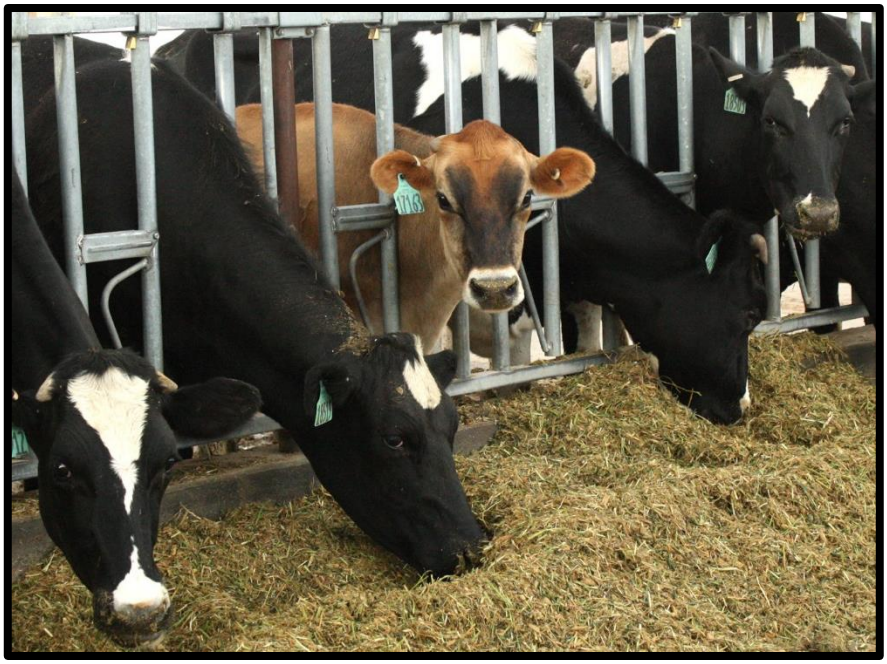
DECEMBER 2016 *R.B. 2016-01*

DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK STATE 2015



You can't manage what you can't measure.
But if you measure it, you can improve it!

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Dairy Farm Management Business Summary, New York State, 2015[1]

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[1]This report was written by Wayne A. Knoblauch, Professor; Cathryn Dymond, Extension Support Specialist, in the Dyson School of Applied Economics and Management at Cornell University; and Jason Karszes, Senior Extension Associate, Pro-Dairy, Department of Animal Science at Cornell University.

ABSTRACT

Business and financial records for 2015 from 168 New York dairy farm businesses are summarized and analyzed. This analysis uses cash accounting with accrual adjustments to measure farm profitability, financial performance, and costs of producing milk. Traditional methods of analyzing dairy farm businesses are combined with evaluation techniques that show the relationship between good management performance and financial success.

The farms in the project averaged 761 cows per farm and 25,461 pounds of milk sold per cow, which represent above average size and cow productivity for New York dairy farms. An average New York dairy has a herd size per farm of 128 according to the New York Agricultural Statistics Service. The New York Agricultural Statistics Service reports 22,816 pounds of milk production per cow for New York.

Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged $179,118 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 3.85 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was $764,219, while the lowest 10 percent was $-140,931. Rates of return on equity with appreciation ranged from positive 11 percent to negative 6 percent for the highest decile and the lowest decile of farms, respectively.

Large freestall farms averaged the highest milk output per cow and per worker, and the lowest total cost of production. In 2015 the mid sized farms, ranging from 201 to 500 cows, averaged the highest returns to labor, management and capital. Farms milking three times a day (3X) were larger, produced more milk per cow and had higher net farm incomes in 2015 than herds milking two times per day (2X). Operating costs per hundredweight of milk were $0.32 per hundredweight lower for 3X than 2X milking herds, while output per cow was 4,809 pounds higher.

Farms adopting intensive grazing generally produced less milk per cow than non-grazing farms; in 2015 however they averaged higher labor and management incomes per operator than similar sized non-grazing farms. One should not conclude that adoption of these technologies alone were responsible for differences in performance.

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INTRODUCTION

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural educational program in New York State. The Charles H. Dyson School of Applied Economics and Management of the College of Agriculture and Life Sciences at Cornell University, PRO-DAIRY, and County and Regional Extension staff, cooperate in sponsoring DFBS projects. In 2015, over 200 dairy farms participated, including dairy owners, renters, full-time, part-time, organic and out-of-state farms. Business records submitted by dairy farmers from 31 New York counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. In addition, assistance is provided by individual consultants Bruce Dehm and Charles Radick; and by consultants from Farm Credit East Association. Each cooperator receives a detailed summary and analysis of his or her business. All educators are using a web based program at their offices or on the farm to process and return the individual farm business reports for immediate use. The program used to generate the farm business reports can be found at the website http://dfbs.cornell.edu. Regional reports are prepared by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with regional averages.

The DFBS program helps farmers improve accounting and financial analysis techniques, develop managerial skills, solve business and financial management problems and plan the future of their business. For more information, please visit http://dfbs.dyson.cornell.edu

Individual farm records from the owned, full-time dairies from the three regions located in 30 counties of the State (Figure 1, page 2) have been combined and the total data set analyzed to determine the effects of different levels of price, technology, and management on dairy farm incomes. This study provides current dairy farm business information for use by farmers, Cooperative Extension staff, teachers, and others concerned with the New York dairy industry.

Trend Analysis

Farms in New York have changed dramatically over the past 50 years. Farms are larger, more efficient with greater rates of production and generally more profitable. Changes have also occurred in recent years especially in regard to costs and milk price (see pages 3-7).

Farms Included

Data from 168 specialized dairy farms are included in the main body of this report starting on page 8. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were proportionately represented (Figure 1, page 2). All New York DFBS participants (nearly 200) represent nearly five percent of the milk cow operations in New York (see Appendix Table A3). The 168 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators in the State. The DFBS participating farms represent 23 percent of the total New York milk production and 21 percent of the total cows in the State. Dairy farm renters, dairy-cash crop farmers with crop sales exceeding 10 percent of milk sales, part-time dairy operators, and organic farms are not included in the main body of this report. Data on dairy farm renters are summarized separately in the supplemental information section of the publication.

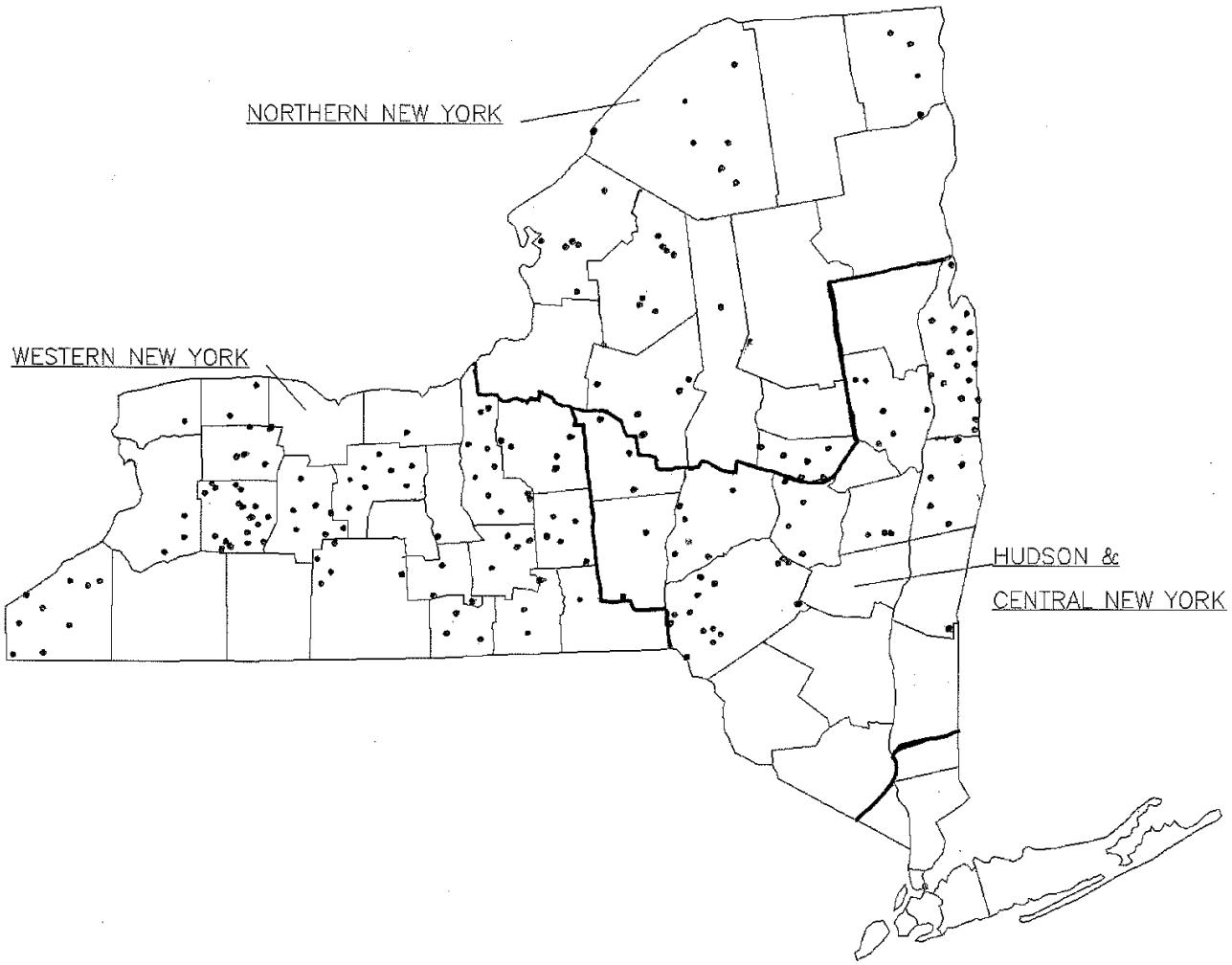
Features

Accrual adjustment procedures have been used to provide the most accurate accounting of farm receipts and farm expenses for measuring farm profits. An explanation of these procedures is found on page 9. Five measures of farm profitability: net farm income, labor and management income, return on equity, return on all capital, and return to all labor and management are calculated on pages 11 through 14. The balance sheet is presented with the current portion of intermediate and long-term debt identified as a current liability, on pages 15 and 16. The statement of owner equity, which shows the interrelationship between farm profitability, non-farm cash flows and net worth is presented on page 17. A detailed cash flow statement, as well as budgeting data and debt repayment analysis are presented on pages 18 through 20.

The whole farm method of calculating the cost of producing milk is detailed on pages 28 through 33. The operating cost, purchased inputs cost and total cost of producing 100 pounds of milk are developed and analyzed. Farm business charts for farms with conventional and freestall housing are presented on pages 67 through 71. Specific information concerning the performance of dairy farms using rotational grazing and three times (3X) a day milking are presented on pages 72 and 79.

Figure 1.

LOCATION OF THE 168 NEW YORK DAIRY FARMS IN THE 2015 DAIRY FARM BUSINESS SUMMARY



2015 Regional Summary Publications

Region	Publications	Author(s)
Western New York	E.B. 2016-04	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, John Hanchar, Joan Petzen, Richard Overton and Richard Kimmich.
Hudson and Central New York	E.B. 2016-07	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, Sandy Buxton, Mariane Kiraly, Richard Kimmich, Kirk Shoen, and Richard Overton.
Northern New York	E.B. 2016-08	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, Peggy Murray, Jim Manning, and Richard Kimmich.

FIFTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

New York dairy farming has changed dramatically over the past 50 years (Table 1, page 4). Dairy cows per farm on DFBS cooperating farms increased 17 fold between 1965 and 2015 with herd size more than doubling over the last 10 years.. Milk output per cow increased 114 percent with the largest increase occurring between 1985 and 1995. Labor efficiency, measured by pounds of milk sold per worker, is up 294 percent on DFBS farms, and the operating cost of producing milk increased more than 780 percent with the largest jump occurring between 1965 and 1975.

There is a large increase in farm capital invested per farm, which is over 625 percent greater than in 1965. Net farm income per farm increased 1,340 percent (adjusted for 2015 dollars). Labor and management income per operator is down -1,140 percent from 50 years ago (adjusted for 2015 dollars). This is a reflection of the increased variability over the last 50 years. Some factors could not be calculated with 1965 and 1975 data because liabilities, interest paid, and/or appreciation were not available in those years. Farm net worth excluding deferred taxes is more than 99 times greater than 50 years ago and rate of return on equity capital decreased 20 percent since 1975.

FOUR YEARS OF VARIABILITY

Recognition and evaluation of the progress that has occurred on farms can best be achieved by studying the same farms over a period of time. Table 2, page 5, presents average data from 140 DFBS cooperators each year since 2012. Chart 1 shows the price received for milk in comparison to the operating cost of producing a hundredweight of milk for these farms. The despite the decrease in costs, decreased milk price in 2015 still resulted in dairy farmers seeing the smallest operating margin per hundredweight of $2.59 over these four years.

Average net farm income without appreciation in 2015 was 59 percent below the 2012 average, 72 percent below the 2013 average, and 85 percent below the 2014 average. Net worth increased 10 percent in 2013, increased 21 percent in 2014, and increased 1 percent in 2015.

The last four years has been a period that has provided returns for skillful decision making and improved management skills on the part of New York dairy farm operators. Risk management skills, including output price management, are becoming more important to farm business success.

Chart 1.

OPERATING COST OF PRODUCING MILK AND PRICE RECEIVED FOR MILK
Same 140 New York Dairy Farms, 2012-2015

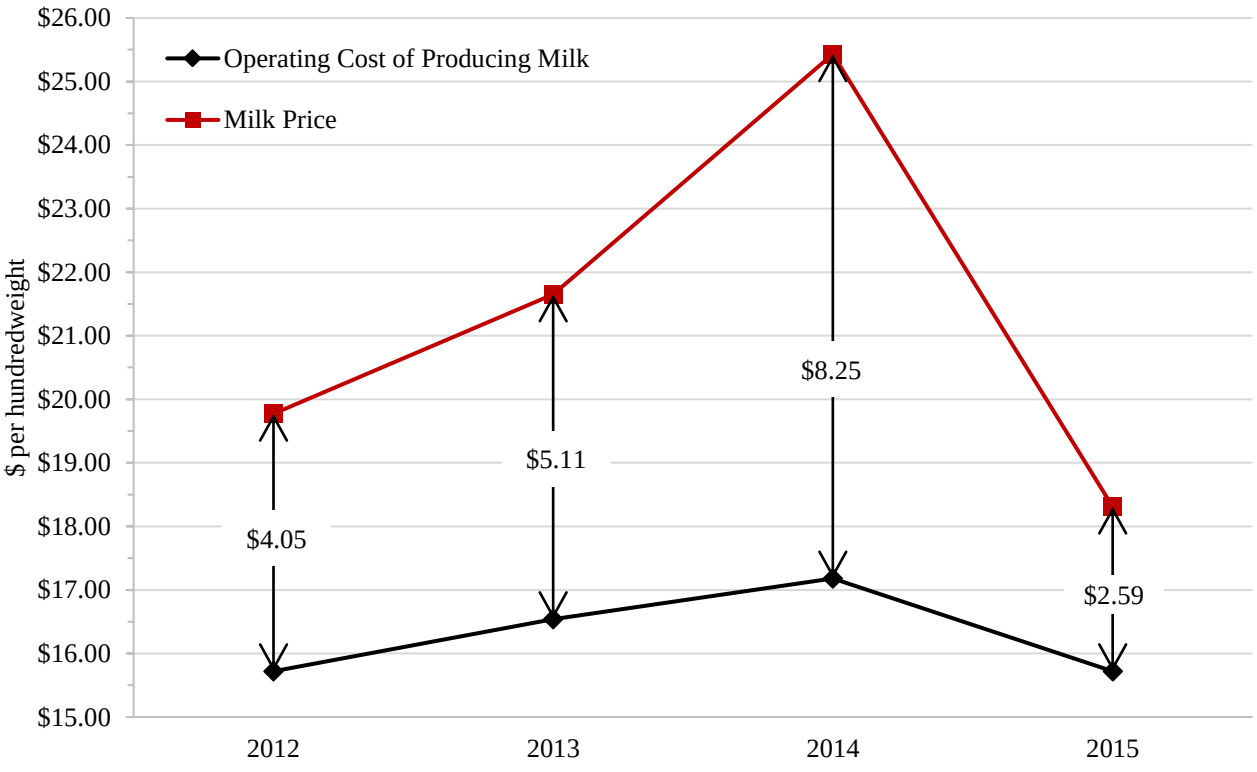


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1965 - 2015

Selected Factors	1965	1975	1985	1995	2005	2015
Number of farms	673	605	404	321	225	168
Size of Business						
Average number of cows	44	72	89	160	340	761
Average number of heifers	27	54	73	121	270	650
Milk sold, cwt.	5,239	9,386	14,000	32,362	78,250	193,869
Worker equivalent	1.80	2.40	3.17	4.40	8.18[4]	16.89[4]
Total tillable acres	123[2]	217[2]	280	399	729	1,516
Rates of Production						
Milk sold per cow, lbs.	11,910	13,036	15,679	20,269	22,998	25,461
Hay DM per acre, tons	1.9	2.6	2.7	2.8	3.2	3.4
Corn silage per acre, tons	13	14	14	16	19	18
Labor Efficiency						
Cows per worker	24	30	28	36	42[4]	45[4]
Milk sold per worker, lbs.	291,100	391,083	442,125	736,269	956,698[4]	1,147,553[4]
Cost Control						
Grain & conc. as % of milk sales	29%	28%	23%	27%	26%	35%
Dairy feed & crop expense/cwt.	$1.63	$3.18	$4.13	$4.39	$5.12	$8.25
Operating cost of prod. cwt. milk	$1.79	$6.89	$9.57	$10.40	$12.25	$15.76
Total cost of producing cwt. milk	$4.38	$9.55	$14.23	$13.69	$15.45	$19.84
Milk receipts per cwt. milk	$4.41	$8.65	$12.90	$13.03	$15.98	$18.31
Capital Efficiency						
Total farm capital	$74,300	$261,628	$517,993	$1,000,299	$2,554,493	$539,393
Farm capital per cow	$1,689	$3,634	$5,820	$6,252	$7,513	$11,965
Machinery & equipment per cow	$364	$615	$1,083	$1,098	$1,314	$2,030
Real estate per cow	$756	$1,833	$2,726	$2,763	$2,950	$5,069
Livestock investment per cow	$382	$718	$1,222	$1,490	$2,018	$2,295
Asset turnover ratio	.45	0.38	0.49	0.49	0.60	0.49
Profitability						
Net farm income without apprec.[5]	$12,442	$25,568	$31,024	$78,684	$227,485	$179,118
Net farm income with apprec.[5]	$13,209	$33,305	$34,168	$96,361	$351,677	$417,561
Labor & management income per operator/manager[5]	$6,512	$10,162	$4,432	$16,072	$78,575	$-67,701
Rate of return on:						
Equity capital with appreciation	NA	5.1%	-1.3%	3.4%	14.1%	4.1%
All capital with appreciation	NA	5.7%	2.5%	5.1%	10.7%	3.9%
All capital without appreciation	NA	NA	2.9%	4.0%	6.7%	1.2%
Financial Summary, End Year						
Farm net worth	$64,650[3]	$170,100[3]	$325,664	$624,261	$1,690,427	$6,448,861
Change in net worth with apprec.	NA	NA	$-2,351	$26,393	$204,076	40,300
Debt to asset ratio	0.27[3]	0.35[3]	0.37	0.39	0.37	0.31
Farm debt per cow	$520[3]	$1,250[3]	$2,090	$2,381	$2,818	$3,769

[2]Acres of cropland harvested.
[3]Average of 145 farms in 1965 and 590 farms in 1975.
[4]Based on 230 hours per month actually worked by owner/operator instead of standard 12 months per full-time owner/operator.
[5]Adjusted for inflation using Consumer Price Index—2015 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 140 New York Dairy Farms, 2012 - 2015

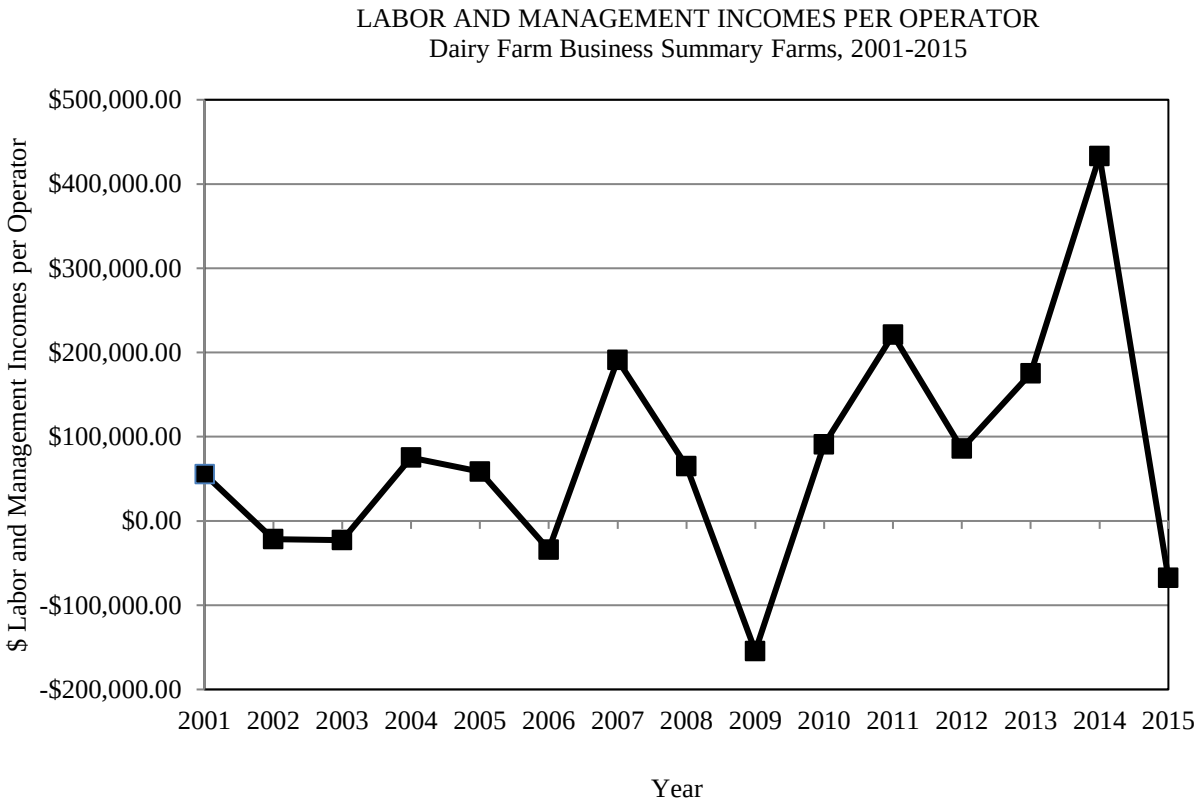
Selected Factors	2012	2013	2014	2015
Milk receipts per cwt. milk	$19.77	$21.65	$25.43	$18.31
Size of Business				
Average number of cows	702	731	769	804
Average number of heifers	598	625	651	682
Milk sold, cwt.	17,904,578	18,834,045	19,754,641	20,685,290
Worker equivalent[6]	15.66	16.15	17.23	17.79
Total tillable acres	1,392	1,434	1,478	1,564
Rates of Production				
Milk sold per cow, pounds	25,512	25,767	25,673	25,724
Hay DM per acre, tons	3.0	3.6	3.5	3.4
Corn silage per acre, tons	17	18	19	18
Labor Efficiency				
Cows per worker[6]	45	45	45	45
Milk sold per worker, pounds[6]	1,143,575	1,166,435	1,146,692	1,162,748
Cost Control				
Grain & concentrate purchased as % of milk sales	34%	32%	28%	35%
Dairy feed & crop expense per cwt. milk	$8.44	$8.87	$9.04	$8.24
Operating cost of producing cwt. milk	$15.72	$16.54	$17.18	$15.72
Total cost of producing cwt. milk	$19.25	$20.25	$21.15	$19.81
Hired labor cost per cwt.	$2.75	$2.79	$2.94	$3.01
Interest paid per cwt.	$0.46	$0.47	$0.43	$0.44
Labor & machinery costs per cow	$1,665	$1,733	$1,831	$1,757
Capital Efficiency, Average for Year				
Farm capital per cow	$10,160	$10,688	$11,396	$12,001
Machinery & equipment per cow	$1,666	$1,787	$1,933	$2,041
Real estate per cow	$4,122	$4,379	$4,584	$5,018
Livestock investment per cow	$2,230	$2,239	$2,259	$2,298
Asset turnover ratio	0.60	0.61	0.67	0.49
Profitability				
Net farm income without appreciation	$468,931	$675,646	$1,304,552	$191,729
Net farm income with appreciation	$649,593	$846,069	$1,304,551	$460,514
Labor & management income per operator/manager	$107,858	$194,202	$470,588	$-70,050
Rate return on:				
Equity capital with appreciation	10.5%	13.1%	22.9%	4.4%
All capital with appreciation	8.4%	10,1%	17.1%	4.1%
All capital without appreciation	5.8%	7.9%	14.1%	1.3%
Financial Summary, End Year				
Farm net worth	$5,072,098	$5,595,728	$6,775,934	$6,869,500
Change in net worth with appreciation	$366,046	$496,508	$1,199,515	$47,311
Debt to asset ratio	0.32	0.31	0.28	0.30
Farm debt per cow	$3,349	$3,427	$3,390	$3,738

[6]Based on 230 hours per month actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management incomes per operator in 2015 were at the lowest point seen since 2009, when measured in nominal (actual) values (Chart 2). Over the period 2001 to 2015, labor and management income per operator has exceeded $50,000 in just over half of the years, reaching over $100,000 just 4 times in the past 15 years. Over $191,000 in 2007, over $221,008 in 2011, $175,046 in 2013 and a record high of $432,971 in 2014. The reader is reminded that the average herd size of DFBS participating farms steadily increased from 302 cows to 761 cows over this period.

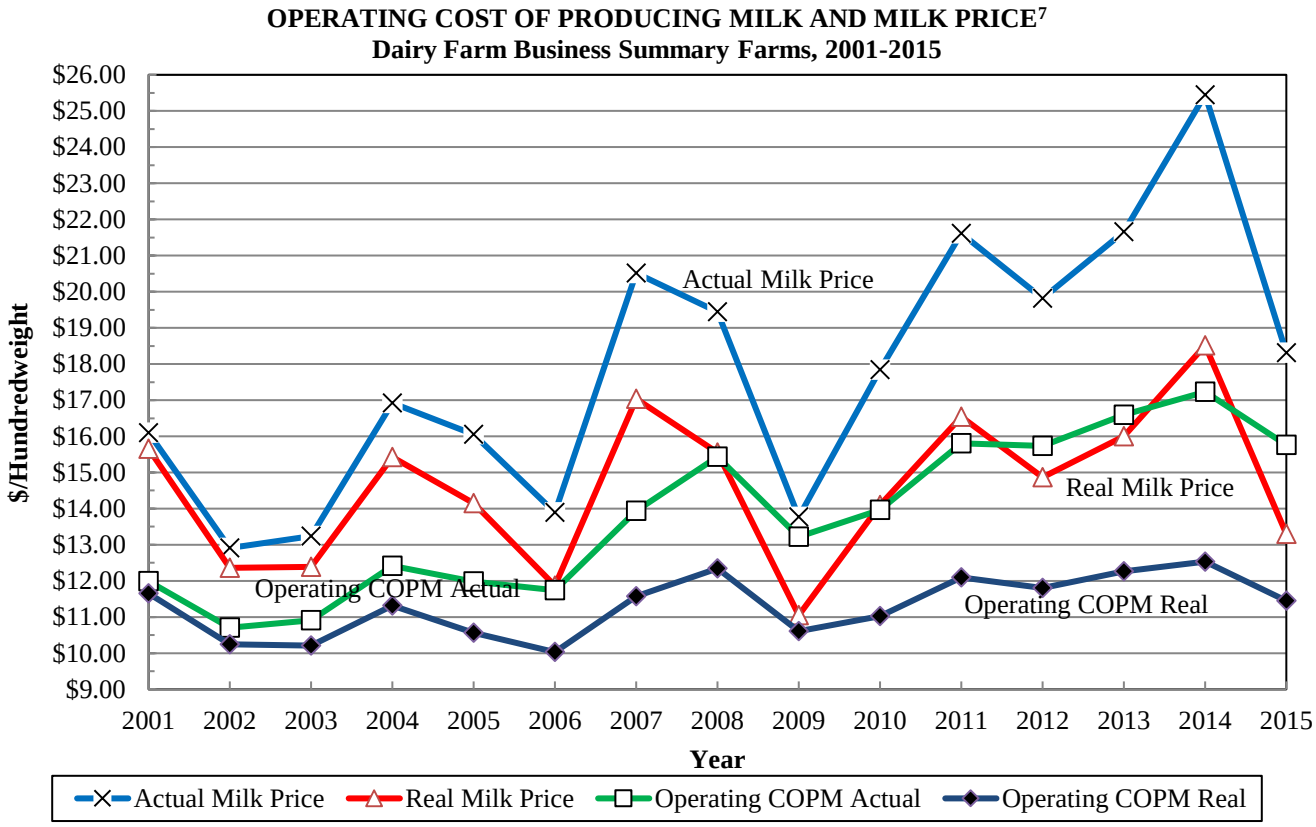
Chart 2.



Milk prices in 2015 averaged $18.31 per hundredweight in actual dollars (Chart 3). However, the 2015 milk price, adjusted for inflation, in 2001 dollars, would have been only $13.30 per hundredweight, which is the lowest that has been seen since the recent historic low in 2009.

Operating costs of producing milk (actual) saw sharp increases between 2006 and 2008 (Chart 3). This was due to feed and fuel costs increasing during 2007 and 2008. Operating costs settled back down in 2009, which coincided with a crash in milk price. Operating costs increase nearly $2 per hundredweight from 2010 to 2011, followed by a slight drop of $0.06 in 2012, followed by an increase of $1.49 from 2013 to 2014. In 2015, operating costs decreased to $15.76 per hundredweight from $17.23 in 2014, a drop of $1.47. Real costs of producing milk per hundredweight have been on a generally upward trend since 2009, with a small drop in 2013, decreasing significantly this year as was seen in 2009 with the crash in milk price.

Chart 3.



[7] Actual operating cost of producing milk as well as milk price are adjusted for inflation, to obtain real values, using the Consumer Price Index–2001 dollars.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics and the number of farms reporting these characteristics for 2015 are presented in the following table.

Table 3.

BUSINESS CHARACTERISTICS AND RESOURCES USED
168 New York Dairy Farms, 2015

Dairy Livestock	Cows	Heifers
Beginning of Year	766	630
End of Year	755	660
Average for Year	761	650

Type of Business	Number	Percent
Sole Proprietorship	40	24
Partnership	22	13
Limited Liability Corp.	91	54
Subchapter S	13	8
Subchapter C	2	1

Barn Type	Number	Percent
Stanchion	20	12
Freestall	137	82
Combination	10	6

Milking System	Number	Percent
Bucket & Carry	0	0
Dumping Station	1	1
Pipeline	21	13
Herringbone	42	25
Herringbone Rapid Exit	12	7
Parallel	64	38
Parabone	5	3
Rotary	5	3
Other	17	10

Milking Frequency	Number	Percent
2 times per day	56	33
3 times per day	100	60
Other	12	7

Business Records	Number	Percent
Account Book	11	7
Accounting Service	19	11
On-Farm Computer	133	79
Other	5	3

Dairy Records	Number	Percent
Testing Service	128	76
On Farm System	26	15
Other	4	2
None	10	6

Labor Force (Months)	Average	Percent
Operators	28.8	14
Family Paid	2.9	1
Family Unpaid	1.2	1
Hired	169.9	84
Total Months	202.7	100

	Average
Operators (total = 361)	2.15
Age	51
Education	14 years
Estimated value of labor & management/farm	$151,461

	Farms Reporting	
Land Used	Number	Average
Total acres:		
Owned	168	1,028
Rented	163	714
Tillable acres:		
Owned	168	817
Rented	162	699
Total	168	1,516

Breed of Herd	
Holstein	92%
Jersey	3%
Other	5%

There were 361 full-time operator equivalents on the 168 dairy farms for an average of 2.15 operators per farm. The operators averaged 51 years of age and 14 years of formal education. Additional data on the labor force is in Table 44.

All 168 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 162 of the dairy farm owners rented an average of 725 acres of tillable land in 2015. The 168 farms averaged 1,516 total tillable acres per farm of which 699 acres were rented. Tables 19 and 25 contain additional information on land use and the dairy herd.

Accounting Procedures

Accrual accounting adjustments are made to cash receipts and expenses to accurately measure annual receipts, expenses, and farm profitability. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended in this year. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting adjustments consider changes in accounts payable and receivable, prepaid expenses, and changes in inventory of not only such items as crops and livestock, but also the inventory of production items such as fertilizer, seed and fuel. In this manner, the total cost of production and the total value of production are obtained to provide an accurate representation of profitability in that year.

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory of capital assets into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets is included in the return to farm capital, but excluded from the return to labor and management.

Income Statement - Expenses

The accrual income statement begins with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

1. Hired labor includes gross wages plus the farm share of social security, workers' compensation insurance, employee health insurance and other employee benefits paid by the farm employer.

2. Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage and all feed purchased for nondairy livestock to allow more thorough analysis of dairy herd feeding costs. The costs of growing grain and roughage are not included in cash and accrual feed expenses.

3. Machinery costs represent all the operating costs of using machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs presented on page 22.

4. Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, such as breeding, veterinary, bedding, milking supplies and custom boarding expenses plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.

5. Crop expenses include the costs of fertilizer, lime, seeds, spray and other crop supplies.

6. Real estate expenses are the direct costs associated with owning and maintaining farm land and buildings.

7. Other includes insurance, the farm-share of utilities, interest paid on all farm indebtedness and miscellaneous costs.

8. Expansion livestock is purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year. It is a nonoperating cost included in total expenses.

9. Depreciation of machinery and buildings are nonoperating costs included in total expenses. Depreciation charges are based on those reported for income tax purposes.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 168 farms averaged $10,068 per day and 92 percent of total farm accrual expenses. Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Table 4.

