

# Chapter 7. Dairy -- Farm Management

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## Herd Size Comparisons

Data from the 305 New York dairy farms that participated in the Dairy Farm Business Summary (DFBS) Project in 1998 have been sorted into eight herd size categories with the averages for the farms in each category presented in Tables 7-1 and 7-2. Note that after the less than 50 cow category, the herd size categories increase by 25 cows up to 100 cows, then by 50 cows up to 200 cows, by 100 cows up to 300 cows, and by 200 cows up to 500 cows. The 500 or more cow category contains the greatest herd size range with one herd exceeding 2,000 cows.

As herd size increases, the average profitability generally increases (Table 7-1). Net farm income without appreciation averaged \$27,041 per farm for the less than 50 cow farms and \$511,797 per farm for those with 500 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital.

It is more than size of herd that determines profitability on dairy farms. If size were the only factor, net farm income per cow would be constant throughout all size categories. Farms with 150 to 199 cows averaged \$734 net farm income per cow while the 200 to 299 cow dairy farms average only \$604 net farm income per cow. The under 50 herd size category had the second highest net farm income per cow at \$660. Other factors that affect profitability and their relationship to the size classifications are shown in Table 7-2.

Number of Cows	Number of Farms	Avg. No. of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return to all Capital w/o Apprec.
Under 50	31	41	\$27,041	\$660	\$6,696	0.3%
50 to 74	55	61	36,938	606	11,115	2.7%
75 to 99	35	83	52,432	632	19,128	4.9%
100 to 149	57	123	78,546	639	29,040	6.6%
150 to 199	28	171	125,539	734	44,568	9.4%
200 to 299	38	237	143,122	604	56,205	9.9%
300 to 500	33	371	242,688	654	95,485	11.6%
500 & over	28	842	511,797	608	172,574	12.2%

As herd size increased to 150 to 199 cows, net farm income per cow generally increased. Net farm income per cow increased as economies were attained while utilizing family labor. Farms with over 200 cows saw purchased inputs increase per cow before economies of size again appeared. Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with 500 and more cows averaged more milk sold per cow than any other size category.

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Note: All data in this section are from the New York Dairy Farm Business Summary and Analysis Project unless a specific source is specified.

Publications reporting Dairy Farm Business Summary data for New York, 6 regions of the state, large herds, small herds, grazing farms and farms that rent are available from Faye Butts ( 607-254-7412, fsb1@cornell.edu).

With 22,883 pounds of milk sold per cow, farms in the largest herd size group averaged 16 percent more milk output per cow than the average of all herds in the summary with less than 500 cows.

**TABLE 7-2. COWS PER FARM AND RELATED FARM FACTORS  
305 New York Dairy Farms, 1998**

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till-able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 50	41	16,488	3,578	3.8	6.8	\$8,521	\$10.63	\$18.49
50 to 74	61	17,574	4,626	3.5	7.7	7,725	10.87	16.78
75 to 99	83	17,819	5,564	3.2	8.1	7,385	11.03	15.94
100 to 149	123	18,735	6,306	2.9	8.6	6,684	11.22	15.40
150 to 199	171	19,829	6,796	2.9	7.8	6,834	11.01	14.70
200 to 299	237	20,059	8,667	2.5	9.0	5,812	11.49	14.47
300 to 500	371	21,457	8,837	2.2	8.3	5,999	11.62	14.28
500 & over	842	22,883	10,773	1.8	8.5	5,560	11.73	13.87

The ability to reach high levels of milk output per cow with large herds is a major key to high profitability. Three times a day milking (3X) is a herd management practice commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3X have been successful. Only 3 percent of the 121 DFBS farms with less than 100 cows used a milking frequency greater than 2X. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 149 cows reported 9 percent of the herds milking more often than 2X, the 150-199 cow herds reported 32 percent, 200-299 cow herds reported 37 percent, 300 – 500 cow herds reported 82 percent, and the 500 cow and larger herds reported 93 percent exceeding the 2X milking frequency.

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used sometime during 1998 on 31 percent of the herds with less than 100 cows, 66 percent of the farms with 100 to 299 cows and on 93 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged over 760,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 460,000 pounds per worker. In addition to achieving the highest productivity per cow and per worker, the largest farms practiced the most efficient use of cropland with 1.8 tillable acres per cow, and the most efficient use of farm capital with an average investment of \$5,560 per cow.

The last column in Table 7-2 may be the most important in explaining why profits were significantly higher on the 500 plus cow farms. The 28 farms with 500 and more cows held their average total costs of producing milk to \$13.87 per hundredweight, \$1.09 below the \$14.96 average for the remaining 277 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 500 plus cow dairy farms profit margins (milk price less total cost of producing milk) that averaged \$0.76 per hundredweight above the average of the other 277 DFBS farms.

