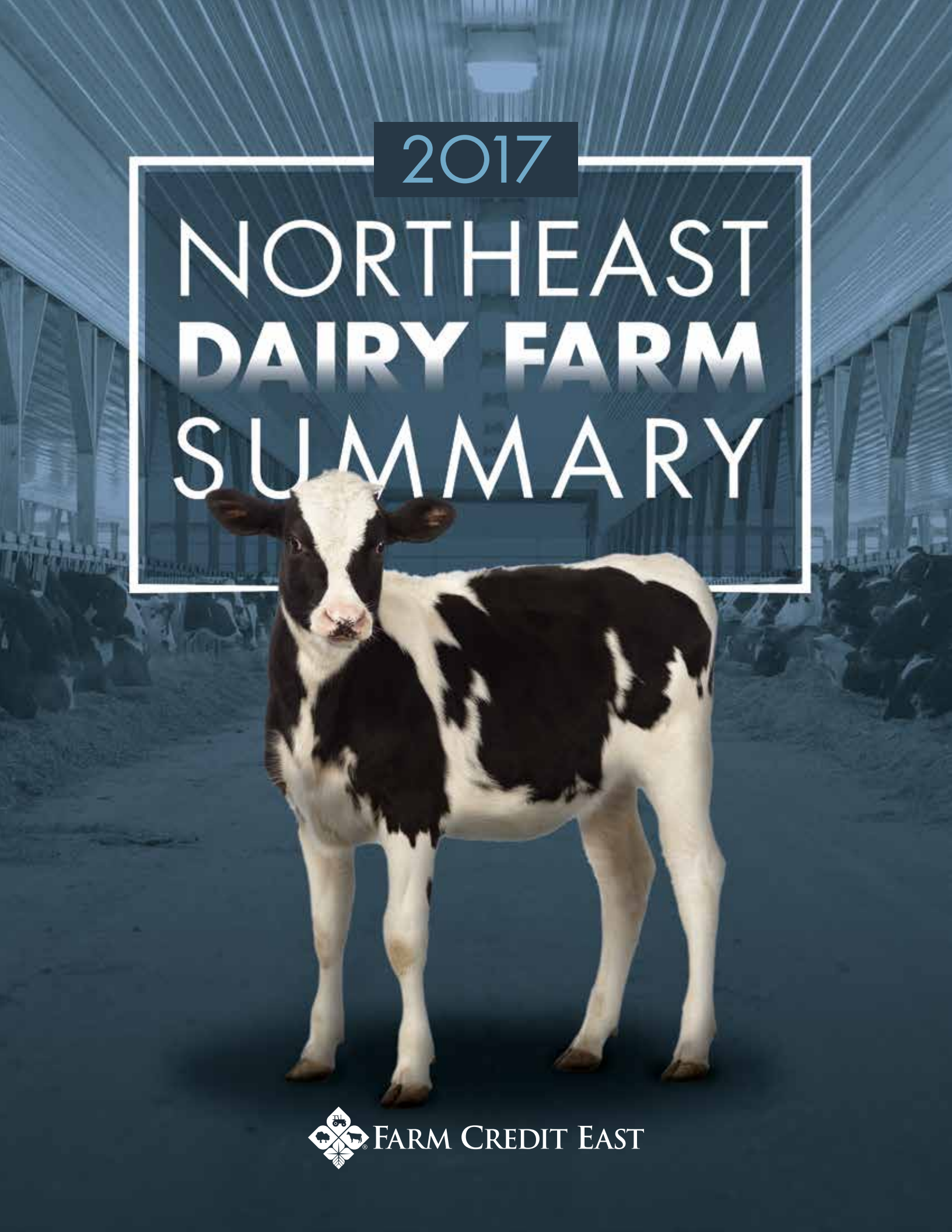
2017

NORTHEAST DAIRY FARM SUMMARY



FARM CREDIT EAST

2017 NORTHEAST DAIRY FARM SUMMARY

Prepared by
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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 39 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*.

And, most importantly, the entire Farm Credit East team extends our sincere thanks to the hardworking Northeast dairy farmers 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.

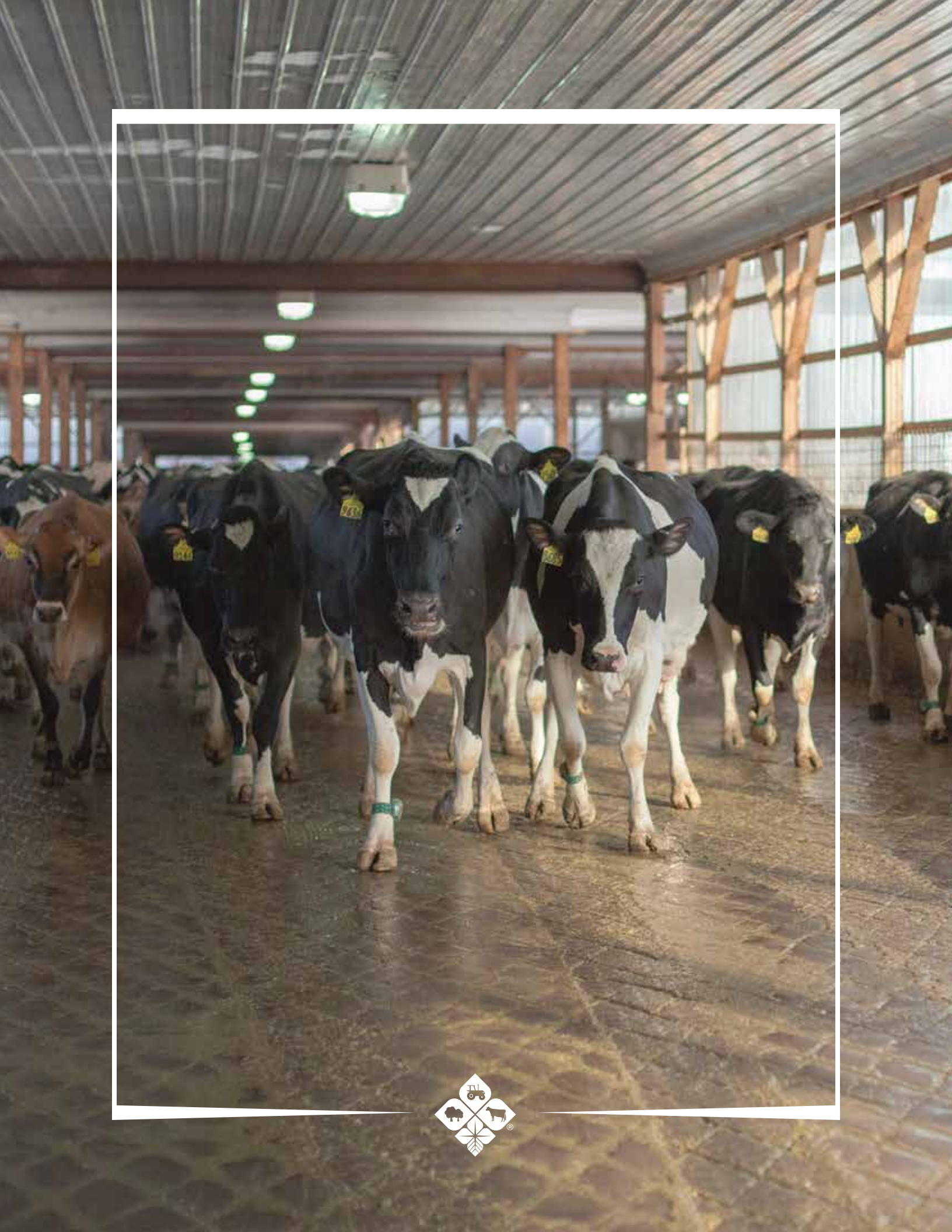
HIGHLIGHTS OF THE 2017 NORTHEAST DAIRY FARM SUMMARY

- 320 dairy farms participated in the 2017 *Northeast Dairy Farm Summary*[1].
- Profitability increased in 2017 from the previous year. Net earnings rose to an average of $291 per cow in 2017[2], from a profit of $15 per cow in 2016. This is largely due to an increase in farm milk price of $1.47 per hundredweight (cwt.) to $18.32.
- Cost increases were relatively modest in 2017. Total expenses per cwt. increased by $0.12 per cwt. to $20.33 in 2017[3].
- Net cost of production[4] (NCOP) increased to $17.18 per cwt., $0.33 greater than 2016.
- Some specific operating cost categories which increased in 2017 are:
  - Feed expense, a farms largest cost, increased from $1,576 per cow in 2016 to $1,590 in 2017, but was flat on a per hundredweight basis due to productivity gains.
  - Labor, a dairy farm's second largest expense, increased 5.1 percent per cow, and 4.0 percent per cwt.
  - Fuel expenses increased by 14 percent per cow after declining by 21 percent the prior year.
- Productivity increased slightly. Per cow production of our sample was 1.0 percent higher than the prior year. Milk sold per worker decreased 0.9 percent due to fewer cows per worker.
- Cash flow fell short of meeting all financial commitments (e.g., operating expenses, debt repayment, family living and income taxes), resulting in an average cash margin per cwt. of -$0.01[5]. While this is a small deficit, it represents the third consecutive year of negative cash margins.
- Percent net worth in our sample increased to 69 percent. Debt-per-cow decreased from $4,194 per cow to $3,814. Note that total debt per farm increased, but declined on a per cow basis due to the increased herd sizes of farms in the sample.

PROFILE OF THE NORTHEAST DAIRY FARM SUMMARY PARTICIPANTS

	2016	2017
Number of Cows	403	470
Milk Sold per Cow	25,239 lbs.	25,493 lbs.
Milk Sold per Worker	1,210,871 lbs.	1,200,611 lbs.
Milk Price per Cwt.	$16.85	$18.32
NCOP per Cwt.	$16.79	$17.18
Net Worth	68%	69%
Net Earnings per Cow	$15	$291
Net Household Income per Cow	$58	$314
Return on Assets	1.1%	3.7%

[1] This year's DFS does not contain farm data from Vermont.
[2] After family living, on an accrual basis. Does not include nonfarm income.
[3] Including family living.
[4] Total farm expense, plus family living, less non-milk income.
For more information, see page 12.
[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 personnel, Northeast public policymakers and dairy industry leaders with a better understanding of the current status and future prospects 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. It is the result of cooperation and hard work by many people. We are grateful, first and foremost, to the 350 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 dairy farms in Connecticut, Maine, Massachusetts, New Hampshire and New York. The majority of the farms in this study are from New York.

We believe this sample of 320 farm operations represents a solid cross section of better-than-average Northeast dairy farm businesses, most of which maintain loan relationships with Farm Credit East. 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 comprises a majority of farm income) as we feel it reflects the diverse face of Northeast dairying, where many producers have supplementary income streams.

Where such 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*. If the expenses of this ancillary activity cannot be separated from the dairy farming expenses (labor costs are usually comingled), 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 most significant in the 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 to within a limited margin of error. This approach ensures a high level of integrity for the financial results presented in the 2017 *Dairy Farm Summary*.

The *DFS* tends to focus discussion on the "average farm." And 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.

This is particularly true in a year such as 2017. While the "average farm" had $291 per cow in net earnings, more than one-third of the farms in our sample had negative net earnings, while a handful earned more than $1,000 per cow. Although most farms in the sample had positive accrual earnings, when other cash obligations such as debt principal payments were factored in, the average farm had a slight cash shortfall, which builds upon the cash shortfalls of 2015 and 2016.

[6] Of the 350 farms submitted, 30 were excluded as outliers, or due to data irregularity, resulting in a benchmark of 320 farms.