CASH AND ACCRUAL FARM EXPENSES
168 New York Dairy Farms, 2015

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Percent
Hired Labor	$582,039		$-1,791<<		$-486		$583,344	16
Feed								
Dairy grain & concentrate	1,168,317		-100,239		11,381		1,279,937	35
Dairy roughage	74,903		3,927		-6,988		63,988	2
Nondairy livestock	103		0		0		103	<1
Professional nutritional services	671		0<<		28		699	<1
Machinery								
Machinery hire, rent & lease	93,603		212<<		3,359		96,750	3
Machinery repairs & farm vehicle expense	192,636		776		680		192,540	5
Fuel, oil & grease	110,164		-2,695		35		112,894	3
Livestock								
Replacement livestock	7,972		0<<		202		8,174	<1
Breeding	41,710		-494		261		42,465	1
Veterinary & medicine	130,061		-1,283		650		131,993	4
Milk marketing	189,877		0<<		-4,251		185,627	5
Bedding	74,632		1,094		802		74,339	2
Milking Supplies	76,135		-191		693		77,018	2
Cattle lease & rent	2,793		0<<		29		2,822	<1
Custom boarding	70,831		-2,513<<		308		73,652	2
bST expense	33,048		-348<<		71		33,468	1
Livestock professional fees	10,814		-151<<		78		11,043	<1
Other livestock expense	17,492		-159		3		17,654	<1
Crops								
Fertilizer & lime	97,586		-7,817		3,320		108,723	3
Seeds & plants	72,568		-23,250		312		96,131	3
Spray & other crop expense	44,704		-157		1,697		46,558	1
Crop professional fees	4,250		-727<<		8		4,985	<1
Real Estate								
Land, building & fence repair	67,217		46		1,648		68,820	2
Taxes	48,741		-891<<		3		49,635	1
Rent & lease	55,619		-862<<		57		56,538	2
Other								
Insurance	40,143		-4,856<<		-70		44,155	1
Utilities	76,060		-102<<		-78		76,083	2
Interest paid	87,556		-85<<		207		87,849	2
Other professional fees	23,200		-8<<		199		23,407	1
Miscellaneous	23,280		63		226		23,443	1
Total Operating	$3,518,724		$-141,726		$14,385		$3,674,835	100
Expansion livestock	$18,200		0<<		0		$18,200	
Extraordinary expense	$1,656		0		7		$1,662	
Machinery depreciation							$184,868	
Building depreciation							$129,353	
TOTAL ACCRUAL EXPENSES							$4,008,918	

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and similar items purchased in a prior year and used this year (negative change). For example, there was dairy grain and concentrate inventory purchased this year but not used still in inventory that resulted in an decrease in the value of $100,239.

Prepaid expenses (noted by « in Table 4) are advance payments made for services and noninventory items to be used in future years. For example, advance payments for utilities decreased an average of $102 per farm in 2015, and that decrease is subtracted from cash rent to determine the correct 2015 accrual utilities expense.

Changes in accounts payable reflect supplies/services used in this year's production but not paid for (positive change), and payments for production inputs used in a prior year (negative change).

Accrual expenses are cash expenses adjusted for changes in inventory, prepaid expenses and accounts payable. They are the total costs of inputs actually used in this year's business. Total change in inventory and prepaid expenses equals $-141,726 and total change in accounts payable equals $14,385.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged $4,265,687 per farm. Total accrual receipts averaged $4,188,036 per farm. Accrual receipts were greater than cash receipts due to an increase in milk sales accounts receivable along with dairy herd and homegrown feed inventory growth. Cow numbers increased an average of 30 head per farm. Homegrown feed inventory per cow increased $51 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS
168 New York Dairy Farms, 2015

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	$3,732,185				$-182,444		$3,549,741	85
Dairy cattle	291,719		72,101		-1,745		362,076	9
Dairy calves	81,589		4,571		-572		85,588	2
Other livestock	11,162		-614		854		11,402	<1
Crops	31,029		37,548		-1,812		66,765	1
Government receipts	32,471		-1		-345		32,125	<1
Custom machine work	12,359				113		12,471	<1
Gas tax refund	757				0		757	<1
Other	72,417				-5,306		67,111	2
- Nonfarm noncash capital transfer[9]			(-) 0				(-) 0	
Total	$4,265,687		$113,606		$-191,257		$4,188,036	100

[8]Change in advanced government receipts.
[9]Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received for the sale of farm products, services and government programs.

Accrual receipts represent the value of all farm commodities produced and services actually provided by the farmer during the year. Increases in livestock inventory caused by herd growth and/or quality are included. Decreases in inventory caused by herd reduction are deducted. Changes in inventories of crops grown are included. Changes in advanced government receipts are the amount by which government payments received for participating in a future year's program have changed from 2014 to 2015. An increase requires a negative adjustment to cash receipts while a decrease is a positive adjustment. Changes in accounts receivable include the difference between the January milk check for December 2015 marketings and the previous January's check, and other delayed payments.

Nonfarm noncash capital transfers are gifts and inheritances of cattle and crops received by the farm owner/operator, and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from outside the farm business. Gifts and inheritances of machinery and real estate are accounted for in Table 12.

Profitability Analysis

Farm owners/operators contribute labor, management, and capital to their businesses. The best combination of these resources produces optimum profits. Farm profits can be measured as the return to all family resources or as the return to one or more individual resources such as labor and management.

Net farm income is the total combined return to the farm operator(s) and other unpaid family members for their labor, management and equity capital. It is the farm family's net annual return from working, managing, financing and owning the farm business. This is not a measure of cash available from the year's business operation. Cash flow is evaluated later in this report.

Net farm income is computed with and without appreciation. Appreciation represents the change in farm inventory values caused by changes in prices during the year. Appreciation is a major factor contributing to changes in farm net worth and must be included in the profitability analysis. Net appreciation totaled $238,444 per farm in 2015. On the average, farm real estate appreciated $187,672 or 5.2 percent of beginning fair market value. Machinery appreciated 1.5 percent while dairy cattle prices appreciated 0.6 percent in 2015.

Average data from 16 farms (10 percent of the farms) with the highest rates of return to all capital (without appreciation) are compared with the 168 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged $764,219 per farm on the top 10 percent farms, 327 percent greater than the 168-farm average.

Table 6.

NET FARM INCOME
168 New York Dairy Farms, 2015

Item	Average 168 Farms		Average Top 10% Farms[10]	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	$4,188,036		$5,036,938	
+ Appreciation: Livestock	10,516		24,744	
Machinery	21,902		4,096	
Real Estate	187,672		192,912	
Other Stock & Certificates	18,354		13,130	
= Total including appreciation	$4,426,479		$5,271,819	
- Total accrual expenses	4,008,918		4,272,719	
= Net Farm Income (with appreciation)	$417,561	$548	$999,100	$1,089
Net Farm Income (without appreciation)	$179,118	$235	$764,219	$833

[10]Average of 16 farms with highest rates of return to all capital (without appreciation).

Labor and management income is the part of net farm income without appreciation returned to the operator(s') labor and management. Appreciation is not included as part of the return to labor and management. Labor and management income is determined by deducting the charge for unpaid family labor and the cost of using equity capital at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments. Operator(s') labor is not included in unpaid family labor.

Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator is assumed to provide 12 months of labor and management regardless of the actual labor hours worked.

Table 7.

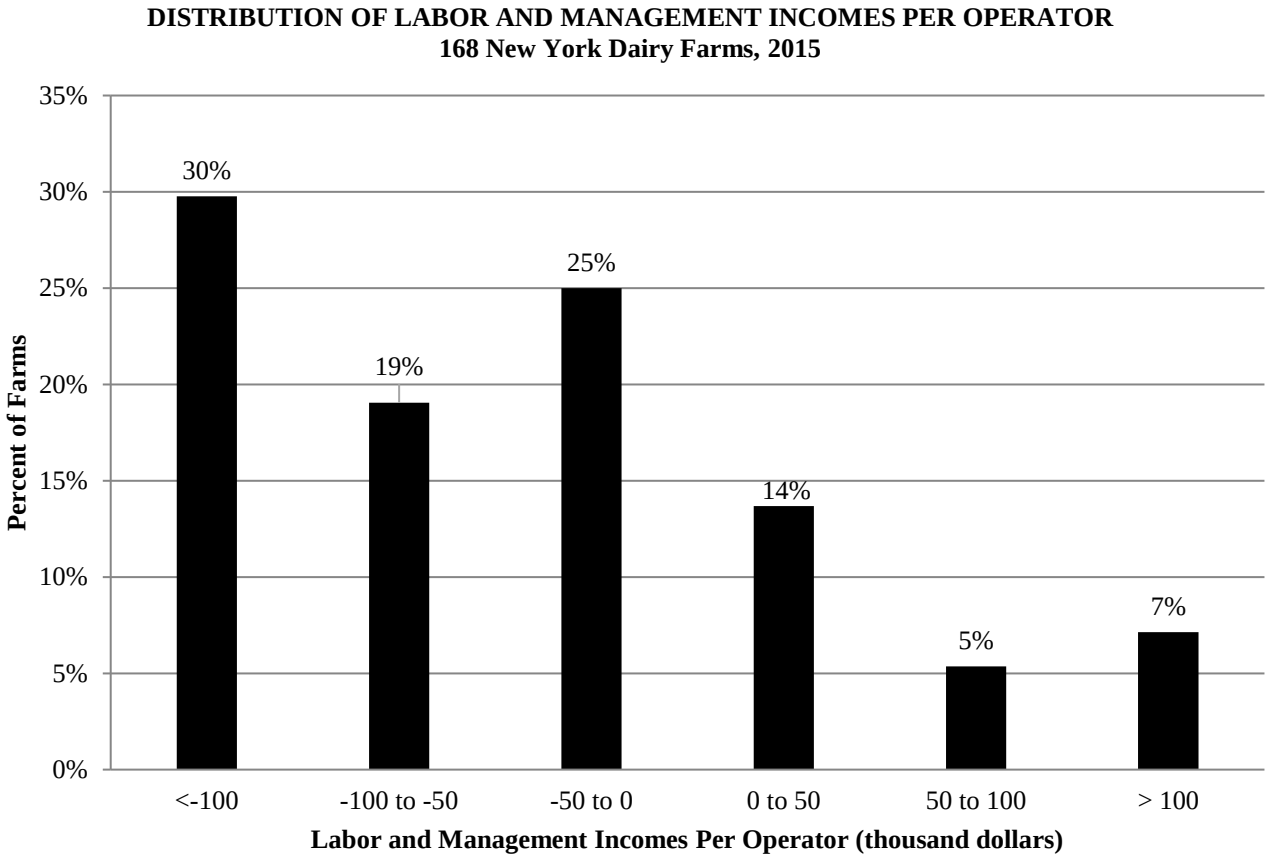
LABOR AND MANAGEMENT INCOME
168 New York Dairy Farms, 2015

Item	Average 168 Farms		Average Top 10% Farms[11]
Net farm income without appreciation	$179,118		$764,219
- Family labor unpaid @ $2,600 per month	3,168		6,094
- Real interest @ 5% on $6,428,711 equity capital for average & $7,859,255 for the top 10% farms	321,506		392,963
= Labor & Management Income (2.15 operators)	$-145,556	(2.24 operators)	$365,163
Labor & Management Income per Operator	$-67,701		$163,019

[11]Average of 16 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged $-67,701 on these 168 dairy farms in 2015. The range in labor and management income per operator was from less than $-1,972,000 to more than $447,000. Returns to labor and management were less than $-50,000 on 49 percent of the farms. Labor and management incomes per operator were between $-50,000 and $50,000 on 39 percent of the farms while 12 percent showed labor and management incomes of $50,000 or more per operator.

Chart 4.



Return to equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner/operator's labor and management and unpaid family labor. The earnings or amount of net farm income allocated to labor and management is the opportunity cost or value of operator(s') labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the year's average farm net worth or equity capital. Return to all capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on average total capital. Net farm income from operations ratio is net farm income (without appreciation) divided by total accrual receipts.

Table 8.

RETURN TO CAPITAL
168 New York Dairy Farms, 2015

Item	Average 168 Farms	Average Top 10% Farms[12]
Net farm income with appreciation	$417,561	$999,100
- Family labor unpaid at $2,600 per month	3,168	6,094
- Value of operators' labor & management	151,461	157,591
= Return to equity capital with appreciation	$262,932	$835,415
+ Interest paid	87,849	69,115
= Return to all capital with appreciation	$350,780	$904,530
Return to equity capital without appreciation	$24,488	$600,534
Return to all capital without appreciation	$112,337	$669,649
Rate of return on average equity capital:		
with appreciation	4.1%	10.6%
without appreciation	0.4%	7.6%
Rate of return on all capital:		
with appreciation	3.9%	9.0%
without appreciation	1.2%	6.6%
Net farm income from operations ratio	0.04	0.15

[12]Average of 16 farms with highest rates of return to all capital (without appreciation).

Return to all labor and management is another measure of profitability of a business that can be calculated. It is calculated by adding the charge for unpaid family labor and the hired labor expense to labor and management income. Table 9 shows that farms with higher return to all capital with appreciation also had significantly higher return per hour to all labor and management.

Table 9.

RETURN TO ALL LABOR AND MANAGEMENT BY RETURN TO ALL CAPITAL WITH APPRECIATION
168 New York Dairy Farms, 2015

	Quartile by Return to All Capital With Appreciation			
Item	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	$-138,972	$41,824	$310,453	$1,189,817
Rate of return on all capital with appreciation	4.2%	1.2%	3.9%	7.7%
Total returns to all labor & management	$94,079	$146,408	$423,038	$1,100,297
Worker equivalents	11.60	8.27	18.30	29.40
Return per worker equivalent	$8,112	$17,696	$23,120	$37,421
Returns/hour (2,760 hours/worker/year)	$2.94	$6.41	$8.38	$13.56

Farm and Family Financial Status

Evaluating the financial status of the farm business and the farm family is an important part of business analysis. The first step is to inventory all the assets, determine all liabilities and fill out the balance sheet. The second step is to analyze the complete balance sheet by evaluating the relationships between assets and liabilities and changes made during the year.

Table 10.

2015 FARM BUSINESS AND NONFARM BALANCE SHEET
168 New York Dairy Farms, 2015

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current			Current		
Farm cash, checking			Accounts payable	$ 57,687	$ 72,079
& savings	$ 90,976	$ 65,833	Operating debt	247,939	246,124
Accounts receivable	574,515	383,259	Short term	4,024	4,848
Prepaid expenses	19,825	8,826	Advanced gov't. receipt	0	1
Feed & supplies	1,144,166	1,050,987	Current portion:		
Total Current	$1,829,482	$1,508,905	Intermediate	204,634	209,206
			Long term	72,281	82,481
			Total Current	$586,565	$614,740
Intermediate			Intermediate		
Dairy Cows:			Structured debt		
owned	$1,069,665	$1,125,128	1-10 years	$1,023.203	$1,067,337
leased	0	0	Financial lease		
Heifers	610,708	642,946	(cattle & machinery)	10,821	8,953
Bulls & other livestock	23,854	22,728	Farm Credit stock	1,167	1,741
Mach. & equip. owned	1,495,322	1,575,966	Total Intermediate	$1,035,191	$1.078,031
Mach. & equip. leased	10,821	8,953			
Farm Credit stock	1,167	1,741	Long Term		
Other stock & certificates	271,529	302,400	Structured debt		
Total Intermediate	$3,483,066	$3,679,863	$\geq$ 10 years	$952,951	$1,150,653
Long Term			Financial lease		
Land & buildings:			(structures)	874	452
owned	$3,614,551	$4,103,518	Total Long Term	$953,825	$1,151,106
leased	874	452			
Total Long Term	$3,615,425	$4,103,970	Total Farm Liabilities	$2,575,581	$2,843,876
Total Farm Assets	$8,927,973	$9,292,738	FARM NET WORTH	$6,352,393	$6,448,861

Nonfarm Assets[13]	Jan.1	Dec. 31	Nonfarm Liabilities[13] & Net Worth	Jan. 1	Dec. 31
Personal cash, checking			Nonfarm Liabilities	$ 3,648	$ 1,277
& savings	$ 9,797	$ 11,503	NONFARM NET WORTH	$616,643	$641,105
Cash value life insurance	67,707	69,060			
Nonfarm real estate	89,793	91,345	FARM & NONFARM[14]	Jan. 1	Dec. 31
Auto (personal share)	7,360	7,602	Total Assets	$9,548,264	$9,935,120
Stocks & bonds	233,526	246,695	Total Liabilities	2,579,229	2,845,153
Household furnishings	4,776	4,948			
All other	207,331	211,229	TOTAL FARM & NON-		
Total Nonfarm	$620,291	$642,382	FARM NET WORTH	$6,969,035	$7,089,967

[13]Average of 58 farms completing the nonfarm balance sheet.
[14]Sum of average farm values for 168 farms and nonfarm values for 58 farms.

Financial lease obligations are included in the balance sheet. The present values of all future payments are listed as liabilities since the farmer (lessee) is committed to making the payments. The present values are also listed as assets, representing the future value the item has to the business.

The farm balance sheet analysis includes financial and debt ratios and factors measuring levels of debt. Percent equity is calculated by dividing farm net worth by farm assets. Equity increases as the value of assets increase more than liabilities. The debt to asset ratios reflect strength in solvency and the potential capacity to borrow. The debt analysis ratios show how well the debt is structured and managed. The leverage ratio is the dollars of debt per dollar of equity, computed by dividing total farm liabilities by farm net worth. Debt levels per unit of productive capacity include some old standards that are still useful if used with measures of cash flow and repayment ability.

Table 11.

FARM BALANCE SHEET ANALYSIS
168 New York Dairy Farms, 2015

Item	Average 168 Farms		Average Top 10% Farms[15]	
Farm Financial Ratios:				
Percent equity	69%		79%	
Debt/asset ratio: total	0.31		0.21	
long term	0.28		0.22	
intermediate & current	0.33		0.20	
Leverage Ratio:	0.44		0.27	
Current Ratio:	2.45		3.73	
Working Capital: $894,165 Dollars as % of Total Expenses:	22%		$1,344,753	31%
Farm Debt Analysis:				
Accounts payable as % of total debt	3%		2%	
Long term liabilities as % of total debt	40%		45%	
Current & intermediate liabilities as % of total debt	60%		55%	
Cost of term debt (weighted average)	3.9%		3.3%	
Farm Debt Levels:	Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt	$3,769	$3,479	$2,352	$2,425
Long term debt	1,526	1,408	1,063	1,095
Intermediate & long term	2,954	2,727	1,823	1,879
Intermediate & current debt	2,243	2,071	1,290	1,330

[15]Average of 16 farms with highest rates of return to all capital (without appreciation).

The farm inventory balance accounts for the changes in the values of major farm assets from the beginning to the end of the year.

Table 12.

FARM INVENTORY BALANCE
168 New York Dairy Farms, 2015

Item	Real Estate		Machinery & Equipment		Livestock
Value beginning of year		$3,614,551		$1,495,322	$1,704,228
Purchases	$623,523[16]		$253,211		
+ nonfarm noncash transfer[17]	0		0		
- Lost capital	178,000				
- Net sales	14,075		9,600		
- Depreciation	129,353		184,868		
= Net Investment		301,295		58,743	76,059
+ Appreciation		187,672		21,902	10,516
Value end of year		$4,103,518		$1,575,966	$1,790,802

[16]$218,039 land and $405,484 buildings and/or depreciable improvements.
[17]Gifts and inheritances of property transferred into the farm business from outside.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are consistent (in accountants' terms they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows the farmer to determine to what degree the changes in equity were caused by (1) earnings from the business, and nonfarm income, (in excess of withdrawals) being retained in the business (retained earnings), (2) outside capital invested in the business or farm capital removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Lost capital is the difference between the actual cost of investment in new buildings or land improvements and the amount that these imporvements added to the value of the farm's market value balance sheet.

Retained earnings are an excellent indicator of farm generated financial progress.

Table 13.

STATEMENT OF OWNER EQUITY (RECONCILIATION)
168 New York Dairy Farms, 2015

Item	Average 168 Farms		Average Top 10% Farms[19]	
Beginning of year farm net worth		$6,408,561		$7,611,841
Net farm income without appreciation	$179,118		$764,219	
+ Nonfarm cash income	4,277		1,791	
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	259,659		377,383	
RETAINED EARNINGS		+ $-76,265		+ $388,627
Nonfarm noncash transfers to farm	$ 0		$ 0	
+ Cash used in business from nonfarm capital	56,229		34,268	
- Note or mortgage from farm real estate sold (nonfarm)	0		0	
CONTRIBUTED/WITHDRAWN CAPITAL		+ $56,229		+ $34,268
Appreciation	$ 238,443		$ 234,881	
- Lost capital	178,800		155,110	
CHANGE IN VALUATION EQUITY		+ $59,643		+ $79,771
IMBALANCE/ERROR		- $-692		- $ 7,838
End of year farm net worth[18]		$6,448,861		$8,106,669
Change in Net Worth				
Without appreciation	$-198,143		$259,947	
With appreciation	$40,300		$494,827	

[18]May not add due to rounding.
[19]Average of 16 farms with highest rates of return to all capital (without appreciation).

Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding and organizing the sources and uses of funds for the business. It is also useful in determining accuracy and completeness of the data. Understanding last year's cash flow is the first step in planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities and from reserves. All cash inflows and outflows are included. Therefore, the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash flows.

Table 14.

ANNUAL CASH FLOW STATEMENT
168 New York Dairy Farms, 2015

Item		Average 168 Farms	
Cash Flow from Operating Activities			
Cash farm receipts	$4,265,687		
- Cash farm expenses	3,518,724		
- Extraordinary expense	1,656		
= Net cash farm income		$745,307	
Personal withdrawals & family expenses including nonfarm debt payments	$259,193		
- Nonfarm income	4,277		
- Net cash withdrawals from the farm		$254,917	
= Net Provided by Operating Activities			$490,391
Cash Flow From Investing Activities			
Sale of assets: machinery	$ 9,600		
+ real estate	14,075		
+ other stock & certificates	2,886		
= Total asset sales		$26,561	
Capital purchases: expansion livestock	$ 18,200		
+ machinery	253,211		
+ real estate	623,523		
+ other stock & certificates	15,403		
- Total invested in farm assets		$910,337	
+ Net Provided by Investment Activities			$-883,776
Cash Flow From Financing Activities			
Money borrowed (intermediate & long term)	$642,179		
+ Money borrowed (short term)	3,890		
+ Increase in operating debt	0		
+ Cash from nonfarm capital used in business	56,229		
+ Money borrowed - nonfarm	-466		
= Cash inflow from financing		$701,833	
Principal payments (intermediate & long term)	$329,414		
+ Principal payments (short term)	3,066		
+ Decrease in operating debt	1,815		
- Cash outflow for financing		$334,295	
= Net Provided by Financing Activities			$367,538
Cash Flow From Reserves			
Beginning farm cash, checking & savings		$90,976	
- Ending farm cash, checking & savings		65,833	
= Net Provided from Reserves			$25,143
Imbalance (error)			$-704

Table 15.

ANNUAL CASH FLOW DATA
168 New York Dairy Farms, 2015

Item	Average 168 Farms Total	Per Cow	Per Cwt.	Average Top 10% Farms[21] Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		761	193,869		917	230,786
Accrual Operating Receipts						
Milk	$3,549,741	$4,662	$18.31	$4,245,455	$4,629	$18.40
Dairy cattle	362,076	476	1.87	402,651	439	1.74
Dairy calves	85,588	112	0.44	109,652	120	0.48
Other livestock	11,402	15	0.06	52,801	58	0.23
Crops	66,765	88	0.34	119,760	131	0.52
Miscellaneous receipts	112,463	148	0.58	106,618	116	0.46
Total	$4,188,036	$5,500	$21.60	$5,036,938	$5,492	$21.83
Accrual Operating Expenses						
Hired labor	$ 583,344	$ 766	$ 3.01	$ 598,448	$ 652	$ 2.59
Dairy grain & concentrate	1,279,937	1,681	6.60	1,383,018	1,508	5.99
Dairy roughage	63,988	84	0.33	114,894	125	0.50
Nondairy feed	103	0	0.00	5	0	0.00
Professional nutritional services	699	1	0.00	298	0	0.00
Machinery hire, rent & lease	96,750	127	0.50	114,223	125	0.49
Machinery repairs & vehicle expense	192,540	253	0.99	202,138	220	0.88
Fuel, oil & grease	112,894	148	0.58	114,963	125	0.50
Replacement livestock	8,174	11	0.04	823	1	0.00
Breeding	42,465	56	0.22	30,790	34	0.13
Veterinary & medicine	131,993	173	0.68	118,794	130	0.51
Milk marketing	185,627	244	0.96	213,898	233	0.93
Bedding	74,339	98	0.38	80,495	88	0.35
Milking supplies	77,018	101	0.40	66,119	72	0.29
Cattle lease	2,822	4	0.01	141	0	0.00
Custom boarding	73,652	97	0.38	111,442	122	0.48
bST expense	33,468	44	0.17	35,128	38	0.15
Livestock professional fees	11,043	15	0.06	11,576	13	0.05
Other livestock expense	17,654	23	0.09	19,311	21	0.08
Fertilizer & lime	108,723	143	0.56	118,231	129	0.51
Seeds & plants	96,131	126	0.50	83,331	91	0.36
Spray/other crop expense	46,558	61	0.24	40,915	45	0.18
Crop professional fees	4,985	7	0.03	1,585	2	0.01
Land, building & fence repair	68,820	90	0.35	73,220	80	0.32
Taxes	49,635	65	0.26	58,222	63	0.25
Real estate rent & lease	56,538	74	0.29	55,420	60	0.24
Insurance	44,155	58	0.23	40,412	44	0.18
Utilities	76,083	100	0.39	89,243	97	0.39
Other professional fees	23,407	31	0.12	17,330	19	0.08
Miscellaneous	23,443	31	0.12	20,655	23	0.09
Total Less Interest Paid	$3,586,986	$4,711	$18.50	$3,815,067	$4,160	$16.53
Net Accrual Operating Income (without interest paid)	$ 601,050	$ 789	$ 3.10	$1,221,871	$1,332	$ 5.29
- Change in livestock & crop inventory	113,606	149	0.59	236,015	257	1.02
- Change in accounts receivable	-191,257	-251	-0.99	-256,463	-280	-1.11
- Change in feed & supply inventory	-141,726	-186	-0.73	-101,837	-111	-0.44
+ Change in accounts payable[20]	14,178	19	0.07	16,096	18	0.07
NET CASH FLOW	$ 834,604	$1,096	$ 4.30	$1,360,252	$1,483	$ 5.89
- Net personal withdrawals & family exp.	254,547	334	1.31	375,593	410	1.63
Available for Farm Debt Payments & Investment	$ 580,057	$ 762	$ 2.99	$ 984,659	$1,074	$ 4.27
- Farm debt payments	503,075	661	2.59	529,771	578	2.30
Cash available for Farm Investments	$ 76,982	$ 101	$ 0.40	$ 454,888	$ 496	$ 1.97

[20]Exclude change in interest account payable.

[21]Average of 16 farms with highest rates of return to all capital (without appreciation).

Repayment Analysis

The second step in cash flow planning and management is to compare and evaluate debt payments planned and made last year, and then to estimate the payments required in the current year. It is helpful to compare and evaluate a farm's repayment position by using debt payments per unit of production and receipt/debt payment ratios. The data below are from farms that completed summaries for both 2014 and 2015.

Table 16.

FARM DEBT PAYMENTS PLANNED
Same 156 New York Dairy Farms, 2015

	156 Dairy Farms			16 Top 10% Farms		
	2015 Payments		Planned	2015 Payments		Planned
Debt Payments	Planned	Made	2016	Planned	Made	2016
Long term	$120,190	$134,397	$ 134,415	$ 128,182	$139,182	$113,155
Intermediate term	258,026	263,624	255,292	161,691	260,386	193,320
Short term	1,157	3,451	1,669	1,679	199	2,147
Operating (net reduction)	11,291	76,997	17,037	25,000	153,295	6,667
Accts. payable (net reduction)	2,503	15,801	1,901	0	3,360	3,333
Total	$393,167	$494,269	$410,315	$316,553	$556,423	$318,621
Per cow	$502	$632		$327	$574	
Per hundredweight 2015 milk	$1.97	$2.47		$1.30	$2.28	
Percent of 2015 milk receipts	10%	14%		7%	12%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments from normal operation of the business. Debt coverage ratio indicates the income generated to make payments while cash flow coverage ratio shows the cash available to make payments.

Table 17.

COVERAGE RATIOS
Same 156 New York Dairy Farms, 2015

Item	Average	Item	Average
Cash Flow Coverage Ratio		Debt Coverage Ratio	
Cash farm receipts	$4,401,593	Net farm income (without appreciation)	$188,042
- Cash farm expenses	3,619,239	+ Depreciation	328,870
+ Interest paid (cash)	88,757	+ Interest paid (accrual)	89,072
- Net personal withdrawals from farm[22]	266,322	- Net personal withdrawals from farm[22]	266,322
(A) = Amount Available for Debt Service	$604,789	(A') = Repayment Capacity	$339,662
(B) = Debt Payments Planned for 2015 (as of December 31, 2014)	$393,167	(B) = Debt Payments Planned for 2015 (as of December 31, 2014)	$393,167
(A/ B)= Cash Flow Coverage Ratio for 2015	1.54	(A'/B)= Debt Coverage Ratio for 2015	0.86
16 Top 10% Dairy Farms, 2015			
(A) = Amount Available for Debt Service	$1,043,958	(A') = Repayment Capacity	$865,553
(B) = Debt Payments Planned for 2015	316,553	(B) = Debt Payments Planned for 2015	316,553
(A/ B)= Cash Flow Coverage Ratio for 2015	3.30	(A'/B)= Debt Coverage Ratio for 2015	2.73

[22]Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If excluded, the coverage ratios will represent repayment ability of the farm only.

The debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 21.4 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE
168 New York Dairy Farms, 2015

	Cash Flow Coverage Ratio (Farm & Nonfarm)			
Debt/Asset Ratio	<1.0	1.0 to 1.49	1.5 to 2.0	>=2.0
		percent of farms		
<40%	21.4	13.1	3.6	24.4
40 to 60%	19.0	5.4	2.4	3.0
60% & over	1.8	0.6	0.0	0.0

Cropping Program Analysis

The cropping program is an important part of the dairy farm business that is sometimes overlooked and often neglected. A complete evaluation of available land resources, how they are used, and what it costs to produce the crops, are required to evaluate alternative cropping and feed purchase choices.

Table 19.

LAND RESOURCES AND CROP PRODUCTION
168 New York Dairy Farms, 2015

Item	Average 168 Farms			Average Top 10% Farms[23]		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	817	699	1,516	903	695	1,597
Nontillable pasture	36	10	46	19	20	39
Other nontillable	175	5	180	153	0	153
Total	1,028	714	1,742	1,075	714	1,789

Crop Yields	Farms	Acres	Prod/Acre	Farms	Acres	Prod/Acre
Hay crop	163	689	3.4 tn DM	15	780	3.6 tn DM
Corn silage	159	633	18.1 tn	15	690	19.2 tn
			6.3 tn DM			6.9 tn DM
Other forage	28	153	3.1 tn DM	2	107	1.4 tn DM
Total forage	163	1,333	4.7 tn DM	15	1,485	5.1 tn DM
Corn grain	84	263	143 bu	9	183	151 bu
Oats	10	69	78 bu	1	21	12 bu
Wheat	28	139	68 bu	2	175	54 bu
Other crops	44	139		3	39	
Tillable pasture	18	148		1	742	
Idle	49	106		8	79	

[23]Average of 16 farms with highest rates of return to all capital (without appreciation).

Crop acres and yields are the average for the farms reporting each crop. All but five of the 168 farms produced hay or hay crop silage in 2015. Ninety-five percent produced corn silage, 50 percent grew and harvested corn grain, and six percent grew oats for grain. Although 18 farms used tillable pasture in 2015, only 10 of the 168 farms reported using rotational grazing.

Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent.

Crop acres represent planted acres, therefore, any unharvested acres are reflected in lower yields per acre.

The following measures of crop management indicate how effectively the land resource is being used and how well total forage requirements are being met. These measures are the averages of farms that grow forages.

Table 20.

CROP MANAGEMENT FACTORS
163 New York Dairy Farms That Grow Forages, 2015

Item	Average 163 Farms	Average Top 10% Farms[24]
Total tillable acres per cow	2.04	1.87
Total forage acres per cow	1.74	1.63
Harvested forage dry matter, tons per cow	8.19	8.28

[24]Average of 16 farms with highest rates of return to all capital (without appreciation).

Crop input costs per tillable acre are reported in the table below. The chart below shows the relationship between total forage dry matter per acre and total crop input costs.

Table 21.

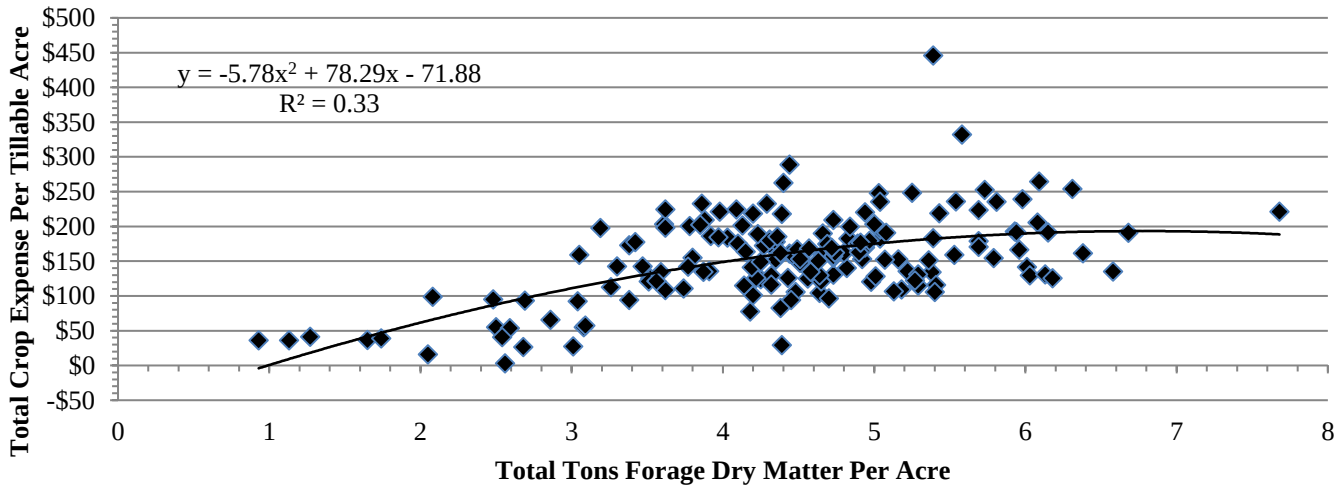
CROP RELATED ACCRUAL EXPENSES
163 New York Dairy Farms That Grow Forages, 2015

Item	Average 163 Farms Total Per Tillable Acre	Average Top 10% Farms[26] Total Per Tillable Acre
Number of farm reporting	163	15
Average number of acres	1,560	1,704
Fertilizer and lime expense	$65.64	$76.33
Seeds & plants	59.43	51.19
Spray and other crop expense	29.39	24.54
Total	$154.46	$152.06

[25]Average of 16 farms with highest rates of return to all capital (without appreciation).