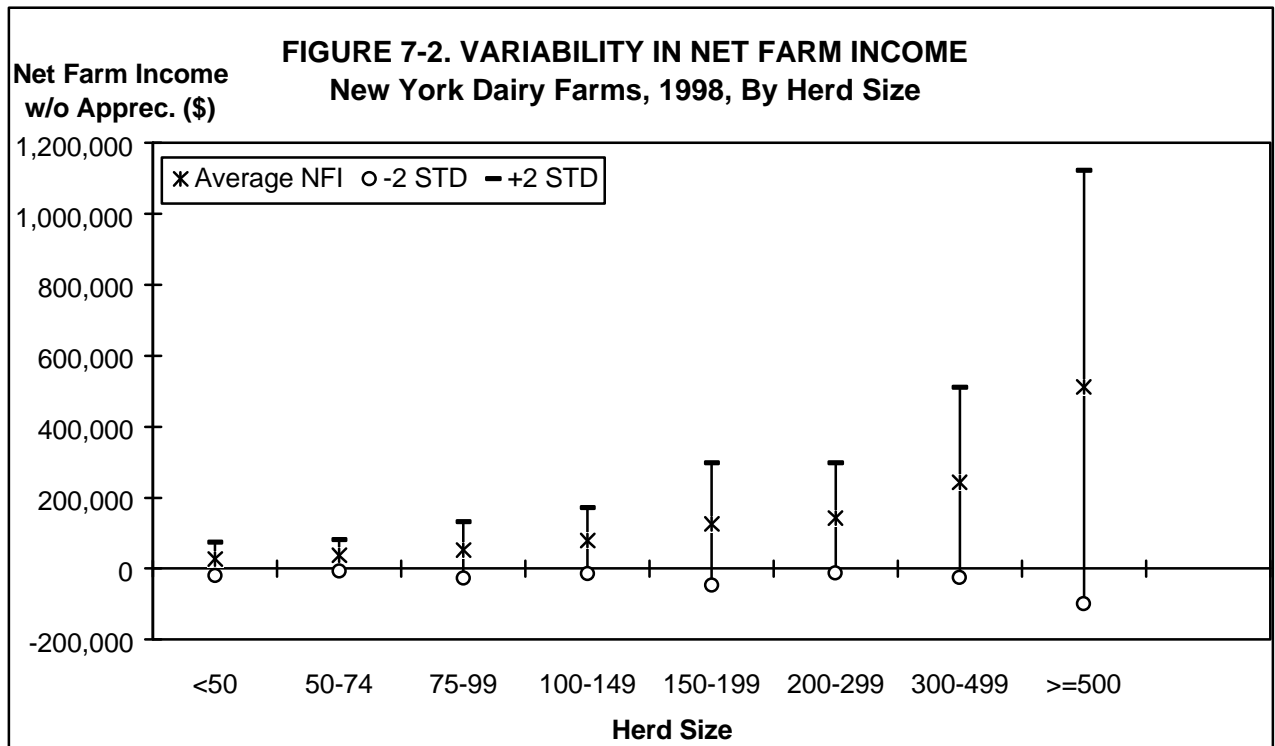
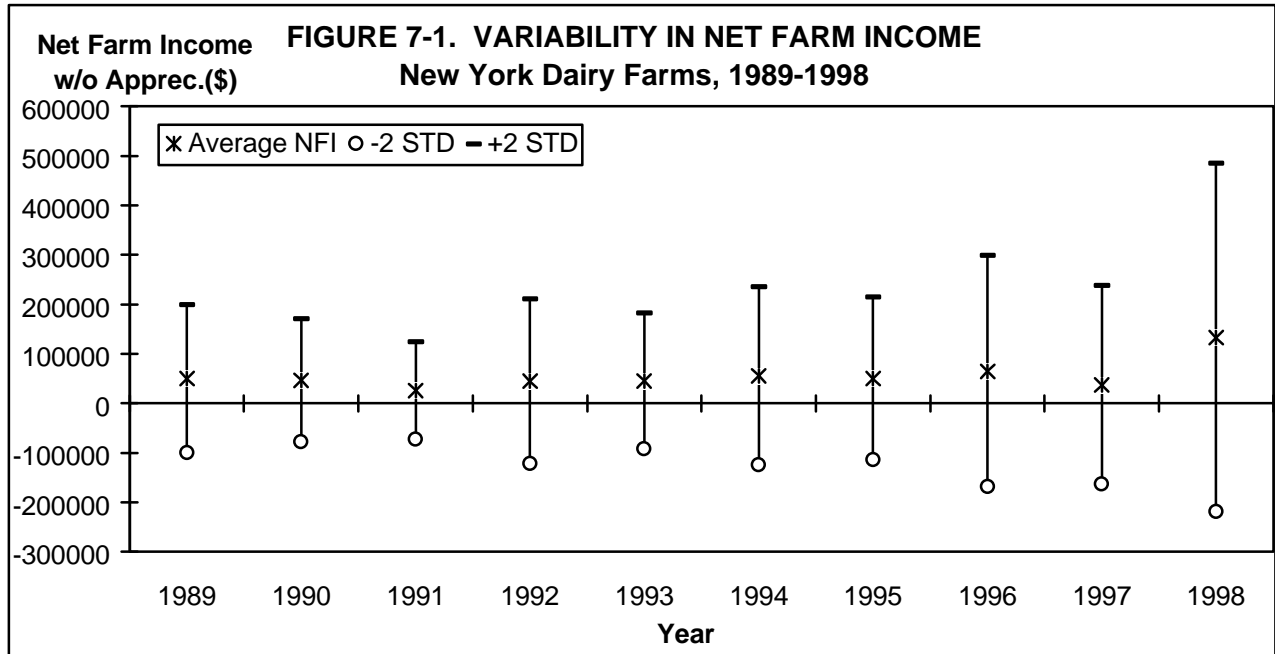
### **Ten-Year Comparisons**