Focusing on average results belies the fact that many producers, of all sizes, still 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.

CHANGES TO THE DAIRY FARM SUMMARY

A benefit to researchers of dairy economics, is that the *DFS* is one of the longest-running studies of its kind, done in a more-or-less consistent fashion, for 39 years. Past editions of the *DFS* are available upon request.

In past years' editions, nonfarm income was included in some calculations. While nonfarm income is an important factor in the survival of many dairy farm businesses, it has been argued that such income should not be considered in the profitability of the farm enterprise.

Beginning with the 2016 edition, we have reorganized the figures contained within the *DFS*, as well as the tables in the back of the book to segregate nonfarm income. "Net Earnings" refers to earnings from the farm enterprise, less family living draw, but does not include nonfarm income, which is itemized below. Past years' data in some figures in the body of the report have been restated to eliminate nonfarm income as a component of Net Earnings.

This year's *Dairy Farm Summary* only includes farms from Farm Credit East's loan servicing area, and does not include farms from Vermont. Past years' data includes Vermont farms. Past data has not been restated for comparative purposes, but a review of some key information from 2016 with and without Vermont farms showed relatively small differences on most line items, so the data should be generally comparable.

Selected 2016 Data	All Farms, Including VT	Excluding VT	Variance
Number of Farms	457	346	-24%
Number of Cows per Farm	403	398	-1%
Milk Sold per Cow	25,239	25,508	1%
Milk Sold per Worker	1,206,043	1,174,507	-3%
Milk Price per Cwt.	$16.83	$16.84	0%
NCOP per Cwt.	$16.79	$16.78	0%
Net Worth per Cow	$8,944	$9,080	2%
Net Earnings per Cow	$15	$16	7%
Return on Assets	1.1%	1.2%	9%

Figure 1

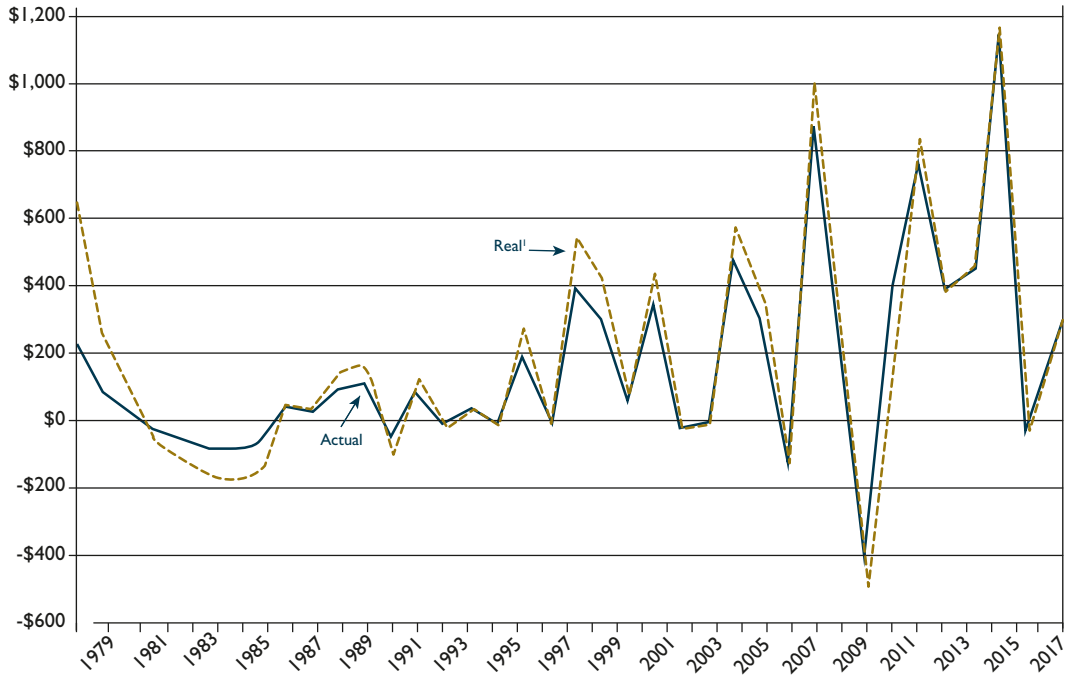
DAIRY FARM PROFITABILITY

	Net Earnings Per Cow[1]	Return on Assets[2]	Return on Equity[3]
2013	$434	4.4%	4.7%
2014	$1,124	9.1%	11.0%
2015	$-30	0.6%	-0.3%
2016	$15	1.1%	0.2%
2017	$291	3.7%	3.5%
3-Year Average	$92	1.8%	1.1%
5-Year Average	$367	3.8%	3.8%

[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 2

NET EARNINGS PER COW 1979-2017



[1]Real price is actual price adjusted for inflation – 2017 dollars.

ANALYSIS OF 2017

FARMERS SHOW SPENDING RESTRAINT

Following two years of sharply reduced milk prices, 2017 showed modest recovery, with the average milk price received increasing by $1.47 over 2016. Despite the tendency of expenses to increase over time, Northeast dairy farmers were able to keep expenses in check, therefore keeping the Net Cost of Production (NCOP) increase below that of the increase in milk prices, resulting in improved earnings for the year.

It is important to note that milk prices peaked in August of 2017, have since fallen substantially, and are likely to continue to fall through early 2018 before showing any increase. Despite accrual profits for the 2017 calendar year, many Northeast dairy farms are facing serious challenges due to current milk prices.

Average net farm earnings increased from a loss of $30 per cow in 2015 (not counting nonfarm income), to a net gain of $15 per cow in 2016, to $291 in 2017. This brings the five-year average earnings to $367 per cow (including 2014's unusually strong earnings). Expense increases were generally modest, helping to keep the overall NCOP increase to 2.3 percent.

The increase in average net earnings was due to a combination of higher milk prices and increased per-cow productivity. Milk price received increased by $1.47 per cwt. Net cost of production increased as well by $0.39 per cwt. to $17.18. The modest earnings on milk production, combined with non-milk farm income, yield earnings of $1.15 per cwt. for the average *DFS* farm.

In the 39-year history of the *DFS*, 2017 ranks 27th in terms of profitability in nominal terms, or 26th 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 14 out of the 39 years of the *DFS*.

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 how it might pay off if invested another way.

A single year does not provide an accurate picture of the dairy industry's long-term operating performance given the volatility we have seen in recent years. To further illustrate, in the last ten years we have seen both the top three years for profitability in *DFS* history (2014, 2007 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 2A

COMPARISON OF MULTIYEAR AVERAGES

	Three-Year Average	Five-Year Average	Ten-Year Average
Net Earnings per Cow	**$92**	**$367**	**$323**
Return on Assets	**1.8%**	**3.8%**	**3.7%**
Return on Equity	**1.1%**	**3.8%**	**3.6%**

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 deductible expenses and must be paid out of earnings.

The difference between accrual earnings and cash flow is particularly notable in a year such as 2017, when many producers showed positive net earnings on an accrual basis, yet faced cash shortfalls during the year.

MILK PRICE INCREASES FROM PRIOR YEAR

The average farm milk price at $18.32 per cwt. was $1.47, or 8.7 percent, higher than 2016's $16.85. It was still $1.74 below the five-year average of $20.06 per cwt. (Figure 3A). In terms of actual (nominal dollars, not adjusted for inflation) milk prices, 2017 ranked 7th in the 38 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, 2017 drops to 33rd. The first year of the *DFS*, 1979, ranks first, with an inflation-adjusted milk price of $31.11/cwt.

Figure 3A

FARM MILK PRICES PER CWT.

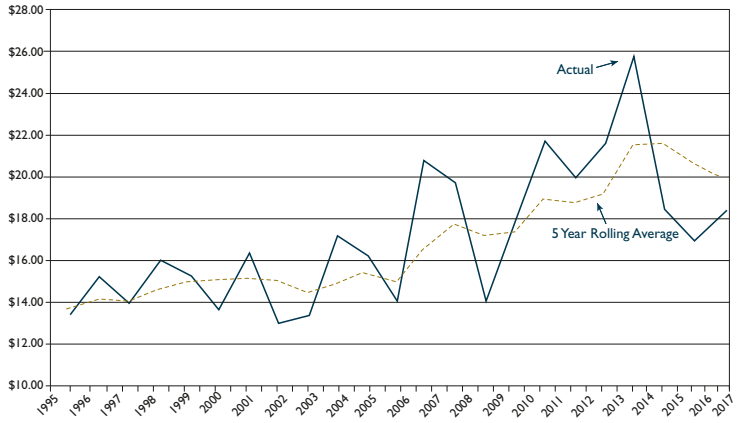
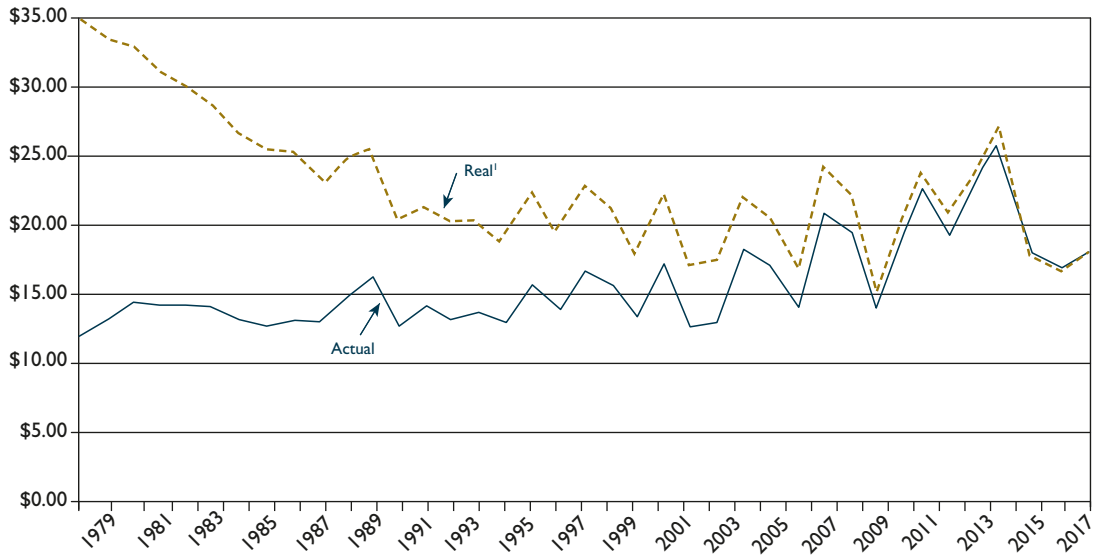


Figure 3B

FARM MILK PRICES PER CWT.



[1]Real = actual price adjusted for inflation, 2017 dollars.

The Federal Milk Marketing Order One Statistical Uniform Price (SUP) began 2017 at $18.21/cwt. (Boston blend at 3.5 percent butterfat). The price declined to $16.39 in April, eventually climbing to $18.33 in August, before falling again to end the year at $16.71 in December. The average SUP for 2017 was $17.44/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 has a significant influence on U.S. milk prices and can sometimes seem disconnected from regional market conditions. Investment decisions should include an analysis of management's ability to cope with price and earnings volatility.

COST OF PRODUCTION INCREASE IS MODEST DUE TO COST CONTROL

The net cost of production (NCOP) peaked in 2014 at $20.84 per cwt. It fell by 12 percent in 2015 to $18.36, and by an additional nine percent in 2016, to $16.79, more than $4 per cwt. less than in 2014. In 2017, NCOP increased, but by less than the price of milk, climbing $0.39/cwt, to $17.18, while milk price increased by $1.47 to $18.32/cwt.