Chart 5.

CROP EXPENSE PER ACRE BY TOTAL FORAGE PRODUCTION PER ACRE
163 New York Dairy Farms That Grow Forages, 2015



Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre.

Table 22.

ACCRUAL MACHINERY EXPENSES
163 New York Dairy Farms That Grow Forages, 2015

Machinery Expense Item	Average 163 Farms Total Expenses	 Per Tillable Acre	Average Top 10% Farms[26] Total Expenses	 Per Tillable Acre
Fuel, oil & grease	$115,145	$ 73.83	117,265	68.83
Machinery repairs & vehicle expense	195,787	125.55	203,440	119.41
Machine hire, rent & lease	97,767	62.69	120,981	71.01
Interest (5%)	79,021	50.67	85,901	50.42
Depreciation	187,818	120.43	205,153	120.42
Total	$675,538	$433.17	$732,739	$430.09

[26]Average of 16 farms with highest rates of return to all capital (without appreciation) that grow forages.

The trend lines on charts on the previous and following pages were completed using regression techniques. The predictive formulas and R^2 are presented for each relationship. An R^2 of 1.00 indicates a perfect relationship between the data and the trend line. An R^2 of .30 for example, is interpreted as the trend line explaining 30% of the variability in the relationship. The higher the R^2, the better the trend line fits the data. With a low R^2, other factors, not measured, are important in explaining the relationship. The very low R^2 value for Chart 12 indicates little statistical relationship in the 2015 data.

The charts below show the relationship between the stocking rate (forage and grazing acres per cow) and labor and management income per operator per cow and real estate investement per cow. Stocking rate is total tillable acres plus nontillable pasture acres less corn grain acres, all divided by the average number of cows.

Chart 6.

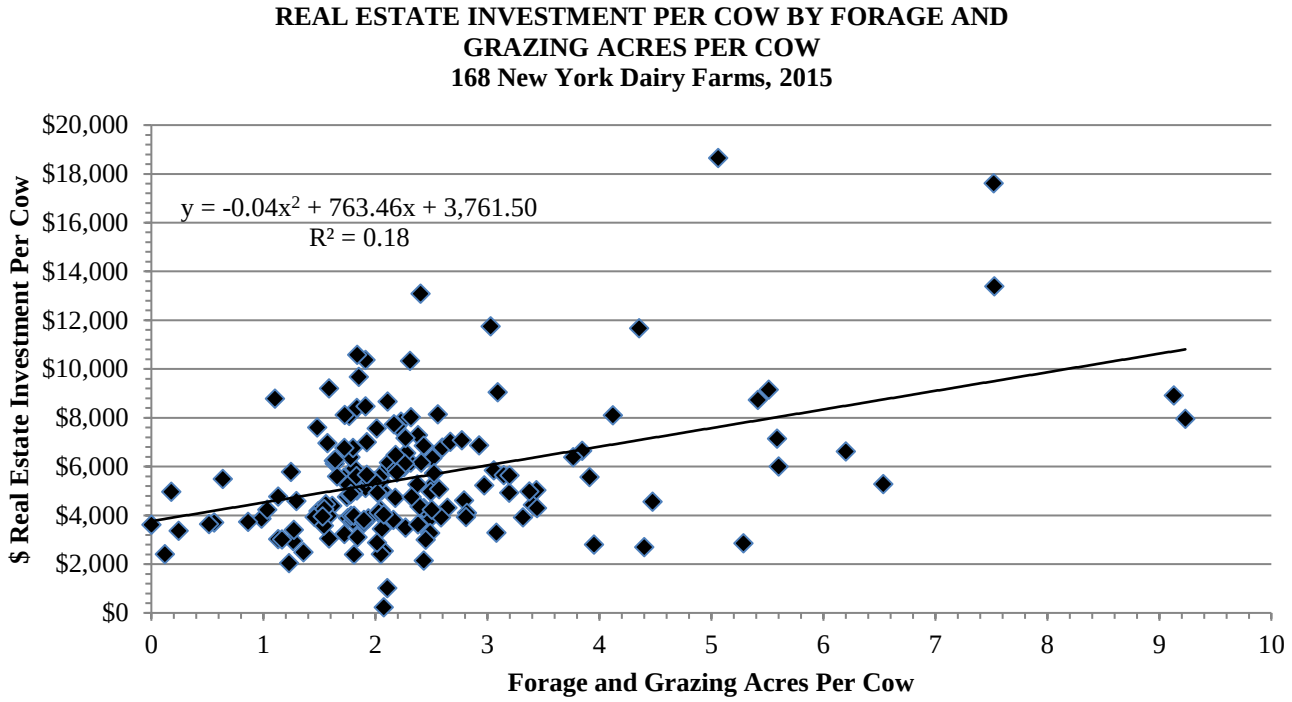
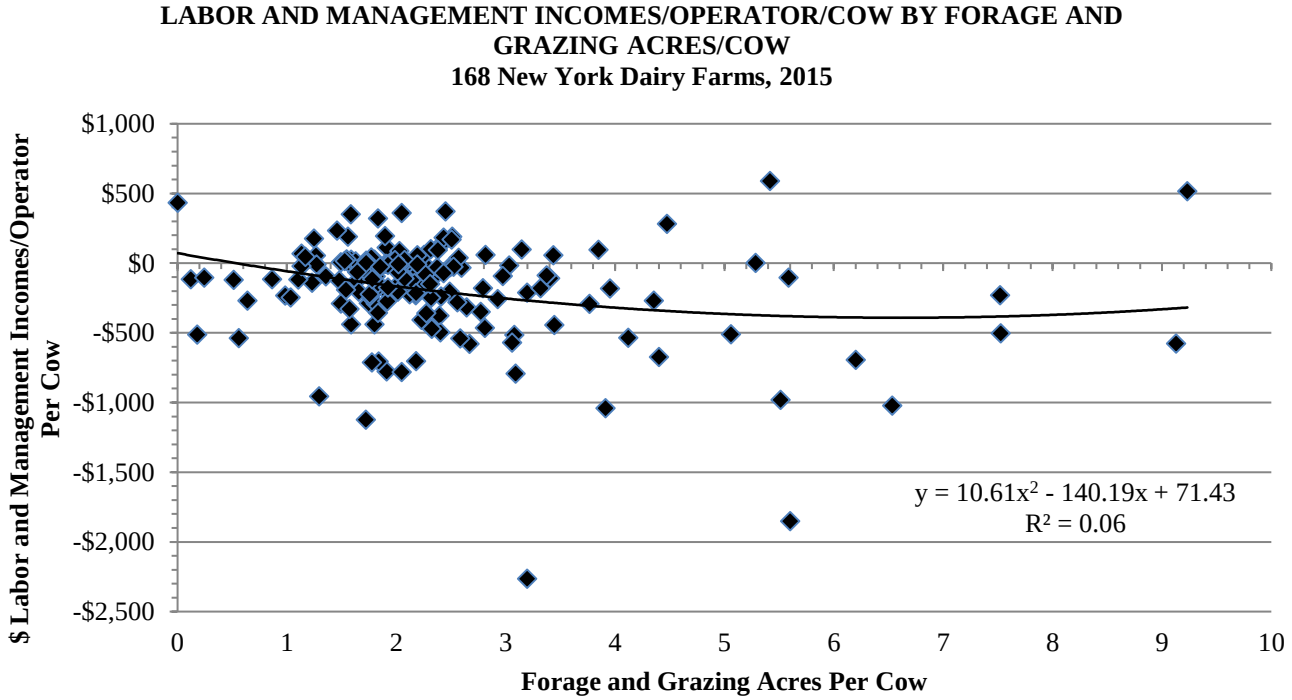


Chart 7.



Dairy Program Analysis

An analysis of the dairy enterprise can be the most important step in evaluating the strengths and weaknesses of the dairy farm business. Changes in dairy herd size and market values are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. This change in inventory is included as an accrual farm receipt when calculating profitability.

Table 23.

DAIRY HERD INVENTORY
168 New York Dairy Farms, 2015

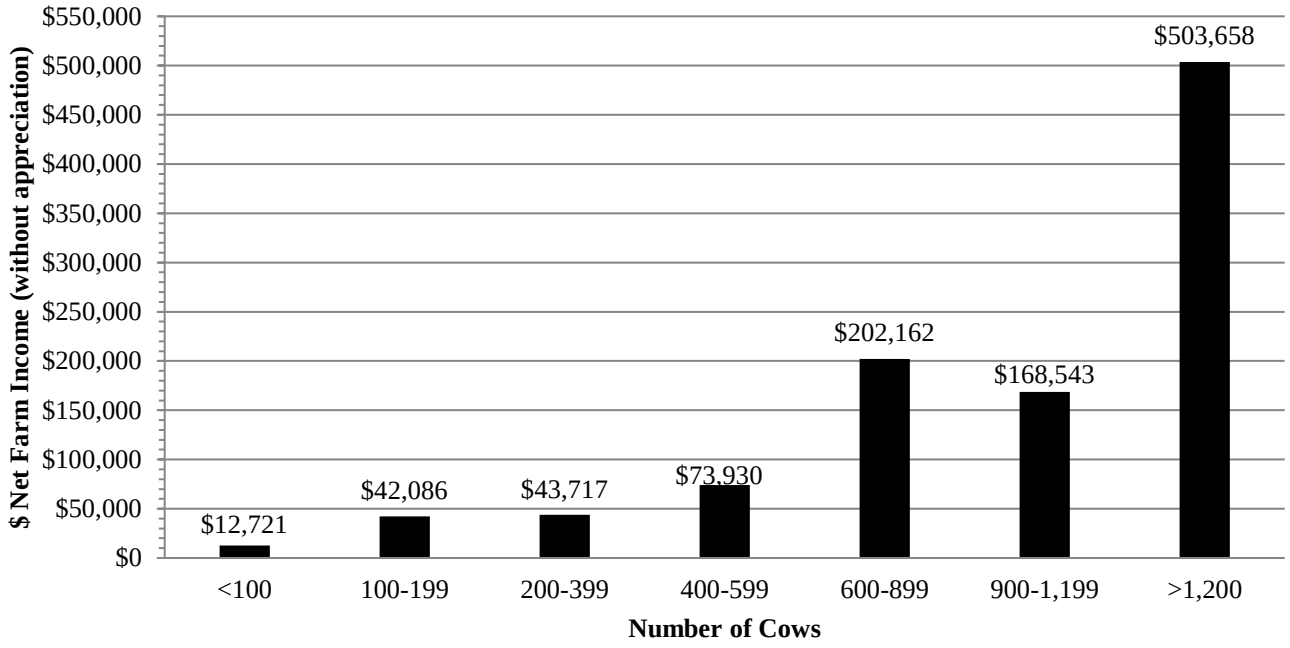
	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	736	$1,069,665	228	$325,430	213	$190,767	188	$94,511
+ Change w/o apprec.		45,984		14,968		11,149		4,571
+ Appreciation		9,479		723		20		807
End year (owned)	766	$1,125,128	238	$341,121	225	$201,937	198	$99,888
End including leased	755							
Average number	761		650	(all age groups)				
Average Top 10% Farms:[27]								
Beg. year (owned)	861	$1,223,291	270	$383,088	205	$169,678	226	$111,041
+ Change w/o apprec.		84,641		21,268		15,209		5,997
+ Appreciation		22,000		6,394		0		-3,713
End year (owned)	920	$1,329,931	285	$410,750	221	$184,886	242	$113,325
End including leased	930							
Average number	917		723	(all age groups)				

[27]Average of 16 farms with highest rates of return to all capital (without appreciation).

Historically, there has been a strong relationship between farm size and net farm income on well-managed dairy farms. In 2015, there was a consistent increase in net farm incomes as herd size increased (Chart 8). For more information on herd size comparisons, see pages 48-58.

Chart 8.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE
168 New York Dairy Farms, 2015



Total milk sold and milk sold per cow are extremely valuable measures of productivity on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year. Milk components per cow in the lower section of the table below are an average of 132 farms that provided the data.

Table 24.

MILK PRODUCTION
168 New York Dairy Farms, 2015

Item	Average 168 Farms	Average Top 10% Farms[28]
Total milk sold, pounds	19,386,947	23,078,577
Milk sold per cow, pounds	25,461	25,162
	Average 132 Farms	Average 16 Farms
Butterfat per cow, pounds	971	948
Protein per cow, pounds	793	782
Total butterfat and protein per cow, pounds	1,764	1,730
Other solids per cow, pounds	1,480	1,404
Total components per cow, pounds	3,245	3,134

[28]Average of 16 farms with highest rates of return to all capital (without appreciation).

Farms with higher rates of production tend to have higher net farm incomes. This is also influenced by larger herd sizes. The combination of high production per cow and more cows per farm led to higher net farm incomes. In 2015, farms with higher milk production per cow and more cows did have higher labor and management incomes per operator.

Table 25.

MILK SOLD PER COW AND FARM INCOME MEASURES
168 New York Dairy Farms, 2015

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income Per Cow	Labor & Management Income/Operator
Under 17,000	17	235	$49,498	$241	-$36,887
17,000 to 19,999	6	84	$39,451	$355	-$19,842
20,000 to 21,999	8	362	$228,620	$613	$8,550
22,000 to 23,999	28	566	$119,385	$175	-$100,604
24,000 to 25,999	50	871	$101,828	$130	-$127,383
26,000 to 27,999	49	1,039	$350,949	$299	-$80,090
28,000 & over	10	1,021	$155,396	$161	-$95,831

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 25 above and is diagrammed in Charts 9 and 10 on page 26. Each spot on each scatter diagram represents one of the 168 Farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship did not exist in 2015 (see Table 25 and Charts 9 and 10). While Net Farm Income without Appreciation generally increased with procucion, Net Farm Income Per Cow did not.

Chart 9.

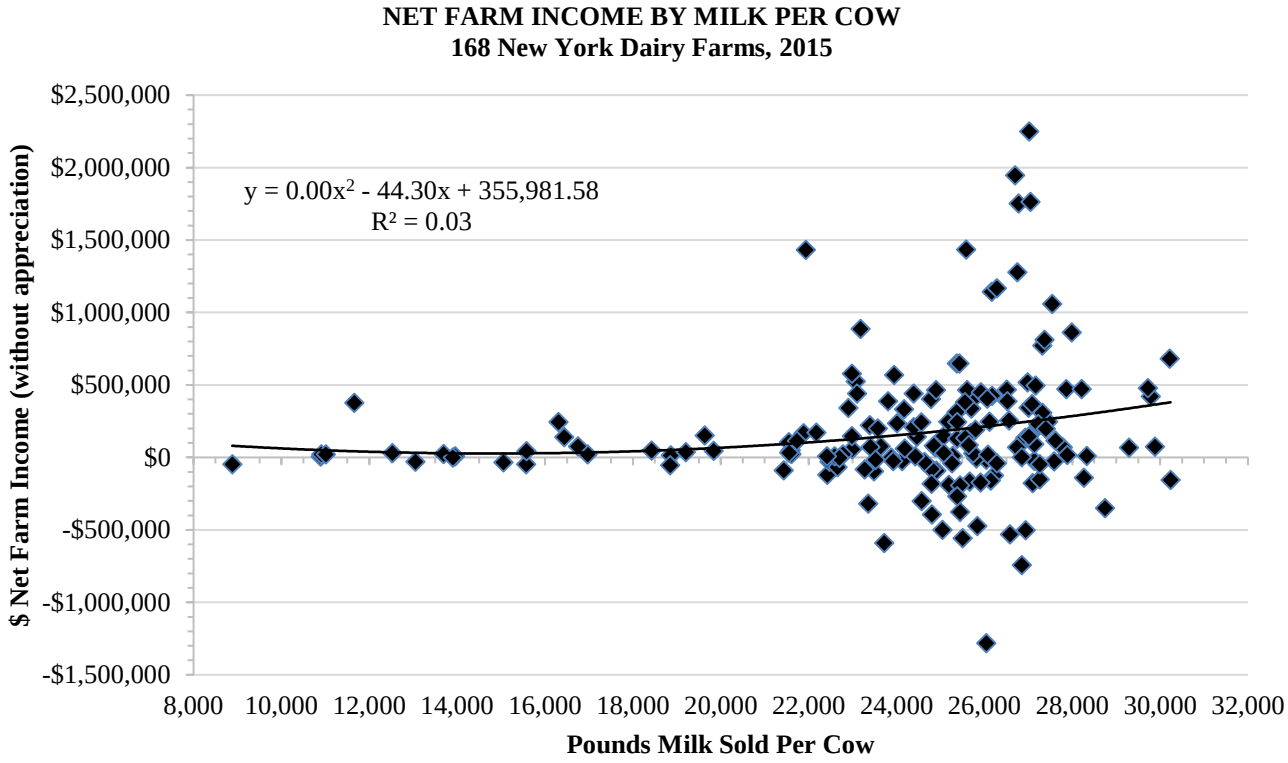
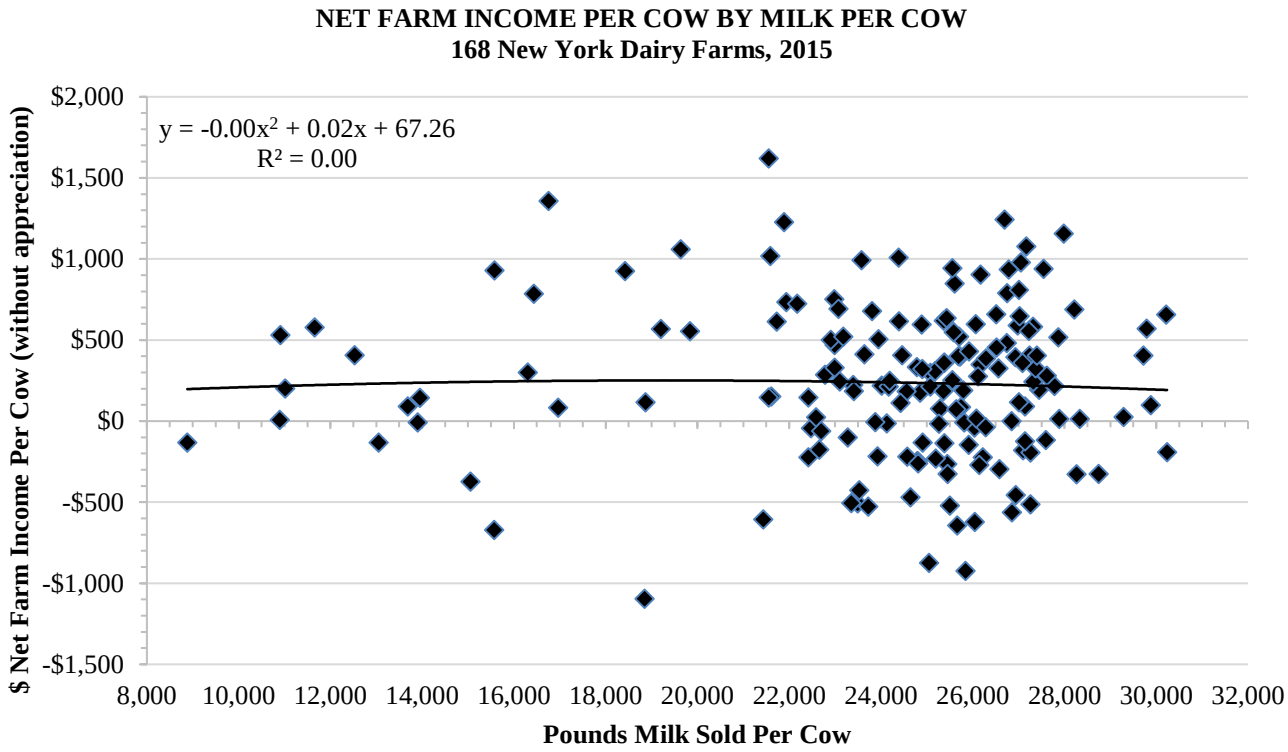


Chart 10.



Charts 11 and 12 show relationships between cull rates and milk production and net farm income per cow. The culling chart (Table 26) reports the decile range of reported factors for the different information that was collected. The average culling rate was 35 percent, sell rate was 29 percent, and death rate was 6 percent. The average number of cows sold for beef equaled 219, while 8 cows were sold for dairy, and 44 cows died. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 11.

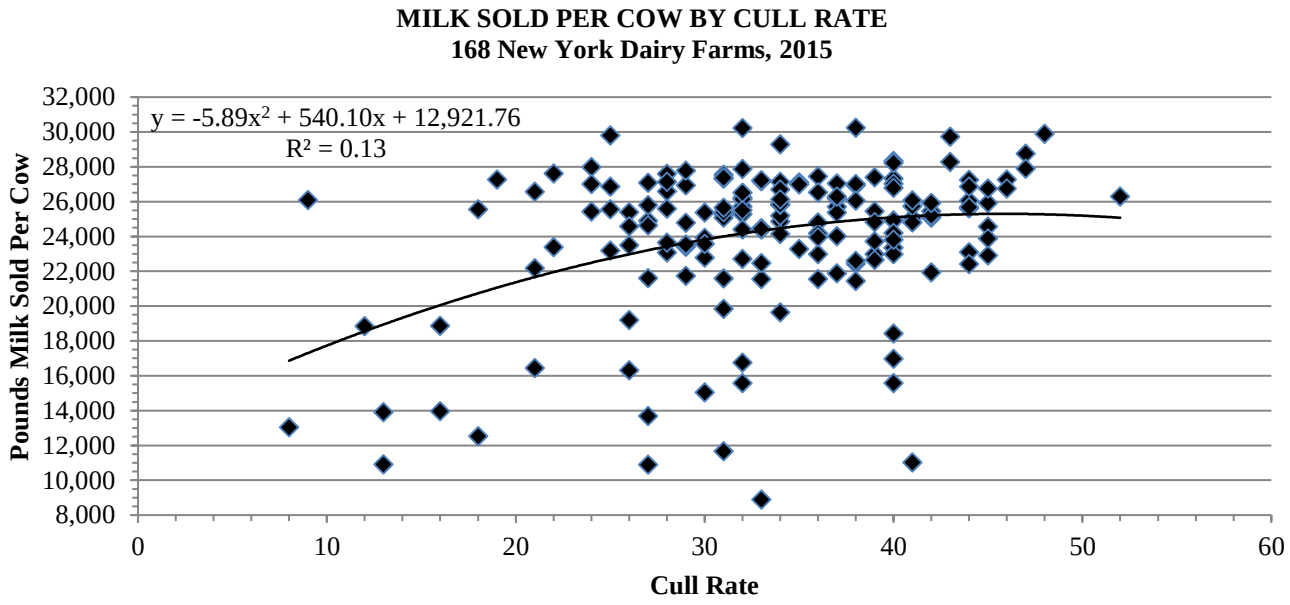


Chart 12.

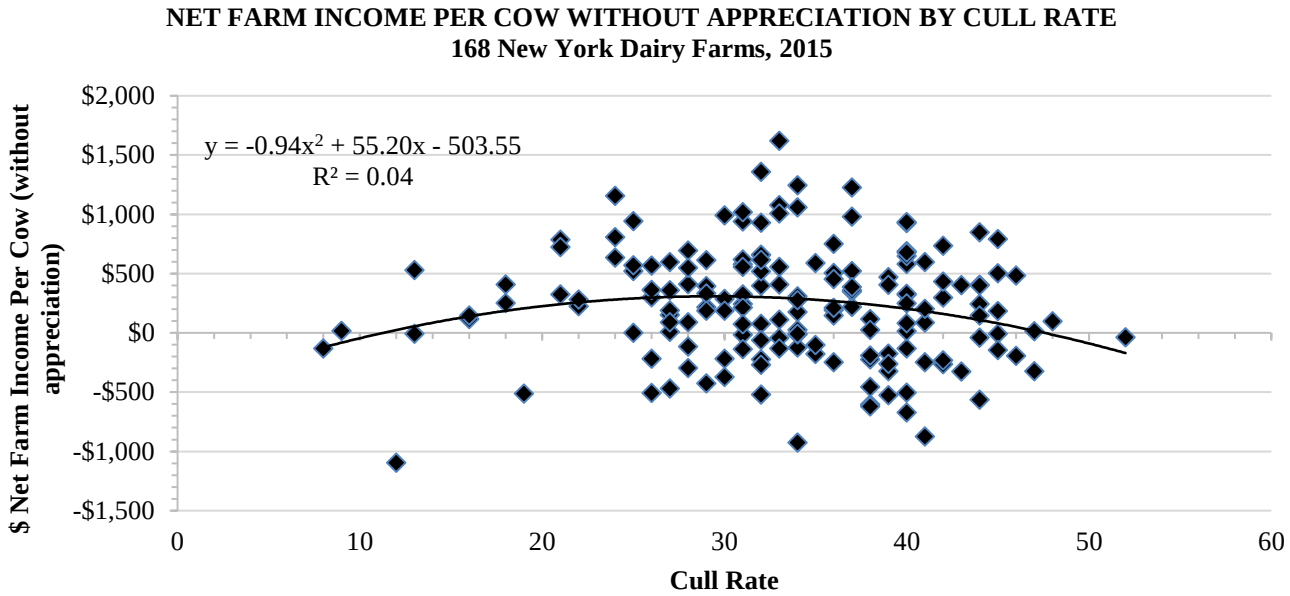


Table 26.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2015

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Custom Raised
	168 Farms[29]				$/head (25 Farms)	57 Farms[29]	
1	11%	1%	15%	$ 605	$1,147	0%	0%
2	20	3	26	944	1,450	0	0
3	23	4	29	1,101	1,792	0	0
4	25	4	31	1,215	1,936	0	0
5	27	5	33	1,382	2,078	0	0
6	29	5	35	1,556	2,260	0	0
7	31	6	37	1,748	2,588	0	4.8
8	34	7	40	1,965	3,870	0.5	30.7
9	37	8	42	2,279	4,558	4.2	65.6
10	41	11	46	3,655	9,392	38.5	87.6

[29]168 DFBS farms provided culling information. 57 DFBS farms provided supplementary replacement information.

Cost of Producing Milk

The cost of producing milk is compiled below using the whole farm method. The following steps are used in the calculations.

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.

2. Accrual milk sales are deducted from total accrual receipts to get total accrual non-milk receipts, which are used to represent total non-milk operating costs. This assumes that costs equal revenues for non-milk activities.

3. Total accrual non-milk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating cost of producing milk.

4. Machinery depreciation and building depreciation are added to operating costs to determine the purchased inputs cost of producing milk.

5. The opportunity cost of equity capital, operator's labor and operator's management and the value of unpaid family labor are added to all other costs to obtain the total cost of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

Table 27.

COST OF PRODUCING MILK, WHOLE FARM METHOD
168 New York Dairy Farms, 2015

Item	Average 168 farms		Average Top 10% Farms[30]	
Total Accrual Operating Expenses	$3,674,835		$4,272,719	
Expansion Livestock, Accrual	+ 18,200		+ 27,927	
1. Total Accrual Operating Expenses, Including Expansion Livestock		$3,693,035		$4,300,645
Total Accrual Receipts	$4,188,036		$5,036,938	
Milk Sales, Accrual	-3,549,741		- 4,245,455	
2. Total Accrual Non-milk Receipts		- $638,294		- $791,484
3. Operating Cost of Producing Milk		$3,045,677		$3,120,626
Machinery Depreciation		+ 184,868		+ 200,666
Building Depreciation		+ 129,353		+ 159,944
Extraordinary Expense		+ 1,662		+ 0
4. Purchased Inputs Cost of Producing Milk		$3,370,624		$3,481,235
Family Labor Unpaid ($2,600/month)		+ 3,168		+ 6,094
Real Interest on Equity Capital		+ 87,849		+ 392,962
Value of Operator's Labor & Management		+ 151,461		+ 157,591
5. Total Costs of Producing Milk		$3,846,759		$4,037,883
6. Costs Per Cwt.:				
Cwt. Milk Sold	193,869		230,786	
Operating Cost Per Cwt.	$15.76		$13.52	
Purchased Inputs Cost Per Cwt.	$17.39		$15.08	
Total Cost Per Cwt.	$19.84		$17.50	

[30]Average of 16 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented for eight expenditure categories in Table 28. The whole farm method assumption that accrual non-milk receipts represent non-milk operating costs is used in computing net costs. A $37,548 average increase in crop inventories per farm, ($0.19 per hundredweight of milk), is included in crop sales on the 168 farms. The top 10 percent farms had a $106,142 average increase in crop inventories per farm ($0.46 per hundredweight of milk).

Table 28.

ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
168 New York Dairy Farms, 2015

Item	Average 168 farms		Average Top 10% Farms[32]	
Dairy grain and concentrate	$6.60		$5.99	
Dairy roughage	0.33		0.50	
Nondairy feed	0.00		0.00	
Professional nutritional services	0.00		0.00	
Total feed expense		$6.93		$6.49
Crop expense		1.32		1.06
- Crop sales and government receipts[31]		0.51		0.66
Net Feed and Crop Expense		$7.74		$6.89
Hired labor		3.01		2.59
Operator's and family labor		0.83		0.71
Total Labor Expense		$3.84		$3.30
Machine repairs, fuel and hire		2.07		1.87
Machinery depreciation		0.95		0.87
- Gas tax refunds and custom work		0.06		0.02
Net Machinery Expense		$2.96		$2.72
Replacement and expansion cattle purchases		0.13		0.12
- Sales and inventory growth		2.37		2.45
Net Cattle Purchases		$-2.24		$-2.33
Milk marketing costs		0.96		0.93
All other livestock expense excluding purchases		2.39		2.05
Net Livestock Expense		$3.35		$2.98
Real estate repairs, rent and taxes		0.90		0.81
Building depreciation		0.67		0.69
Total Real Estate Expense		$1.57		$1.50
Interest paid		0.45		0.30
Interest on equity		1.66		1.70
Total Interest Expense		$2.11		$2.00
Other operating and miscellaneous expenses		0.86		0.73
- Miscellaneous income		0.35		0.29
Net Miscellaneous Expenses		$ 0.51		$0.44
Total Cost of Producing Milk		$19.84		$17.50
Purchased Inputs Cost of Producing Milk		$17.39		$15.08
Total Operating Cost of Producing Milk		$15.76		$13.52

[31]Non-crop related government payments may bias the results.
[32]Average of 16 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 160 farms that participated both in 2014 and 2015. Costs of production increased in all expense categories except for net miscellaneous expense which remained constant.

Table 29.

ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 156 New York Dairy Farms, 2014 & 2015

Item	2014		2015		Percent Change
Dairy grain and concentrate	$7.33		$6.57		-10.4%
Dairy roughage	0.37		0.32		-13.5%
Nondairy feed	0.00		0.00		
Professional nutritional services	0.00		0.00		
Total feed expense	$7.70		$6.90		-10.4%
Crop expense	1.32		1.31		
- Crop sales and government receipts[33]	0.49		0.52		
Net Feed and Crop Expense		$8.53		$7.69	-9.9%
Hired labor	2.95		3.02		
Operator's and family labor	0.39		0.41		
Total Labor Expense		$3.34		$3.43	2.69%
Machine repairs, fuel and hire	2.45		2.07		
Machinery depreciation	1.01		0.97		
- Gas tax refunds and custom work	0.07		0.07		
Net Machinery Expense		$3.39		$2.97	-12.4%
Replacement and expansion cattle purchases	0.20		0.12		
- Sales and inventory growth	2.22		2.37		
Net Cattle Purchases		$-2.02		$-2.25	11.39%
Milk marketing costs	0.91		0.96		
All other livestock expense excluding purchases	2.45		2.40		
Net Livestock Expense		$3.37		$3.36	-0.30%
Real estate repairs, rent and taxes	1.00		0.91		
Building depreciation	0.62		0.68		
Total Real Estate Expense		$1.62		$1.59	-1.9%
Interest paid	0.43		0.45		
Interest on equity	1.57		1.66		
Total Interest Expense		$2.00		$2.11	5.5%
Other operating and miscellaneous expenses	0.94		0.87		
- Miscellaneous income	0.36		0.34		
Net Miscellaneous Expenses		$0.58		$0.53	-8.6%
Total Cost of Producing Milk		$21.22		$19.79	-6.7%
Purchased Inputs Cost		$18.87		$17.35	-8.1%
Total Operating Cost		$17.23		$15.70	-8.9%
Average Price Received for Milk		$25.43		$18.29	-28.1%

[33]Non-crop related government payments may bias the results.

The three measures of the accrual cost of producing milk calculated on a per cow and per hundredweight basis are compared with accrual receipts from milk sales in Table 30.

Table 30.

COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
168 New York Dairy Farms, 2015

Item	Average 168 farms			Average Top 10% Farms[34]		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Accrual Cost of Producing Milk						
Operating Cost	$3,054,740	$4,012	$15.76	$3,120,626	$3,402	$13.52
Purchased Inputs Cost	$3,370,624	$4,427	$17.39	3,481,235	3,796	15.08
Total Cost	$3,846,759	$5,052	$19.84	4,037,883	4,402	17.50
Accrual Receipts from Milk	$3,549,741	$4,662	$18.31	$4,245,455	$4,629	$18.40
Net Milk Receipts	$3,364,115	$4,418	$17.35	$4,031,557	$4,252	$17.47
Profitability						
Net Farm Income without Appreciation	$179,118	$235	$0.92	$764,219	$833	$3.31
Net Farm Income with Appreciation	$417,561	$548	$2.15	$999,100	$1,089	$4.33

[34]Average of 16 farms with highest rates of return to all capital (without appreciation).

The operating cost of producing milk on all 168 dairy farms averaged $15.76 per hundredweight, leaving $2.55 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on the 168 dairy farms averaged $19.84 per hundredweight, $1.53 more than the average price received for milk sold from these farms during 2015. The inputted costs or charge for the operator's labor, management and equity capital averaged $2.44 per hundredweight in 2015; however, the farm operator received only $0.92 per hundredweight for these inputs. The 16 most profitable farms held their operating costs to $13.52 per hundredweight and their total cost of producing milk averaged $17.50 per hundredweight. This left a return to the operator’s labor, management and equity capital of $3.32 per hundredweight of milk sold.