The total cost of producing milk on DFBS farms has increased \$0.19 per cwt. over the past 10 years (Table 7-3). In the intervening years, total cost of production had increased before exhibiting a downward trend to 1995. Over the past 10 years milk sold per cow has increased 21 percent and cows per worker by 22 percent on DFBS farms (Table 7-4). Farm net worth has increased significantly, while percent equity has been stable to declining.

See Dairy2lan file for Table 7-3.

See Dairy2lan file for Table 7-4.

**Distribution of Income**



The range in individual farm profitability has been increasing over time. Figure 7-1 shows the average net farm income, plus and minus two standard deviations, over the past ten years. Figure 7-2 shows the variability in net farm income by herd size in 1998, again plus and minus two standard deviations. The range in profit for larger farms is significantly greater than for smaller farms.

**TABLE 7-5. COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 72 New York Dairy Farms, 1989 - 1998**

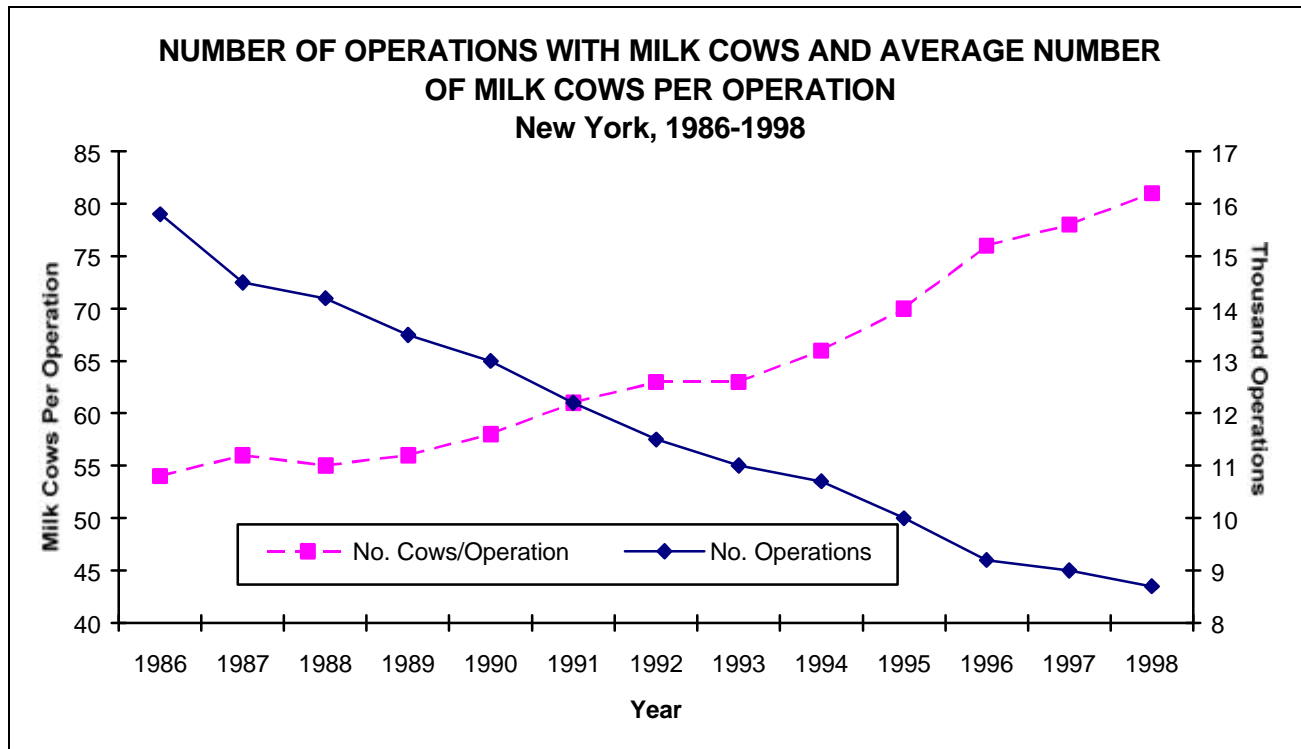
Selected Factors	1989	1990	1991	1992
Milk receipts per cwt. milk	\$14.59	\$14.94	\$12.92	\$13.54
<u>Size of Business</u>				
Average number of cows	131	136	144	163
Average number of heifers	105	114	122	124
Milk sold, cwt.	23,858	24,963	27,018	31,574
Worker equivalent	3.81	3.99	4.20	4.49
Total tillable acres	359	349	406	422
<u>Rates of Production</u>				
Milk sold per cow, lbs.	18,239	18,379	18,737	19,387
Hay DM per acre, tons	2.6	2.8	2.5	2.8
Corn silage per acre, tons	13	14	13	14
<u>Labor Efficiency</u>				
Cows per worker	34	34	34	36
Milk sold per worker, lbs.	626,999	625,702	642,880	703,453
<u>Cost Control</u>				
Grain & concn. purchased as % of milk sales	27%	27%	29%	28%
Dairy feed & crop expense per cwt. milk	\$5.07	\$5.20	\$4.78	\$4.86
Operating cost of producing cwt. milk	\$9.98	\$10.75	\$9.84	\$10.06