Three key figures to review for 2017's cost of production analysis of the average dairy farm in the *DFS* include:

- Cash operating expenses were $18.54 per cwt., 1.6 percent greater than 2016.
- Total costs, including depreciation and family living were $20.33 per cwt., only $0.13 per cwt. greater than 2016.
- After subtracting non-milk farm income, NCOP was $17.18 per cwt., $0.39 above the previous year[7].

Figure 4A

COST OF PRODUCING MILK - ACCRUAL BASIS

Cost per CWT.	2013	2014	2015	2016	2017
Feed	$7.75	$7.99	$7.12	$6.25	$6.24
Labor	3.09	3.34	3.27	3.20	3.33
Interest	0.49	0.48	0.47	0.52	0.63
Freight & Trucking	0.95	0.95	0.97	0.98	1.05
Crop	1.61	1.64	1.40	1.21	1.20
Other Expenses	6.74	7.86	6.77	6.08	6.09
Adjusted Cash Operating Expenses	$20.63	$22.26	$20.00	$18.24	$18.54
+ Depreciation	1.43	1.49	1.44	1.38	1.30
+ Family Living	0.76	0.75	0.69	0.58	0.49
Total Costs	$22.82	$24.50	$22.13	$20.20	$20.33
- Non-Milk Income[1]	3.59	3.66	3.77	3.41	3.15
Net Cost of Production[2]	$19.23	$20.84	$18.36	$16.79	$17.18

[1] Non-milk income includes cattle, crop and other income adjusted for inventory changes.
[2] Before any return on equity. Each 1 percent return on equity would be equivalent to another $0.33 added to the NCOP for 2017.

[7] Nonfarm income is not factored into NCOP.

Despite increased milk prices in 2017, Northeast dairy producers limited cost increases. This was helped by relatively flat prices for feed commodity and fertilizer costs. Categories where costs rose included labor, fuel and repairs.

Presumably Northeast dairy producers utilized some of their 2014 profits to catch up on deferred maintenance that they had put off in prior years as well as make some improvements to facilities. Repair and maintenance expenses increased to $421 per cow in 2014 after averaging $285 for the previous five years. Repair expense declined to $310 per cow in 2016 from $350 per cow in 2015, but climbed again in 2017 to $328 per cow.

Figure 4B

SPECIFIC COST CATEGORIES

	2016		2017		Percent Change	
	per Cow	per Cwt.	per Cow	per Cwt.	per Cow	per Cwt.
Feed	$1,576	$6.25	$1,590	$6.24	0.9%	0.0%
Labor	$808	$3.20	$849	$3.33	5.1%	4.0%
Fuel	$131	$0.52	$151	$0.59	14.4%	13.3%
Supplies	$276	$1.09	$261	$1.02	-5.4%	-6.4%
Rent	$99	$0.39	$104	$0.41	5.1%	4.0%
Repairs	$310	$1.23	$328	$1.29	5.8%	4.8%
Crop Inputs	$305	$1.21	$308	$1.20	1.0%	0.0%
Other Expenses	$1,447	$5.73	$1,466	$5.75	1.3%	0.3%

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

It is important to note that the $17.18/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 2017, each one percent return on equity is equivalent to an additional $0.33 per cwt. If we were to include a six percent ROE goal as part of NCOP, for example, this would be equivalent to a $19.16 NCOP, well above 2017 average milk prices.

[8] 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.
[9] Non-milk income includes cattle, crop and other income adjusted for inventory changes, but does not include nonfarm income.

Figure 4C compares NCOP between New York and New England in 2017. 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. However, 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, and is factored into their NCOP. Even taking state support programs into account, New York farms' NCOP was still $2.80 per cwt. lower than New England farms. Areas of significant difference included spending on purchased feed, labor, freight and trucking, and other expenses.

Figure 4C

NCOP BY REGION

Cost per CWT.	New York	New England
Feed	$6.11	$7.70
Labor	3.26	4.12
Interest	0.65	0.41
Freight & Trucking	1.03	1.21
Crop Inputs	1.21	1.23
Other Expenses	6.04	6.65
Adjusted Cash Operating Expenses	$18.30	$21.33
+ Depreciation	1.28	1.47
+ Family Living	0.49	0.55
Total Costs	$20.07	$23.35
- Non-milk Income	3.08	3.55
Net Cost of Production	$16.99	$19.79

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. Smaller herds typically have lower labor costs and higher non-milk income per unit; however, family living and other costs are usually higher, when expressed on a per-unit basis. Some of the herds with fewer than 100 cows were among the most profitable in the study due to their 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

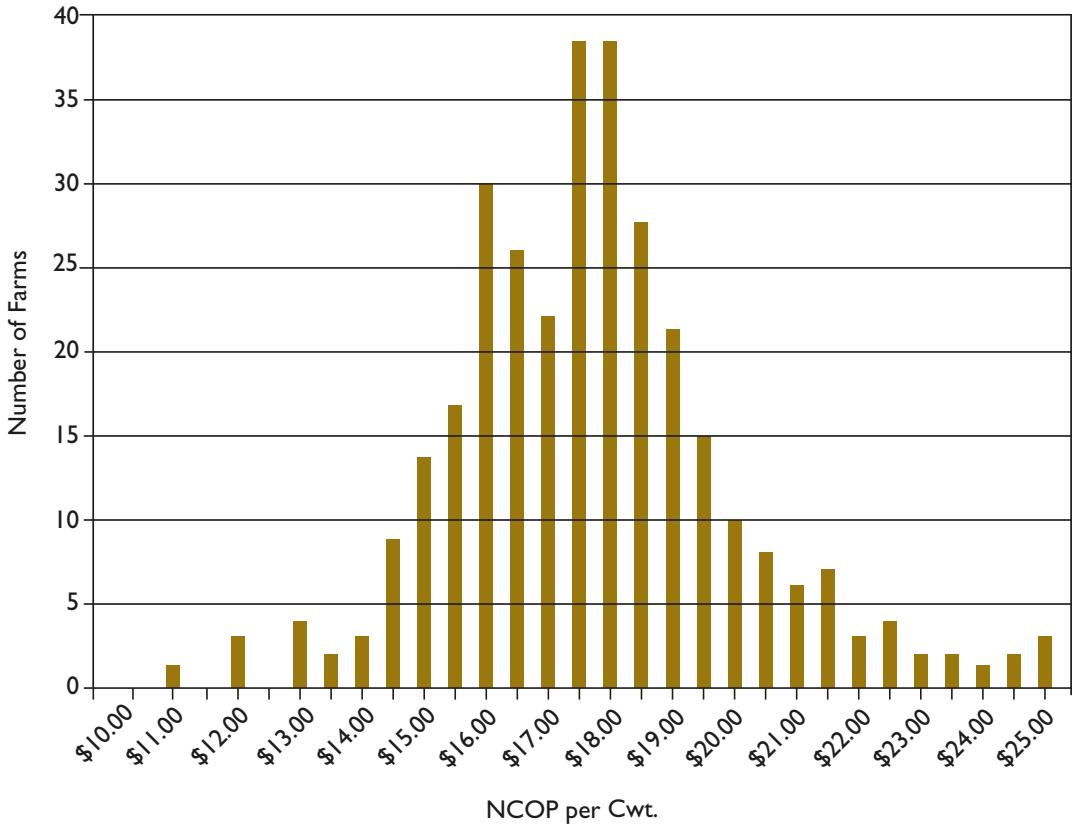
Cost per CWT.	< 100 Cows	100-299 Cows	300-699 Cows	700+ Cows
Feed	$5.45	$5.91	$6.26	$6.32
Labor	1.12	2.88	3.40	3.48
Interest	0.79	0.64	0.59	0.63
Freight & Trucking	1.13	1.04	0.99	1.06
Crop Inputs	1.65	1.44	1.29	1.13
Other Expenses	7.58	6.96	6.32	5.78
Adjusted Cash Operating Expenses	$17.72	$18.86	$18.85	$18.40
+ Depreciation	2.47	1.90	1.45	1.09
+ Family Living	2.44	1.22	0.56	0.26
Total Costs	$22.63	$21.98	$20.86	$19.75
- Non-Milk Income[1]	4.27	3.40	3.14	3.04
Net Cost of Production	$18.37	$18.58	$17.72	$16.71

[1] 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

DISTRIBUTION OF NET COST OF PRODUCTION



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 average per cwt. and "tails" of outliers on either side.

HERD SIZE CHANGES

The farms that participate in the *Dairy Farm Summary* change slightly from year to year. 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. The *DFS* average increased from 403 head in 2016 to 470 in 2017. 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.

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 cows or more were only 21 percent 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	**79**	**101**	**74**	**66**
Volume of Milk Produced[1]	**2.7%**	**10.7%**	**22.7%**	**63.9%**

[1] As a percent of all farms in the 2017 *DFS*

Figure 5B illustrates the relationship between labor productivity, cow productivity and overall dairy farm profitability. As cows per worker increases, so does milk sold per worker, as milk sold 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, more important is a low NCOP, 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 500,000 pounds of milk per worker have the lowest average combined labor and family living expense per person at $17,420, but on a per cwt. basis, their cost is $4.13 per cwt. In contrast, those selling 1.6 million or more pounds of milk per person have a lower labor and family living cost per cwt., at $3.05, despite paying 3.5 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, such as between the 600,000+ pounds category and the 700,000+ category, indicating that labor productivity is only one factor in determining overall profitability.

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]	Net Earnings Per Cow
499,000 or less	7%	72	26	16,234	$17,420	$186
500,000-599,000	5%	72	29	19,542	$18,915	$251
600,000-699,000	8%	128	35	19,679	$26,130	$232
700,000-799,000	9%	164	36	21,380	$32,823	$119
800,000-899,000	6%	236	38	22,783	$39,991	$125
900,000-999,000	11%	275	40	23,964	$39,979	$142
1 to 1.09 million	12%	425	43	24,426	$39,114	$242
1.1 to 1.19 million	11%	836	46	25,188	$48,714	$293
1.2 to 1.29 million	10%	688	51	24,798	$45,096	$385
1.3 to 1.39 million	7%	794	53	25,611	$48,691	$441
1.4 to 1.49 million	6%	726	56	26,115	$44,592	$653
1.5 to 1.59 million	4%	804	60	25,861	$46,027	$422
1.6 million or more	7%	821	76	26,076	$60,373	$398

[1] Includes operator and other family labor

CAPITAL EFFICIENCY

When viewed on a per cow, or per cwt. basis, larger farms are able to spread costs and investments over more units. For example, the 99 cows or fewer group produced almost 50 percent less milk per worker than the average of all farms and had 85 percent more investment per cwt. sold ($89 versus $48). Return on assets was low 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	645,737	20,252	$89	0.25	0.5%
100 to 299	962,869	22,843	66	0.33	0.9%
300 to 699	1,183,337	25,136	51	0.42	2.6%
700 or More	1,309,288	26,448	42	0.50	5.2%
All Farms	1,200,611	25,493	48	0.44	3.7%

[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 REMAINS NEGATIVE

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. What remains can be used for capital investment, to build liquidity or to invest in a retirement fund. Cash margin improved in 2017, but was still a slight deficit (-$0.01/cwt) compared to a deficit of -$0.10 per cwt. in 2016, -$0.09 in 2015, and a positive cash flow of $4.60 in 2014 (Figure 7). 2017 marked the third straight year of negative cash flows. This indicates that money was extremely tight for the average farm in 2017, and many farms had to make up for this cumulative cash deficit through borrowing, restructuring payment terms or increasing vendor payables.