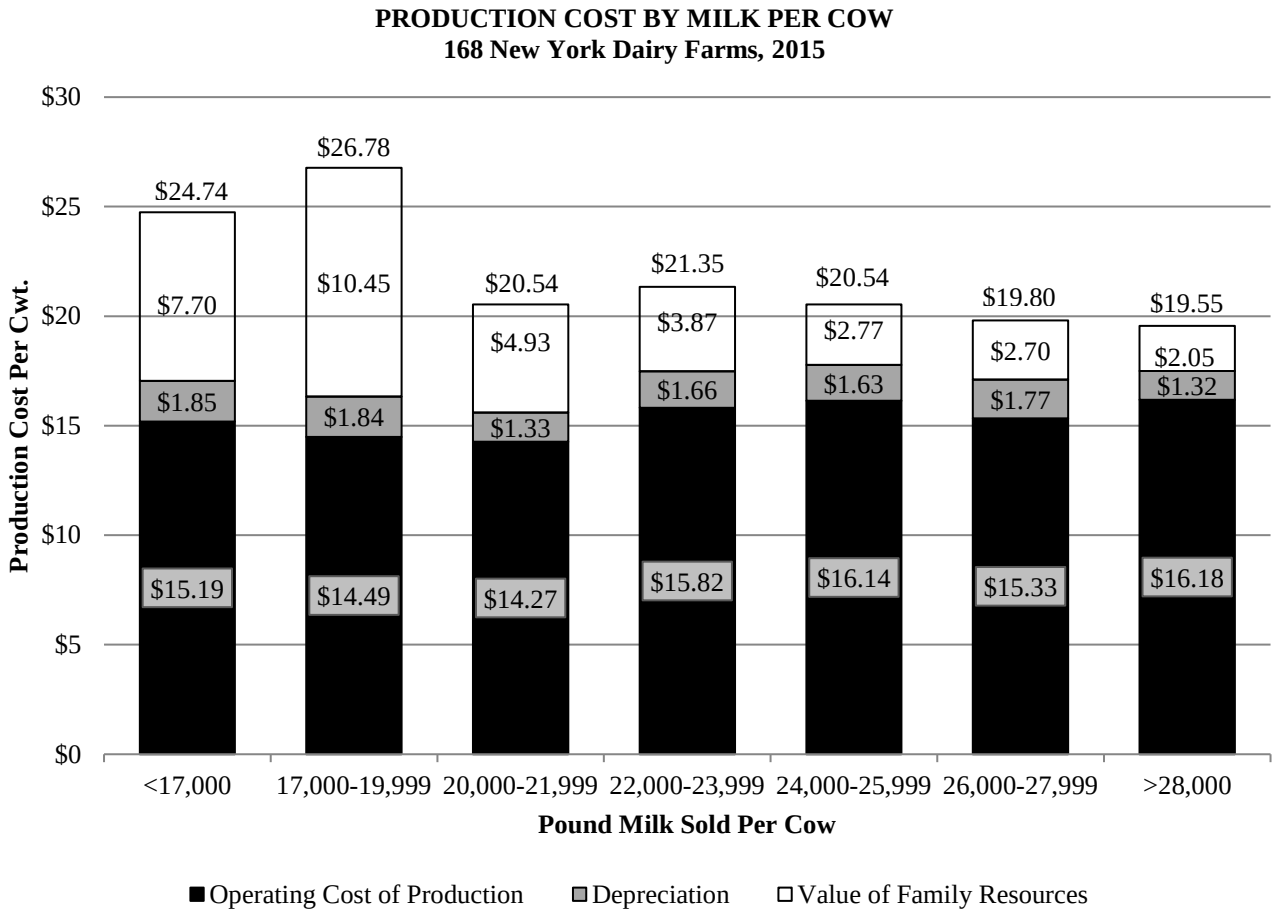
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 31 and Chart 13 on page 32. Farms selling less than 20,000 pounds of milk per cow had average total costs of production of $25.27 per hundredweight while those selling 20,000 pounds and over averaged $20.38 for a difference of $4.90 per hundredweight.

Table 31.

FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
168 New York Dairy Farms, 2015

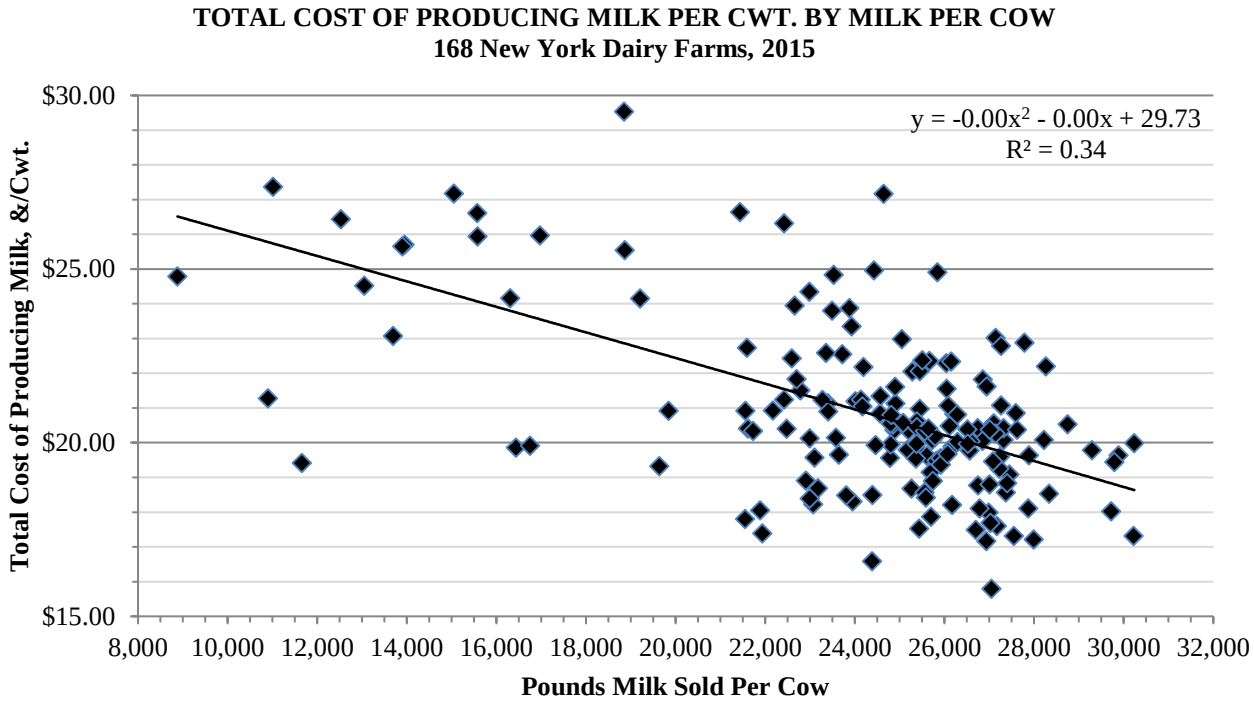
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator’s Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 17,000	$2.55	$5.23	$15.19	$17.15	$24.74	$18.83	$1.06
17,000-19,999	0.79	5.84	14.49	16.33	26.78	18.16	0.73
20,000-21,999	1.67	6.42	14.27	15.60	20.54	18.42	2.60
22,000-23,999	2.73	6.28	15.82	17.50	21.35	18.26	0.73
24,000-25,999	2.86	6.75	16.14	17.78	20.54	18.30	0.39
26,000-27,999	2.88	6.47	15.33	17.11	19.80	18.21	1.09
28,000 & over	3.07	6.67	16.18	17.51	19.55	18.05	0.53

Chart 13.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 14. It shows that as milk sold per cow increases, on the average, total cost of production generally decreases.

Chart 14.



Data in Table 32 and Chart 15 show that the average total cost of production generally declines as herd size increases. This is attributable to spreading the value of family resources over more units of output.

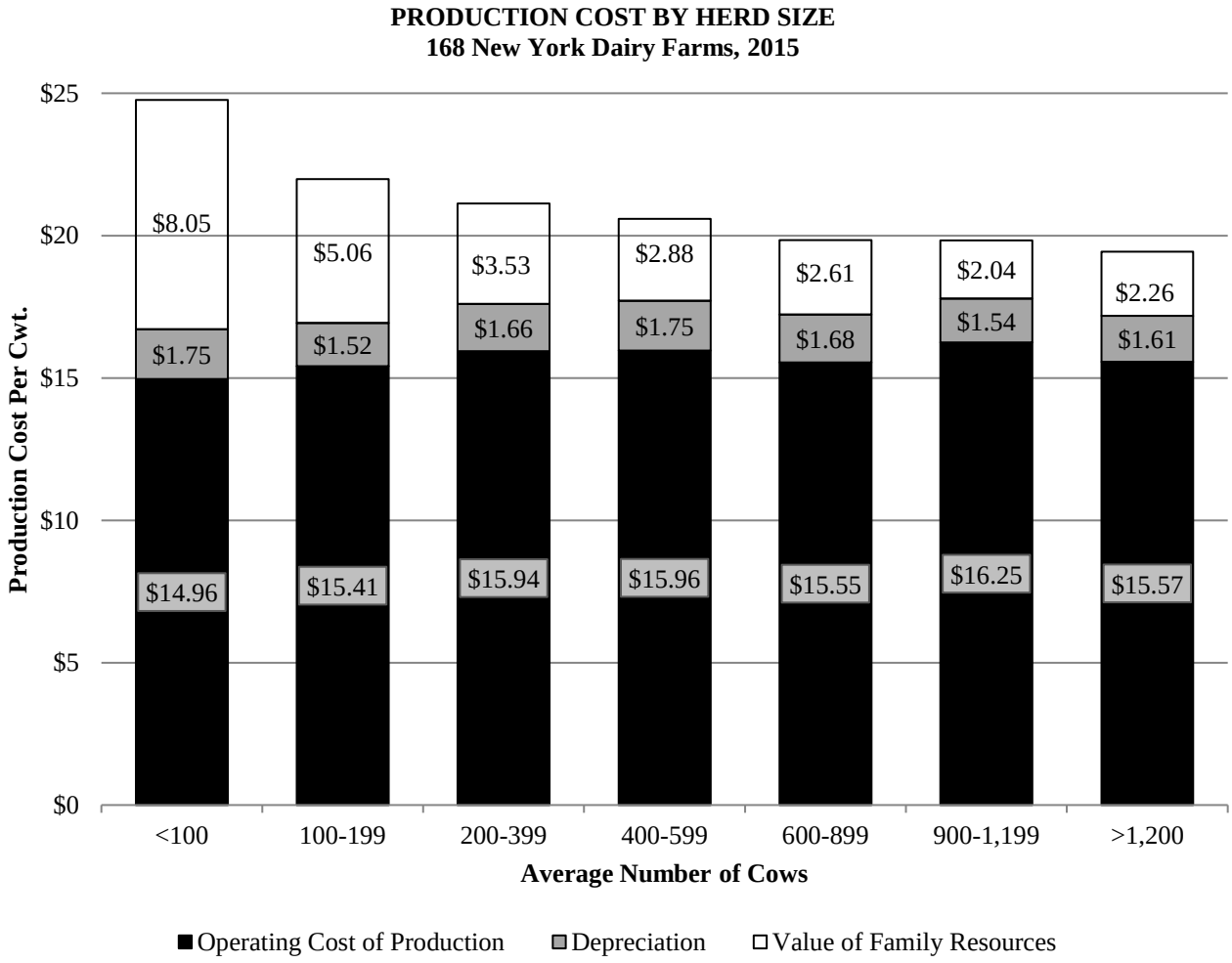
Total operating costs are lowest at the under 100 herd size group and highest at the 900 to 1,199 herd size group. Hired labor cost generally increases with herd size, while purchased dairy grain and concentrate are not related to herd size.

Table 32.

FARM COST OF PRODUCING MILK BY HERD SIZE
168 New York Dairy Farms, 2015

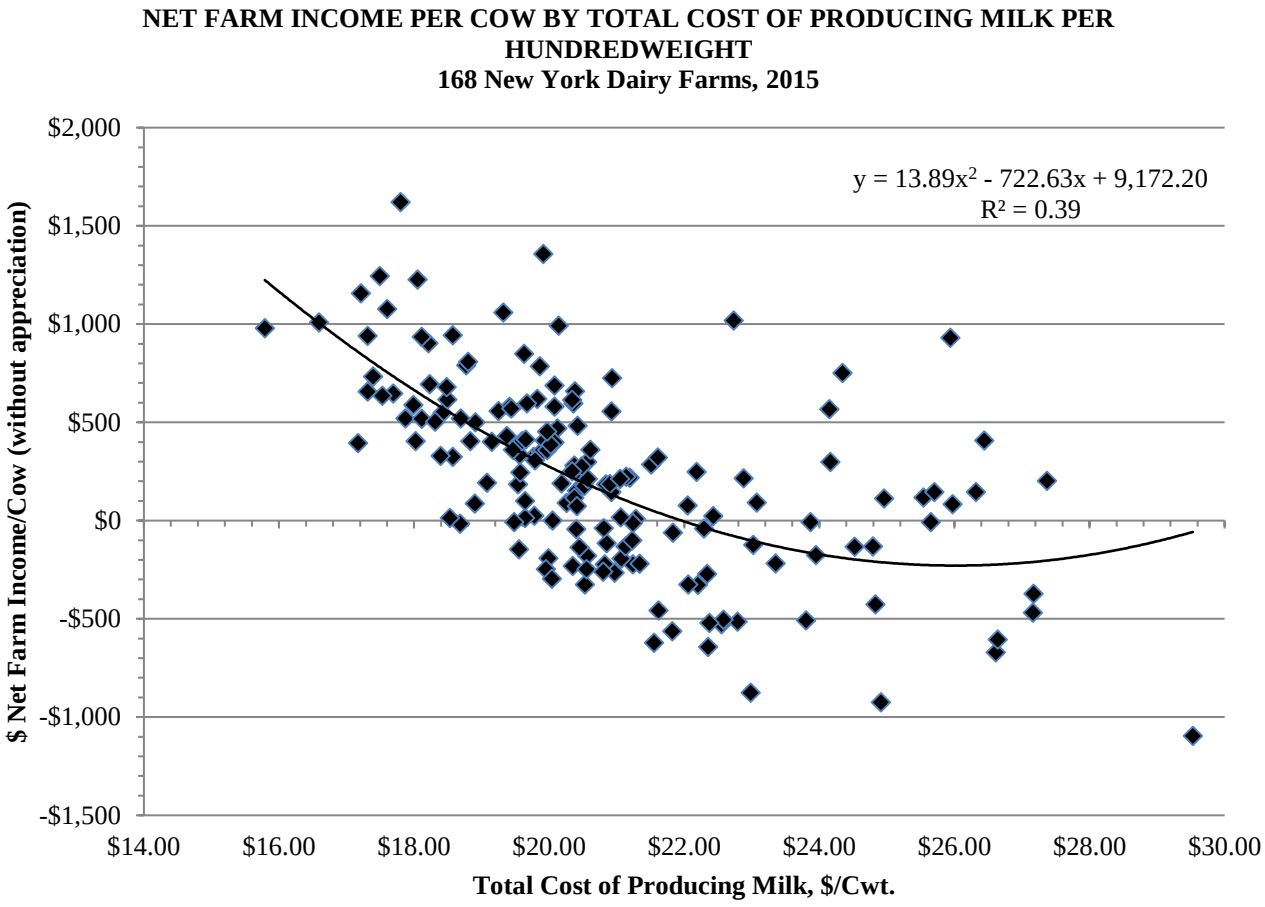
Number of Cows	Costs per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 100	$1.32	$5.70	$14.96	$16.77	$24.76	$17.82	$0.15
100 to 199	2.14	6.40	15.41	16.93	21.99	18.25	1.07
200 to 399	2.83	6.43	15.94	17.64	21.13	18.32	0.60
400 to 599	3.07	6.28	15.96	17.71	20.59	18.30	0.58
600 to 899	2.86	6.58	15.55	17.24	19.84	18.30	1.06
900 to 1,199	3.10	6.74	16.25	17.79	19.83	18.39	0.60
1,200 and over	3.08	6.64	15.57	17.20	19.44	18.29	1.09

Chart 15.



The importance of cost control and its impact on farm profitability are illustrated in Chart 16. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. A little more than half of the farms experienced positive net farm incomes per cow in 2015, despite the decreased milk price received. This is a direct reflection of the importance of cost control and good management decisions in the time of economic stress.

Chart 16.



Cost of Producing Milk (continued)

A ten-year comparison of the average costs and returns of producing milk per hundredweight is presented in Table 33 on page 36. Average individual operating and overhead expenses per hundredweight of milk sold are reported on all specialized dairy farms included in the New York State Summary from 2006 through 2015. In 2015, the average operating cost of producing milk decreased 8.5 percent after increasing 3.1 percent from 2013 to 2014. The average return per hundredweight to operator labor, management, and capital was $5.65 lower in 2015, 86 percent less than 2014. In only five years during the last ten years has milk price exceeded the total cost of producing a hundredweight of milk. Those years were 2007, 2010, 2011, 2013 and 2014.

Hired labor expense per hundredweight decreased from 2008 to 2010, increased between 2010 and 2011, decreased between 2011 and 2012, increased two percent in 2013, increased five percent in 2014, and increased three percent in 2015. Hired labor expense was $2.58 in 2006 and has risen to $3.01 in 2015. Thus, even as pounds of milk sold per worker have increased from 987,530 in 2006 to 1,147,553 in 2015, labor expense per worker has also increased. Some of this effect is due to increasing farm size where a larger portion of the labor force is comprised of hired workers. Another effect is an increase in hired labor cost per worker as shown by a 19 percent increase in hired labor expense per hired worker equivalent from 2006 to 2015.

Purchased feed expense per hundredweight of milk can fluctuate greatly, as much as $3.49 per hundredweight. At $4.29 in 2006, it was at its lowest in the past ten years. In 2014, purchased feed expense was at its highest in the past ten years at $7.79 per hundredweight of milk.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 2006, interest expense was $0.78 per hundredweight. In 2015, the interest expense rose $0.01 to $0.45 from the lowest level in the past ten years that was seen in 2014 at $0.44 per hundredweight. Property taxes per hundredweight of milk were fairly constant during this ten-year period. Property taxes were $0.23 per hundredweight in 2006 and $0.26 in 2015, unchanged from 2014.

A ten-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 34 on page 37. The reader is reminded that the same farms are not in the survey each year. Average cow numbers are up 117 percent, tillable acres have increased 108 percent, and milk sold per farm has jumped 140 percent since 2006. Capital investment per cow has increased 54 percent over the last ten years. Labor and management income per operator decreased 116 percent in 2015 compared to 2014, farm net worth increased 5 percent, and percent equity decreased 4 percent in 2015 compared to 2014.

Hay crop yields were 3.2 tons dry matter per acre in 2006 and 3.4 tons dry matter per acre in 2015. Corn silage yields, as fed, have varied more widely and were at a ten-year high of 19.9 tons per acre in 2008, decreased to 19.6 tons per acre in 2010, decreased further to 16.9 tons per acre in 2012, increased again to 19.1 tons per acre in 2014, decreasing again to 18.1 tons per acre in 2015. As yields have varied from 2006 to 2015, fertilizer and lime expense also fluctuated as much as $41 per tillable acre, from $30 to $71 per acre. Pounds of milk sold per cow increased by 10 percent, from 23,083 pounds in 2006 to 25,461 pounds in 2015.

Average number of workers per farm increased by 8.70 and operators/managers per farm went from 1.63 to 2.15. Cows per worker equivalent increased from 43 in 2006 to 45 in 2015, but labor cost per cow increased from $757 to $877 over the same time period.

The asset turnover ratio ranged from a low of 0.44 in 2010 to a high of 0.67 in 2008. Total accrual receipts as a proportion of total farm assets equals asset turnover ratio. Percent equity was 62 percent in 2006, increased to 68 percent in 2007 and 2008, decreased to 62 percent in 2009, increased slightly to 65 percent in 2010, increased to 70 percent in 2011, decreased slightly to 68 percent by 2013, increased to 72 percent in 2014, and decreased to 69 percent in 2015.

Table 33.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 2006 to 2015

Item	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Operating Expenses										
Hired labor	$2.58	$2.70	$2.79	$2.70	$2.61	$2.75	$2.72	$2.78	$2.93	$3.01
Purchased feed	4.30	5.21	6.17	5.45	5.41	6.53	7.29	7.56	7.79	6.93
Machinery repair, vehicle expense & rent	1.04	1.27	1.24	1.07	1.16	1.36	1.31	1.40	1.57	1.49
Fuel, oil & grease	.58	.67	.91	.57	.65	.88	.84	.84	.87	.58
Replacement livestock	.07	.07	.08	.06	.06	.08	.05	.07	.06	.04
Breeding fees	.23	.24	.26	.21	.21	.22	.21	.21	.23	.22
Veterinary & medicine	.65	.65	.68	.63	.63	.67	.65	.68	.69	.68
Milk marketing	.80	.80	.85	.88	.89	.88	.87	.86	.91	.96
Other dairy expenses	1.29	1.41	1.52	1.44	1.45	1.48	1.48	1.49	1.55	1.50
Fertilizer & lime	.31	.40	.47	.41	.37	.45	.55	.57	.53	.56
Seeds & plants	.23	.28	.33	.35	.36	.39	.42	.48	.51	.50
Spray & other crop expense	.19	.25	.26	.20	.21	.25	.27	.22	.28	.27
Land, building & fence repair	.22	.32	.34	.23	.26	.37	.35	.35	.45	.35
Taxes	.21	.23	.21	.22	.22	.23	.23	.24	.26	.26
Insurance	.17	.19	.18	.17	.17	.18	.17	.17	.20	.23
Utilities (farm share)	.41	.44	.43	.38	.41	.42	.37	.40	.47	.39
Interest paid	.78	.83	.54	.51	.53	.48	.45	.47	.44	.45
Misc. (including rent)	.45	.49	.49	.44	.44	.49	.49	.55	.54	.53
Total Operating Expenses	$14.51	$16.46	$17.77	$15.90	$16.04	$18.12	$18.71	$19.34	$20.28	$18.96
Less: Non-milk cash receipts	1.94	1.75	1.57	1.89	1.62	2.11	2.47	2.23	2.38	2.75
Increase in grown feed & supplies	.22	.39	.66	-.04	.36	.17	0.34	0.29	0.32	0.19
Increase in livestock	.27	.30	.33	.34	.30	.18	0.17	0.10	0.35	0.27
OPERATING COST OF MILK PRODUCTION	$12.08	$14.02	$15.21	$13.71	$13.76	$15.66	$15.73	$16.72	$17.23	$15.76
Overhead Expenses										
Depreciation: machinery & buildings	$1.26	$1.32	$1.38	$1.28	$1.32	$1.38	$1.43	$1.49	$1.62	$1.62
Unpaid labor	.07	.07	.04	.05	.04	.04	.03	.04	.03	.02
Operator(s) labor [35]	.63	.65	.58	.54	.50	.53	.44	.41	.40	.42
Operator(s) management (5% of cash receipts)	.79	1.07	1.10	.80	.96	1.16	1.10	1.18	1.35	1.10
Interest on farm equity capital (5%)	1.06	1.20	1.29	1.21	1.15	1.15	1.38	1.41	1.59	1.66
Total Overhead Expenses	$3.81	$4.31	$4.39	$3.88	$3.97	$4.26	$4.38	$4.53	$4.99	$4.82
TOTAL COST OF MILK PRODUCTION	$15.89	$18.33	$19.60	$17.59	$17.73	$19.92	$20.11	$21.25	$22.22	$20.54
AVERAGE FARM PRICE OF MILK	$13.85	$20.34	$19.24	$13.88	$17.81	$21.67	$19.77	$21.65	$25.45	$18.31
Return per cwt. to operator labor, capital & mgmt.	$0.44	$4.93	$2.61	$-1.16	$2.69	$3.61	$3.35	$3.53	$6.56	$0.91
Rate of return on farm equity capital	-4.6%	13.4%	3.6%	-10.3%	5.2%	13.6%	6.5%	9.8%	18.2%	0.4%

[35] 2006= $2,300/month, 2007= $2,400/month, 2008 through 2010= $2,500/month, 2011= $2,550/month, and 2012 through 2015= $2,600/month of operator labor.

Table 34.

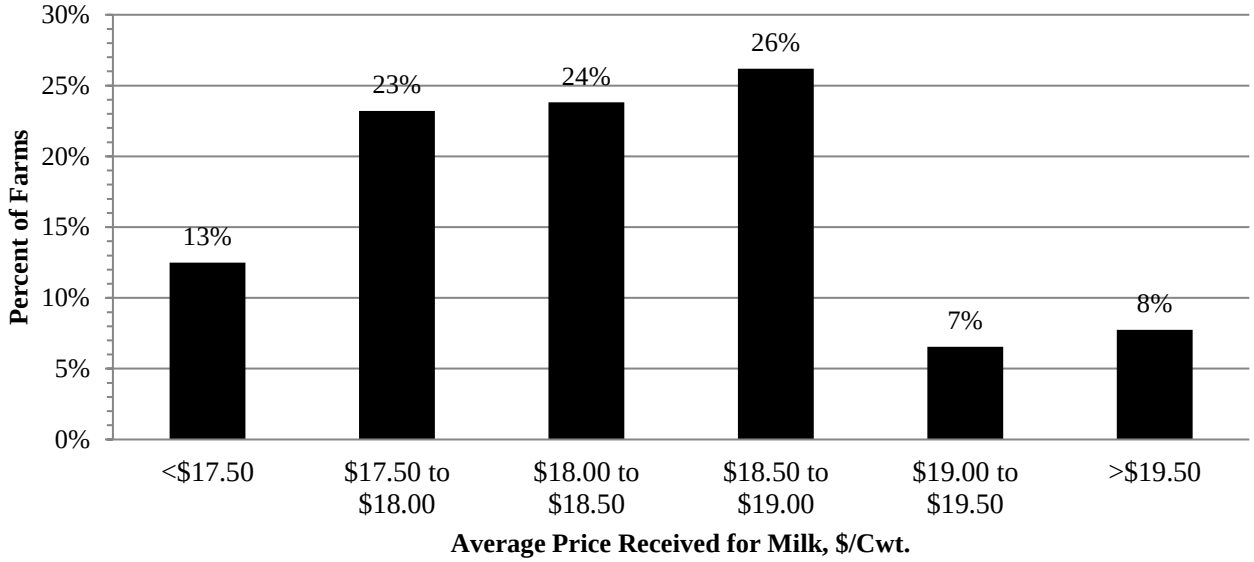
TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2006 to 2015

Item	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Number of farms	240	250	224	204	204	190	169	171	173	168
Cropping Program										
Total tillable acres	730	758	883	965	987	1,086	1,189	1,277	1,366	1,516
Tillable acres rented	360	385	446	482	493	519	554	603	634	699
Hay crop acres	366	364	421	464	469	477	530	565	586	668
Corn silage acres	249	258	297	348	340	405	488	504	546	599
Hay crop, tons DM/acre	3.2	3.0	3.5	3.3	3.5	3.4	3.0	3.5	3.4	3.4
Corn silage, tons/acre	18.4	18.9	19.9	18.7	19.6	16.6	16.9	18.0	19.1	18.1
Fertilizer & lime exp./tillable acre	$30	$40	$49	$42	$43	$50	$66	$71	$68	$66
Machinery cost/cow	$618	$708	$800	$660	$712	$839	$864	$918	$992	$887
Dairy Analysis										
Number of cows	350	358	414	469	489	531	609	650	695	761
Number of heifers	283	289	348	391	415	459	522	557	590	650
Milk sold, cwt.	80,862	82,315	99,884	113,555	119,782	130,898	154,730	166,004	176,737	193,869
Milk sold/cow, lbs.	23,083	22,983	24,115	24,208	24,508	24,648	25,401	25,532	25,448	25,461
Purchased dairy feed/cwt. milk	$4.29	$5.20	$6.16	$5.45	$5.39	$6.52	$7.29	$7.07	$7.79	$6.93
Purchased grain & concentrate as % of milk receipts	29%	24%	31%	38%	29%	29%	34%	32%	28%	35%
Purchased feed & crop exp/cwt.milk	$5.02	$6.13	$7.23	$6.41	$6.32	$7.62	$8.52	$8.87	$9.12	$8.25
Capital Efficiency										
Farm capital/cow	$7,762	$8,426	$9,145	$9,060	$9,141	$9,629	$10,232	$10,635	$11,491	$11,965
Real estate/cow	$3,030	$3,356	$3,606	$3,713	$3,857	$3,951	$4,193	$4,368	$4,697	$5,069
Machinery investment/cow	$1,384	$1,448	$1,535	$1,553	$1,570	$1,614	$1,686	$1,775	$1,929	$2,030
Asset turnover ratio	0.52	0.67	0.59	0.44	0.56	0.64	0.60	0.61	0.66	0.49
Labor Efficiency										
Worker equivalent	8.19	8.40	9.75	10.74	10.93	12.13	13.59	14.43	15.59	16.89
Operator/manager equivalent	1.63	1.62	1.72	1.83	1.82	1.88	2.01	2.01	2.03	2.15
Milk sold/worker, lbs.	987,530	980,234	1,024,799	1,057,063	1,095,897	1,079,423	1,138,769	1,150,279	1,133,473	1,147,553
Cows/worker	43	43	42	44	45	44	45	45	45	45
Labor cost/cow	$757	$784	$823	$794	$771	$818	$810	$823	$853	$877
Hired labor exp./hired worker equiv.	$34,071	$34,924	$36,312	$35,908	$35,643	$37,152	$37,406	$38,335	$39,245	$40,524
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$-31,269	$189,019	$75,945	$-147,313	$101,484	$227,028	$92,417	$175,046	$432,971	$-67,701
Farm net worth, end year	$1,736,505	$2,200,655	$2,640,168	$2,639,640	$3,012,912	$3,759,325	$4,484,930	$4,672,688	$6,149,047	$6,448,861
Percent equity	62%	68%	68%	62%	65%	70%	69%	68%	72%	69%

The average price per hundredweight of milk sold is calculated by dividing gross milk receipts by total pounds of milk sold. The average price for the 168 farms was $18.31 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean are shown below.

Chart 17.

VARIATION IN AVERAGE MILK PRICE
168 New York Dairy Farms, 2015



Fifty percent of the farms received from $18 to $19 per hundredweight of milk sold. Fifteen percent of the farms received $19 or more and thirty-six percent received less than $18 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and milk components are two variables that affect milk price. Additional milk price analysis can be found on pages 40 and 41.

The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables the comparison of different size dairy farms for strengths and areas for improvement.

Table 35.

DAIRY RELATED ACCRUAL EXPENSES
168 New York Dairy Farms, 2015

	Average 168 farms		Average Top 10% Farms[36]	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	$1,681	$6.60	$1,508	$5.99
Purchased dairy roughage	84	0.33	125	0.50
Total Purchased Dairy Feed	$1,765	$6.93	$1,633	$6.49
Purchased grain & concentrate as % of milk receipts	35%		31%	
Purchased feed & crop expense	$2,102	$8.25	$1,899	$7.55
Purchased feed & crop expense as % of milk receipts	45%		41%	
Breeding	$56	$0.22	$34	$0.13
Veterinary & medicine	173	0.68	130	0.51
Milk marketing	244	0.96	233	0.93
Bedding	98	0.38	88	0.35
Milking Supplies	101	0.40	72	0.29
Cattle lease	4	0.01	0	0.00
Custom boarding	97	0.38	122	0.48
bST expense	44	0.17	38	0.15
Other livestock expense	15	0.06	13	0.05

[36]Average of 16 farms with highest rates of return to all capital (without appreciation).

Feed costs per cow and per hundredweight of milk sold are influenced by a number of factors. These cost measures are affected by the amount of homegrown grains fed, quality and quantity of the roughage harvested, and the number of young stock. Feed costs are also influenced by the farmer's ability to purchase grains and concentrates at reasonable prices and to balance nutrients fed with energy and protein requirements.

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, it actually represents feed cost for one cow and associated replacements being raised (averaged 0.85 animals in 2015).

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production. It does not represent total feed costs because machinery, labor and other costs of producing feed crops are excluded.

Purchased grain and concentrates as percent of milk sales is calculated by dividing feed purchased by milk receipts. This is another useful measure of feed efficiency although variations in homegrown grains fed, heifers fed, and milk prices can have an impact. Purchased feed and crop expense as percent of milk sales removes much of the variation caused by the feeding of home grown grains.

Cost control has an important effect on farm profitability. The relationship between purchased feed and crop expense per hundredweight of milk and farm profitability is shown below. On average, farms with feed and crop expenses exceeding $8.50 reported below average profits in 2015. Farms reporting feed and crop expenses less than $8.50 per hundredweight generally showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average as can be seen in the farms in the group reporting less than $7.50 per hundredweight, instead of increasing profits decrease. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation (Chart 18).

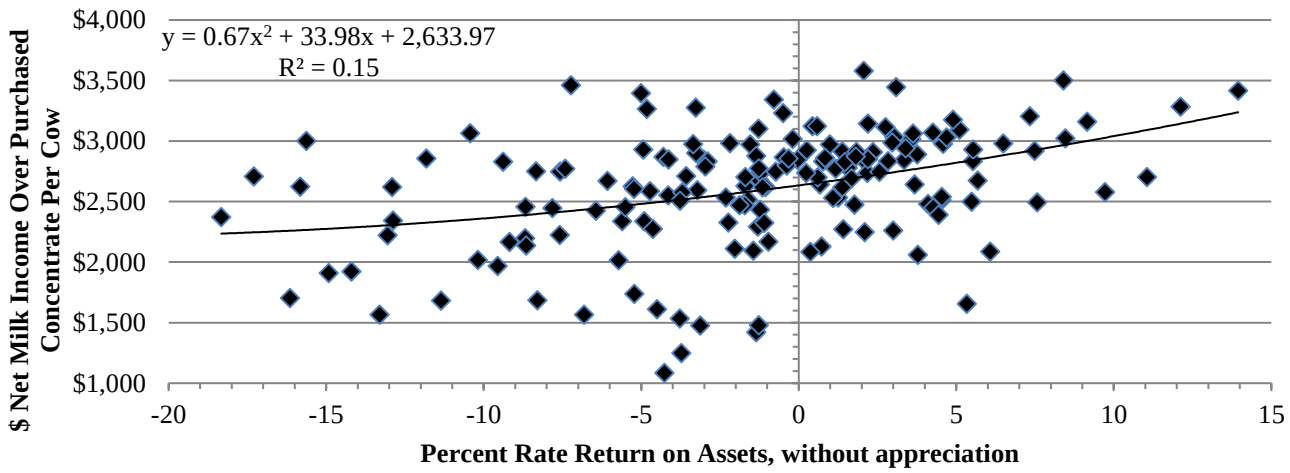
Table 36.

PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
168 New York Dairy Farms, 2015

Feed & Crop Expense Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Appreciation	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
$9.50 or more	26	659	7.5	22,987	-$32,990	-$152,711	-$260
9.00 to 9.50	13	771	8.1	24,056	90,394	-106,722	-232
8.50 to 8.99	25	762	8.2	24,962	73,073	-120,430	-238
8.00 to 8.49	31	825	8.2	25,237	240,107	-47,596	-94
7.50 to 8.00	28	1,060	8.7	26,013	374,507	-88,487	-153
Less than 7.50	45	587	8.9	22,079	222,623	-53,884	-181

Chart 18.

NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY RETURN ON ASSETS
168 New York Dairy Farms, 2015



Milk Income and Marketing Expense Breakdown

Starting January 1st, 2002, the Northeast switched to multiple component pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 132 farms filled out a detailed form including all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in the following two tables. The tables are divided into six different sections, each representing a different area of income or expense. The cumulative total for these six sections is the net price received on farms.

Table 37 reports the averages for the 132 farms providing the data. Table 38 on page 41 contains the quintile averages for each of the individual lines of the report. This table is in a farm business chart format with each item sorted independently and ranked by fifths. Numbers for the different sections will not add to the totals for that quintile or to the net price received because each item is sorted independently. This table shows the range of income and expenses received by farms for all the different sections. More milk price information was presented on page 38.

Table 37.

AVERAGE[37] MILK INCOME AND MARKETING REPORT
132 New York Dairy Farms, 2015

	Pounds	Percent	Price/Pound	Total	$/Cwt of Milk	
BASE FARM PRICE						
Butterfat	826,960	3.78%	$2.30	$1,902,716		$8.70
Protein	675,089	3.09%	$2.23	$1,508,140		$6.90
Solids	1,260,388	5.77%	$0.19	$234,096		$1.07
Total Component Contribution						$16.67
PPD	21,862,254			$114,203	$0.52	
Base Farm Price						$17.19
Premiums						
Quality				$60,156	$0.28	
Volume				$49,416	$0.23	
Market Premiums				$80,846	$0.37	
Total Premiums					$0.87	
BASE FARM PRICE + PREMIUM						$18.07
Deductions						
Promotion				$32,959	$0.15	
Hauling & Coop Dues				$175,781	$0.80	
Total Deductions					$0.95	
BASE FARM PRICE + PREMIUMS – DEDUCTIONS						$17.11
Marketing Programs						
Futures Contracts, Forward Contracting, Etc.				$20,112	$0.09	
Total Marketing Income					$0.09	
Patronage Dividends				$33,444	$0.15	
NET PRICE RECEIVED ON FARM, ALL SOURCES						**$17.36**
Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)					$0.44	

[37]Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the "$/Cwt of Milk" column will result in the totals. Average herd size for these 132 farms is 851 cows.

Table 38.

MILK PRICE INFORMATION BY QUINTILE[38]
(Each Category Sorted Independently)
132 New York Dairy Farms, 2015

	Lowest Quintile	←			Highest Quintile
Butterfat, %	3.63	3.74	3.81	3.88	4.10
Protein, %	2.99	3.05	3.08	3.11	3.22
Other Solids, %	5.69	5.74	5.76	5.78	5.81
Butterfat, $ per Cwt.	8.31	8.60	8.75	8.93	9.52
Protein, $ per Cwt.	6.62	6.78	6.87	6.96	7.24
Other solids, $ per Cwt.	1.00	1.06	1.07	1.08	1.16
Total Component Value per Cwt.	**$16.15**	**$16.46**	**$16.66**	**$16.92**	**$17.75**
PPD, $ per Cwt.	0.27	0.38	0.49	0.60	0.93
Base Farm Price per Cwt.	**$16.60**	**$16.93**	**$17.20**	**$17.50**	**$18.36**
Quality, $ per Cwt.	0.03	0.17	0.26	0.37	0.55
Volume, $ per Cwt.	0.00	0.02	0.17	0.27	0.52
Market premium, $ per Cwt.	0.01	0.12	0.27	0.44	0.87
Total Premium, $ per Cwt.	**0.34**	**0.57**	**0.77**	**0.98**	**1.40**
Base Farm Price + Premiums per Cwt.	**$17.31**	**$17.61**	**$18.01**	**$18.42**	**$19.29**
Promotion, $ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling & Coop Dues, $ per Cwt.	0.41	0.62	0.85	1.00	1.31
Total Marketing Expenses per Cwt.	**$0.56**	**$0.77**	**$1.00**	**$1.15**	**$1.46**
Base + Premiums – Deductions per Cwt.	**$16.39**	**$16.70**	**$16.98**	**$17.39**	**$18.25**
Futures contract, forward contracting, $ per Cwt.	-0.03	0.00	0.00	0.00	0.34
Total Marketing Income, $ per Cwt.	**$-0.03**	**$0.00**	**$0.00**	**$0.00**	**$0.34**
Patronage Dividends, $ per Cwt.	**$0.00**	**$0.00**	**$0.00**	**$0.07**	**$0.89**
Net Price Received From All Sources, $ per Cwt.	**$16.41**	**$16.85**	**$17.29**	**$17.76**	**$18.56**
Net Marketing Value, $ per cwt. (PPD + Total Premiums - Total Deductions)	**-0.22**	**0.10**	**0.32**	**0.57**	**1.02**

[38]Data for each category are calculated independently of all others. Therefore, summation of individual categories will not equal total categories.

Capital and Labor Efficiency Analysis

Capital efficiency factors show how intensively capital is being used in the farm business. Capital efficiency can be measured as investment per worker and per cow. It can also be measured in terms of the relationship to farm receipts.

Table 39.

CAPITAL EFFICIENCY
168 New York Dairy Farms, 2015

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	$539,393	$11,965	$6,008	$11,145
Real estate		$5,069		$4,722
Machinery & equipment	$91,506	$2,030	$1,019	
Ratios				
Asset Turnover	Operating Expense	Interest Expense		Depreciation Expense
0.49	0.86	0.02		0.08
Average Top 10% Farms:[39]				
Farm capital	$572,645	$10,957	$6,292	$11,134
Real estate		$4,611		$4,686
Machinery & equipment	$93,780	$1,794	$1,030	
Ratios				
Asset Turnover	Operating Expense	Interest Expense		Depreciation Expense
0.52	0.76	0.01		0.07

[39]Average of 16 farms with highest rates of return to all capital (without appreciation).

Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets. The relationship the asset turnover ratio has to farm profitability and other factors is shown in the following table. As a general rule, dairy farmers should aim for an asset turnover ratio of 0.6 or higher. The operational ratios reflect the relationship of expense categories to total farm receipts. The sum of the operating, interest, and depreciation expense ratios expresses total farm expenses per dollar of total farm receipts.

Table 40.

ASSET TURNOVER AND PROFITABILITY
168 New York Dairy Farms, 2015

Ratio	Number of Farms	Number of Cows	Farm Capital (average for year) Per Cow	Farm Capital (average for year) Per Worker	Labor & Management Income Per Operator	Net Farm Income (without appreciation)
≥ .70	8	974	$6,959	$330,903	-$82,518	$81,232
.60 to .69	16	1,196	10,073	438,997	-280,707	21,532
.50 to .59	41	1,064	10,885	491,531	-38,777	301,899
Less than .50	103	557	14,366	572,171	-77,720	162,326

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 16 farms with the highest rates of return on all capital (without appreciation) were above the average of all 168 farms in cows per worker and milk sold per worker. The top 10 percent averaged seven more cows per worker and sold 15 percent more milk per worker than the average of all farms.

Table 41.

LABOR EFFICIENCY
168 New York Dairy Farms, 2015

Labor Efficiency	Average Farms Total	Average Farms Per Worker[40]	Average Top 10% Farms[41] Total	Average Top 10% Farms[41] Per Worker[40]
Cows, average number	761	45	917	52
Milk sold, pounds	19,386,947	1,147,553	23,078,577	1,315,019
Tillable acres	1,516	90	1,597	91

[40]The method used to calculate worker equivalent incorporates the number of hours actually worked by the owner/operators, instead of using a standard 12 months for each full-time owner/operator of the business. A full-time month is specified to be 230 hours of labor per month.

[41]Average of 16 farms with highest rates of return to all capital (without appreciation).

The labor force averaged 16.89 full-time worker equivalents per farm (based on 230 hours per month). Fourteen percent of the labor was supplied by the farm operator/managers. There were two operators on 59 farms, three on 38 farms, and 30 farms reported four or more operators.

Labor costs, labor efficiency, and farm profitability are closely related. Farms with high rates of return can attribute some of their success to the control of labor and machinery costs. Labor and machinery costs average $1,529 per cow and $6.73 per hundredweight on the 16 farms in the top decile.

Table 42.

LABOR FORCE INVENTORY AND COST ANALYSIS
168 New York Dairy Farms, 2015

Labor Force	Months[42]	Age	Years of Education	Value of Labor & Management
Operator number 1	12.9	56	14	$67,164
Operator number 2	8.1	51	14	45,021
Operator number 3	4.5	40	15	23,048
Operator number 4	3.3	41	15	16,229
Family paid	2.9			Total $151,461
Family unpaid	1.2			
Hired	169.9			
Total	202.7	÷ 12 =	16.89 Worker Equivalent	
			2.15 Operator/Manager Equivalent	
Average Top 10% Farms:[43]				
Total	210.6	÷ 12 =	17.55 Worker Equivalent	
Operators'			2.24 Operator/Manager Equivalent	

	Average 168 farms			Average Top 10% Farms[43]	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor ($2,600/month)	81,080	106	0.42	91	0.36
Family unpaid ($2,600/month)	3,172	4	0.02	7	0.03
Hired	583,344	766	3.01	652	2.59
Total Labor	$667,596	$877	$3.44	$750	$2.98
Machinery Cost	664,329	872	3.43	779	3.09
Total Labor & Machinery	$1,331,925	$1,749	$6.87	$1,529	$6.07
Hired labor expense per hired worker equivalent	$40,524			$40,207	
Hired labor expense as % of milk sales	16.4%			14.1%	

[42]See footnote number 40 in Table 41.
[43]Average of 16 farms with highest rates of return to all capital (without appreciation).

The relationship of labor efficiency to net farm income and labor and management income per operator is usually positive over the range of efficiency levels. The higher outputs of milk sold per worker are partially attributable to higher producing cows and larger herd size. In 2015, increased labor efficiency did result in larger net farm incomes.

Table 43.

MILK SOLD PER WORKER AND NET FARM INCOME
168 New York Dairy Farms, 2015

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (without appreciation)	Labor & Manage-ment Income Per Operator
Under 500,000	11	58	16,522	$8,026	$-43,435
500,000 to 699,999	16	119	20,069	-6,466	-48,231
700,000 to 899,999	26	450	23,280	76,729	-50,377
900,000 to 1,099,999	40	711	24,368	125,320	-96,794
1,100,000 & over	74	1,146	26,116	311,114	-111,690

Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 168 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. **Each column of the chart is independent of the others.** The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the top 10 percent for any other factor.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many things affect the level of costs, and must be taken into account when analyzing the factors.

Table 44.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
168 New York Dairy Farms, 2015

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
45.0	2,230	57,770,377	28,714	5.3	24	64	1,552,100
30.5	1,401	36,126,814	27,253	4.2	21	53	1,333,770
25.6	1,107	29,176,247	26,766	3.8	20	50	1,223,419
20.3	924	24,397,104	26,006	3.6	19	46	1,148,848
16.7	731	18,497,169	25,513	3.4	18	43	1,094,574
13.0	560	13,569,614	24,945	3.1	17	42	1,030,481
9.0	385	9,277,951	24,044	2.8	17	39	942,061
5.5	223	4,683,085	23,020	2.4	16	36	836,063
3.5	121	2,576,799	20,889	2.1	14	31	670,228
2.1	57	1,036,858	13,713	1.1	5	23	429,598

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$624	21%	$489	$1,171	$913	$5.46
1,132	29	677	1,461	1,559	7.02
1,394	31	763	1,624	1,768	7.40
1,506	33	819	1,720	1,891	7.72
1,613	35	873	1,800	2,009	8.04
1,692	36	923	1,870	2,107	8.26
1,747	38	966	1,931	2,199	8.65
1,814	39	1,014	2,016	2,304	8.98
1,916	41	1,132	2,199	2,427	9.61
2,142	47	1,337	2,605	2,656	10.90

The profitability section shows the variation in farm income by decile and enables a dairy farmer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy farmer who ranks at or near the top of most of these columns is in a very enviable position.

Farm Business Charts for farms with freestall barns and 200 cows or less, 201 to 500 cows, 501 to 800 cows and more than 800 cows, and farms with conventional barns are discussed in the supplemental section on pages 67-71.

Table 44. (continued)

FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
168 New York Dairy Farms, 2015

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.
$5,274	$20.13	$1,888	$11.53	$3,302	$17.47
5,021	19.03	3,014	13.30	4,284	18.53
4,874	18.79	3,358	14.15	4,663	19.41
4,764	18.59	3,623	14.94	4,877	19.86
4,677	18.39	3,815	15.46	5,048	20.25
4,517	18.19	4,022	15.94	5,170	20.60
4,376	17.94	4,165	16.46	5,295	21.12
4,160	17.67	4,343	17.24	5,489	22.15
3,845	17.52	4,578	17.86	5,699	23.84
2,529	16.98	4,924	19.58	6,187	27.81

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
$1,242,255	$1,088	0.22	$2,022,777	$1,655	$454,518	$203,563
493,446	727	0.14	945,332	1,084	85,135	39,136
352,608	562	0.10	659,961	823	12,603	5,706
210,270	416	0.08	422,273	654	-20,671	-10,969
113,647	299	0.06	243,356	564	-48,810	-30,884
48,446	182	0.04	149,432	434	-92,773	-59,368
12,033	54	0.01	81,369	258	-143,969	-87,573
-26,988	-84	-0.02	32,715	134	-287,531	-134,678
-116,964	-249	-0.05	-13,115	-36	-475,209	-210,520
-456,549	-606	-0.13	-243,021	-461	-889,988	-567,578

Financial Analysis and Management

Analysis and astute management of farm financial affairs must receive high priority if the farm business is to be successful and if the farm family is to achieve a reasonable living standard.

The farm finance checklist and the financial analysis chart are provided to serve as guidelines. Dairy farmers can determine how their financial management measures up by comparing with average data from other farms.

Table 45.

A FARM FINANCE CHECKLIST
168 New York Dairy Farms, 2015

	Average 168 farms		Average Top 10% Farms[44]	
How farm assets are being used (average for the year):				
Total assets (capital) per cow	$11,965		$10,957	
Farm assets in livestock	19%		21%	
Farm assets in farm real estate	42%		42%	
Farm assets in machinery	17%		16%	
Measures of debt capacity & debt structure:				
Equity in the business	69%		79%	
Farm debt per cow	$3,769		$2,352	
Long term debt/asset ratio[45]	0.28		0.22	
Intermediate & current term debt/asset ratio[45]	0.33		0.20	
Intermediate & current term debt as % of total debt	60%		45%	
Debt repayment ability:[46]				
Cash flow coverage ratio	1.54		3.30	
Debt coverage ratio	0.86		2.73	
Debt payments made per cow	$632		$574	
Debt payments made as % of milk receipts	14%		12%	
Indicators of annual financial progress:	Amount	Percent	Amount	Percent
Annual change in farm assets	+$364,765	+4.1%	+$491,183	+5.0%
Annual change in farm debt	+$333,808	+12.0%	+$ 6,654	+0.3%
Annual change in farm net worth	+$ 40,300	+0.6%	+$494,827	+6.5%

[44]Sixteen farms with highest rates of return on all capital (without appreciation).
[45]Long or intermediate and current term debt divided by long or intermediate and current term assets.
[46]Average of 156 farms that participated in DFBS both in 2014 and 2015. Fifteen top 10 percent farms that participated both years.

The most profitable farms carried $1,417 less debt per cow, the average equity in their businesses was 10 percent higher than that of the average of all 168 farms, and they had a greater ability to make 2016 debt payments when measured by cash flow coverage ratio and debt coverage ratio. Although with higher income they were able to pay down debt, it does not mean that lower debt farms are more profitable.

Average farm debts grew almost 8 percentage points faster than assets during 2015 on the 168 dairy farms. Due to appreciation average farm net worth still increased 0.6 percent on these farms.

The farm financial analysis chart is designed just like the farm business chart on pages 44-45 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 16, 18, 22, and 42 in this publication.

Table 46.

FINANCIAL ANALYSIS CHART
168 New York Dairy Farms, 2015

Liquidity/Repayment							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
$ 52	$1,605	13.99	8.34	0%	$ 248	65%	65.97
199	1,265	3.45	2.43	2	1,199	44	9.66
343	1,028	2.22	1.59	5	2,261	35	5.04
455	867	1.54	1.13	7	2,863	28	3.58
543	740	1.22	0.86	10	3,403	23	2.93
654	611	1.03	0.63	11	3,934	18	2.25
759	476	0.83	0.33	13	4,322	15	1.85
901	321	0.66	0.07	16	5,110	11	1.51
1,041	161	0.30	-0.20	19	5,959	6	1.20
1,760	-346	-1.08	-1.63	27	7,644	-5	0.72

Solvency				Operational Ratios		
		Debt/Asset Ratio		Operating	Interest	Depreciation
Leverage Ratio[47]	Percent Equity	Current & Intermediate	Long Term	Expense Ratio	Expense Ratio	Expense Ratio
-0.62	98%	0.02	0.00	0.68	0.00	0.03
0.10	91	0.09	0.00	0.76	0.01	0.05
0.21	83	0.15	0.07	0.80	0.01	0.05
0.31	77	0.22	0.15	0.82	0.02	0.06
0.38	72	0.27	0.23	0.84	0.02	0.08
0.48	68	0.32	0.30	0.86	0.03	0.08
0.62	62	0.37	0.39	0.89	0.03	0.09
0.76	57	0.43	0.48	0.93	0.03	0.10
0.89	53	0.50	0.58	0.96	0.04	0.11
1.48	40	0.71	1.13	1.03	0.06	0.13

Efficiency (Capital)					Profitability	
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return with Appreciation on: Equity	Investment[48]
0.76	$ 2,405	$ 791	$ 7,522	$ 1,168,525	15%	12%
0.60	3,472	1,328	9,610	494,859	9	7
0.54	3,928	1,605	10,385	233,356	6	5
0.52	4,366	1,817	11,078	81,836	4	4
0.47	4,956	2,042	11,957	25,252	2	3
0.44	5,500	2,333	12,954	-15,892	1	2
0.40	6,029	2,629	13,722	-57,945	-1	1
0.37	6,741	2,913	14,521	-107,746	-2	-1
0.33	7,925	3,295	15,765	-298,092	-5	-2
0.23	11,308	5,402	20,681	-1,028,049	-17	-8

[47]Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.
[48]Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Herd Size Comparisons

The 168 New York dairy farms have been sorted into seven herd size categories and averages for the farms in each category are presented in Tables 47 through 55. Note that after the less than 100 cow category, the herd size categories increase by 100 cows up to 200 cows, by 200 cows up to 600 cows, and by 300 cows up to 1,200 cows.

In most years, as herd size increases, the net farm income increases (Table 47); and that was the case for 2015. Net farm income without appreciation averaged $12,721 per farm for the less than 100 cow farms and $503,658 per farm for those with more than 1,200 cows. Return to all capital without appreciation generally increased as herd size increased. With herd sizes less than 200 cows, many farms find it difficult to find a low cost combination of technology and labor to produce milk. Thus profits are lower for these herds than other herd sizes.

It is more than size of herd that determines profitability on dairy farms. Farms with 1,200 and more cows averaged $271 net farm income per cow while 100 cows or less dairy farms averaged $249 net farm income per cow. The 100 to 199 herd size category had the highest net farm income per cow at $284, while the 900 to 1,199 herd size category had the lowest net farm income per cow at $164. In some years, other herd size categories have averaged the highest net farm income per cow. Other factors that affect profitability and their relationship to the size classifications are shown in Table 48.

Table 47.

COWS PER FARM AND FARM FAMILY INCOME MEASURES
168 New York Dairy Farms, 2015

Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income Without Appreciation	Net Farm Income Per Cow	Labor & Management Income Per Operator	Return to All Capital Without Appreciation
Less than 100	20	62	$12,721	$207	$-22,803	-5.0%
100 to 199	20	145	42,086	289	-31,093	-0.8%
200 to 399	20	291	43,717	150	-53,119	-0.3%
400 to 599	22	499	73,930	148	-78,819	0.0%
600 to 899	28	753	202,162	268	-41,132	1.3%
900 to 1,199	25	1,063	168,543	159	-109,986	1.2%
1,200 & over	33	1,797	503,658	280	-89,713	1.9%

This year, net farm income per cow deviated from the expected positive correlation with herd size, there was no strong correlation observed between herd size and net farm income per cow like is typically expected. All herd size categories saw a decrease in operating cost of producing milk from the previous year (Table 48). Net farm income per cow will generally increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output, this is influenced largely by management decisions.

The farms with 900 to 1,199 cows averaged more milk sold per cow than any other size category (Table 48). With 26,354 pounds of milk sold per cow, farms in this herd size group averaged 10.3 percent more milk output per cow than the average of the remaining herds in the summary.

Many dairy farmers who have been willing and able to employ and manage the labor required to milk three times per day have been successful. One of the 20 DFBS farms with less than 100 cows used a milking frequency greater than two times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 199 cows reported 30 percent of the herds milking more often than two times per day, the 200-399 cow herds reported 45 percent, 400-599 cow herds reported 68 percent, 600-899 cow herds reported 89 percent, and 96 percent of farms with 900 cows or more reported exceeding the two times per day milking frequency. Data regarding milking frequency for all farms is further analyzed in Table 70, which can be found on page 79.

Table 48.

COWS PER FARM AND RELATED FARM FACTORS
168 New York Dairy Farms, 2015

Number of Cows	Average Number of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tillable Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk Per Cwt.	
							Operating	Total
Under 100	62	19,657	4,810	4.3	10.2	$14,074	$14.96	$24.76
100 to 199	145	22,027	8,144	2.7	9.6	14,770	15.41	21.99
200 to 399	291	22,363	9,121	2.3	7.9	12,842	15.94	21.13
400 to 599	499	25,082	10,172	2.2	8.5	12,411	15.96	20.59
600 to 899	753	25,300	11,103	2.3	8.4	12,120	15.55	19.84
900 to 1,199	1,063	26,354	11,658	1.9	8.4	11,577	16.25	19.83
1,200 & over	1,797	25,781	12,594	1.9	7.9	11,733	15.57	19.44

Milk output per worker has always shown a strong correlation with herd size, this stayed continued this year. The farms with 100 cows or more averaged over 1,159,675 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 480,999 pounds per worker.

In achieving the highest productivity per cow and per worker, the larger farms had the fewest crop acres per cow. The 900 to 1,199 herd size group had the most efficient use of farm capital with an average investment of $11,577 per cow.

The 33 farms with 1,200 or more cows had the lowest total cost of producing milk at $19.44 per hundredweight. This is $0.76 below the $20.20 average for the remaining 135 dairy farms.

Tables 49 through 52 show progress of the farm businesses that have participated in DFBS in each of the last five years for four herd size groups.

A detailed list of accrual expenses, receipts and a profitability analysis is presented in Table 53, on pages 54 and 55 for the seven herd size categories. Purchased feed is the largest expense on all farms, regardless of size. However, larger farms find hired labor expense as the second largest expense category.

Assets, liabilities and financial measures are presented in Table 54 on pages 56-59. Despite the decrease in milk price received most herd size categories continued to see an increase in net worth during 2015. The largest herd size category experienced an increase in net worth of $110,075. However, percent equity varied as herd size increased. The 900 to 1,199 herd size category had the lowest percent equity at 65 percent; while the 100 to 199 herd size category averaged the highest percent equity at 76 percent.

Selected business factors by herd size group are presented in Table 55 on pages 60 and 61. George Warren, father of farm business management at Cornell, said in his 1918 farm management text, "No size of farm is large enough to ensure a profit." Therefore, larger farms are, on average, more profitable; but no farm is large enough to guarantee a profit. For a more detailed analysis of large herd farms, see Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2015. For analysis of smaller herds, see Dairy Farm Business Summary, New York Dairy Farms, 300 Cows or Fewer, 2015. Both publications are available from the Dairy Farm Business Summary and Analysis Project, Dyson School of Applied Economics and Management, Cornell University, 350 Warren Hall, Ithaca, New York 14853-7801; phone 607-255-8429. Visit the Charles H. Dyson School of Applied Economics and Management website http://www.dyson.cornell.edu/outreach/ for a list of all department publications and a publication order form.

Table 49.

PROGRESS OF FARM BUSINESSES WITH LESS THAN 110 COWS
Same 16 New York Dairy Farms, 2011 - 2015

Selected Factors	2011	2012	2013	2014	2015
Milk receipts per cwt. milk	$21.58	$19.74	$21.37	$25.47	$17.95
Size of Business					
Average number of cows	61	60	60	61	64
Average number of heifers	46	45	43	45	49
Milk sold, cwt.	11,491	11,139	11,403	11,390	12,303
Worker equivalent	2.21	2.30	2.44	2.40	2.40
Total tillable acres	212	225	236	244	258
Rates of Production					
Milk sold per cow, lbs.	18,934	18,702	19,024	18,691	19,335
Hay DM per acre, tons	2.5	2.4	2.1	2.2	2.3
Corn silage per acre, tons	15	15	15	17	16
Labor Efficiency					
Cows per worker	27	26	25	25	27
Milk sold per worker, lbs.	520,541	484,128	468,132	474,257	513,147
Cost Control					
Grain & concen. purchased as % of milk sales	26%	32%	25%	23%	28%
Dairy feed & crop expense per cwt. milk	$7.52	$8.40	$7.89	$8.61	$7.49
Operating cost of producing cwt. milk	$15.51	$15.13	$16.65	$17.07	$14.52
Total cost of producing cwt. milk	$24.49	$24.65	$26.24	$26.98	$23.52
Hired labor cost per cwt.	$1.40	$1.39	$1.53	$1.57	$1.59
Interest paid per cwt.	$0.74	$0.66	$0.68	$0.70	$0.63
Labor & machinery costs per cow	$2,106	$2,125	$2,203	$2,219	$2,044
Total Replacement livestock expense	$3,833	$5,059	$6,123	$3,920	$3,692
Total Expansion livestock expense	$0	$454	$0	$542	$519
Capital Efficiency					
Farm capital per cow	$13,579	$14,517	$15,420	$15,569	$15,166
Machinery & equipment per cow	$3,570	$3,802	$3,867	$3,911	$3,864
Real estate per cow	$5,927	$6,405	$7,118	$7,176	$7,007
Livestock investment per cow	$2,211	$2,238	$2,264	$2,326	$2,311
Asset turnover ratio	0.39	0.35	0.31	0.36	0.28
Profitability					
Net farm income without appreciation	$48,929	$31,340	$33,518	$70,781	$20,972
Net farm income with appreciation	$76,543	$61,829	$42,110	$80,742	$23,880
Labor & management income per operator/manager	$4,491	$-11,728	$-7,120	$20,469	$-15,504
Rate return on:					
Equity capital with appreciation	4.1%	1.4%	-1.6%	4.0%	-3.7%
All capital with appreciation	4.2%	1.9%	-0.4%	4.0%	-2.1%
All capital without appreciation	0.8%	-1.6%	-1.3%	2.9%	-2.4%
Financial Summary, End Year					
Farm net worth	$657,652	$688,587	$717,631	$757,540	$752,305
Change in net worth with appreciation	$40,480	$51,377	$17,982	$42,276	$-5,730
Debt to asset ratio	0.22	0.23	0.23	0.21	0.22
Farm debt per cow	$3,007	$3,385	$3,582	$3,258	$3,308

Table 50.

PROGRESS OF FARM BUSINESSES WITH 110-499 COWS
Same 33 New York Dairy Farms, 2011 - 2015

Selected Factors	2011	2012	2013	2014	2015
Milk receipts per cwt. milk	$21.93	$19.87	$21.82	$25.91	$18.43
Size of Business					
Average number of cows	265	271	272	280	291
Average number of heifers	228	227	228	230	235
Milk sold, cwt.	60,748	63,741	65,844	67,532	70,635
Worker equivalent	6.54	6.90	6.98	7.25	7.17
Total tillable acres	540	577	579	597	604
Rates of Production					
Milk sold per cow, lbs.	22,914	23,500	24,173	24,152	24,303
Hay DM per acre, tons	3.4	2.6	3.4	3.5	3.2
Corn silage per acre, tons	16	17	18	20	18
Labor Efficiency					
Cows per worker	41	39	39	39	41
Milk sold per worker, lbs.	928,992	923,787	944,006	931,266	985,601
Cost Control					
Grain & concen. purchased as % of milk sales	27%	34%	32%	28%	35%
Dairy feed & crop expense per cwt. milk	$7.39	$8.64	$8.94	$9.06	$8.02
Operating cost of producing cwt. milk	$15.66	$15.83	$16.50	$17.07	$15.57
Total cost of producing cwt. milk	$19.92	$20.30	$21.13	$22.12	$20.53
Hired labor cost per cwt.	$2.61	$2.61	$2.64	$2.77	$2.83
Interest paid per cwt.	$0.45	$0.43	$0.44	$0.39	$0.40
Labor & machinery costs per cow	$1,683	$1,748	$1,846	$1,107	$1,854
Total Replacement livestock expense	$9,179	$8,039	$9,102	$10,004	$7,253
Total Expansion livestock expense	$2,432	$3,564	$3,498	$1,458	$2,707
Capital Efficiency					
Farm capital per cow	$9,560	$10,102	$10,780	$11,567	$12,159
Machinery & equipment per cow	$1,771	$1,950	$2,102	$2,279	$2,388
Real estate per cow	$3,889	$4,096	$4,458	$4,659	$4,978
Livestock investment per cow	$2,083	$2,095	$2,103	$2,117	$2,128
Asset turnover ratio	0.60	0.56	0.57	0.63	0.45
Profitability					
Net farm income without appreciation	$296,653	$154,953	$234,992	$470,456	$83,020
Net farm income with appreciation	$345,705	$217,694	$290,521	$546,822	$152,059
Labor & management income per operator/manager	$121,710	$30,916	$76,399	$198,795	$-33,883
Rate return on:					
Equity capital with appreciation	14.5%	6.8%	9.6%	18.6%	2.1%
All capital with appreciation	11.4%	5.9%	8.0%	14.9%	2.4%
All capital without appreciation	9.5%	3.6%	6.1%	12.5%	0.4%
Financial Summary, End Year					
Farm net worth	$1,930,498	$2,044,970	$2,235,606	$2,650,261	$2,724,316
Change in net worth with appreciation	$252,128	$103,721	$179,983	$411,799	$32,378
Debt to asset ratio	0.27	0.28	0.26	0.23	0.24
Farm debt per cow	$2,648	$2,936	$2,909	$2,755	$2,943

Table 51.

PROGRESS OF FARM BUSINESSES WITH 500-999 COWS

Same 40 New York Dairy Farms, 2011 - 2015

Selected Factors	2011	2012	2013	2014	2015
Milk receipts per cwt. milk	$21.62	$19.73	$21.52	$25.58	$18.32
Size of Business					
Average number of cows	618	634	657	687	720
Average number of heifers	531	542	562	575	606
Milk sold, cwt.	149,857	157,032	165,168	171,394	180,318
Worker equivalent	13.66	14.44	14.92	15.83	16.51
Total tillable acres	1,307	1,372	1,412	1,449	1,594
Rates of Production					
Milk sold per cow, lbs.	24,240	24,776	25,142	24,945	25,045
Hay DM per acre, tons	3.6	2.8	3.5	3.4	3.4
Corn silage per acre, tons	17	17	18	19	18
Labor Efficiency					
Cows per worker	45	44	44	43	44
Milk sold per worker, lbs.	1,097,452	1,087,291	1,089,829	1,116,206	1,092,284
Cost Control					
Grain & concen. purchased as % of milk sales	28%	33%	33%	29%	35%
Dairy feed & crop expense per cwt. milk	$7.60	$8.43	$8.89	$9.18	$8.33
Operating cost of producing cwt. milk	$15.59	$15.93	$16.88	$17.44	$15.78
Total cost of producing cwt. milk	$19.35	$19.76	$20.94	$21.76	$20.20
Hired labor cost per cwt.	$2.60	$2.63	$2.71	$2.82	$2.94
Interest paid per cwt.	$0.52	$0.51	$0.51	$0.48	$0.53
Labor & machinery costs per cow	$1,663	$1,686	$1,796	$1,849	$1,784
Total Replacement livestock expense	$12,296	$10,074	$12,683	$14,973	$16,624
Total Expansion livestock expense	$11,521	$21,689	$10,977	$18,309	$21,032
Capital Efficiency					
Farm capital per cow	$9,757	$10,566	$11,021	$11,868	$12,695
Machinery & equipment per cow	$1,632	$1,770	$1,876	$2,018	$2,131
Real estate per cow	$4,036	$4,452	$4,700	$5,042	$5,632
Livestock investment per cow	$2,273	$2,276	$2,267	$2,285	$2,342
Asset turnover ratio	0.64	0.58	0.58	0.65	0.46
Profitability					
Net farm income without appreciation	$672,388	$354,866	$502,290	$1,100,890	$148,473
Net farm income with appreciation	$881,833	$596,197	$656,335	$1,456,748	$367,235
Labor & management income per operator/manager	$202,707	$55,090	$101,605	$341,269	$-68,416
Rate return on:					
Equity capital with appreciation	18.8%	10.0%	10.0%	22.5%	3.1%
All capital with appreciation	13.8%	8.0%	8.0%	16.9%	3.2%
All capital without appreciation	10.3%	4.4%	5.9%	12.6%	0.8%
Financial Summary, End Year					
Farm net worth	$4,386,270	$4,776,207	$5,189,509	$6,303,007	$6,375,599
Change in net worth with appreciation	$773,171	$383,499	$410,272	$1,095,688	$-3,332
Debt to asset ratio	0.31	0.32	0.31	0.28	0.32
Farm debt per cow	$3,217	$3,475	$3,457	$3,551	$4,319

Table 52.

