total Farm Production Costs (b)	$ 5,082	$ 5,526	$ 5,108
NET FARM EARNINGS (a) - (b)	$ 593	$ -46	$ 552
- Family Living & Income Taxes	104	109	105
NET EARNINGS	**$ 489**	**$ -155**	**$ 447**
+ Net Nonfarm Income	23	11	22
NET HOUSEHOLD INCOME	$ 512	$ -144	$ 469

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.

2019 Data By Regions / Balance Sheet Summary

	REGIONS		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	249	18	267
Average Number of Cows	601	577	600
	ASSETS PER COW		
Cash & Accounts Receivable	$ 523	$ 486	$ 521
Feed & Crop Inventory	1,133	956	1,122
Supplies & Prepaid Expenses	132	142	133
Other Current Assets	99	9	93
TOTAL CURRENT ASSETS	$ 1,887	$ 1,593	$ 1,869
Dairy Livestock	$ 2,197	$ 1,914	$ 2,179
Machinery & Equipment	1,840	1,666	1,845
Other Intermediate Assets	838	643	810
TOTAL INTERMEDIATE ASSETS	$ 4,875	$ 4,223	$ 4,834
Farm Real Estate	$ 5,518	$ 5,119	$ 5,494
Other Fixed Assets	201	11	188
TOTAL FIXED ASSETS	$ 5,719	$ 5,130	$ 5,682
TOTAL ASSETS	$ 12,481	$ 10,946	$ 12,385
	LIABILITIES PER COW		
Accounts Payable	$ 101	$ 42	$ 97
Farm Credit Short-Term Loans	53	247	66
Other Current Liabilities	494	483	493
TOTAL CURRENT LIABILITIES	$ 648	$ 772	$ 656
Farm Credit Intermediate Term	$ 1,526	$ 1,139	$ 1,501
Other Intermediate Liabilities	242	379	251
TOTAL INTERMEDIATE LIABILITIES	$ 1,768	$ 1,518	$ 1,752
Farm Credit Long-Term Real Estate	$ 1,523	$ 1,264	$ 1,506
Other Long-Term Liabilities	152	77	147
TOTAL LONG-TERM LIABILITES	$ 1,675	$ 1,341	$ 1,653
TOTAL LIABILITIES	$ 4,091	$ 3,631	$ 4,061
	NET WORTH PER COW		
OWNER'S NET WORTH	$ 8,390	$ 7,315	$ 8,324
TOTAL LIABILITIES & NET WORTH	$ 12,481	$ 10,946	$ 12,385
PERCENT NET WORTH	67%	67%	67%

*Regions are divided by state not Federal Milk Orders.

TABLE D-3.

2019 Data By Regions / Evaluation Factors

	REGIONS[1]		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	249	18	267
Average Number of Cows	601	577	600
Worker Equivalents	11.5	12.5	11.6
Cows Per Worker	52	46	52
Pounds of Milk Sold Per Worker	1,352,514	1,138,995	1,337,028
Pounds of Milk Sold Per Farm	15,567,436	14,180,488	15,469,414
Pounds of Milk Sold Per Cow	25,906	24,571	25,793
Milk Price Per Cwt.	$ 19.17	$ 19.36	$ 19.18
Total Crop Acres	1,210	990	1,194
Crop Acres Per Cow	2.0	1.7	2.0
Crop Acres Per Worker	105	80	103
Feed Cost Per Cow	$ 1,609	$ 1,877	$ 1,625
Feed Cost Per Cwt.	$ 6.21	$ 7.64	$ 6.30
Feed as a Percent of Milk Sales	32%	39%	33%
Feed & Crop Expense Per Cow[2]	$ 1,887	$ 2,091	$ 1,898
Feed & Crop Expense Per Cwt.	$ 7.28	$ 8.51	$ 7.36
Machinery Cost Per Cow[3]	$ 840	$ 798	$ 837
Machinery Cost Per Cwt.	$ 3.24	$ 3.25	$ 3.25
Labor & Family Living Per Cow	$ 927	$ 1,156	$ 941
Labor & Family Living Per Cwt.	$ 3.58	$ 4.70	$ 3.65
Assets Per Cow	$ 12,481	$ 10,946	$ 12,385
Debt Per Cow	$ 4,091	$ 3,631	$ 4,061
Net Worth Per Cow	$ 8,390	$ 7,315	$ 8,324
Percent Return on Assets[4]	5.6%	0.3%	5.2%
Percent Return on Equity[5]	5.8%	-2.1%	5.4%

[1]Regions are divided by states not Federal Milk Orders.

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

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

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

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

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:

Cash Receipts — 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:

Net Cash Farm Income
+ Change in Accounts Receivable
+ Change in Production Inventories
+ Net Nonfarm & Noncash Income
- Depreciation
- Family Living Expenses & Taxes

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:

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

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:

Debt Capacity — 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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