Figure 7

CASH FLOW ANALYSIS PER CWT.

	2013	2014	2015	2016	2017
Actual Milk Price	$21.30	$25.58	$18.24	$16.85	$18.32
Cash Required	$22.77	$24.25	$22.14	$20.34	$21.64
- Other Income	$3.33	$3.37	$3.81	$3.39	$3.31
Breakeven Milk Price	$19.43	$20.88	$18.33	$16.95	$18.33
Cash Margin	$1.87	$4.60	$-0.09	$-0.10	$-0.01

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 dairy farm since 2013. Due to the inflation of farm costs in recent years, 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 milk price has declined significantly, while the breakeven milk price fell by a lesser amount, resulting in a greater cash deficit.

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: The cash margin was very strong in 2014, thinner in 2013, and negative in 2015, 2016 and 2017.

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 and government programs, such as LGM-Dairy and the Margin Protection 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 and 2016, 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). While the average *DFS* farm had no reserve debt capacity in 2015 or 2016, increased earnings in 2017 allowed for a modest amount of reserve debt capacity.

Figure 8

DEBT CAPACITY

	2013	2014	2015	2016	2017
Average Farm Credit Interest Rate[1]					
Commercial (Intermediate Term)	4.0%	4.0%	4.0%	4.1%	4.6%
Real Estate (Long Term)	4.4%	4.3%	4.3%	4.3%	4.7%
Debt Capacity (per Cow)	$6,108	$11,384	$3,053	$3,047	$4,817
- Capital Debt	3,104	3,109	3,390	3,620	3,108
RESERVE DEBT CAPACITY (per Cow)	$3,004	$8,275	$-337	$-573	$1,709
3-Year Average Reserve Debt Capacity (2015-17)	$3,460	$4,507	$3,647	$2,455	$266
5-Year Average Reserve Debt Capacity (2013-17)	$1,721	$4,060	$3,664	$2,522	$2,416
Debt Payments as Percent of Milk Sales	12%	7%	13%	14%	15%

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

Current debt capacity has been substantially impacted by low interest rates, which, while increasing, remain at low levels by historical standards. In planning for the future, it is important not to be lulled into thinking that today's low interest rates will last indefinitely. The Federal Reserve has begun to increase short-term rates and this will impact debt service requirements and capacity for those producers who have variable rate debt. If the average producer had to repay today's debt at 2007 interest rates (approximately 7.7 percent), it would reduce both debt capacity and reserve debt capacity by about $1,500 per cow — a major change in repayment capacity.

Figure 8 shows the annual fluctuations and the average for reserve debt capacity over the last five years. In 2017, it was $2,416 per cow, a level heavily influenced by 2014's remarkable profitability. "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 be 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 declined in 2015, and was further reduced in 2016. In 2017, farmers increased capital expenditures substantially (Figure 9). Capital purchases include replacement machinery and equipment, as well as buildings and land expansion. Total capital purchases per farm were $362,840, well above the five-year average of $312,181. While average capital purchases were $772 per cow, it should be noted that this reflects substantial expansion investments by some farms, and significantly lower spending by others. The median level of capital purchases was substantially lower, at $109,233.

Figure 9

CAPITAL PURCHASES

	Per Farm	Per Cow	% of Total Assets[1]
2013	**$256,095**	**$813**	**6.5%**
2014	**$365,612**	**$1,066**	**7.9%**
2015	**$304,062**	**$813**	**6.2%**
2016	**$272,296**	**$674**	**5.1%**
2017	**$362,840**	**$772**	**6.3%**
3-Year Average	**$313,066**	**$753**	**5.9%**
5-Year Average	**$312,181**	**$828**	**6.4%**

[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

	2013	2014	2015	2016	2017
Sources			Dollars per Cow		
Net Cash Farm Income[1]	$617	$1,555	$432	$451	$671
Sale of Capital Assets	59	50	67	55	108
Paid-in Capital[2]	33	33	40	59	51
Money Borrowed	760	111	906	730	515
TOTAL SOURCES	$1,469	$1,749	$1,445	$1,295	$1,345
Uses					
Family Living	$180	$178	$166	$146	$125
Capital Purchases	813	1,089	813	674	772
Debt Principal Payments	476	482	466	475	448
TOTAL USES	$1,469	$1,749	$1,445	$1,295	$1,345
Percent Capital Purchases Financed[3]	86%	10%	111%	108%	67%

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

Total sources of cash increased by $50 in 2017 to $1,345 per cow. Net cash farm income increased as well in 2017, to $671 per cow. This meant that producers generally had to take on less additional debt. A majority of producers were able to meet loan servicing requirements during the year, but some sought additional financing, restructured existing debt or extended trade credit.

BALANCE SHEETS STABLE

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 2017 declined by $561 from $8,944 to $8,383 per cow. Percent net worth however, increased to 69 percent (Figure 11). Both assets and liabilities per cow declined, largely due to an increase in herd size. Solvency 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]
2013	$1,351	73%	2.8	1.2	0.48
2014	$1,048	75%	3.5	1.6	0.53
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

[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.

In 2014 livestock values increased significantly to $2,397 per milking head (Table A-3). This was reflective of both the high milk price environment as well as high beef prices. Despite lower milk and beef prices in 2015, 2016 and 2017, livestock have held most of their value, falling to $2,296 per cow in 2017. The average *DFS* farm raises a relatively large amount of replacement heifers as reflected in youngstock as a percent of cows.

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 2017, the average dairy farm had a current ratio of 2.5, close to the average prior to 2016 (Figure 11.) This means that the average farm had 2.5 times the value of current assets compared to its current liabilities.

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 0.7 at the end of the year demonstrates that the average farm did not have sufficient

near-cash assets (such as cash and accounts receivable) to meet the current year's financial obligations, and is instead relying on converting inventory (primarily feed) to milk, and subsequently, cash, to pay bills as they come due. This indicates that producers had, on average, 70 percent 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 2017, asset turnover for the average Northeast dairy business was 0.44, higher than 2016, but lower than years prior. This was largely a result of the increase in milk prices. This means $0.44 of gross revenue was generated for every $1 invested in assets.

NET MARGIN DIFFERENCES REMAIN SIGNIFICANT IN 2017

We again saw a wide range of profits around the $291 per cow average net earnings in 2017. Many 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 2017 PROFITS

	Bottom 25%	All Farms	Top 25%
Number of Farms	80	320	80
Average Number of Cows	314	470	470
Milk Sold per Cow (lbs.)	24,072	25,493	25,962
Milk Sold per Worker (lbs.)	1,071,976	1,200,611	1,234,718
Net Earnings			
Per Farm	$-64,056	$136,770	$295,630
Per Cow	$-204	$291	$629
Per Cwt.	$-0.85	$1.14	$2.42
Return on Assets[1]	-0.1%	3.7%	6.0%
Return on Equity[1]	-2.3%	3.5%	6.8%

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

There was a $833 difference in net earnings per cow between the top and bottom quartile groups. This is greater than 2016's difference, which stood at $601. Similarly, on a per cwt. basis, the top farms posted $3.27 more in

net earnings than the least profitable farms with earnings of $2.42 per cwt. while the bottom group lost $0.85 per cwt. Several management 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 eight percent more milk per cow and 15 percent more milk per worker than the Bottom 25%, which contributes to the disparity in the bottom line.

Despite correlations between larger herd sizes and greater profitability, interestingly, in 2017, the average herd size of the top profit quartile was the same as that of the group overall. Some of the most profitable farms 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 and utilize 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 $2.69 per cwt. in 2017, slightly greater than the average difference of the preceding five years.

Figure 13

COST OF PRODUCING MILK BY PROFIT GROUPS

	2013	2014	2015	2016	2017
NCOP[1]			Dollars per Cwt.		
Bottom 25%	$21.11	$22.14	$19.26	$18.39	$18.92
Top 25%	17.99	19.38	17.39	15.96	16.23
Difference	$3.12	$2.76	$1.87	$2.43	$2.69

[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

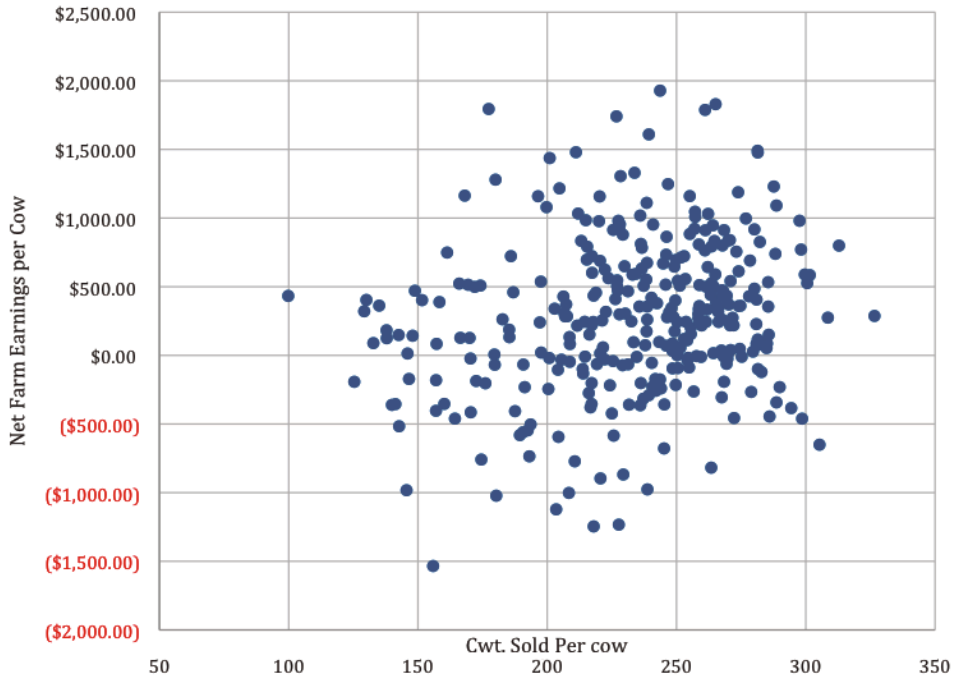
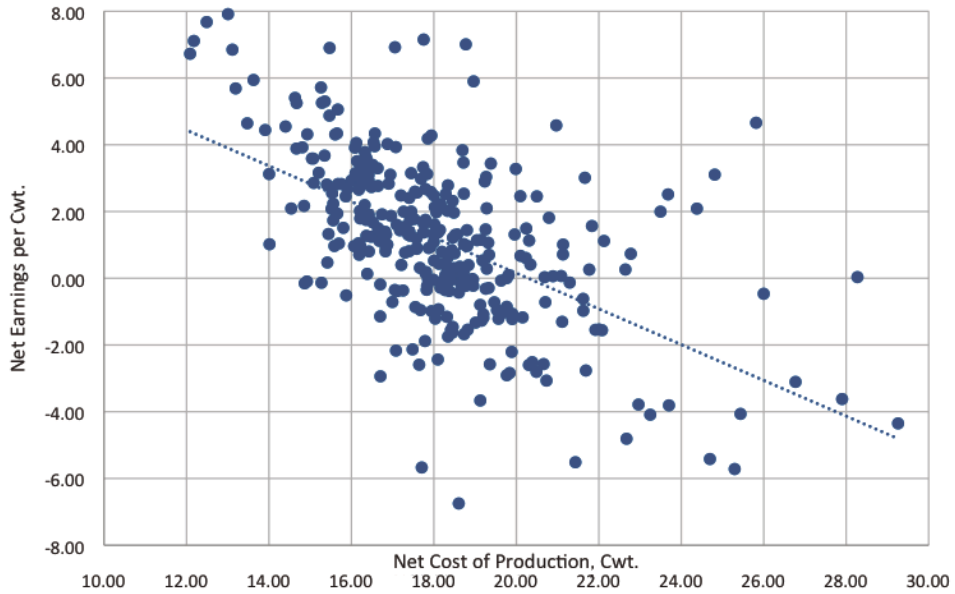


Figure 14B

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 have been able to identify and leverage their 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	13	35	5	16	11
Average Number of Cows	671	888	196	91	467
Milk Sold per Cow (lbs.)	29,423	26,675	24,233	22,830	24,078
Milk Sold per Worker (lbs.)	1,121,870	1,580,641	1,109,917	761,068	977,070
NCOP Per Cwt.	$16.73	$16.17	$19.71	$14.10	$17.58
Milk Price per Cwt.	$18.15	$18.45	$23.40	$17.90	$18.03
Net Earnings per Cow	$597	$535	$693	$364	$600
Net Earnings per Cwt.	$2.03	$2.01	$2.86	$3.12	$2.49
Return on Assets (%)	4.9%	7.0%	6.9%	4.3%	6.1%
Percent Net Worth (%)	70%	74%	88%	77%	67%

Of the 80 farms included in 2017 top profit quartile, 69 exhibited distinct characteristics, while the remaining 11 farms displayed a more balanced approach, doing well in all areas, without any single dominant factor. Figure 15 breaks down these successful farm styles in 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 milk sold per cow was 29,423, the highest among the five styles. High production allowed them to produce and sell 1,121,870 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 1.5 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 $23.40 per cwt. for their milk, $4.75 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; and/or specialty markets. 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 $14.10 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 are good, all-around managers 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 farms of all sizes 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.