PROGRESS OF FARM BUSINESSES WITH MORE THAN 1000 COWS

Same 45 New York Dairy Farms, 2011 - 2015

Selected Factors	2011	2012	2013	2014	2015
Milk receipts per cwt. milk	$21.65	$19.78	$21.71	$25.40	$18.30
Size of Business					
Average number of cows	1,237	1,294	1,361	1,444	1,508
Average number of heifers	1,067	1,116	1,175	1,239	1,301
Milk sold, cwt.	316,398	339,349	359,004	379,362	396,818
Worker equivalent	25.96	27.79	28.70	30.97	32.19
Total tillable acres	2,299	2,411	2,489	2,581	2,703
Rates of Production					
Milk sold per cow, lbs.	25,574	26,235	26,387	26,280	26,313
Hay DM per acre, tons	3.6	3.3	3.8	3.6	3.5
Corn silage per acre, tons	17	17	18	19	18
Labor Efficiency					
Cows per worker	48	47	47	47	47
Milk sold per worker, lbs.	1,218,830	1,221,084	1,251,067	1,224,801	1,232,896
Cost Control					
Grain & concen. purchased as % of milk sales	28%	34%	32%	29%	36%
Dairy feed & crop expense per cwt. milk	$7.50	$8,42	$8.86	$9.00	$8.24
Operating cost of producing cwt. milk	$15.38	$15.75	$16.50	$17.16	$15.82
Total cost of producing cwt. milk	$18.51	$19.02	$19.91	$20.83	$19.65
Hired labor cost per cwt.	$2.83	$2.86	$2.87	$3.04	$3.09
Interest paid per cwt.	$0.46	$0.43	$0.46	$0.41	$0.42
Labor & machinery costs per cow	$1,576	$1,648	$1,692	$1,800	$1,734
Total Replacement livestock expense	$30,389	$9,425	$14,774	$10,376	$5,031
Total Expansion livestock expense	$17,058	$65,420	$40,669	$66,646	$26,713
Capital Efficiency					
Farm capital per cow	$9,318	$9,996	$10,502	$11,153	$11,704
Machinery & equipment per cow	$1,470	$1,575	$1,684	$1,827	$1,933
Real estate per cow	$3,713	$3,995	$4,242	$4,403	$4,819
Livestock investment per cow	$2,205	$2,219	$2,230	$2,254	$2,297
Asset turnover ratio	0.68	0.62	0.64	0.70	0.51
Profitability					
Net farm income without appreciation	$1,566,128	$895,699	$1,341,881	$2,521,731	$327,596
Net farm income with appreciation	$1,799,086	$1,179,401	$1,660,181	$2,932,151	$879,125
Labor & management income per operator/manager	$495,670	$182,013	$349,565	$778,961	$-110,221
Rate return on:					
Equity capital with appreciation	20.9%	11.1%	15.0%	24.2%	5.1%
All capital with appreciation	15.3%	8.7%	11.3%	17.8%	4.5%
All capital without appreciation	13.3%	6.5%	9.1%	15.2%	1.4%
Financial Summary, End Year					
Farm net worth	$8,424,362	$9,100,367	$10,096,389	$12,313,235	$12,424,705
Change in net worth with appreciation	$1,393,897	$577,527	$928,382	$2,282,024	$69,957
Debt to asset ratio	0.31	0.33	0.32	0.29	0.31
Farm debt per cow	$3,016	$3,362	$3,504	$3,408	$3,695

Table 53.

FARM BUSINESS SUMMARY BY HERD SIZE
168 New York Dairy Farms, 2015

Item Farm Size:	Less than 100 Cows	100 to 199 Cows	200 to 399 Cows	400 to 599 Cows
Number of farms	20	20	20	22
ACCRUAL EXPENSES				
Hired labor	$15,934	$68,626	$183,862	$384,015
Dairy grain & concentrate	68,910	204,874	418,220	786,914
Dairy roughage	9,873	2,452	26,316	32,544
Nondairy feed	564	0	0	88
Professional nutritional services	0	0	541	166
Machine hire, rent & lease	3,812	17,557	34,405	107,630
Machine repairs & farm vehicle expense	14,508	36,134	70,815	120,440
Fuel, oil & grease	9,014	22,555	42,460	74,711
Replacement livestock	6,354	1,488	11,813	26,337
Breeding	4,270	9,226	16,983	29,347
Veterinary & medicine	6,432	17,518	39,272	85,094
Milk marketing	13,648	37,886	58,664	134,869
Bedding	4,681	11,298	28,674	50,768
Milking supplies	5,871	15,800	33,013	50,168
Cattle lease & rent	0	0	0	0
Custom boarding	2,126	0	13,229	24,019
bST expense	407	1,333	5,262	11,941
Livestock professional fees	1,659	2,604	2,802	12,823
Other livestock expense	4,061	4,921	7,169	10,091
Fertilizer & lime	5,733	22,081	35,822	66,956
Seeds & plants	5,704	21,471	36,946	63,224
Spray & other crop expense	2,998	10,184	17,887	38,947
Crop professional fees	616	726	5,955	1,396
Land, building & fence repair	3,208	10,051	13,284	38,091
Taxes & rent	10,638	23,735	42,975	68,196
Utilities	8,009	15,485	26,582	51,299
Interest paid	7,894	22,136	38,852	49,673
Other professional fees	1,237	2,867	5,820	17,377
Misc. (including insurance)	5,957	14,264	25,163	50,157
Total Operating Expenses	$224,116	$596,842	$1,242,787	$2,387,238
Expansion livestock	415	4,220	5,940	8,305
Extraordinary expense	594	236	3,174	0
Machinery depreciation	16,352	37,571	70,763	133,118
Building depreciation	4,833	11,084	36,876	86,480
Total Accrual Expenses	$246,310	$649,952	$1,359,540	$2,615,140
ACCRUAL RECEIPTS				
Milk sales	$215,405	$584,418	$1,191,173	$2,291,810
Dairy cattle	20,682	60,933	110,780	218,167
Dairy calves	6,285	19,020	36,127	44,462
Other livestock	1,113	-80	301	18,739
Crops	5,096	8,698	27,754	58,414
Miscellaneous receipts	10,451	19,049	37,122	57,479
Total Accrual Receipts	$259,031	$692,037	$1,403,257	$2,689,071
PROFITABILITY ANALYSIS				
Net farm income (without appreciation)	$12,721	$42,086	$43,717	$73,930
Net farm income (with appreciation)	$19,215	$76,076	$99,618	$209,096
Labor & management income	$-31,012	$-45,573	$-94,552	$-163,944
Number of operators	1.36	1.53	1.78	2.08
Labor & management income/operator	$-22,803	$-31,093	$-53,119	$-78,819
Rates of return on: Equity capital w/o apprec.	-7.8%	-2.3%	-1.86%	-1.0%
Equity capital with appreciation	-6.8%	-0.3%	0.2%	1.8%
All capital without appreciation	-5.0%	-0.8%	-0.3%	0.0%
All capital with appreciation	-4.2%	-0.8%	1.2%	2.2%

*May not add due to rounding.

Table 53. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
168 New York Dairy Farms, 2015

Item	Farm Size:	600 to 899 Cows	900 to 1,199 Cows	1,200 or More Cows
Number of farms		28	25	33
ACCRUAL EXPENSES				
Hired labor		$545,796	$869,340	$1,429,370
Dairy grain & concentrate		1,253,402	1,888,855	3,077,592
Dairy roughage		61,561	147,861	116,393
Nondairy feed		2	159	0
Professional nutritional services		1,240	1,174	1,180
Machine hire, rent & lease		120,301	139,961	178,886
Machine repairs & farm vehicle expense		188,235	254,870	473,501
Fuel, oil & grease		116,864	154,749	263,669
Replacement livestock		5,910	8,125	974
Breeding		49,112	55,162	94,688
Veterinary & medicine		132,846	188,042	321,747
Milk marketing		174,673	267,425	437,507
Bedding		79,402	121,889	157,835
Milking supplies		75,698	103,489	182,878
Cattle lease & rent		4,759	763	9,752
Custom boarding		105,053	136,743	156,909
bST expense		36,791	42,618	94,673
Livestock professional services		11,429	13,707	23,305
Other livestock expense		12,322	24,921	44,025
Fertilizer & lime		138,774	148,386	240,133
Seeds & plants		96,465	125,785	231,240
Spray & other crop expense		49,145	58,505	106,208
Crop professional fees		6,495	8,357	8,184
Land, building & fence repair		71,290	102,249	170,924
Taxes & rent		108,775	157,539	236,531
Utilities		82,034	118,636	163,564
Interest paid		102,761	138,637	180,149
Other professional fees		23,500	31,946	57,449
Misc. (including insurance)		58,270	102,279	156,264
Total Operating Expenses		$3,712,903	$5,412,174	$8,615,530
Expansion livestock		38,503	13,898	37,510
Extraordinary expense		395	1,041	4,912
Machinery depreciation		185,474	246,540	432,692
Building depreciation		135,247	183,614	315,018
Total Accrual Expenses		$4,072,522	$5,857,266	$9,405,662
ACCRUAL RECEIPTS				
Milk sales		$3,487,375	$5,154,601	$8,472,888
Dairy cattle		413,966	484,281	863,124
Dairy calves		88,590	118,709	203,749
Other livestock		32,942	9,408	9,669
Crops		106,970	101,487	108,124
Misc. receipts		144,841	157,324	251,765
Total Accrual Receipts		$4,274,684	$6,025,809	$9,909,320
PROFITABILITY ANALYSIS				
Net farm income (without appreciation)		$202,162	$168,543	$503,658
Net farm income (with appreciation)		$454,310	$466,573	$1,129,302
Labor & management income		$-110,647	$-238,669	$-252,094
Number of operators		2.69	2.17	2.81
Labor & management income/operator		$-41,133	$-109,986	$-89,713
Rates of return on: Equity capital w/o apprec.		0.3%	0.1%	1.5%
Equity capital with appreciation		4.4%	3.7%	5.6%
All capital without appreciation		1.3%	1.2%	1.9%
All capital with appreciation		4.1%	3.6%	4.9%

*May not add due to rounding.

Table 54.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
168 New York Dairy Farms, 2015

Farms with:	Less than 100 Cows		100 to 199 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$ 9,844	$ 6,093	$ 30,932	$ 25,678
Accounts receivable	21,630	18,054	65,374	56,467
Prepaid expenses	122	5	1,036	566
Feed & supplies	68,375	64,132	213,399	196,223
Livestock[49]	142,265	145,421	341,455	356,741
Machinery & equipment[49]	180,749	188,947	494,596	492,525
Farm Credit stock	785	735	625	620
Other stock & certificates	10,763	10,518	62,983	64,586
Land & buildings[49]	427,620	435,023	927,533	963,712
Total Farm Assets	$862,151	$868,929	$2,137,934	$2,157,117
Nonfarm Assets[50]	$137,264	$133,294	$ 224,786	$ 221,462
Farm & Nonfarm Assets	$999,415	$1,002,223	$2,362,720	$2,378,579
LIABILITIES (excluding deferred taxes)				
Accounts payable	$ 4,519	$ 8,814	$ 11,189	$ 18,673
Operating debt	3,380	3,886	14,176	16,153
Short term	6,109	109	5,564	2,529
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	12,745	17,858	38,797	41,419
Long Term	5,552	5,733	18,543	18,868
Intermediate[51]	72,013	86,429	158,421	156,332
Long term[49]	96,931	91,884	266,220	259,034
Total Farm Liabilities	$201,248	$214,713	$ 512,910	$ 513,007
Nonfarm Liabilities[50]	4,359	5,273	2,574	1,094
Farm & Nonfarm Liabilities	$205,607	$219,986	$ 515,484	$ 514,101
Farm Net Worth (Equity Capital)	$660,903	$654,216	$1,254,050	$1,664,110
Farm & Nonfarm Net Worth	$793,808	$782,237	$1,847,236	$1,864,478

FINANCIAL MEASURES	Less than 100 Cows	100 to 199 Cows
Percent Equity	75%	76%
Debt/asset ratio-long term	0.21	0.27
Debt/asset ratio-intermediate & current	0.28	0.21
Debt/asset ratio-total	0.25	0.24
Leverage ratio	0.33	0.31
Current ratio	2.43	2.86
Working capital as % of total expenses	21%	28%
Accounts payable as % of total debt	4%	4%
Long-term debt as % of total debt	43%	50%
Cost of term debt (weighted average)	3.60%	3.85%
Change in net worth with appreciation	$-6,687	$19,086
Total farm debt per cow	$3,405	$3,417
Debt payments made per cow	$619	$663
Debt payments as % of milk sales	18%	17%
Amount available for debt service	$26,068	$69,766
Cash flow coverage ratio for 2015	0.85	1.14
Debt coverage ratio for 2015	0.49	0.68

[49]Includes discounted lease payments.
[50]Average of farms reporting nonfarm assets and liabilities for 2015.
[51]Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
168 New York Dairy Farms, 2015

Farms with:	200 to 399 Cows		400 to 599 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$ 27,418	$ 12,069	$ 65,643	$ 49,801
Accounts receivable	157,322	122,091	361,367	257,305
Prepaid expenses	7,249	1,070	12,831	11,892
Feed & supplies	383,215	359,916	794,463	749,660
Livestock[52]	611,067	632,063	1,083,594	1,117,495
Machinery & equipment[52]	686,216	680,981	1,175,598	1,258,774
Farm Credit stock	670	670	1,136	1,136
Other stock & certificates	101,882	103,305	196,142	234,073
Land & buildings[52]	1,736,802	1,845,068	2,339,843	2,680,734
Total Farm Assets	$3,711,841	$3,757,232	$6,030,618	$6,360,871
Nonfarm Assets[53]	$ 64,921	$ 67,214	$1,222,956	$1,248,431
Farm & Nonfarm Assets	$3,776,762	$3,824,446	$7,253,574	$7,609,302
LIABILITIES (excluding deferred taxes)				
Accounts payable	$ 22,790	$ 37,650	$ 67,366	$ 57,825
Operating debt	26,398	46,595	175,679	187,311
Short term	75	825	0	6,149
Advanced government receipt	0	11	0	0
Current Portion:				
Intermediate	74,183	81,310	97,246	101,819
Long Term	30,476	41,944	41,681	49,492
Intermediate[54]	300,115	257,459	412,112	483,039
Long term[52]	593,120	615,691	479,739	754,866
Total Farm Liabilities	$1,047,156	$1,081,487	$1,273,824	$1,640,502
Nonfarm Liabilities[53]	7,508	2,431	6,608	0
Farm & Nonfarm Liabilities	$1,054,664	$1,083,918	$1,280,432	$1,640,502
Farm Net Worth (Equity Capital)	$2,664,684	$2,675,745	$4,756,794	$4,720,369
Farm & Nonfarm Net Worth	$2,722,098	$2,740,528	$5,973,142	$5,968,800

FINANCIAL MEASURES	200 to 399 Cows	400 to 599 Cows
Percent equity	71%	74%
Debt/asset ratio-long term	0.33	0.28
Debt/asset ratio-intermediate & current	0.24	0.24
Debt/asset ratio-total	0.29	0.26
Leverage ratio	0.40	0.35
Current ratio	2.38	2.65
Working capital as % of total expenses	21%	25%
Accounts payable as % of total debt	3%	4%
Long-term debt as % of total debt	57%	46%
Cost of term debt (weighted average)	4.40%	3.68%
Change in net worth with appreciation	$11,061	$-36,425
Total farm debt per cow	$3,708	$3,311
Debt payments made per cow	$835	$552
Debt payments as % of milk sales	21%	12%
Amount available for debt service	$147,842	$300,164
Cash flow coverage ratio for 2015	0.79	1.65
Debt coverage ratio for 2015	0.49	0.98

[52]Includes discounted lease payments.
[53]Average of farms reporting nonfarm assets and liabilities for 2015.
[54]Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
168 New York Dairy Farms, 2015

Farms with:	600 to 899 Cows		900 to 1,199 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$ 62,905	$ 60,761	$ 119,091	$ 123,080
Accounts receivable	397,907	320,279	817,973	633,081
Prepaid expenses	28,846	6,491	22,375	10,928
Feed & supplies	1,213,305	1,112,733	1,451,900	1,348,631
Livestock[55]	1,693,913	1,833,705	2,466,059	2,562,493
Machinery & equipment[55]	1,475,315	1,579,249	1,969,407	2,022,038
Farm Credit stock	1,000	1,071	1,937	5,800
Other stock & certificates	237,905	266,466	456,347	480,822
Land & buildings[55]	3,754,712	4,211,563	4,706,145	5,422,216
Total Farm Assets	$8,865,809	$9,392,318	$12,011,233	$12,609,087
Nonfarm Assets[56]	$ 354,063	$ 373,436	$ 451,073	$ 447,956
Farm & Nonfarm Assets	$9,219,872	$9,765,754	$12,462,306	$13,057,043
LIABILITIES (excluding deferred taxes)				
Accounts payable	$ 60,225	$ 100,493	$ 102,566	$ 147,971
Operating debt	180,591	170,505	320,877	386,372
Short term	4,400	7,733	10,179	12,334
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	196,523	216,961	369,183	374,943
Long Term	89,897	101,011	136,496	144,781
Intermediate[57]	880,208	1,019,017	1,380,317	1,490,137
Long term[55]	1,269,649	1,502,593	1,566,541	1,889,124
Total Farm Liabilities	$2,681,493	$3,118,313	$ 3,886,159	$4,445,662
Nonfarm Liabilities[56]	0	0	8,750	0
Farm & Nonfarm Liabilities	$2,681,493	$3,118,313	$ 3,894,909	$4,445,662
Farm Net Worth (Equity Capital)	$6,184,316	$6,274,005	$ 8,125,074	$ 8,163,425
Farm & Nonfarm Net Worth	$6,538,379	$6,647,441	$ 8,567,397	$8,611,381

FINANCIAL MEASURES	600 to 899 Cows	900 to 1,199 Cows
Percent equity	67%	65%
Debt/asset ratio-long term	0.36	0.35
Debt/asset ratio-intermediate & current	0.31	0.36
Debt/asset ratio-total	0.33	0.35
Leverage ratio	0.50	0.54
Current ratio	2.51	1.98
Working capital as % of total expenses	22%	18%
Accounts payable as % of total debt	3%	3%
Long-term debt as % of total debt	48%	42%
Cost of term debt (weighted average)	4.14%	3.88%
Change in net worth with appreciation	$89,689	$38,351
Total farm debt per cow	$4,309	$4,160
Debt payments made per cow	$617	$659
Debt payments as % of milk sales	13%	14%
Amount available for debt service	$541,242	$709,571
Cash flow coverage ratio for 2015	1.36	1.09
Debt coverage ratio for 2015	0.99	0.64

[55]Includes discounted lease payments.
[56]Average of farms reporting nonfarm assets and liabilities for 2015.
[57]Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
168 New York Dairy Farms, 2015

Farms with:	More than 1,200 Cows	
Item	Jan. 1	Dec. 31
ASSETS		
Farm cash, checking & savings	$ 234,466	$ 130,582
Accounts receivable	1,578,523	909,082
Prepaid expenses	45,852	22,224
Feed & supplies	2,762,782	2,508,958
Livestock[58]	3,984,680	4,187,252
Machinery & equipment[58]	3,314,958	3,531,952
Farm Credit stock	1,606	1,576
Other stock & certificates	597,549	684,964
Land & buildings[58]	8,220,914	9,458,655
Total Farm Assets	$20,741,330	$21,435,246
Nonfarm Assets[59]	$ 1,955,521	$ 2,068,401
Farm & Nonfarm Assets	$22,696,851	$23,503,647
LIABILITIES (excluding deferred taxes)		
Accounts payable	$ 96,634	$ 91,554
Operating debt	722,159	650,362
Short term	1,921	2,576
Advanced government receipts	0	0
Current Portion:		
Intermediate	454,316	443,831
Long Term	127,434	151,190
Intermediate[60]	2,595,288	2,869,456
Long term[58]	1,692,401	2,065,024
Total Farm Liabilities	$ 5,690,152	$ 6,273,993
Nonfarm Liabilities[59]	0	0
Farm & Nonfarm Liabilities	$ 5,690,152	$ 6,273,993
Farm Net Worth (Equity Capital)	$15,051,178	$15,161,253
Farm & Nonfarm Net Worth	$17,006,699	$17,229,654

FINANCIAL MEASURES	More than 1,200 Cows
Percent equity	71%
Debt/asset ratio-long term	0.22
Debt/asset ratio-intermediate & current	0.35
Debt/asset ratio-total	0.29
Leverage ratio	0.41
Current ratio	2.67
Working capital as % of total expenses	24%
Accounts payable as % of total debt	1%
Long-term debt as % of total debt	33%
Cost of term debt (weighted average)	3.82%
Change in net worth with appreciation	$110,075
Total farm debt per cow	$3,522
Debt payments made per cow	$623
Debt payments as % of milk sales	13%
Amount available for debt service	$1,628,853
Cash flow coverage ratio for 2015	1.98
Debt coverage ratio for 2015	0.98

[58]Includes discounted lease payments.
[59]Average of farms reporting nonfarm assets and liabilities for 2015.
[60]Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 55.

SELECTED BUSINESS FACTORS BY HERD SIZE
168 New York Dairy Farms, 2015

Item (Farms with:)	Less than 100 Cows	100 to 199 Cows	200 to 399 Cows	400 to 599 Cows
Number of farms	20	20	20	22
Cropping Program Analysis				
Total Tillable acres	254	398	658	1,087
Tillable acres rented[61]	134	166	228	497
Hay crop acres[61]	180	220	349	530
Corn silage acres[61]	30	116	196	371
Hay crop, tons DM/acre	2.0	2.8	3.0	3.6
Corn silage, tons/acre	16	19	18	18
Oats, bushels/acre	48	39	60	150
Forage DM per cow, tons	10.2	9.6	7.9	8.5
Tillable acres/cow	4.3	2.7	2.3	2.2
Fertilizer & lime expense/tillable acre	$27.06	$59.69	$54.35	$63.09
Total machinery costs	$55,473	$138,495	$252,622	$496,759
Machinery cost/tillable acre	$206	$348	$384	$457
Dairy Analysis				
Number of cows	62	145	291	499
Number of heifers	47	126	239	410
Milk sold, pounds	1,208,911	3,202,669	6,503,256	12,521,904
Milk sold/cow, pounds	19,657	22,027	22,363	25,082
Operating cost of producing milk/cwt.	$14.96	$15.41	$15.94	$15.96
Total cost of producing milk/cwt.	$24.76	$21.99	$21.13	$20.59
Price/cwt. milk sold	$17.82	$18.25	$18.32	$18.30
Purchased dairy feed/cow	$1,281	$1,426	$1,529	$1,641
Purchased dairy feed/cwt. milk	$6.52	$6.47	$6.84	$6.54
Purchased grain & concentrate as % of milk receipts	31%	34%	35%	34%
Purchased feed & crop expense/cwt. milk	$7.76	$8.17	$8.32	$7.91
Cull rate	28%	31%	30%	35%
Capital Efficiency				
Farm capital/worker	$344,837	$546,444	$523,778	$503,310
Farm capital/cow	$14,074	$14,770	$12,842	$12,411
Farm capital/tillable acre owned	$3,412	$5,395	$5,674	$5,702
Real estate/cow	$7,013	$6,504	$6,159	$5,028
Machinery investment/cow	$3,006	$3,395	$2,351	$2,438
Asset turnover ratio	0.31	0.34	0.39	0.46
Labor Efficiency				
Worker equivalent	2.51	3.93	7.13	12.31
Operator/manager equivalent	1.36	1.53	1.78	2.08
Milk sold/worker, lbs.	480,999	814,410	912,098	1,017,214
Cows/worker	24	37	41	41
Labor cost/cow	$1,295	$933	$886	$924
Labor cost/tillable acre	$314	$341	$392	$424

[61]Average of all farms, not only those reporting data.

Table 55. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
168 New York Dairy Farms, 2015

Item	Farms with: 600 to 899 Cows	900 to 1,199 Cows	1,200 or More Cows
Number of farms	28	25	33
Cropping Program Analysis			
Total Tillable acres	1,663	1,834	3,401
Tillable acres rented[62]	881	938	1,449
Hay crop acres[62]	730	730	1,422
Corn silage acres[62]	605	831	1,453
Hay crop, tons DM/acre	3.1	3.7	3.5
Corn silage, tons/acre	18	19	18
Oats, bushels/acre	55	90	0
Forage DM per cow, tons	8.4	8.4	7.9
Tillable acres/cow	2.3	1.9	1.9
Fertilizer & lime exp./tillable acre	$89.24	$75.29	$72.79
Total machinery costs	$700,323	$925,959	$1,519,921
Machinery cost/tillable acre	$406.96	$467	$447
Dairy Analysis			
Number of cows	753	1,063	1,797
Number of heifers	642	908	1,554
Milk sold, pounds	19,056,377	28,022,487	46,335,994
Milk sold/cow, pounds	25,300	26,354	25,781
Operating cost of producing milk/cwt.	$15.55	$16.25	$15.57
Total cost of producing milk/cwt.	$19.84	$19.83	$19.44
Price/cwt. milk sold	$18.30	$18.39	$18.29
Purchased dairy feed/cow	$1,746	$1,915	$1,777
Purchased dairy feed/cwt. milk	$6.90	$7.27	$6.89
Purchased grain & concentrate as % of milk receipts	36%	37%	36%
Purchased feed & crop expense/cwt. milk	$8.43	$8.49	$8.19
Cull rate	35%	34%	35%
Capital Efficiency			
Farm capital/worker	$531,997	$512,070	$573,207
Farm capital/cow	$12,120	$11,577	$11,733
Farm capital/tillable acre owned	$5,490	$6,714	$6,200
Real estate/cow	$5,288	$4,763	$4,918
Machinery investment/cow	$2,028	$1,877	$1,905
Asset turnover ratio	0.50	0.51	0.50
Labor Efficiency			
Worker equivalent	17.16	24.04	36.79
Operator/manager equivalent	2.69	2.17	2.81
Milk sold/worker, lbs.	1,110,350	1,165,823	1,259,358
Cows/worker	44	44	49
Labor cost/cow	$856	$893	$856
Labor cost/tillable acre	$388	$518	$452

[62]Average of all farms, not only those reporting data.

SUPPLEMENTAL INFORMATION

Comparisons of business performance by farms buying versus growing forages, types of housing and herd size, rotational grazers, milking frequency, same farms over 10 years, and dairy region are presented in this section. Farm receipts and expenses per cow and per hundredweight of milk sold for different levels of milk output and herd size groups, plus additional data, are included.

A word of caution to the reader on the interpretation of these data: It is the combination of resources and practices, and implementation of business management strategies by farmers that determine business performance. Examining one factor, while not holding all others constant, can lead to erroneous conclusions of cause and effect relationships. As an example, farms milking 3x per day showed higher profitability. Is it exclusively higher milking rates or is it that farms milking more frequently would have higher profitability per cow if they milked less often? Keep this distinction in mind when reviewing the following data.

Comparison for Farms That Buy All Feed Versus Farms That Grow Forages

Farms specializing in only milk production is utilized by a small number of farms in New York. In 2015, 7 participating farms purchased the majority of their feed, including most forages. These farms harvested less than one ton of DM per cow of forages in 2015. Table 56 highlights the income and expenses for these 7 farms compared to the income and expenses for 19 farms of similar size that grew their forages. Table 57 compares selected business factors for the two groups of farms. In 2015, the 7 farms buying forages had, on average, lower pounds of milk sold and dairy cattle sales per cow and higher calf sales per cow than the similar size farms growing forages. While the operating costs of producing milk were $0.56 per hundredweight higher than farms growing forages, the net income per cwt was $0.03 higher than farms that grow feed.

Comparison by Type of Barn and Herd Size

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with tiestall/stanchion housing. Within each group, is a further classification by size of the dairy herd. Table 58 on page 66 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 38 cows on the small tiestall/stanchion farms to 3,475 cows on the largest freestall farms. The largest freestall farms averaged the highest milk output per cow and per worker, and the lowest total cost of production. In 2015, the 201-500 cow herd size group had the highest returns to labor, management and capital at $1.08 per cwt.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 67-71. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance. Each column of the farm business chart is independent of the others.

Intensive Grazing Farms vs. Non-Grazing Farms

In 2015, 10 of the DFBS cooperators practiced intensive grazing. Intensive grazing means the dairy herd was on pasture for three months or more and was moved to a new paddock every third day or less and at least 30 percent of the forage was from pasture. The farms using intensive grazing are compared with a control group of non-grazing farms in Table 64. The control group is a selection of non-grazing dairy farms of similar size. In 2015, average profitability was 34 percent higher on intensive grazing farms. Operating costs of producing milk were $0.89 per hundredweight lower while total costs were $0.44 higher than the costs of production on the control farms.

Comparison of Data, Same Farms, 2005 - 2015

Follow ten years of growth, change and progress made by 95 New York DFBS farms in Table 65, pages 73 and 74. Milk receipts per hundredweight are higher by $4.50 in 2015 when compared to 2006. Profitability in 2015 is down substantially from 2014, a decrease of 85%. Care should be exercised in using these data to indicate change in the dairy industry since the composition of the sample of farms is different from the state as a whole, and there is considerable year-to-year variability in milk prices.

Receipts and Expenses per Hundredweight of Milk and Per Cow

Average accrual receipts and expenses per cow and per hundredweight of milk sold are listed for 23 dairy farms selling less than 21,000 pounds of milk per cow, 55 farms with 21,000 to 24,999 pounds of milk sold per cow, and 90 dairy farms selling 25,000 pounds and more in Table 66 on page 75. Table 67 on page 76 provides the list of average accrual receipts and expenses for 20 farms averaging less than 100 cows per farm, 20 farms with 100 to 200 cows and 128 farms with 200 cows or more.

These data are very useful for forward planning or budgeting when a farmer or planner does not have complete and accurate data from his or her own farm business. It is important to use the costs and returns per unit of output that most closely fit the level of production and herd size that is included in the plan. For example, an expansion budget for a 24,000 pound herd should include higher feed costs per cow than a budget for an 20,000 pound herd. Herds with more than 200 cows must budget for higher hired labor costs per cow than smaller herds. These data should also be adjusted to the operating characteristics of the farm being budgeted. Most farms are not average. It is always better to have data on the specific farm being budgeted.

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 68 and 69. The Northern New York Region averaged the highest profitability and the largest average farm size with largest herd size and most tillable acres. The Western and Central Plateau Region had the highest average rate of milk production this year with the Northern New York Region coming in second. Dairy farmers in the Western and Central Plain Region have increased milk production 48.1 percent from 2005-2015 and they produced milk for an average total cost of $20.17 per hundredweight in 2015. Total milk production has declined 7.6 percent from 2005-2015 in the Northern Hudson & Southeastern NY Region (Figure 2). The Northern New York and Central Valleys Regions had the highest return per hundredweight to labor, management and capital with $1.09, followed by the Northern Hudson & Southeastern NY Region at $1.00. This data does not represent the “average” for all dairy farms in a given region; participation was on a voluntary basis, therefore not all areas or types of operations may have been proportionately represented.

Comparison of Farms by Milking Frequency

Sixty percent of the 168 DFBS farms utilized three times per day (3X) milking in 2015. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 70.

In 2015 compared to 2014, the 3X farms averaged 45 more cows per farm, sold 11 lbs more milk per cow and showed an average $1,481,638 decrease in net farm income, and a decrease in total cost of producing milk by $1.36. The 2X farms between the two years saw a decrease in milk production of 221 lbs milk per cow, average net farm income decreased by $298,609, and total production costs decreased by $1.70 per hundredweight.

The 3X farms averaged 23 percent more milk per cow and 29 percent additional milk per worker in 2015 compared with the 2X farms. Similar differences were found in 2014. In 2015, the average total cost of producing milk was 8 percent lower on 3X farms than on 2X dairies. On the average, farmers milking 3X sold more milk per cow and per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2X. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, labor and capital efficiency indicates there are other important management differences contributing to higher profits.

Other Comparisons

Four dairy renter farms (Table 71) were smaller, on average, and averaged lower labor and management incomes than the average for 173 owned dairy farms. Data for the top 10 percent of farms by rate of return on all capital without appreciation are presented in Table 72. Additional data for the top 10 percent of farms are presented in many of the first 46 tables of this publication. Summary data for the 173 specialized dairy farms are presented in Table 73.

Table 56.

INCOME & EXPENSE COMPARISON FOR
FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES
New York State Dairy Farms, 2015

Item	7 Farms Buying Majority of Forages		19 Similar Size Farms Growing Forages	
Number of cows per farm	451		454	
Pounds of milk sold	10,503,508		11,398,111	
Income	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Milk sold	$4,343.51	$18.67	$4,617.77	$18.39
Dairy cattle	294.98	1.27	457.81	1.82
Dairy calves	133.57	0.57	98.13	0.39
Other livestock	40.64	0.17	32.40	0.13
Crops	-13.19	-0.06	90.98	0.36
Miscellaneous	66.94	0.29	121.39	0.48
Total Accrual Receipts	$4,866.45	$20.92	$5,418.47	$21.58
Expenses				
Hired labor	$ 532.98	$ 2.29	$ 775.86	$ 3.09
Dairy grain & concentrate	1,725.74	7.42	1,564.05	6.23
Dairy roughage	625.75	2.69	48.72	0.19
Nondairy	0.00	0.00	0.22	0.00
Professional nutritional services	0.00	0.00	0.75	0.00
Machinery hire, rent/lease	60.91	0.26	217.78	0.87
Machinery repairs/vehicle expense.	140.21	0.60	247.92	0.99
Fuel, oil & grease	67.90	0.29	159.64	0.64
Replacement livestock	0.00	0.00	1.72	0.01
Breeding	31.29	0.13	61.82	0.25
Veterinary & medicine	136.82	0.59	159.83	0.64
Milk marketing	205.03	0.88	266.56	1.06
Bedding	37.76	0.16	107.27	0.43
Milking supplies	94.79	0.41	104.67	0.42
Cattle lease/rent	0.00	0.00	0.00	0.00
Custom boarding	11.16	0.05	45.76	0.18
bST expense	52.70	0.23	22.64	0.09
Livestock professional fees	8.49	0.04	22.83	0.09
Other livestock expenses	10.37	0.04	18.75	0.07
Fertilizer & lime	70.58	0.30	120.60	0.48
Seeds & plants	14.47	0.06	120.59	0.48
Spray, other crop expenses	2.99	0.01	71.68	0.29
Crop professional fees	0.56	0.00	4.09	0.02
Land/bldg/fence repair	58.40	0.25	69.05	0.28
Taxes	32.92	0.14	73.01	0.29
Rent & lease	32.87	0.14	67.16	0.27
Insurance	42.18	0.18	68.74	0.27
Utilities	142.91	0.61	107.45	0.43
Interest paid	82.38	0.35	99.92	0.40
Other professional fees	27.11	0.12	36.00	0.14
Miscellaneous	21.48	0.09	29.37	0.12
Total Operating Expenses	$4,270.77	$18.36	$4,694.44	$18.70
Expansion livestock	1.90	0.01	12.45	0.05
Extraordinary expense	1.23	0.01	2.63	0.01
Machinery depreciation	161.97	0.70	278.09	1.11
Building depreciation	191.52	0.82	179.22	0.71
Total Accrual Expenses	$4,627.39	$19.89	$5,166.83	$20.58
Net Farm Income (without appreciation)	$ 239.05	$ 1.03	$ 251.65	$ 1.00

Table 57.

SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR HERD SIZE FARMS GROWING FORAGES
New York Dairy Farms, 2015

Selected Factors	7 Farms Buying Majority of Forages	19 Similar Size Farms Growing Forages
Size of Business		
Average number of cows	451	454
Average number of heifers	337	397
Milk sold, pounds	10,503,508	11,398,111
Worker equivalent	7.99	11.43
Total tillable acres	270	1,007
Forage acres harvested	75	887
Rates of Production		
Milk sold per cow, lbs.	23,267	25,106
Hay DM per acre, tons	1.2	3.56
Corn silage per acre, tons	13.00	17.93
Labor Efficiency & Costs		
Cows per worker	57	40
Milk sold/worker, pounds	1,314,856	997,283
Hired labor cost/cwt.	$2.29	$3.09
Hired labor cost/worker	$37,178	$39,313
Hired labor cost as % of milk sales	12.27%	16.80%
Cost Control		
Grain & concentrate purchased as % of milk sales	32%	33%
Grain & concentrate per cwt. milk	$7.42	$6.23
Dairy feed & crop expense per cwt. milk	$10.49	$7.69
Labor & machinery costs/cow	$1,115	$1,996
Total farm operating costs per cwt. sold	$19.48	$20.51
Interest costs per cwt. milk	$0.35	$0.40
Milk marketing costs per cwt. milk sold	$0.88	$1.06
Operating cost of producing cwt. of milk	$16.12	$15.56
Capital Efficiency(average for the year)		
Farm capital per cow	$7,973	$12,992
Machinery & equipment per cow	$770	$2,664
Asset turnover ratio	0.62	0.43
Income Generation		
Gross milk sales per cow	$4,344	$4,618
Gross milk sales per cwt.	$18.67	$18.39
Net milk sales per cwt.	$17.79	$17.33
Dairy cattle sales per cow	$295	$458
Dairy calf sales per cow	$134	$98
Profitability		
Net farm income without appreciation	$107,916	$114,247
Net farm income with appreciation	$140,122	$186,923
Labor & management income per operator/manager	$-10,353	$-52,037
Rate of return on equity capital without appreciation	1.5%	-0.3%
Rate of return on all capital without appreciation	2.0%	0.6%
Cash flow		
Principal & interest payments per cow, 2015	$633	$626
Net cash flow	$306,308	$459,893
Financial Summary		
Farm net worth, end year	$2,416,780	$4,547,345
Farm net worth change from last year, percent	-0.5%	-1.1%
Debt to asset ratio	0.34	0.25
Farm debt per cow	$2,711	$3,375

Table 58.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
168 New York Dairy Farms, 2015

Item Farms with:	Tiestall/Stanchion <=150 Cows	Freestall <=200 Cows	Freestall 201-500 Cows	Freestall 501-800 Cows	Freestall >=801 Cows
Number of farms	20	20	26	28	64
Cropping Program Analysis					
Total Tillable acres	310	342	773	1,597	2,621
Tillable acres rented[63]	160	140	320	855	1,177
Hay crop acres[63]	202	198	402	730	1,081
Corn silage acres[63]	47	99	262	604	1,119
Hay crop, tons DM/acre	2.2	2.6	3.3	3.2	3.5
Corn silage, tons/acre	17.7	18.2	17.9	18.1	18.0
Oats, bushels/acre	51	12	99	55	90
Forage DM per cow, tons	11.2	9.0	8.3	9.1	8.0
Tillable acres/cow	4.3	2.6	2.1	2.4	1.9
Fertilizer & lime expense/tillable acre	$34.91	$53.55	$55.43	$79.33	$76.06
Total machinery costs	$66,243	$132,095	$350,990	$652,438	$1,236,820
Machinery cost/tillable acre	$210	$368	$454	$409	$451
Dairy Analysis					
Number of cows	72	135	361	670	1,416
Number of heifers	60	113	304	569	1,217
Milk sold, lbs.	1,489,350	2,922,230	9.186,297	17,276,535	36,717,367
Milk sold/cow, lbs.	20,628	21,694	25,472	25,798	25,923
Operating cost of producing milk/cwt.	$14.56	$15.65	$15.56	$15.67	$15.81
Total cost of producing milk/cwt.	$23.79	$22.23	$20.41	$19.96	$19.62
Price/cwt. milk sold	$17.70	$18.35	$18.42	$18.18	$18.33
Purchased dairy feed/cow	$1,237	$1,461	$1,701	$1,792	$1,808
Purchased dairy feed/cwt. milk	$6.00	$6.73	$6.68	$6.95	$6.97
Purchased grain & concentrate as % of milk receipts	30%	35%	35%	37%	36%
Purchased feed & crop expense/cwt. milk	$7.65	$8.27	$8.01	$8.54	$8.23
Capital Efficiency					
Farm capital/worker	$423,689	$502,066	$504,566	$502,786	$554,517
Farm capital/cow	$16,490	$13,530	$12,829	$12,260	$11,741
Farm capital/tillable acre owned	$7,903	$9,056	$10,222	$11,070	$11,519
Real estate/cow	$8,172	$5,842	$5,404	$5,099	$4,960
Machinery investment/cow	$3,775	$3,013	$2,490	$2,229	$1,923
Asset turnover ratio	0.28	0.36	0.44	0.49	0.50
Labor Efficiency					
Worker equivalent	2.81	3.64	9.17	16.33	29.99
Operator/manager equivalent	1.44	1.45	1.99	2.54	2.53
Milk sold/worker, lbs.	530,175	803,730	1,002,233	1,058,017	1,224,184
Cows/worker	26	37	39	41	47
Labor cost/cow	$1,252	$927	$940	$906	$867
Labor cost/tillable acre	$291	$366	$438	$380	$468
Profitability & Balance Sheet Analysis					
Net farm income (without appreciation)	$21,862	$32,945	$103,287	$157,796	$325,687
Labor & management income/operator	$-22,828	$-31,525	$-37,746	$-55,056	$-98,774
Rate return on all capital with appreciation	-2.1%	0.4%	2.3%	3.7%	4.4%
Farm debt/cow	$4,223	$2,980	$3,204	$4,037	$3,834
Percent equity	74%	77%	75%	70%	68%

[63]Average of all farms, not only those reporting data.

Table 59.

FARM BUSINESS CHART FOR TIESTALL/STANCHION DAIRY FARMS
20 Tiestall/Stanchion Dairy Farms with 150 or Less Cows, New York, 2015

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.90	145	3,502,957	27,001	4.2	22	46	977,023
3.89	108	2,338,700	24,532	2.5	21	35	770,404
3.67	86	1,729,557	23,154	2.3	19	31	612,789
3.46	73	1,636,466	22,013	2.2	18	29	540,687
2.77	68	1,324,425	21,571	2.2	17	26	519,310
2.18	61	1,079,623	19,520	2.1	15	25	495,745
2.00	50	986,618	18,857	1.9	14	23	450,776
2.00	48	940,281	17,589	1.8	13	22	349,646
1.99	46	826,678	14,764	1.4	10	21	326,297
1.25	40	528,198	10,963	0.5	0	14	279,323

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$265	14%	$437	$1,453	$503	$4.15
522	16	502	1,743	836	4.81
815	20	590	1,810	1,076	5.68
953	27	758	1,862	1,237	7.15
1,012	31	849	1,986	1,473	7.27
1,105	32	962	2,126	1,680	7.81
1,237	33	1,035	2,275	1,812	8.39
1,460	36	1,089	2,482	2,004	8.79
1,651	43	1,186	2,738	2,289	9.41
1,945	51	1,359	3,495	2,357	10.95

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation Total	Net Farm Income Without Appreciation Per Cow	Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
$4,775	$8.57	$18.86	$90,666	$1,489	$33,549	100,064
4,222	9.78	20.42	59,679	974	11,405	46,944
4,074	11.62	21.22	45,355	747	-4,374	34,405
3,985	12.74	22.76	40,318	543	-9,471	23,781
3,884	13.57	24.49	21,618	384	-12,979	15,674
3,659	14.59	25.25	20,170	177	-22,823	3,727
3,234	15.49	25.82	10,646	145	-39,961	-14,338
3,112	15.96	26.74	6,604	115	-52,516	-28,707
2,572	16.80	28.45	-25,416	-448	-81,043	-51,165
1,918	19.10	37.01	-51,018	-805	-128,350	-79,200

Table 60.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
20 Freestall Barn Dairy Farms with 200 Cows or Less, New York, 2015

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
6.61	195	4,887,149	26,211	4.6	23	54	1,173,203
5.05	187	4,382,632	24,980	3.7	20	48	1,040,856
4.06	181	3,702,650	23,902	3.3	20	45	992,957
3.62	146	3,187,623	23,564	2.9	19	42	893,597
3.50	135	2,931,857	22,988	2.7	18	40	850,354
3.33	130	2,878,788	22,293	2.4	17	37	782,420
3.09	120	2,773,419	21,582	2.2	17	34	678,018
2.57	109	2,144,220	18,036	2.1	16	31	618,271
2.52	83	1,342,932	15,309	1.8	11	28	550,250
2.02	63	991,030	13,214	0.5	0	24	436,772

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$606	22%	$619	$1,301	$794	$5.04
751	29	712	1,481	946	6.91
1,065	30	754	1,587	1,371	7.05
1,420	32	817	1,680	1,763	7.25
1,513	34	861	1,722	1,819	7.80
1,534	35	920	1,758	1,904	8.12
1,567	40	956	1,930	1,973	8.50
1,651	41	1,006	2,046	2,077	9.60
1,734	43	1,170	2,336	2,436	10.24
2,100	49	1,427	2,542	2,654	11.80

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation Total	Net Farm Income Without Appreciation Per Cow	Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
$4,824	$11.96	$18.69	$157,999	$1,143	$45,210	$221,416
4,512	13.57	19.76	142,792	769	8,778	104,379
4,403	14.20	20.23	94,674	605	-4,531	59,788
4,248	14.74	20.47	62,748	441	-13,039	16,752
4,122	15.27	21.94	28,596	310	-23,287	-654
4,086	16.08	23.19	4,454	35	-35,043	-14,063
3,992	16.53	23.84	-2,196	-34	-61,698	-41,115
3,362	17.17	25.00	-25,107	-171	-75,573	-58,211
2,683	18.64	26.53	-41,342	-441	-93,125	-77,559
2,583	20.55	26.91	-93,172	-638	-102,294	-137,930

Table 61.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
26 Freestall Barn Dairy Farms with 201-500 Cows, New York, 2015

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
14.05	489	12,920,682	28,024	4.7	23	61	1,565,104
12.80	457	12,220,283	27,605	4.6	22	53	1,235,861
11.75	437	11,507,454	27,312	4.4	21	48	1,163,880
10.85	421	11,371,801	27,089	4.0	19	43	1,139,382
10.10	411	10,751,908	26,239	3.8	18	43	1,105,590
9.66	374	9,064,691	25,636	3.5	18	42	1,063,050
8.23	341	8,706,922	25,103	3.2	17	39	942,688
7.26	318	7,843,128	24,482	2.8	16	35	867,437
6.42	253	6,496,026	23,213	2.3	15	31	805,338
4.84	225	4,738,417	20,576	2.1	14	30	741,626

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$1,154	26%	$563	$1,223	$1,573	$6.32
1,397	30	774	1,699	1,730	6.89
1,448	31	860	1,803	1,812	7.40
1,508	34	889	1,908	1,902	7.64
1,714	36	937	1,927	2,048	7.98
1,766	37	977	1,988	2,175	8.47
1,781	38	1,113	2,051	2,299	8.95
1,835	40	1,297	2,170	2,341	9.01
1,996	41	1,326	2,281	2,491	9.45
2,075	48	1,376	2,431	2,521	11.30

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation Total	Net Farm Income Without Appreciation Per Cow	Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
$5,363	$12.56	$17.78	$437,237	$1,035	$112,712	$545,288
5,161	13.55	18.84	287,099	876	23,853	313,516
5,037	14.61	19.44	198,762	641	10,698	108,578
4,876	15.38	20.15	168,456	406	-3,571	72,603
4,767	15.78	20.56	141,151	385	-20,005	37,348
4,714	16.20	20.89	108,842	276	-44,293	3,758
4,551	16.78	22.19	66,851	193	-61,063	-28,156
4,426	17.60	22.32	18,569	64	-84,033	-53,163
4,268	18.01	22.66	-37,947	-111	-128,286	-86,494
3,918	19.15	24.96	-130,010	-406	-184,319	-126,480

Table 62.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
28 Freestall Barn Dairy Farms with 501-800 Cows, New York, 2015

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
23.57	798	22,508,144	29,835	5.9	25	58	1,434,317
21.48	784	21,620,508	28,273	4.5	23	52	1,246,829
19.47	750	20,588,369	27,494	4.0	21	49	1,206,308
18.48	729	18,790,396	26,430	3.6	20	47	1,176,720
16.78	700	17,511,571	25,971	3.3	19	43	1,135,248
15.94	682	17,065,411	25,538	3.2	19	41	1,081,907
14.55	653	15,571,060	25,201	3.0	18	39	1,047,287
13.48	586	14,905,032	24,699	2.8	16	38	1,003,232
12.24	560	14,319,890	23,411	2.5	15	35	924,610
11.44	536	13,076,827	22,601	2.1	13	31	747,572

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$1,152	26%	$734	$1,394	$1,552	$6.32
1,536	34	848	1,608	1,932	7.72
1,660	35	900	1,741	2,090	8.10
1,741	37	941	1,843	2,160	8.20
1,787	38	967	1,884	2,243	8.44
1,846	38	978	1,926	2,305	8.75
1,891	39	988	1,954	2,340	8.90
1,913	42	1,070	2,165	2,397	9.22
2,006	43	1,226	2,279	2,470	9.88
2,061	47	1,367	2,338	2,641	11.09

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation Total	Net Farm Income Without Appreciation Per Cow	Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
$5,425	$12.83	$17.77	$692,784	$1,003	$104,878	$947,108
5,161	13.70	18.50	468,776	691	37,993	555,527
5,034	14.00	19.32	440,883	651	16,483	379,772
4,880	14.60	19.65	378,107	562	1,331	274,378
4,752	15.49	19.84	279,124	422	-15,821	111,794
4,633	16.09	20.27	197,885	295	-45,904	7,375
4,485	16.90	20.59	18,060	23	-89,005	-84,465
4,389	17.85	21.15	-113,002	-183	-149,550	-181,149
4,244	18.15	22.20	-164,563	-247	-235,243	-269,051
4,135	19.58	22.78	-338,108	-568	-427,797	-699,821

Table 63.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
91 Freestall Barn Dairy Farms with 801 or More Cows, New York, 2015

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
55.50	2,835	75,982,196	29,350	5.5	25	61	1,633,714
41.34	1,939	49,685,409	27,477	4.5	21	55	1,460,433
34.22	1,724	42,005,932	27,067	3.9	20	53	1,398,183
31.14	1,481	37,196,480	26,859	3.7	19	51	1,306,079
29.71	1,295	34,621,668	26,366	3.6	18	49	1,249,478
28.27	1,199	31,775,015	25,982	3.5	18	46	1,207,970
25.67	1,102	29,600,194	25,590	3.3	17	44	1,131,496
23.21	1,041	27,101,917	25,184	3.1	16	43	1,092,640
20.01	991	25,606,453	24,279	2.6	15	41	1,031,147
16.63	841	20,878,766	22,025	1.2	8	36	904,772

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$1,232	28%	$554	$1,231	$1,636	$6.78
1,450	31	727	1,459	1,789	7.21
1,561	33	772	1,614	1,963	7.59
1,656	34	799	1,685	2,034	7.78
1,707	35	853	1,752	2,113	7.98
1,735	36	881	1,815	2,179	8.24
1,789	38	930	1,860	2,223	8.65
1,849	38	971	1,924	2,338	8.97
1,949	40	1,055	1,986	2,530	9.51
2,270	47	1,156	2,155	2,771	10.46

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation Total	Net Farm Income Without Appreciation Per Cow	Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
$5,321	$12.73	$17.22	$1,762,297	$965	$342,571	$1,508,340
5,074	14.13	18.18	1,056,531	647	123,825	1,042,162
4,975	15.04	18.95	640,519	500	27,119	618,940
4,906	15.43	19.59	454,329	360	-11,148	405,235
4,821	15.89	19.97	352,855	285	-58,788	159,295
4,765	16.30	20.22	238,759	203	-103,672	11,925
4,729	16.91	20.48	87,374	74	-161,443	-125,556
4,630	17.40	20.92	-50,703	-45	-223,290	-374,655
4,486	17.63	21.28	-262,970	-213	-333,040	-647,455
4,123	19.15	22.36	-657,673	-473	-857,827	-1,517,258

Table 64.

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2015

Item	All Intensive Grazing Farms[64]	Non-Grazing Farms[65]
Number of farms	10	20
Business Size & Production		
Number of cows	230	228
Number of heifers	155	186
Milk sold, pounds	3,346,010	5,036,192
Milk sold per cow, pounds	14,542	22,123
Milk plant test, % butterfat[66]	2.88	3.09
Cull rate	25%	31%
Tillable acres, total	447	494
Hay crop, tons DM per acre	1.88	3.01
Corn silage, tons per acre	19.03	18.26
Forage dry matter per cow, tons[67]	3.42	7.88
Labor & Capital Efficiency		
Worker equivalent	4.48	5.35
Milk sold per worker, pounds	747,433	942,078
Cows per worker	51	43
Farm capital per worker	$522,293	$507,629
Farm capital per cow	$10,169	$11,930
Farm capital per cwt. milk	$70	$54
Machinery and equipment per cow	$1,405	$2,256
Milk Production Costs & Returns		
Selected costs per cwt.:		
Hired labor	$3.49	$2.56
Grain & concentrate	$5.00	$6.76
Purchased roughage	$1.69	$0.43
Replacements purchased	$0.00	$0.24
Vet & medicine	$0.43	$0.61
Milk marketing	$1.05	$0.95
Other dairy expenses	$2.49	$1.65
Operating cost of producing milk per cwt.	$15.29	$16.18
Total labor cost per cwt. (hired, family & operator)	$5.00	$3.89
Owner and operator resources per cwt.	$4.63	$3.27
Total cost of producing milk per cwt.	$21.69	$21.25
Average farm price per cwt.	$18.99	$18.44
Return over total costs/cwt.	$-2.70	$-2.81
Related Cost Factors		
Hired labor/cow	$508	$567
Total labor/cow	$727	$861
Purchased dairy feed/cow	$972	$1,591
Purchased grain & concentrate as % of milk receipts	28%	37%
Veterinary & medicine/cow	$62	$136
Machinery costs/cow	$554	$850
Feed & crop expenses/cwt.	$8.46	$8.72
Profitability Analysis		
Net farm income (with appreciation)	$92,861	$69,358
Net farm income (without appreciation)	$72,318	$31,435
Net farm income per cow (without appreciation)	$314	$138
Net farm income per cwt. (without appreciation)	$2.16	$0.62
Labor & management income per operator	$-23,123	$-44,493
Labor & management income per operator per cow	$-100	$-195
Rates of return on:		
Equity capital with appreciation	1.3%	-0.7%
All capital with appreciation	1.8%	0.8%

[64]Farms grazing at least three months of year, changing paddock at least every three days, forage from pasture at least 30 percent, and no organic farms.
[65]Farms with similar herd size as the 10 rotational grazing farms.
[66]Average of farms reporting this data.
[67]Average of farms that grow forages.

Table 65.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 95 New York Dairy Farms, 2006 -- 2015

Selected Factors	2006	2007	2008	2009	2010
Milk receipts per cwt. milk	$13.84	$20.39	$19.28	$13.89	$17.80
Size of Business					
Average number of cows	560	567	589	620	662
Average number of heifers	453	457	491	531	565
Milk sold, cwt.	133,690	136,189	145,444	153,328	165,326
Worker equivalent	12.43	12.64	13.29	13.73	14.33
Total tillable acres	1,093	1,128	1,198	1,252	1,306
Rates of Production					
Milk sold per cow, lbs.	23,860	24,002	24,679	24,712	24,989
Hay DM per acre, tons	3.5	3.3	3.9	3.5	3.7
Corn silage per acre, tons	19	19	20	19	20
Labor Efficiency					
Cows per worker	45	45	44	45	46
Milk sold per worker, lbs.	1,075,539	1,077,447	1,094,386	1,116,735	1,153,706
Cost Control					
Grain & concentrate purchased as % of milk sales	28%	23%	30%	37%	28%
Dairy feed & crop expense per cwt. milk	$4.95	$6.00	$7.19	$6.42	$6.24
Operating cost of producing cwt. milk	$11.99	$13.58	$15.02	$13.47	$13.59
Total cost of producing cwt. milk	$15.01	$16.79	$18.39	$16.72	$16.80
Hired labor cost per cwt.	$2.69	$2.76	$2.85	$2.73	$2.66
Interest paid per cwt.	$0.73	$0.75	$0.52	$0.50	$0.53
Labor & machinery costs per cow	$1,361	$1,464	$1,615	$1,438	$1,481
Replacement livestock expense	$10,734	$14,594	$18,935	$8,218	$9,616
Expansion livestock expense	$23,840	$16,840	$33,365	$27,790	$15,270
Capital Efficiency					
Farm capital per cow	$7,765	$8,396	$9,141	$9,102	$8,980
Machinery & equipment per cow	$1,342	$1,438	$1,592	$1,638	$1,594
Real estate per cow	$3,038	$3,249	$3,494	$3,621	$3,648
Livestock investment per cow	$2,105	$2,225	$2,317	$2,234	$2,155
Asset turnover ratio	0.54	0.71	0.61	0.45	0.59
Profitability					
Net farm income without appreciation	$73,805	$743,732	$415,122	$-140,458	$469,372
Net farm income with appreciation	$207,925	$985,589	$507,809	$-112,472	$603,757
Labor & management income per operator/manager	$-36,963	$323,045	$122,697	$-169,218	$145,922
Rate return on:					
Equity capital with appreciation	4.2%	28.1%	11.0%	-6.1%	13.0%
All capital with appreciation	4.9%	20.8%	9.0%	-2.6%	9.7%
All capital without appreciation	1.8%	15.8%	7.2%	-3.1%	7.4%
Financial Summary, End Year					
Farm net worth	$2,764,893	$3,581,472	$3,801,605	$3,513,734	$3,979,176
Change in net worth with appreciation	$41,483	$824,688	$203,526	$-282,806	$441,144
Debt to asset ratio	0.38	0.30	0.32	0.38	0.35
Farm debt per cow	$2,957	$2,723	$3,004	$3,378	$3,232

Table 65. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 95 New York Dairy Farms, 2006 -- 2015

Selected Factors	2011	2012	2013	2014	2015
Milk receipts per cwt. milk	$21.67	$19.78	$21.65	$25.49	$18.34
Size of Business					
Average number of cows	683	709	736	773	806
Average number of heifers	590	609	631	652	687
Milk sold, cwt.	171,213	181,260	189,990	199,469	208,952
Worker equivalent	14.90	15.67	16.14	17.22	17.78
Total tillable acres	1,342	1,420	1,476	1,522	1,619
Rates of Production					
Milk sold per cow, lbs.	25,050	25,553	25,817	25,803	25,915
Hay DM per acre, tons	3.5	3.1	3.7	3.5	3.4
Corn silage per acre, tons	17	17	18	19	18
Labor Efficiency					
Cows per worker	46	45	46	45	45
Milk sold per worker, lbs.	1,149,080	1,156,732	1,177,139	1,158,357	1,175,208
Cost Control					
Grain & concentrate purchased as % of milk sales	28%	35%	33%	29%	36%
Dairy feed & crop expense per cwt. milk	$7.55	$8.50	$8.89	$9.05	$8.17
Operating cost of producing cwt. milk	$15.43	$15.69	$16.61	$17.25	$15.64
Total cost of producing cwt. milk	$18.93	$19.35	$20.43	$21.35	$19.86
Hired labor cost per cwt.	$2.78	$2.77	$2.85	$3.02	$3.07
Interest paid per cwt.	$0.48	$0.46	$0.48	$0.43	$0.44
Labor & machinery costs per cow	$1,643	$1,692	$1,769	$1,881	$1,796
Replacement livestock expense	$19,269	$7,152	$9,545	$9,902	$4,732
Expansion livestock expense	$6,156	$30,169	$6,607	$30,021	$8,733
Capital Efficiency					
Farm capital per cow	$9,634	$10,339	$10,914	$11,648	$12,308
Machinery & equipment per cow	$1,675	$1,797	$1,908	$2,056	$2,173
Real estate per cow	$3,904	$4,208	$4,520	$4,740	$5,181
Livestock investment per cow	$2,184	$2,201	$2,208	$2,223	$2,270
Asset turnover ratio	0.66	0.60	0.60	0.67	0.48
Profitability					
Net farm income without appreciation	$815,872	$461,153	$647,274	$1,294,271	$196,888
Net farm income with appreciation	$995,052	$689,281	$823,314	$1,586,857	$505,699
Labor & management income per operator/manager	$298,833	$100,220	$181,912	$467,552	$-73,393
Rate return on:					
Equity capital with appreciation	19.7%	11.1%	12.4%	22.6%	4.9%
All capital with appreciation	14.4%	8.7%	9.6%	16.9%	4.4%
All capital without appreciation	11.7%	5.6%	7.4%	13.7%	1.3%
Financial Summary, End Year					
Farm net worth	$4,797,476	5,230,294	5,754,186	$6,985,556	$7,132,475
Change in net worth with appreciation	$790,975	$417,460	$482,432	$1,231,947	$120,075
Debt to asset ratio	0.31	0.32	0.31	0.28	0.30
Farm debt per cow	$3,146	$3,415	$3,477	$3,404	$3,784

Table 66.

FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR THREE LEVELS OF MILK PRODUCTION
168 New York Dairy Farms, 2015

Item	23 Dairy Farms Milk/Cow <21,000#		55 Dairy Farms Milk/Cow 21,000-24,999#		90 Dairy Farms Milk/Cow ≥25,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$2,772	$19.77	$4,370	$18.45	$4,869	$18.22
Dairy cattle	279	1.99	442	1.87	498	1.87
Dairy calves	49	0.35	117	0.49	114	0.43
Other livestock	218	1.56	3	0.01	9	0.04
Crops	4	0.03	72	0.30	98	0.37
Government receipts	45	0.32	45	0.19	41	0.15
All other	61	0.43	103	0.43	109	0.41
TOTAL ACCRUAL RECEIPTS	$3,428	$24.45	$5,151	$21.75	$5,738	$21.48
ACCRUAL EXPENSES						
Labor: Hired	$ 412	$ 2.94	$ 739	$ 3.12	$ 794	$ 2.97
Feed: Dairy grain & concentrate	830	5.92	1,569	6.62	1,767	6.61
Dairy roughage	125	0.89	66	0.28	89	0.33
Nondairy	1	0.00	0	0.00	0	0.00
Professional nutritional services	0	0.00	0	0.00	1	0.00
Machinery: Mach. hire, rent & lease	111	0.79	103	0.44	137	0.51
Machinery repairs & vehicle expense	136	0.97	280	1.18	249	0.93
Fuel, oil & grease	103	0.74	151	0.64	149	0.56
Livestock: Replacement livestock	38	0.27	7	0.03	11	0.04
Breeding	27	0.19	56	0.24	57	0.21
Vet & medicine	72	0.52	171	0.72	179	0.67
Milk marketing	161	1.15	227	0.96	254	0.95
Bedding	37	0.26	85	0.36	106	0.40
Milking supplies	57	0.41	101	0.43	103	0.39
Cattle lease & rent	0	0.00	1	0.01	5	0.02
Custom boarding	112	0.80	46	0.20	115	0.43
bST expense	7	0.05	21	0.09	54	0.20
Livestock professional fees	8	0.05	13	0.06	15	0.06
Other livestock expense	31	0.22	21	0.09	24	0.09
Crops: Fertilizer & lime	117	0.83	154	0.65	140	0.52
Seeds & plants	60	0.43	127	0.54	129	0.48
Spray & other crop expense	39	0.28	69	0.29	59	0.22
Crop professional fees	2	0.02	5	0.02	8	0.03
Real Estate: Land, building & fence repair	35	0.25	82	0.35	96	0.36
Taxes	85	0.60	67	0.28	64	0.24
Rent & lease	62	0.44	79	0.33	73	0.27
Other: Insurance	44	0.31	57	0.24	59	0.22
Utilities (farm share)	63	0.45	93	0.39	105	0.39
Interest paid	118	0.84	112	0.47	116	0.44
Other professional fees	17	0.12	27	0.11	33	0.12
Miscellaneous	18	0.13	30	0.13	32	0.12
TOTAL OPERATING EXPENSES	$2,928	$20.89	$4,560	$19.26	$5,024	$18.80
Expansion livestock	1	0.00	15	0.06	29	0.11
Extraordinary expense	9	0.06	6	0.03	0	0.00
Machinery depreciation	149	1.07	235	0.99	250	0.94
Building depreciation	102	0.73	137	0.58	186	0.70
TOTAL ACCRUAL EXPENSES	$3,188	$22.74	$4,954	$20.92	$5,489	$20.54

Table 67.

FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
168 New York Dairy Farms, 2015

Item	20 Dairy Farms with <100 Cows		20 Dairy Farms with 100-200 Cows		128 Dairy Farms with ≥ 200 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$3,503	$17.82	$4,019	$18.25	$4,689	$18.31
Dairy cattle	336	1.71	419	1.90	478	1.87
Dairy calves	102	0.52	131	0.59	112	0.44
Other livestock	18	0.09	-1	0.00	15	0.06
Crops	83	0.42	60	0.27	88	0.35
Government receipts	63	0.32	55	0.25	42	0.16
All other	107	0.54	76	0.35	106	0.41
TOTAL ACCRUAL RECEIPTS	$4,212	$21.43	$4,760	$21.61	$5,530	$21.60
ACCRUAL EXPENSES						
Labor: Hired	$ 259	$ 1.32	$ 472	$ 2.14	$ 778	$ 3.04
Feed: Dairy grain & concentrate	1,120	5.70	1,409	6.40	1,693	6.61
Dairy roughage	161	0.82	17	0.08	85	0.33
Nondairy	9	0.05	0	0.00	0	0.00
Professional nutritional services	0	0.00	0	0.00	1	0.00
Machinery: Mach. hire, rent & lease	62	0.32	121	0.55	128	0.50
Mach. repairs & vehicle expense	236	1.20	249	1.13	253	0.99
Fuel, oil & grease	147	0.75	155	0.70	148	0.58
Livestock: Replacement livestock	103	0.53	10	0.05	10	0.04
Breeding	69	0.35	63	0.29	55	0.22
Vet & medicine	105	0.53	120	0.55	175	0.68
Milk marketing	222	1.13	261	1.18	244	0.95
Bedding	76	0.39	78	0.35	98	0.38
Milking supplies	95	0.49	109	0.49	101	0.39
Cattle lease & rent	0	0.00	0	0.00	4	0.01
Custom boarding	35	0.18	0	0.00	100	0.39
bST expense	7	0.03	9	0.04	45	0.18
Livestock professional fees	27	0.14	18	0.08	14	0.06
Other livestock expense	66	0.34	34	0.15	23	0.09
Crops: Fertilizer & lime	93	0.47	152	0.69	143	0.56
Seeds & plants	93	0.47	148	0.67	126	0.49
Spray & other crop expense	49	0.25	70	0.32	61	0.24
Crop professional fees	10	0.05	5	0.02	7	0.03
Real Estate: Land, building & fence repair	52	0.27	69	0.31	91	0.36
Taxes	133	0.68	106	0.48	64	0.25
Rent & lease	40	0.20	57	0.26	75	0.29
Other: Insurance	65	0.33	76	0.34	57	0.22
Utilities (farm share)	130	0.66	104	0.47	100	0.39
Interest paid	128	0.65	152	0.69	114	0.45
Other professional fees	20	0.10	20	0.09	31	0.12
Miscellaneous	32	0.16	22	0.10	31	0.12
TOTAL OPERATING EXPENSES	$3,644	$18.54	$4,105	$18.64	$4,855	$18.96
Expansion livestock	7	0.03	29	0.13	24	0.09
Extraordinary expense	10	0.05	2	0.01	2	0.01
Machinery depreciation	266	1.35	258	1.17	242	0.95
Building depreciation	79	0.40	76	0.35	173	0.68
TOTAL ACCRUAL EXPENSES	$4,005	$20.37	$4,470	$20.29	$5,296	$20.69

Table 68.

COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION[69]
168 New York Dairy Farms, 2015

Item	West. & Cent. Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	North. Hudson & Southeastern New York
Number of farms	18	49	31	33	37
ACCRUAL EXPENSES					
Hired labor	$617,435	$736,126	$753,141	$402,428	383,521
Feed	1,472,186	1,629,211	1,891,198	892,360	851,577
Machinery	416,537	462,001	549,629	317,285	268,172
Livestock	760,807	804,283	882,420	448,094	414,605
Crops	245,081	290,261	393,487	203,993	148,934
Real estate	185,376	225,237	221,249	130,639	104,202
Other	260,833	314,667	333,978	190,674	164,055
Total Operating Expenses	$3,958,255	$4,461,786	$5,025,102	$2,585,473	$2,335,065
Expansion livestock	40,988	20,200	25,335	11,419	4,534
Extraordinary expense	823	1,421	5,875	0	344
Machinery depreciation	200,785	215,992	255,122	154,679	103,970
Building depreciation	133,934	180,390	183,567	78,596	59,381
Total Accrual Expenses	$4,334,785	$4,879,790	$5,495,001	$2,830,167	$2,503,294
ACCRUAL RECEIPTS					
Milk sales	$3,789,034	$4,253,911	$4,916,088	$2,565,464	$2,233,873
Livestock	573,562	600,311	580,279	276,242	277,813
Crops	47,419	43,720	152,181	46,622	53,096
Government Receipts	30,640	51,346	29,269	25,731	15,487
All other	65,499	92,398	114,605	75,648	47,061
Total Accrual Receipts	$4,506,154	$5,041,686	$5,792,422	$2,989,706	$2,627,330
PROFITABILITY ANALYSIS					
Net farm income(w/o appreciation)	$171,369	$161,896	$297,421	$159,539	$124,036
Net farm income (w/ appreciation)	$422,356	$530,979	$638,170	$273,115	$209,022
Labor & management income	$-204,606	$-227,483	$-130,477	$-98,943	$-62,540
Number of operators	2.02	2.26	2.18	2.09	2.10
Labor & mgmt. income/operator	$-101,290	$-100,656	$-9,852	$-47,341	$-29,781
BUSINESS FACTORS					
Worker equivalent	18.37	19.30	21.78	13.28	12.11
Number of cows	812	906	1,059	566	470
Number of heifers	744	777	915	461	384
Acres of hay crops[68]	788	678	1,026	555	503
Acres of corn silage[68]	736	689	907	481	416
Total tillable acres	1,575	1,569	2,270	1,285	993
Pounds of milk sold	21,181,458	23,063,573	27,187,884	14,050,113	11,868,856
Pounds of milk sold/cow	26,095	25,446	25,676	24,813	25,259
Tons hay crop dry matter/acre	3.5	3.6	3.5	3.3	2.7
Tons corn silage/acre	18.6	17.2	18.8	17.7	18.6
Cows/worker	44	47	49	43	39
Pounds of milk sold/worker	1,152,837	1,194,849	1,248,344	1,058,057	980,155
% grain & conc. of milk receipts	35%	36%	36%	32%	36%
Feed & crop expense/cwt. milk	$8.11	$8.32	$8.40	$7.80	$8.43
Fertilizer & lime/crop acre[68]	$72.56	$80.42	$65.50	$53.24	$55.24
Machinery cost/tillable acre[68]	$444	$477	$393	$419	$427

[68]Excludes farms that do not harvest forages.
[69] Regions are defined in Figure 2 on page 78.

Figure 2.

Percent Change in Milk Production, Five Regions in New York, 1995-2015

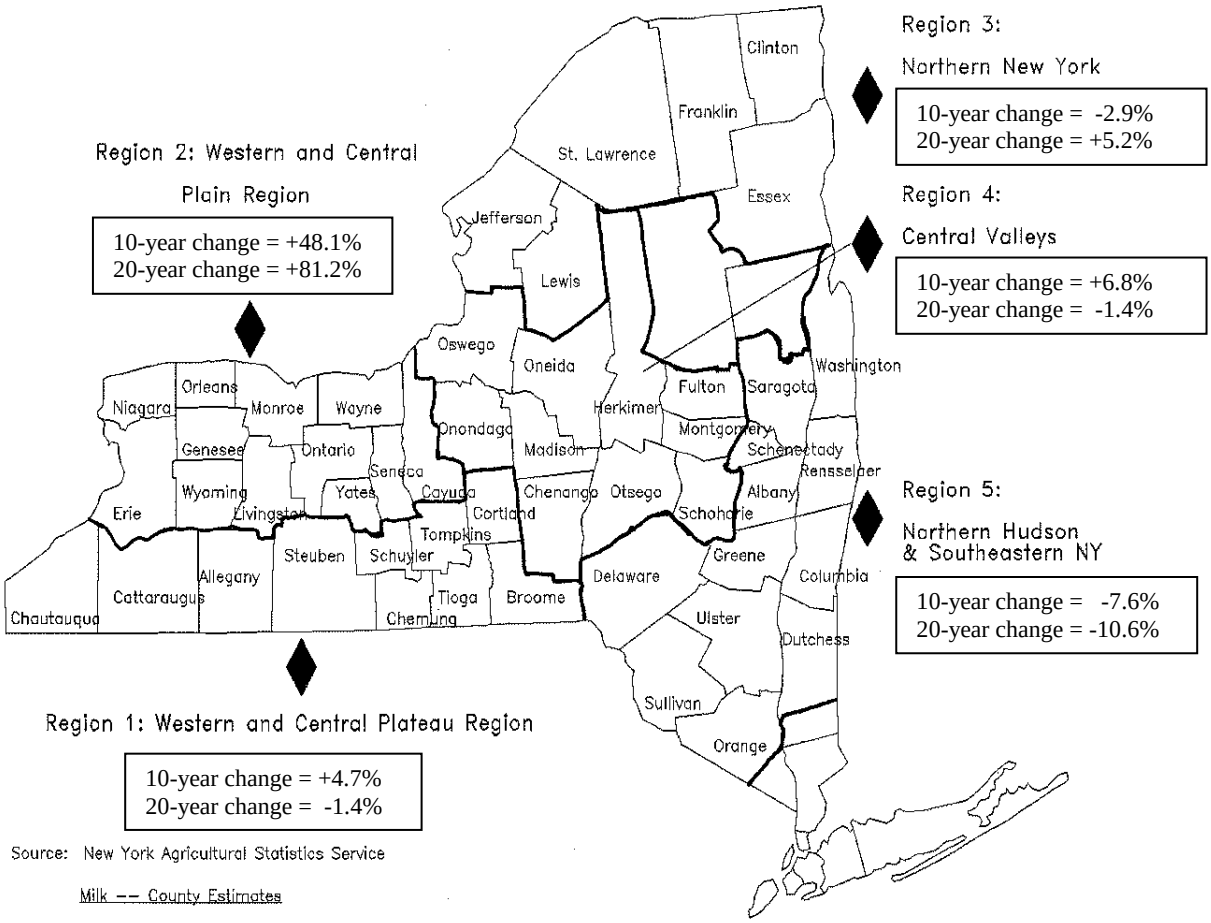


Table 69.

MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York

Item	Region[70] 1	2	3	4	5
Milk Production[71]			(million pounds)		
1995	2,140.3	3,041.6	2,191.0	2,763.5	1,459.0
2005	2,016.0	3,720.0	2,375.5	2,552.0	1,411.5
2015[72]	2,109.7	5,510.9	2,305.8	2,725.9	1,304.0
Percent change, 2005 to 2015	+4.7%	+48.1%	-2.9%	+6.8%	-7.6%
Percent change, 1995 to 2015	-1.4%	+81.2%	+5.2%	-1.4%	-10.6%
2015 Cost of Producing Milk[73]			($ per hundredweight milk)		
Operating cost	$15.50	$16.02	$15.35	$15.46	$16.40
Total cost	19.58	20.17	19.19	19.94	20.36
Average price received	17.89	18.44	18.08	18.26	18.82
Return per cwt. to operator labor, management & capital	$0.80	$0.70	$1.09	$1.09	$1.00

[70] See Figure 2 for region descriptions.
[71] Source: New York Agricultural Statistics Service, Milk-County Estimates.
[72] Source: New York Agriculture and Markets, New York State Dairy Statistics: Number of New York Dairy Farms and Total Pounds of Milk Marketed, By County, May 2015 – Estimate for year based on this data.
[73] From Dairy Farm Business Summary data.

Table 70.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 2014 & 2015

Item	2x/Day Milking		3x/Day Milking	
	2014	2015	2014	2015
Number of farms	67	56	98	100
Business Size & Production				
Number of cows	252	274	1,014	1,059
Number of heifers	211	229	863	905
Milk sold, lbs.	5,407,019	5,832,628	26,415,336	27,607,371
Milk sold/cow, lbs.	21,485	21,264	26,062	26,073
Milk plant test, % butterfat	2.44%	2.48%	3.51%	3.63%
Tillable acres, total	599	624	1,954	2,092
Hay crop, tons DM/acre	2.8	2.9	3.5	3.5
Corn silage, tons/acre	19.4	17.1	18.9	18.2
Forage DM/cow, tons	8.2	7.6	8.5	8.4
Labor & Capital Efficiency				
Worker equivalent	6.30	6.38	22.37	23.47
Milk sold/worker, lbs.	857,916	914,086	1,180,618	1,176,534
Cows/worker	40	43	45	45
Farm capital/worker	$477,886	$520,278	$510,773	$535,101
Farm capital/cow	$11,963	$12,102	$11,273	$11,856
Farm capital/cwt. milk	$55.68	$56.91	$43.25	$45.47
Milk Production Costs & Returns				
Selected costs/cwt.:				
Hired labor	$2.91	$2.94	$2.96	$3.05
Grain & concentrate	$7.26	$6.41	$7.39	$6.66
Purchased roughage	$0.43	$0.44	$0.41	$0.30
Replacements purchased	$0.06	$0.06	$0.06	$0.04
Veterinary & medicine	$0.73	$0.72	0.69	$0.68
Milk marketing	$0.89	$1.01	0.92	$0.94
Other dairy expenses	$1.57	$1.59	$1.74	$1.66
Operating cost of milk production/cwt.	$17.56	$16.05	$17.23	$15.73
Total labor costs/cwt.	$4.13	$4.13	$3.28	$3.39
Owner/operator resources/cwt.	$3.57	$3.56	$2.19	$2.30
Total cost of milk production/cwt.	$23.17	$21.47	$21.01	$19.65
Average farm price/cwt.	$25.99	$18.73	$25.41	$18.29
Return over total costs/cwt.	$2.82	$-2.74	$4.40	$-1.36
Related Cost Factors				
Hired labor/cow	$625	$626	$773	$796
Total labor/cow	$886	$879	$854	$884
Purchased dairy feed/cow	$1,652	$1,457	$2,032	$1,815
Purchased grain & concentrate as % of milk receipts	26%	32%	29%	36%
Veterinary & medicine/cow	$157	$153	$180	$178
Machinery costs/cow	$964	$811	$972	$880
Profitability Analysis				
Net farm income (without appreciation)	$354,041	$55,432	$1,741,725	$260,087
Labor & management income/operator	$147,164	$-48,208	$569,463	$-73,414
Rates of return on:				
Equity capital with appreciation	16.3%	1.0%	23.7%	4.7%
All capital with appreciation	13.1%	1.7%	17.5%	4.3%

Table 71.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
4 New York Dairy-Renter Farms,[74] 2015

ACCRUAL EXPENSES		ACCRUAL RECEIPTS	
Labor: Hired	$ 32,189	Milk sales	$333,880
Feed: Dairy grain & concentrate	129,289	Dairy cattle	46,857
Dairy roughage	39,251	Dairy calves	10,502
Nondairy	0	Other livestock	50
Professional nutritional services	0	Crops	-586
Machinery: Machinery hire, rent & lease	2,150	Government receipts	1,975
Machinery repairs & farm vehicle expense	16,770	Custom machine work	0
Fuel, oil, grease	7,682	Gas tax refund	0
Livestock: Replacement livestock	1,600	Other	6,353
Breeding	4,913	TOTAL ACCRUAL RECEIPTS	$399,032
Veterinary & medicine	8,895		
Milk marketing	19,382		
Bedding	3,121	PROFITABILITY ANALYSIS	
Milking supplies	7,730	Net farm income (without appreciation)	$-4,265
Cattle lease & rent	0	Net farm income (with appreciation)	$2,850
Custom boarding	21,542	Labor & management income/farm	$-35,765
bST expense	4,586	Number of operators	1.06
Livestock professional fees	1,257	Labor & management income/operator	$-33,740
Other livestock expense	3,360	Rate of return on equity capital	
Crops: Fertilizer & lime	7,575	with appreciation	-12.25%
Seeds & plants	4,020		
Spray & other crop expense	3,106		
Crop professional fees	1,195		
Real estate: Land, building & fence repair	6,350	BUSINESS FACTORS	
Taxes	2,612	Number of cows	87
Rent & lease	19,987	Number of heifers	70
Other:		Worker equivalent	2.41
Insurance	4,918	Total tillable acres	124
Utilities (farm share)	9,627	Milk sold per cow, lbs.	22,510
Interest paid	2,355	Hay DM per acre, tons	2.4
Miscellaneous	3,759	Corn silage per acre, tons	13.0
TOTAL OPERATING EXPENSES	$369,217	Milk sold per worker, lbs.	809,333
		Grain & concentrate as % milk sales	38%
Expansion livestock	17,395	Feed & crop expense/cwt. milk	$9.47
Extraordinary expense	0	Labor & machinery costs/cow	$1,587
Machinery depreciation	14,811	Average price/cwt. milk	$17.15
Building depreciation	1,874		
TOTAL ACCRUAL EXPENSES	$403,296		

ASSETS	Jan. 1	Dec. 31	LIABILITIES	Jan. 1	Dec. 31
Farm cash, checking & savings	$35,810	20,718	Current	$30,874	$39,507
Accounts receivable	20,810	20,314	Intermediate[76]	71,442	77,256
Prepaid expenses	0	0	Long term[77]	28,338	19,543
Feed & supplies	43,037	44,125	Total Farm Liabilities	$130,654	$136,306
Livestock[75]	178,113	195,013			
Machinery & equipment[75]	209,462	228,227	Nonfarm Liabilities[77]	0	0
Farm Credit stock	0	0			
Other stock & certificates	14,402	14,866	Farm & Nonfarm Liabilities	$130,654	$136,306
Land & buildings[75]	65,838	85,918			
Total Farm Assets	$567,471	$609,180	Farm Net Worth	$436,817	$472,874
Nonfarm Assets[77]	$116,250	$116,250	Farm & Nonfarm Net Worth	$553,067	$589,124
Farm & Nonfarm Assets	$683,721	$725,430			

[74]A renter owns no farm real estate or tillable land at the end of year.
[75]Includes discounted lease payments.
[76]Includes Farm Credit stock and discounted lease payments for cattle and machinery.
[77]Average of 2 farms reporting.

Table 72.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 16 Top Ten Percent Farms by Rate of Return on All Capital
(without appreciation), 2015

ACCRUAL EXPENSES		ACCRUAL RECEIPTS	
Labor: Hired	$598,448	Milk sales	$4,245,455
Feed: Dairy grain & concentrate	1,383,018	Dairy cattle	402,651
Dairy roughage	114,894	Dairy calves	109,652
Nondairy	5	Other livestock	52,801
Professional nutritional services	298	Crops	119,760
Machinery: Machinery hire, rent & lease	114,223	Government receipts	32,440
Machinery repairs & farm vehicle expense	202,138	Custom machine work	1,067
Fuel, oil, grease	114,963	Gas tax refund	5,427
Livestock: Replacement livestock	823	Other	67,684
Breeding	30,790	TOTAL ACCRUAL RECEIPTS	$5,036,938
Veterinary & medicine	118,794		
Milk marketing	213,898		
Bedding	80,495	PROFITABILITY ANALYSIS	
Milking supplies	66,119	Net farm income (without appreciation)	$764,219
Cattle lease & rent	141	Net farm income (with appreciation)	999,100
Custom boarding	111,442	Labor & management income/operator	163,019
bST expense	35,128	Rate of return on equity	
Livestock professional fees	11,576	capital without appreciation	7.6%
Other livestock expense	19,311	Rate of return on all	
Crops: Fertilizer & lime	118,231	capital without appreciation	6.7%
Seeds & plants	83,331		
Spray & other crop expense	40,915		
Crop professional fees	1,585		
Real estate: Land, building & fence repair	73,220	BUSINESS FACTORS	
Taxes	58,222	Number of cows	917
Rent & lease	55,420	Number of heifers	723
Other:		Worker equivalent	17.55
Insurance	40,412	Total tillable acres	1,597
Utilities (farm share)	89,243	Milk sold per cow, lbs.	25,162
Interest paid	69,115	Hay DM per acre, tons	3.6
Miscellaneous	37,985	Corn silage per acre, tons	19.2
TOTAL OPERATING EXPENSES	$3,884,183	Milk sold per worker, lbs.	1,315,019
Expansion livestock	27,927	Grain & concentrate as % milk sales	31%
Extraordinary expense	0	Feed & crop expense/cwt. milk	$7.55
Machinery depreciation	200,666	Labor & machinery costs/cow	$1,529
Building depreciation	159,944	Average price/cwt. milk	$18.40
TOTAL ACCRUAL EXPENSES	$4,272,719		

ASSETS	Jan. 1	Dec. 31	LIABILITIES	Jan. 1	Dec. 31
Farm cash, checking & savings	$66,565	$91,308	Current	$591,710	$706,973
Accounts receivable	811,204	554,742	Intermediate[79]	634,262	707,848
Prepaid expenses	48,753	11,155	Long-term[78]	966,520	988,623
Feed & supplies	1,138,023	1,179,926	Total Farm Liabilities	$2,192,492	$2,188,848
Livestock[78]	1,989,707	2,144,324			
Machinery & equipment[78]	1,579,923	1,711,754	Nonfarm Liabilities[80]	0	0
Farm Credit stock	875	875			
Other stock & certificates	144,465	167,239	Farm & Nonfarm Liabilities	$2,192,492	$2,188,848
Land & buildings[78]	4,024,818	4,434,194			
Total Farm Assets	$9,804,333	$10,295,516	Farm Net Worth	$7,611,841	$8,106,669
Nonfarm Assets[80]	$1,052,229	$1,064,774	Farm & Nonfarm Net Worth	$8,664,070	$9,171,442
Farm & Nonfarm Assets	$10,856,562	$11,360,290			

[78]Includes discounted lease payments.
[79]Includes Farm Credit Stock and discounted lease payments for cattle and machinery.
[80]Average of 5 farms reporting.

Table 73.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 168 New York Dairy Farms, 2015

ACCRUAL EXPENSES		ACCRUAL RECEIPTS	
Labor: Hired	$583,344	Milk sales	$3,549,741
Feed: Dairy grain & concentrate	1,279,937	Dairy cattle	362,076
Dairy roughage	63,988	Dairy calves	85,588
Nondairy	103	Other livestock	11,402
Professional nutritional services	699	Crops	66,765
Machinery: Machinery hire, rent & lease	96,750	Government receipts	32,125
Machinery repairs & farm vehicle expense	192,540	Custom machine work	12,471
Fuel, oil, grease	112,894	Gas tax refund	757
Livestock: Replacement livestock	8,174	Other	67,111
Breeding	42,465	TOTAL ACCRUAL RECEIPTS	$4,188,036
Veterinary & medicine	131,993		
Milk marketing	185,627		
Bedding	74,339	PROFITABILITY ANALYSIS	
Milking supplies	77,018	Net farm income (without appreciation)	$179,118
Cattle lease & rent	2,822	Net farm income (with appreciation)	417,561
Custom boarding	73,652	Labor & management income/operator	-67,701
bST expense	33,468	Rate of return on equity	
Livestock professional fees	11,043	capital without appreciation	0.4%
Other livestock expense	17,654	Rate of return on all	
Crops: Fertilizer & lime	108,723	capital without appreciation	1.2%
Seeds & plants	96,131		
Spray & other crop expense	46,558		
Crop professional fees	4,985		
Real estate: Land, building & fence repair	68,820	BUSINESS FACTORS	
Taxes	49,635	Number of cows	761
Rent & lease	56,538	Number of heifers	650
Other:		Worker equivalent	16.89
Insurance	44,155	Total tillable acres	1,516
Utilities (farm share)	76,083	Milk sold per cow, lbs.	25,461
Interest paid	87,849	Hay DM per acre, tons	3.4
Miscellaneous	46,849	Corn silage per acre, tons	18.1
TOTAL OPERATING EXPENSES	$3,674,835	Milk sold per worker, lbs.	1,147,553
Expansion livestock	18,200	Grain & concentrate as % milk sales	35%
Extraordinary expense	1,662	Feed & crop expense/cwt. milk	$8.25
Machinery depreciation	184,868	Labor & machinery costs/cow	$1,749
Building depreciation	129,353	Average price/cwt. milk	$18.31
TOTAL ACCRUAL EXPENSES	$4,008,918		

ASSETS	Jan. 1	Dec. 31	LIABILITIES	Jan. 1	Dec. 31
Farm cash, checking & savings	$90,976	$65,833	Accounts payable	$57,687	$72,079
Accounts receivable	574,515	383,259	Operating debt	247,939	246,124
Prepaid expenses	19,825	8,826	Short-term	4,024	4,848
Feed & supplies	1,144,166	1,050,987	Advanced gov't receipts	0	1
Dairy cows[81]	1,069,665	1,125,128	Current Portion:		
Heifers	610,708	642,946	Intermediate	204,634	209,206
Bulls & other livestock	23,854	22,728	Long Term	72,281	82,481
Machinery & equipment[81]	1,506,143	1,584,919	Intermediate[82]	979,022	1,078,031
Farm Credit stock	1,167	1,741	Long-term[81]	953,825	1,151,106
Other stock & certificates	271,529	302,400	Total Farm Liabilities	$2,519,412	$2,843,876
Land & buildings[81]	3,615,425	4,103,970	Nonfarm Liabilities[83]	3,648	1,277
Total Farm Assets	$8,927,973	$9,292,738	Farm & Nonfarm Liabilities	$2,523,060	$2,845,153
Nonfarm Assets[83]	620.291	642,382	Farm Net Worth	$6,408,561	$6,448,861
Farm & Nonfarm Assets	$9,548,264	$9,935,120	Farm & Nonfarm Net Worth	$7,025,204	$7,089,967

[81]Includes discounted lease payments.
[82]Includes Farm Credit stock and discounted lease payments for cattle and machinery.
[83]Average of 58 farms reporting.

NOTES

APPENDIX

PRICES, COSTS AND TRENDS

IN THE NEW YORK DAIRY INDUSTRY

The prices dairy farmers pay for a given quantity of goods and services has a major influence on farm production costs. The astute manager will keep close watch on unit costs and utilize the most economical goods and services.

Table A1.

PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 2001-2015

Year	Mixed Dairy Feed 16% Protein[84] ($/ton)	Fertilizer, Urea 45-46%N[84] ($/ton)	Seed Corn, Hybrid[85] ($/80,000 kernels)	Diesel Fuel[84] ($/gal)	Tractor 50-59 PTO[85] ($)	Wage Rate All Hired Farm Workers[86] ($/hr)
2001	176	270	92.20	1.260	22,000	8.72
2002	178	232	92.00	1.028	21,900	9.26
2003	194	283	102.00	1.516	21,300	9.93
2004	207	299	105.00	1.400	21,500	9.96
2005	190	365	111.00	2.020	23,400	9.88
2006	207	403	118.00	2.350	23,700	10.35
2007	239	480	133.00	2.355	24,300	10.49
2008	300	598	165.00	3.773	25,000	10.96
2009	258	494	217.00	1.952	24,500	10.83
2010	242	520	229.00	2.690	25,000	10.89
2011	340	598	237.00	3.716	25,700	11.36
2012	359	623	252.00	3.888	26,300	11.48
2013	438	655	274.00	3.714	26,700	11.97
2014	459	636	283.00	3.761	27,500	12.15
2015	NA[86]	NA[86]	285.00	2.499	28,000	12.63

SOURCE: NYASS, New York Agricultural Statistics. USDA, NASS, Agricultural Prices.
[84]Northeast region average. [85]United States average. [86]New York and New England combined.
[86]Not Available due to program change.

Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January and an index of the real estate prices.

Table A2.

VALUES AND INDICES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 2001-2015

	Dairy Cows		Machinery[87]	Farm Real Estate[88]	
Year	Value/Head	1977=100	1977=100	Value/Acre	1977=100
2001	1,600	323	312	1,520	259
2002	1,400	283	320	1,610	274
2003	1,300	263	325	1,700	290
2004	1,580	319	351	1,770	302
2005	1,690	341	377	1,900	324
2006	1,550	313	398	2,020	344
2007	1,930	390	416	2,180	371
2008	1,900	384	456	2,350	400
2009	1,200	242	484	2,400	409
2010	1,300	262	501	2,400	409
2011	1,400	282	532	2,450	417
2012	1,450	292	560	2,650	451
2013	1,410	284	571	2,600	443
2014	1,730	349	585	2,700	460
2015	1,840	371	585	3,000	511

SOURCE: USDA, NASS, ASB, Agricultural Prices.
[87]United States average; 2001 - 2015 are estimated due to discontinuation of 1977=100 series.
[88]New York average for 2002-2015 excludes Native American Reservation land.

GLOSSARY AND LOCATION OF COMMON TERMS

Accounts Payable: Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians and other providers of farm services and supplies.

Accounts Receivable: Outstanding receipts from items sold or sales proceeds not yet received such as the payment for December milk sales received in January.

Accrual Accounting: (defined on page 9).

Accrual Expenses: (defined on page 11).

Accrual Receipts: (defined on page 11).

Annual Cash Flow Statement: (defined on page 18).

Appreciation: (defined on page 12).

Asset Turnover Ratio: (defined on page 42).

Available for Debt Service per Cow: Net cash available for debt service after deducting net personal withdrawals for family expenditures, divided by the average number of cows.

Average Top 10% Farms: Average of 17 farms with highest rate of return on all capital (without appreciation).

Balance Sheet: A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth.

Barn Types: Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

bST Usage: An estimate of percentage of herd that was injected with bovine somatotropin during the year.

Business Records: Account Book: any organized farm record book or ledger. Accounting Service: any hired recordkeeping service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

Capital Efficiency: The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital. (See analysis, page 42).

Capital Investment: Commonly used as substitute term for farm capital or total farm assets.

Cash Flow: The movement of money in and out of the business over a given period of time, e.g. one year. (See Annual Cash Flow Statement, page 18).

Cash Flow Coverage Ratio: (defined on page 20).

Cash From Nonfarm Capital Used in the Business: Transfers of money from nonfarm savings or investments to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

Cash Paid: (defined on page 10).

Cash Receipts: (defined on page 11).

Change in Accounts Payable: (defined on page 11).

Change in Accounts Receivable: (defined under Accrual Receipts on page 11).

Change in Advanced Government Receipts: (defined under Accrual Receipts page 11).

Change in Inventory: (defined on page 10).

Corporation: Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages' and other compensation from operating expenses for DFBS use.

Cost of Producing Milk, Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. (see page 28).

Cost of Term Debt: A weighted average of the cost of borrowed intermediate and long term capital used on the farm. Calculate by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Do not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

Culling Rate: Culling rate is calculated by dividing the number of animals that left the herd for culling purposes and that died, by the average number of milking and dry cows for the year

Current (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt expected to be repaid within 12 months.

Current Portion: Principal due in the next year for intermediate and long term debt.

Current Ratio: Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at end year divided by current farm liabilities at end year.

Dairy Cash-Crop (farm): Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed ten percent of accrual milk receipts.

Dairy Farm Renter: (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

Dairy Grain and Concentrate: All grains, protein supplements, milk substitutes, minerals and vitamins purchased and fed to the dairy herd.

Dairy Records: DHIC: Dairy Herd Improvement Cooperative official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHIC. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

Dairy Roughage: All hay, silage or other fodder purchased and fed to the dairy herd.

Death Rate: The percentage of the average number of milking and dry cows that died during the year.

Debt Coverage Ratio: (defined on page 20)

Debt Per Cow: Total end-of-year debt divided by end-of-year number of cows.

Debt to Asset Ratios: (defined on page 16).

Depreciation Expense Ratio: The percentage of total accrual receipts that is charged to depreciation expense (machinery and building).

Dry Matter: The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital: The farm operator/manager's owned capital or farm net worth.

Expansion Livestock: (defined on page 9).

Farm Business Chart: (see definition and application on page 44).

Farm Capital: Average total farm assets.

Farm Debt Payments as Percent of Milk Sales: Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see pages 20 & 47.

Farm Debt Payments Per Cow: Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart on page 47.

Financial Lease: A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hay Crop: All hay land, including new seedings, harvested once or more per year as hay or hay crop silage.

Hay Dry Matter: see Dry Matter.

Heifers: Female dairy replacements of all ages.

Hired Labor (expenses): All wages, non-wage compensation, payroll taxes, benefits, and perquisites paid employees.

Hired Labor Expense as % of Milk Sales: The percentage of the gross milk receipts that is used for labor expense. Divide accrual hired labor expense by accrual milk sales.

Hired Labor Expense per Hired Worker Equivalent: The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense by number of hired plus family paid worker equivalents.

Income Statement: A complete and accurate account of accrual adjusted farm business receipts and expenses used to measure net income over a period of time such as one year or one month.

Intensive Grazing: The dairy herd is on pasture at least three months of the year, changing paddocks at least every three days and percent of forage from pasture is at least 30 percent.

Interest Expense Ratio: The percentage of total accrual receipts that is used for interest expense

Intermediate (assets and liabilities): Farm business property and associated debt that is turned over from one to ten years.

Labor and Management Income: (defined on page 13).

Labor and Management Income Per Operator: (defined on page 13).

Labor Efficiency: Production capacity and output per worker. (See analysis on pages 42 and 43).

Labor Force: Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators, that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed.

Liquidity: Ability of business to generate cash to make debt payments or to convert assets to cash.

Leverage Ratio: (defined on pages 16 and 47).

Long-Term (assets and liabilities): Farm real estate and associated debt with typical life of ten or more years.

Milk Marketing (expenses): Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses.

Milking Frequency: 2X/day: all cows were milked two times per day for the entire year. 3X/day: all cows were milked three times per day for the entire year. Other: any combination of 2X, 3X, and more frequent milking.

Milking Systems: Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and then pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone, parallel, parabone, and rotary parlors are identified specifically. Other Parlors would include milking systems such as flat barn parlors.

Net Farm Income: (defined on page 12).

Net Farm Income from Operations Ratio: (defined on page 14)

Net Milk Income over Purchased Concentrate Per Cow: Milk receipts less milk marketing expense less purchased grain and concentrate expense, all divided by average number of cows.

Net Milk Receipts: The mail box price received by farmers before any farmer authorized assignment or deductions.

Net Worth: The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

Nondairy Feed: All grain, concentrates, and roughage purchased and fed to nondairy livestock.

Nonfarm Noncash Capital: (defined on page 11).

Nontillable Pasture: Permanent or semi-permanent pasture land that is not be included in a regular crop rotation.

Operating Costs of Producing Milk: (defined on page 31).

Operating Expense Ratio: The percentage of total accrual receipts that is used for operating expenses, excluding interest and depreciation.

Opportunity Cost: The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

Other Forage: All forage crops harvested but not included as hay crops or corn silage, e.g. oats, barley, and sudan grass harvested as roughage.

Other Livestock Expenses: All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

Owner/Operator Resources Per Hundredweight: The total value of equity, management, and labor contributed to the farm from all owner/operators. This measure is calculated by adding the interest on equity capital to the value of labor and management for all owner/operators and dividing by the hundredweight milk produced during the year.

Part-Time Dairy (farm): Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

Partnership: Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

Percent of Heifer Inventory Custom Inventory: The percent of current heifer inventory owned by the farm that is being custom raised off the farm.

Percent of Replacements Purchased: The percent of animals in the herd that calved for replacement purposes (not expansion cattle) that were different genetic background than your herd and were purchased.

Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments: All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

Premium: In milk marketing this typically refers to the amount paid for milk in addition to the minimum regulated price. Premiums may be paid to the producer or cooperative supplier of milk by a buyer depending on a variety of criteria such as milk quality, composition, quantity supplied, or services provided. They may also represent market supply/demand conditions not adequately accounted for in the regulated price.

Prepaid Expenses: (defined on page 11).

Producer Price Differential: Under Federal Order markets with multiple component pricing, it is the residual value (per hundredweight) of the pool after deducting component payments (protein, butterfat, and other solids) to producers. This residual value will vary between market orders and from month-to-month based on the utilization of the various

classes and class price. It is possible that the PPD can even be negative at times if, for example, the class III price exceeds the class I price.

Profitability: The return or net income the owner/manager receives for using one or more of his or her resources in the farm business. True "economic profit" is what remains after deducting all costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

Purchased Inputs Costs of Producing Milk: (defined on page 31).

Repayment Analysis: An evaluation of the business' ability to make planned debt payments.

Replacement Livestock: Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

Return on Equity Capital: (defined on page 14).

Return Per Hundredweight To Operator's Labor, Management and Capital: Gross Milk receipts less purchased input costs less unpaid family labor, all divided by total hundredweight of milk sold.

Return to all Capital: (defined on page 14).

Sell Rate: The percentage of the average number of milking and dry cows that were sold for culling reasons. Animals that were sold as replacement stock to other dairy farms is not included in this number.

Sole Proprietorship: Business is owned by one individual but there may be more than one operator.

Solvency: The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

Specialized Dairy Farm: A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Statement of Owner Equity (reconciliation): (defined on page 17).

Stocking Rate: (defined on page 23).

Taxes (expenses): Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are a personal expense for all non-corporate taxpayers.

Tillable Acres: All acres that are normally cropped including hay land that is pastured. Acres that are doubled cropped are counted once.

Tillable Pasture: Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

Total Costs of Producing Milk: (defined on page 31).

Value of Calf Sold: The average value received for bull and heifer calves sold as calves during the year.

Value of Cow Sold: The average value received for animals that were sold for culling reasons.

Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk.

Worker Equivalent: The number of full-time workers equivalent to all the full and part-time people working throughout the year. Operator and family labor is included. Worker equivalents are determined by converting all work to full-time months (based on a 230 hours per month) and dividing by 12.

Working Capital: A theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. Calculated as current farm assets at end year less current farm liabilities at end year.

OTHER A.E.M. RESEARCH BULLETINS

RB No	Title	Fee (if applicable)	Author(s)
2015-01	Dairy Farm Management Business Summary, New York State, 2014	($25.00)	Knoblauch, W., Dymond, C., Karszes, J. and R. Kimmich
2014-02	Dairy Farm Management Business Summary, New York State, 2013	($20.00)	Knoblauch, W., Dymond C., Karszes, J. and R. Kimmich
2014-01	Industry Evaluations of the Status and Prospects for the Burgeoning New York Greek-style Yogurt Industry		Boynton. R. and A. Novakovic
2013-01	Dairy Farm Management Business Summary, New York State 2012	($20.00)	Knoblauch, W., Dymond C., Karszes, J., Howland, B. and R. Kimmich
2012-01	Dairy Farm Management Business Summary, New York State 2011	($20.00)	Knoblauch, W., Putnam, L., Karszes, J., Overton, R. and C. Dymond
2011-03	Dairy Farm Management Business Summary, New York State, 2010	($20.00)	Knoblauch, W., Putnam, L., Karszes, J., Overton, R. and C. Dymond
2011-02	Survey of New York Fruit and Vegetable Farm Employers 2009		Maloney, T. and N. Bills
2011-01	Survey of New York Dairy Farm Employers 2009		Maloney, T. and N. Bills
2010-01	Measuring the Impacts of Generic Fluid Milk and Dairy Marketing		H. Kaiser
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