As a group, the largest-size group was by far the most profitable of the four size groups with $416 net earnings per cow in 2017 (Figure 16). In addition, this group was:

- 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 producer.

It is noteworthy that all four size categories were represented in the top profit quartile, while not all of the 700+ size group made 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

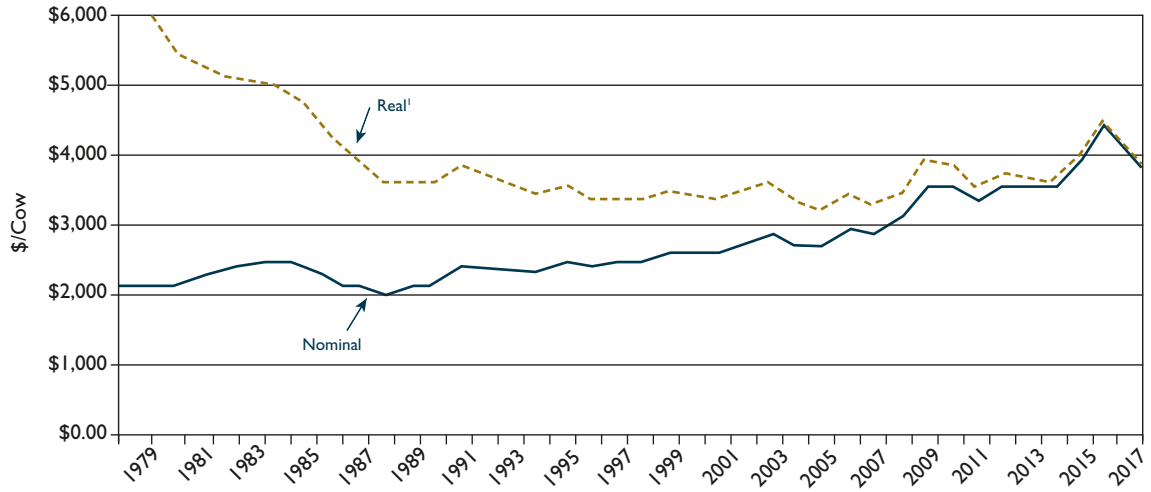
	99 Cows or Fewer	100-299 Cows	300-699 Cows	700 Cows or more
Average Number of Cows	65	178	467	1,404
Milk Sold Per Cow (lbs.)	20,252	22,843	25,136	26,448
Milk Sold Per Worker (lbs.)	645,737	962,869	1,183,337	1,309,288
Net Cost of Production per Cwt.	$18.37	$18.58	$17.72	$16.71
Milk Price per Cwt.	$17.95	$18.53	$18.37	$18.28
Assets per Cow	$18,111	$14,969	$12,798	$11,113
Asset Turnover	0.25	0.32	0.40	0.47
Percentage Net Worth	79%	75%	73%	64%
Net Earnings per Cow	$-74	$-7	$185	$416
Return on Assets %	0.5%	0.9%	2.6%	5.2%

CONCLUSION

The past three years have been exceptionally challenging for Northeast dairy producers. While milk prices increased in 2017 from the prior year, margins and cash flow remained tight for many farms. Northeast dairy farmers responded to the challenge with a remarkable ability to economize, cut costs and gain further efficiencies in their already well-run operations. This resulted in increased accrual earnings from the prior year, in spite of persistent low prices.

Figure 17

TOTAL LIABILITIES PER COW



[1] Real is nominal adjusted for inflation

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 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 declined in 2017, below the $4,000 threshold, to $3,814, this was entirely a function of larger herd sizes to spread the farm debt over. Total farm liabilities still increased over the prior year, to $1,792,421 per 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 investing in property, livestock and equipment in 2014, Northeast producers entered the current downturn better prepared than they were in 2009, and milk prices have not fallen as precipitously as they did then. What is different this time, is the duration of the downturn, and the unclear future of dairy markets. Some analysts argue that in fact, this is not a downturn at all, but rather a reversion to the mean of marginal profitability for the dairy industry, and that producers may need to retool their business models to survive in a low-margin environment. Only time will tell.

2018 is shaping up to be a very difficult year for Northeast producers. Since the recent peak in August of 2017, milk prices have fallen, and as of April 2018, are now nearly $3/cwt. below their level eight months ago. While prices are expected to climb for the rest of the year, the 2018 average is still projected to be about $1.28/cwt lower than 2017.

Despite the continued challenging market conditions, the fact that a majority of farms managed to show accrual profits in 2017 is a testament to the resilience and management skills of Northeast dairy farmers.

Overall, 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 East loan officer and/or business consultant to assess your strengths and weaknesses and developing 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 metrics as well. Membership includes a personalized profit assessment of your farm. For more 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 to learn more.

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 seek answers in order to have a healthy, economically sustainable Northeast dairy industry. The entire Farm Credit East 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.

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 2013-to-2017 data series includes farms in Connecticut, Maine, Massachusetts, New Hampshire 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 the Margin Protection Program (MPP) and state program payments. Crop insurance indemnities are recorded as Crop Revenue.

Your Farm Credit East 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

	2013	2014	2015	2016	2017
Number of Farms	517	474	487	457	320
Average Number of Cows	315	348	374	403	470
Receipts					
Milk Sales	$ 1,600,058	$ 2,111,261	$ 1,662,185	$ 1,714,362	$ 2,197,778
Cattle Sales	96,009	136,337	197,941	184,171	162,649
Crop Sales	52,877	67,552	44,799	50,778	70,293
Government Payments	28,185	12,112	27,947	36,270	33,211
Other	54,794	51,003	51,745	51,584	72,810
CASH RECEIPTS	$1,831,923	$2,378,265	$1,984,617	$2,037,165	$2,536,741
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$19,198	$34,838	$21,523	$23,777	$35,791
VALUE OF FARM PRODUCTION (a)	$1,851,121	$2,413,103	$2,006,140	$2,060,942	$2,572,532
COST OF GOODS SOLD					
Chemicals & Sprays	$18,525	$23,467	$18,632	$18,538	$23,252
Custom Hire	48,814	59,086	67,315	64,077	75,777
Purchased Feed	582,279	660,022	648,148	635,128	747,258
Fertilizer & Lime	61,429	61,748	61,829	56,823	59,211
Freight & Trucking (Marketing)	71,550	78,300	88,766	99,541	125,489
Gasoline, Fuel & Oil	78,925	89,719	62,094	53,196	71,125
Hired Labor	232,019	275,440	298,246	325,624	399,182
Seed & Plants	40,896	49,750	46,404	47,554	62,649
Supplies	83,997	102,636	107,466	111,228	122,696
Veterinary, Medicine & Breeding	62,360	75,495	76,649	80,600	101,340
Cow Replacements	4,121	15,747	1,611	6,851	3,978
Total Cost of Goods Sold	$1,284,915	$1,491,410	$1,477,160	$1,499,160	$1,791,957
Gross Margin	$566,206	$921,693	$528,980	$561,782	$780,575
OVERHEAD					
Insurance	19,464	24,516	26,756	27,404	29,830
Interest	37,049	39,477	43,080	53,196	75,299
Rent	29,358	37,327	41,130	39,897	48,891
Repairs	104,372	142,733	130,927	124,930	153,994
Property & Misc. Taxes	22,402	24,899	25,680	28,613	37,039
Utilities	35,256	43,726	42,831	43,121	43,598
Other	17,310	32,991	35,610	39,091	40,557
Accrual Adjustments					
+ Depreciation	107,267	123,144	131,249	140,647	155,430
Total Overhead Expenses	$372,478	$468,813	$477,263	$496,899	$584,638
Total Farm Production Costs (b)	$1,657,393	$1,960,223	$1,954,423	$1,996,059	$2,376,595
NET FARM EARNINGS (a) - (b)	$193,728	$452,880	$51,717	$64,883	$195,937
- Family Living & Income Taxes	56,837	61,785	62,711	58,838	58,930
NET EARNINGS	**$136,891**	**$391,095**	**$-10,994**	**$6,045**	**$137,007**
+ Net Nonfarm Income	17,799	15,660	16,289	17,329	10,660
NET HOUSEHOLD INCOME	$154,690	$406,755	$5,295	$23,374	$147,667

Note: Expenses are 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-2.

COMPARISON BETWEEN YEARS / EARNINGS WORKSHEET PER CWT.

	2013	2014	2015	2016	2017
Number of Farms	517	474	487	457	320
Average Number of Cows	315	348	374	403	470
Receipts	DOLLARS PER CWT. OF MILK				
Milk Sales	$ 21.30	$ 25.58	$ 18.24	$ 16.85	$ 18.32
Cattle Sales	1.28	1.66	2.17	1.82	1.36
Crop Sales	0.70	0.81	0.49	0.50	0.59
Government Payments	0.38	0.15	0.31	0.36	0.28
Other	0.73	0.61	0.56	0.50	0.62
CASH RECEIPTS	$ 24.39	$ 28.81	$ 21.77	$20.03	$21.17
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$ 0.26	$ 0.43	$ 0.24	$ 0.24	$ 0.30
VALUE OF FARM PRODUCTION (a)	$ 24.64	$ 29.24	$ 22.01	$ 20.27	$ 21.47
COST OF GOODS SOLD					
Chemicals & Sprays	$ 0.25	$ 0.29	$ 0.21	$ 0.18	$ 0.19
Custom Hire	0.65	0.71	0.74	0.63	0.63
Purchased Feed	7.75	7.99	7.12	6.25	6.24
Fertilizer & Lime	0.82	0.75	0.68	0.56	0.49
Freight & Trucking (Marketing)	0.95	0.95	0.97	0.98	1.05
Gasoline, Fuel & Oil	1.05	1.08	0.68	0.53	0.59
Hired Labor	3.09	3.34	3.27	3.20	3.33
Seed & Plants	0.54	0.60	0.51	0.46	0.52
Supplies	1.12	1.25	1.18	1.09	1.02
Veterinary, Medicine & Breeding	0.83	0.91	0.84	0.80	0.84
Cow Replacements	0.05	0.19	0.03	0.07	0.03
Total Cost of Goods Sold	$17.10	$18.06	$16.23	$14.75	$14.93
Gross Margin	$7.54	$11.18	$5.78	$5.52	$6.54
OVERHEAD					
Insurance	0.26	0.29	0.29	0.27	0.25
Interest	0.49	0.48	0.47	0.52	0.63
Rent	0.39	0.45	0.45	0.39	0.41
Repairs	1.39	1.73	1.43	1.23	1.28
Property & Misc. Taxes	0.30	0.31	0.28	0.28	0.31
Utilities	0.47	0.53	0.47	0.43	0.36
Other	0.23	0.41	0.38	0.38	0.36
Accrual Adjustments					
+ Depreciation	1.43	1.49	1.44	1.38	1.30
Total Overhead Expenses	$4.96	$5.69	$5.21	$4.88	$4.90
Total Farm Production Costs (b)	$22.06	$23.75	$21.44	$19.64	$19.83
NET FARM EARNINGS (a) - (b)	$ 2.58	$ 5.49	$ 0.57	$ 0.64	$ 1.64
- Family Living & Income Taxes	0.76	0.75	0.69	0.58	0.49
NET EARNINGS	**$ 1.82**	**$ 4.74**	**$ -0.12**	**$ 0.06**	**$ 1.15**
+ Net Nonfarm Income	0.24	0.19	0.18	0.18	0.09
NET HOUSEHOLD INCOME	$ 2.06	$ 4.93	$ 0.06	$ 0.24	$ 1.24

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 DECEMBER 31

	2013	2014	2015	2016	2017
Number of Farms	517	474	487	457	320
Average Number of Cows	315	348	374	403	470
Assets			DOLLARS PER FARM		
Livestock	$720,116	$834,062	$887,198	$969,036	$1,079,116
Feed & Crops	356,717	418,949	434,736	457,579	508,234
Machinery & Equipment	725,365	846,834	857,528	905,862	933,406
Farm–Land & Buildings	1,675,190	1,852,583	1,974,315	2,231,620	2,523,745
All Other	474,546	767,829	737,271	735,03	688,229
TOTAL ASSETS	3,951,934	4,720,257	4,891,048	5,299,135	5,732,730
TOTAL LIABILITIES	$1,066,046	$1,167,218	$1,376,593	$1,689,998	$1,792,421
TOTAL NET WORTH	$2,885,888	$3,553,039	$3,514,455	$3,609,137	$3,940,309
Assets			DOLLARS PER COW		
Livestock	$2,286	$2,397	$2,372	$2,405	$2,296
Feed & Crops	1,132	1,204	1,162	1,135	1,081
Machinery & Equipment	2,303	2,433	2,293	2,248	1,986
Farm-Land & Buildings	5,141	5,324	5,279	5,538	5,370
All Other	1,684	2,206	$1,971	$1,824	$1,464
TOTAL ASSETS	$12,546	$13,564	$13,078	$13,150	$12,197
TOTAL LIABILITIES	$3,384	$3,354	$3,681	$4,194	$3,814
TOTAL NET WORTH	$9,162	$10,210	$9,397	$8,956	$8,384
Assets			DOLLARS PER CWT. OF MILK		
Livestock	$9.59	$10.02	$10.09	$9.52	$9.01
Feed & Crops	4.75	5.03	4.95	4.50	4.24
Machinery & Equipment	9.66	10.17	9.76	8.90	7.79
Farm–Land & Buildings	22.30	22.25	22.46	21.93	21.06
All Other	6.32	9.22	8.39	7.22	5.74
TOTAL ASSETS	$52.61	$56.69	$55.65	$52.07	$47.85
TOTAL LIABILITIES	$14.19	$14.02	$15.66	$16.61	$14.96
TOTAL NET WORTH	$38.42	$42.67	$39.99	$35.46	$32.89
PERCENT NET WORTH	73%	75%	72%	68%	69%

TABLE A-4.

COMPARISON BETWEEN YEARS / EVALUATION FACTORS

	2013	2014	2015	2016	2017
Number of Farms	517	474	487	457	320
Average Number of Cows	315	348	374	403	470
Worker Equivalents	6.8	7.5	8.1	8.4	10.0
Cows Per Worker	46	46	47	48	47
Pounds of Milk Sold Per Worker	1,097,288	1,102,149	1,134,300	1,210,871	1,200,611
Pounds of Milk Sold	7,512,009	8,255,565	9,142,456	10,171,317	11,981,710
Pounds of Milk Sold Per Cow	23,848	23,759	24,365	25,239	25,493
Milk Price Per Cwt.	$21.30	$25.58	$18.24	$16.85	$18.32
Total Crop Acres	766	819	825	898	1020
Crop Acres Per Cow	2.4	2.4	2.2	2.2	2.2
Feed Cost Per Cow	$1,849	$1,897	$1,733	$1,576	$1,590
Feed as a Percent of Milk Sales	36%	31%	39%	37%	34%
Feed & Crop Expense Per Cow[1]	$2,233	$2,287	$2,072	$1,882	$1,899
Feed & Crop Expense Per Cwt.	$9.36	$9.63	$8.51	$7.46	$7.45
Machinery Costs Per Cow[2]	$910	$1,039	$898	$813	$814
Machinery Costs Per Cwt.	$3.82	$4.37	$3.69	$3.22	$3.19
Labor & Family Living Per Cow	$917	$965	$958	$947	$973
Labor & Family Living Per Cwt.	$3.85	$4.06	$3.93	$3.75	$3.82
Assets Per Cow	$12,546	$13,564	$13,078	$13,150	$12,198
Debt Per Cow	$3,384	$3,354	$3,681	$4,194	$3,814
Net Worth Per Cow	$9,162	$10,210	$9,397	$8,956	$8,384
Percent Net Worth	73%	75%	72%	68%	69%

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

[2] 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	2013	2014	2015	2016	2017
Current Assets	$621,951	$807,176	$745,987	$743,492	$818,377
Intermediate Assets	1,642,957	1,917,597	1,998,014	2,141,809	2,327,493
Fixed Assets	1,687,026	1,995,484	2,147,047	2,413,833	2,586,860
TOTAL ASSETS	$3,951,934	$4,720,257	$4,891,048	$5,299,134	$5,732,730
Change (+ or -) from Prior Years	$208,015	$768,323	$170,791	$408,086	$433,596
Current Liabilities	$219,220	$233,547	$271,247	$410,227	$332,010
Intermediate Liabilities	430,905	464,711	544,019	645,33	733,696
Long-Term Liabilities	415,921	468,959	561,327	634,433	726,715
TOTAL LIABILITIES	$1,066,046	$1,167,217	$1,376,593	$1,689,998	$1,792,421
Change (+ or -) from Prior Years	$1,567	$101,171	$209,376	$313,405	$102,423
NET WORTH	$2,885,888	$3,553,040	$3,514,455	$3,609,136	$3,940,309
Change (+ or -) from Prior Years	$206,448	$667,152	$-38,585	$94,681	$331,173
% Net Worth	73%	75%	72%	68%	69%

I & E Farm (Cash Basis)	2013	2014	2015	2016	2017
Sales - Milk	$1,600,058	$2,111,261	$1,662,185	$1,714,756	$2,197,778
Sales - Livestock	96,009	136,337	197,941	184,692	162,649
Other Farm Income	135,856	130,667	124,491	139,408	176,314
TOTAL FARM INCOME	$1,831,923	$2,378,265	$1,984,617	$2,038,856	$2,536,741
FARM EXPENSES	$1,550,126	$1,837,079	$1,823,174	$1,856,466	$2,221,165
NET FARM INCOME	$281,797	$541,186	$161,443	$182,390	$315,576
ADD: Interest	$37,049	$39,477	$43,080	$52,914	$79,299
TOTAL AVAILABLE - Farm	$318,846	$580,663	$204,523	$235,304	$309,875
ADD: Net Nonfarm Income	$17,799	$15,660	$16,289	$17,717	$10,660
Sale Capital Assets	$14,251	$14,489	$25,033	$22,231	$23,658
TOTAL FUNDS AVAILABLE (A)	$350,896	$610,812	$245,845	$275,252	$425,193
Family Living + Income Taxes	$56,837	$61,785	$62,711	$59,207	$58,930
Debt Service Requirement	$180,421	$204,112	$219,747	$244,790	$285,790
TOTAL FUNDS REQUIRED (B)	$237,258	$265,897	$282,458	$303,997	$344,720
EXCESS (A – B)	$113,638	$344,915	$-36,613	$-28,745	$80,473

TABLE B-1.

2017 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	79	101	741	66	320
Average Number of Cows	65	178	467	1,404	470
Receipts	DOLLARS PER COW				
Milk Sales	$3,646	$4,237	$4,638	$4,836	$4,676
Cattle Sales	428	406	340	329	346
Crop Sales	244	123	149	150	150
Government Payments	66	75	95	61	71
Other	157	171	156	151	154
CASH RECEIPTS	$4,541	$5,012	$5,378	$5,527	$5,397
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$-31	$2	$50	$113	$76
VALUE OF FARM PRODUCTION (a)	$4,510	$5,014	$5,428	$5,640	$5,473
COST OF GOODS SOLD					
Chemicals & Sprays	$58	$43	$47	$51	$49
Custom Hire	118	135	166	167	161
Purchased Feed	1,104	1,350	1,573	1,671	1,590
Fertilizer & Lime	139	160	129	118	126
Freight & Trucking (Marketing)	229	237	250	281	267
Gasoline, Fuel & Oil	156	167	150	149	151
Hired Labor	226	657	854	920	849
Seed & Plants	137	126	148	129	133
Supplies	253	288	285	248	261
Veterinary, Medicine & Breeding	144	192	223	221	216
Cow Replacements	67	15	9	0	8
Total Cost of Goods Sold	$2,631	$3,370	$3,834	$3,955	$3,811
Gross Margin	$1,879	$1,644	$1,594	$1,685	$1,662
OVERHEAD					
Insurance	79	81	73	56	63
Interest	161	148	149	167	160
Rent	80	106	91	110	104
Repairs	294	312	324	334	328
Property & Misc. Taxes	146	103	87	68	79
Utilities	108	95	97	90	93
Other	90	95	83	86	88
Accrual Adjustments					
+ Depreciation	501	434	364	289	331
Total Overhead Expenses	$1,459	$1,372	$1,268	$1,200	$1,246
Total Farm Production Costs (b)	$4,090	$4,742	$5,102	$5,155	$5,057
NET FARM EARNINGS (a) - (b)	$420	$272	$326	$485	$416
- Family Living & Income Taxes	494	279	141	69	125
NET EARNINGS	**$-74**	**$-7**	**$185**	**$416**	**$291**
+ Net Nonfarm Income	160	72	26	4	23
NET HOUSEHOLD INCOME	$86	$65	$211	$420	$314

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.

2017 DATA BY HERD SIZE / BALANCE SHEET SUMMARY

December 31, 2017

	HERD SIZE				
	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	79	101	74	66	320
Average Number of Cows	65	178	467	1,404	470
	ASSETS PER COW				
Cash & Accounts Receivable	$562	$629	$480	$416	$461
Feed & Crop Inventory	1,055	1,078	1,140	1,062	1,081
Supplies & Prepaid Expenses	127	108	190	140	147
Other Current Assets	82	71	54	46	52
TOTAL CURRENT ASSETS	$1,826	$1,886	$1,864	$1,664	$1,741
Dairy Livestock	$2,146	$2,197	$2,218	$2,354	$2,296
Machinery & Equipment	3,569	2,925	2,188	1,642	1,986
Other Intermediate Assets	892	914	779	571	670
TOTAL INTERMEDIATE ASSETS	$6,607	$6,036	$5,185	$4,567	$4,952
Farm Real Estate	$9,476	$7,003	$5,724	$4,697	$5,370
Other Fixed Assets	202	44	25	185	134
TOTAL FIXED ASSETS	$9,678	$7,047	$5,749	$4,882	$5,504
TOTAL ASSETS	$18,111	$14,969	$12,798	$11,113	$12,197
	LIABILITIES PER COW				
Accounts Payable	$63	$125	$123	$100	$107
Farm Credit Short-Term Loans	37	105	116	153	135
Other Current Liabilities	482	481	376	494	464
TOTAL CURRENT LIABILITIES	$582	$711	$615	$747	$706
Farm Credit Intermediate Term	$1,112	$1,112	$1,080	$1,438	$1,305
Other Intermediate Liabilities	280	330	190	265	256
TOTAL INTERMEDIATE LIABILITIES	$1,392	$1,442	$1,270	$1,703	$1,561
Farm Credit Long-Term Real Estate	$1,463	$1,267	$1,361	$1,425	$1,392
Other Long-Term Liabilities	338	289	170	112	155
TOTAL LONG-TERM LIABILITIES	$1,801	$1,556	$1,531	$1,537	$1,547
TOTAL LIABILITIES	$3,775	$3,709	$3,416	$3,987	$3,814
	NET WORTH PER COW				
OWNER'S NET WORTH	$14,336	$11,260	$9,382	$7,126	$8,383
TOTAL LIABILITIES & NET WORTH	$18,111	$14,969	$12,798	$11,113	$12,197
PERCENT NET WORTH	79%	75%	73%	64%	69%

TABLE B-3.

2017 DATA BY HERD SIZE / EVALUATION FACTORS

	HERD SIZE				
	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	79	101	74	66	320
Average Number of Cows	65	178	467	1,404	470
Worker Equivalents	2.0	4.2	9.9	28.4	10.0
Cows Per Worker	32	42	47	50	47
Pounds of Milk Sold Per Worker	645,737	962,869	1,183,337	1,309,288	1,200,611
Pounds of Milk Sold Per Farm	1,316,380	4,066,054	11,738,512	37,132,992	11,981,710
Pounds of Milk Sold Per Cow	20,252	22,843	25,136	26,448	25,493
Milk Price Per Cwt.	$17.95	$18.53	$18.37	$18.28	$18.32
Total Crop Acres	244	521	1,100	2,626	1,020
Crop Acres Per Cow	3.8	2.9	2.4	1.9	2.2
Crop Acres Per Worker	120	123	111	93	102
Feed Cost Per Cow	$1,104	$1,350	$1,573	$1,671	$1,590
Feed Cost Per Cwt.	$5.45	$5.91	$6.26	$6.32	$6.24
Feed as a Percent of Milk Sales	30%	32%	34%	35%	34%
Feed & Crop Expense Per Cow[1]	$1,438	$1,678	$1,896	$1,969	$1,899
Feed & Crop Expense Per Cwt.	$7.10	$7.35	$7.54	$7.44	$7.45
Machinery Cost Per Cow[2]	$929	$900	$839	$782	$814
Machinery Costs Per Cwt.	$4.59	$3.94	$3.34	$2.96	$3.19
Labor & Family Living Per Cow	$720	$932	$992	$988	$973
Labor & Family Living Per Cwt.	$3.56	$4.08	$3.95	$3.74	$3.82
Assets Per Cow	$18,111	$14,969	$12,798	$11,113	$12,198
Debt Per Cow	$3,775	$3,709	$3,416	$3,987	$3,814
Net Worth Per Cow	$14,336	$11,260	$9,382	$7,126	$8,384
Percent Return on Assets[3]	0.5%	0.9%	2.6%	5.2%	3.7%
Percent Return on Equity[4]	-0.5%	-0.1%	2.0%	5.8%	3.5%

[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.

2017 DATA BY PROFIT GROUPS / EARNINGS WORKSHEET

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	80	80	80	80	320
Average Number of Cows	314	599	497	470	470
Receipts	DOLLARS PER COW				
Milk Sales	$4,350	$4,681	$4,719	$4,843	$4,676
Cattle Sales	355	289	399	323	346
Crop Sales	170	112	185	146	150
Government Payments	78	82	71	52	71
Other	125	133	136	220	$154
CASH RECEIPTS	$5,078	$5,297	$5,510	$5,584	$5,397
Accrual Adjustments					
+ Change in Inventory-Raised Livestock	$48	$77	$79	$91	$76
VALUE OF FARM PRODUCTION (a)	$5,126	$5,374	$5,589	$5,675	$5,473
COST OF GOODS SOLD					
Chemicals & Sprays	$41	$58	$51	$43	$49
Custom Hire	169	174	179	121	161
Purchased Feed	1,670	1,619	1,594	1,494	1,590
Fertilizer & Lime	121	128	123	130	141
Freight & Trucking (Marketing)	237	246	241	267	126
Gasoline, Fuel & Oil	154	152	152	147	151
Hired Labor	858	876	790	872	849
Seed & Plants	136	128	135	136	133
Supplies	265	258	272	251	261
Veterinary, Medicine & Breeding	218	220	233	191	216
Cow Replacements	1	1	9	7	8
Total Cost of Goods Sold	$3,871	$3,887	$3,824	$3,650	$3,811
Gross Margin	$1,255	$1,487	$1,765	$2,025	$1,662
OVERHEAD					
Insurance	69	66	59	61	63
Interest	188	177	137	144	160
Rent	83	103	113	110	104
Repairs	330	339	321	319	328
Property & Misc. Taxes	99	77	68	79	79
Utilities	102	89	90	93	93
Other	90	105	73	78	88
Accrual Adjustments					
+ Depreciation	350	310	322	353	331
Total Overhead Expenses	$1,311	$1,266	$1,183	$1,237	$1,246
Total Farm Production Costs (b)	$5,182	$5,153	$5,007	$4,887	$5,057
NET FARM EARNINGS (a) - (b)	$-56	$221	$582	$788	$416
- Family Living & Income Taxes	148	91	120	159	125
NET EARNINGS	**$-204**	**$130**	**$462**	**$629**	**$291**
+ Net Nonfarm Income	22	14	26	31	23
NET HOUSEHOLD INCOME	$-182	$144	$488	$660	$314

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.

2017 DATA BY PROFIT GROUPS / BALANCE SHEET SUMMARY

December 31, 2017

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	80	80	80	80	320
Average Number of Cows	314	599	497	470	470
	ASSETS PER COW				
Cash & Accounts Receivable	$406	$483	$455	$476	$461
Feed & Crop Inventory	1,059	1,112	1,092	1,045	1,081
Supplies & Prepaid Expenses	56	151	101	253	147
Other Current Assets	32	68	46	50	52
TOTAL CURRENT ASSETS	$1,553	$1,814	$1,694	$1,824	$1,741
Dairy Livestock	$2,234	$2,336	$2,386	$2,191	$2,296
Machinery & Equipment	2,111	1,810	1,981	2,132	1,986
Other Intermediate Assets	570	663	639	779	670
TOTAL INTERMEDIATE ASSETS	$4,915	$4,809	$5,006	$5,102	$4,952
Farm Real Estate	$6,582	$4,926	$4,779	$5,749	$5,370
Other Fixed Assets	96	126	105	203	134
TOTAL FIXED ASSETS	$6,678	$5,052	$4,884	$5,952	$5,504
TOTAL ASSETS	$13,146	$11,675	$11,584	$12,878	$12,197
	LIABILITIES PER COW				
Accounts Payable	$229	$102	$90	$48	$107
Farm Credit Short-Term Loans	154	135	137	120	135
Other Current Liabilities	506	492	417	453	464
TOTAL CURRENT LIABILITIES	$889	$729	$644	$621	$706
Farm Credit Intermediate Term	$1,443	$1,369	$1,219	$1,222	$1,305
Other Intermediate Liabilities	260	318	223	210	256
TOTAL INTERMEDIATE LIABILITIES	$1,703	$1,687	$1,442	$1,432	$1,561
Farm Credit Long-Term Real Estate	$1,590	$1,471	$1,167	$1,398	$1,392
Other Long-Term Liabilities	103	126	210	165	155
TOTAL LONG-TERM LIABILITIES	$1,693	$1,597	$1,377	$1,563	$1,557
TOTAL LIABILITIES	$4,285	$4,013	$3,463	$3,616	$3,814
	NET WORTH PER COW				
OWNER'S NET WORTH	$8,861	$7,662	$8,121	$9,262	$8,383
TOTAL LIABILITIES & NET WORTH	$13,146	$11,675	$11,584	$12,878	$12,197
PERCENT NET WORTH	67%	66%	70%	72%	69%

TABLE C-3.

2017 DATA BY PROFIT GROUPS / EVALUATION FACTORS

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	80	80	80	80	320
Average Number of Cows	314	599	497	470	470
Worker Equivalents	7.1	12.5	10.5	9.9	10.0
Cows Per Worker	45	48	47	48	47
Pounds of Milk Sold Per Worker	1,071,976	1,240,497	1,207,373	1,234,718	1,200,611
Pounds of Milk Sold Per Farm	7,558,608	15,514,699	12,651,135	12,202,140	11,981,710
Pounds of Milk Sold Per Cow	24,072	25,901	25,455	25,962	25,493
Milk Price Per Cwt.	$18.06	$18.07	$18.47	$18.65	$18.32
Total Crop Acres	746	1,202	1,123	1,009	1,020
Crop Acres Per Cow	2.4	2.0	2.3	2.2	2.2
Crop Acres Per Worker	106	96	107	102	102
Feed Cost Per Cow	$1,670	$1,619	$1,594	$1,494	$1,590
Feed Cost Per Cwt.	$6.94	$6.25	$6.26	$5.75	$6.24
Feed as a Percent of Milk Sales	38%	35%	34%	31%	34%
Feed & Crop Expense Per Cow[1]	$1,969	$1,933	$1,904	$1,802	$1,899
Feed & Crop Expense Per Cwt.	$8.18	$7.46	$7.48	$6.94	$7.45
Machinery Cost Per Cow[2]	$836	$819	$822	$785	$814
Machinery Cost Per Cwt.	$3.47	$3.16	$3.23	$3.02	$3.19
Labor & Family Living Per Cow	$1,004	$964	$908	$1,030	$973
Labor & Family Living Per Cwt.	$4.17	$3.72	$3.57	$3.97	$3.82
Assets Per Cow	$13,146	$11,675	$11,584	$12,878	$12,197
Debt Per Cow	$4,285	$4,013	$3,463	$3,616	$3,814
Net Worth Per Cow	$8,861	$7,662	$8,121	$9,262	$8,383
Percent Return on Assets[3]	-0.1%	2.6%	5.2%	6.0%	3.7%
Percent Return on Equity[4]	-2.3%	1.7%	5.7%	6.8%	3.5%

[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.

2017 DATA BY PROFIT GROUPS / COST OF PRODUCING MILK

	BOTTOM 25%	ALL FARM AVERAGE	TOP 25%
		DOLLARS PER CWT.	
Feed	$ 6.94	$ 6.24	$ 5.75
Labor	$ 3.56	$ 3.33	$ 3.36
Interest	$ 0.78	$ 0.52	$ 0.55
Trucking (Marketing)	$ 0.99	$ 1.05	$ 0.99
Crop	$ 1.24	$ 1.20	$ 1.19
Other Expenses	$ 6.56	$ 6.20	$ 5.61
Adjusted Cash Operating Expenses	$ 20.07	$ 18.54	$ 17.46
+ Depreciation	1.45	1.30	1.36
+ Family Living	0.61	0.49	0.61
Total Costs	$ 22.14	$ 20.33	$ 19.44
– Non-milk Income[1]	3.22	3.15	3.20
Net Cost of Production[2]	$ 18.92	$ 17.18	$ 16.23

[1] Nonmilk income includes accrual basis cattle, crop, other income and farm income.
[2] Before any return on equity

TABLE C-5.

2017 DATA BY PROFIT GROUPS / CASH MARGINS

	2013	2014	2015	2016	2017
Bottom Profit Group					
Actual Milk Price	$ 21.25	$ 25.20	$ 17.92	$ 16.34	$ 18.06
Break-Even Milk Price	21.48	22.48	18.81	18.69	19.39
CASH MARGIN	$ -0.23	$ 2.72	$ -0.89	$ -2.35	$ -1.33
Top Profit Group					
Actual Milk Price	$ 21.18	$ 25.41	$ 18.41	$ 17.34	$ 18.65
Break-Even Milk Price	18.04	19.02	17.23	15.89	16.28
CASH MARGIN	$ 3.14	$ 6.39	$ 1.18	$ 1.45	$ 2.37

TABLE C-6.

2017 DATA BY PROFIT GROUPS / RESERVE DEBT CAPACITY

	BOTTOM 25%	ALL FARM AVERAGE	TOP 25%
		DOLLARS PER COW	
Debt Capacity	$ 1,953	$ 4,817	$ 7,247
– Capital Debt	3,396	3,108	2,995
RESERVE DEBT CAPACITY	$ -1,443	$ 1,709	$ 4,252

TABLE D-1.

2017 DATA BY REGIONS / EARNINGS WORKSHEET

	REGIONS		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	287	32	320
Average Number of Cows	479	395	470
Receipts	DOLLARS PER COW		
Milk Sales	$4,683	$4,649	$4,676
Cattle Sales	346	325	346
Crop Sales	157	66	150
Government Payments	52	274	71
Other	155	139	154
CASH RECEIPTS	$5,393	$5,453	$5,397
Accrual Adjustments			
+ Change in Inventory-Raised Livestock	$80	$55	$76
VALUE OF FARM PRODUCTION (a)	$5,473	$5,508	$5,473
COST OF GOODS SOLD			
Chemicals & Sprays	$50	$42	$49
Custom Hire	166	107	161
Purchased Feed	1,566	1,861	1,590
Fertilizer & Lime	125	136	126
Freight & Trucking (Marketing)	265	293	267
Gasoline, Fuel & Oil	151	162	151
Hired Labor	837	997	849
Seed & Plants	135	120	133
Supplies	261	267	261
Veterinary, Medicine & Breeding	215	220	216
Cow Replacements	8	9	8
Total Cost of Goods Sold	$3,779	$4,214	$3,811
Gross Margin	$1,694	$1,294	$1,662
OVERHEAD			
Insurance	63	67	63
Interest	166	100	160
Rent	105	93	104
Repairs	320	415	328
Property & Misc. Taxes	81	59	79
Utilities	90	126	93
Other	88	83	88
Accrual Adjustments			
Depreciation	328	356	331
Total Overhead Expenses	$1,241	$1,299	$1,246
Total Farm Production Costs (b)	$5,020	$5,513	$5,057
NET FARM EARNINGS (a) - (b)	$453	$(-5)	$416
- Family Living & Income Taxes	126	132	125
NET EARNINGS	**$327**	**$-137**	**$291**
+ Net Nonfarm Income	23	14	32
NET HOUSEHOLD INCOME	$350	$-123	$314

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.

2017 DATA BY REGIONS / BALANCE SHEET SUMMARY

	DECEMBER 31, 2017 REGIONS[1]		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	287	32	320
Average Number of Cows	479	395	470
	ASSETS PER COW		
Cash & Accounts Receivable	$456	$524	$461
Feed & Crop Inventory	1,088	1,023	1,081
Supplies & Prepaid Expenses	144	182	147
Other Current Assets	56	4	52
TOTAL CURRENT ASSETS	$1,744	$1,733	$1,741
Dairy Livestock	$2,312	$2,135	$2,296
Machinery & Equipment	1,970	2,160	1,986
Other Intermediate Assets	689	451	670
TOTAL INTERMEDIATE ASSETS	$4,971	$4,746	$4,952
Farm Real Estate	$5,368	$5,390	$5,370
Other Fixed Assets	150	13	134
TOTAL FIXED ASSETS	$5,518	$5,403	$5,504
TOTAL ASSETS	$12,233	$11,882	$12,197
	LIABILITIES PER COW		
Accounts Payable	$114	$34	$107
Farm Credit Short-Term Loans	129	193	135
Other Current Liabilities	471	400	464
TOTAL CURRENT LIABILITIES	$714	$627	$706
Farm Credit Intermediate Term	$1,375	$568	$1,305
Other Intermediate Liabilities	262	196	256
TOTAL INTERMEDIATE LIABILITIES	$1,637	$764	$1,561
Farm Credit Long-Term Real Estate	$1,426	$1,023	$1,392
Other Long-Term Liabilities	165	43	155
TOTAL LONG-TERM LIABILITIES	$1,591	$1,066	$1,547
TOTAL LIABILITIES	$3,942	$2,457	$3,814
	NET WORTH PER COW		
OWNER'S NET WORTH	$8,291	$9,425	$8,383
TOTAL LIABILITIES & NET WORTH	$12,233	$11,882	$12,197
PERCENT NET WORTH	68%	79%	69%

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

TABLE D-3.

2017 DATA BY REGIONS / EVALUATION FACTORS

	REGIONS[1]		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	287	32	320
Average Number of Cows	479	395	470
Worker Equivalents	10.1	9.2	10.0
Cows Per Worker	47	43	47
Pounds of Milk Sold Per Worker	1,216,393	1,042,958	1,200,611
Pounds of Milk Sold Per Farm	12,280,123	9,551,100	11,981,710
Pounds of Milk Sold Per Cow	25,637	24,180	25,493
Milk Price Per Cwt.	$18.24	$19.21	$18.32
Total Crop Acres	1,053	740	1,020
Crop Acres Per Cow	2.2	1.9	2.2
Crop Acres Per Worker	104	81	102
Feed Cost Per Cow	$1,566	$1,861	$1,590
Feed Cost Per Cwt.	$6.11	$7.70	$6.24
Feed as a Percent of Milk Sales	33%	40%	34%
Feed & Crop Expense Per Cow[2]	$1,876	$2,158	$1,899
Feed & Crop Expense Per Cwt.	$7.32	$8.92	$7.45
Machinery Cost Per Cow[3]	$810	$866	$814
Machinery Cost Per Cwt.	$3.16	$3.58	$3.19
Labor & Family Living Per Cow	$960	$1,117	$973
Labor & Family Living Per Cwt.	$3.74	$4.62	$3.82
Assets Per Cow	$12,233	$11,882	$12,197
Debt Per Cow	$3,942	$2,457	$3,814
Net Worth Per Cow	$8,291	$9,425	$8,383
Percent Return on Assets[4]	4.0%	-0.3%	3.7%
Percent Return on Equity[5]	3.9%	-1.5%	3.5%

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

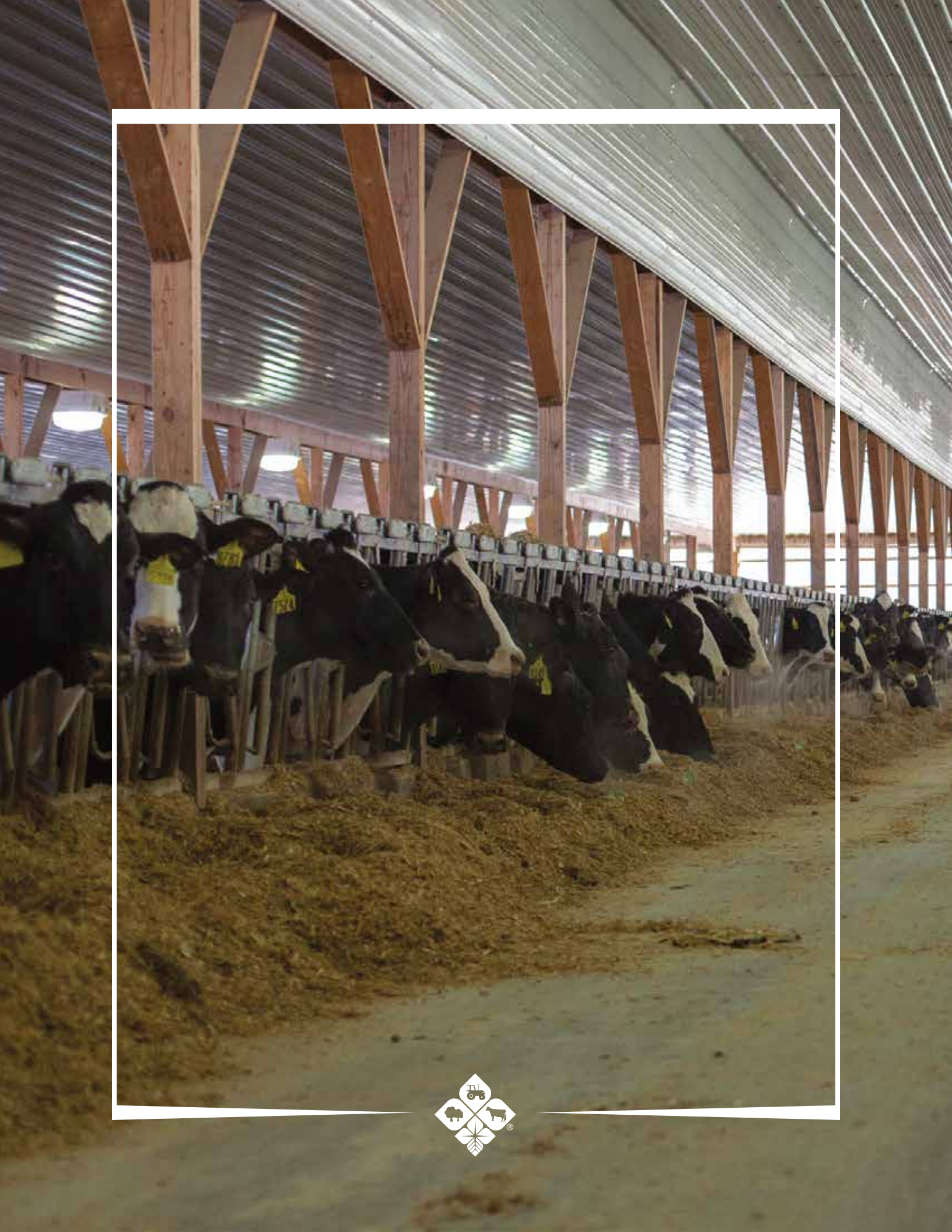
[2] Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Spray

[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


9107
9857
9857



GLOSSARY

Net Farm Income

A measure of farm profitability in terms of cash flow, net 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

Adjusted Cash Operating Expenses

Cash 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 Earnings

An accrual measure of farm profitability, net earnings reflects all revenues and costs associated with the farm business. It is equal to:

Net 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 business. 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.

Reserve Debt Capacity

The amount of additional capital debt (beyond that already incurred) which 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

Cost of Goods Sold

Costs directly related to the products produced, such as feed, production labor and crop expenses.

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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