Total cost of producing cwt. milk	\$15.29	\$16.41	\$15.14	\$15.23
Hired labor cost per cwt.	\$1.27	\$1.50	\$1.36	\$1.37
Interest paid per cwt.	\$0.88	\$0.87	\$0.90	\$0.74
Labor & machinery costs per cow	\$952	\$1,068	\$1,038	\$1,070
Replacement livestock expense	\$2,487	\$4,044	\$2,789	\$4,764
Expansion livestock expense	\$7,171	\$7,517	\$15,546	\$19,527
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,929	\$7,235	\$7,335	\$7,446
Machinery & equipment per cow	\$1,327	\$1,403	\$1,461	\$1,476
Real estate per cow	\$3,190	\$3,327	\$3,396	\$3,501
Livestock investment per cow	\$1,417	\$1,505	\$1,515	\$1,511
Asset turnover ratio	0.51	0.49	0.44	0.46
<u>Profitability</u>				
Net farm income without appreciation	\$77,213	\$68,783	\$37,988	\$67,141
Net farm income with appreciation	\$109,185	\$83,038	\$57,931	\$87,067
Labor & management income per operator/manager	\$36,777	\$24,259	\$306	\$24,332
Rate return on:				
Equity capital with appreciation	10.3%	4.7%	0.4%	2.5%
All capital with appreciation	9.2%	5.4%	2.8%	3.7%
All capital without appreciation	5.0%	4.1%	0.7%	1.9%
<u>Financial Summary, End Year</u>				
Farm net worth	\$583,285	\$614,221	\$622,643	\$707,533
Change in net worth with appreciation	\$71,439	\$29,785	\$4,484	\$44,384
Debt to asset ratio	0.28	0.30	0.31	0.29
Farm debt per cow	\$1,878	\$2,132	\$2,153	\$2,077

Farms participating in the DFBS each of the last 10 years have increased size of business, labor efficiency and milk sold per cow (Table 7-5). While net farm income has generally increased, rates of return on capital have not.

TABLE 7-5. COMPARISON OF FARM BUSINESS SUMMARY DATA (Continued)					
Same 72 New York Dairy Farms, 1989 - 1998					
1993	1994	1995	1996	1997	1998
\$13.21	\$13.52	\$13.07	\$15.04	\$13.74	\$15.69
180	192	207	220	226	237
136	148	159	168	177	190
34,926	40,142	43,507	46,777	49,524	51,469
4.67	5.01	5.33	5.58	5.72	6.03
442	464	486	514	533	548
19,451	20,898	20,996	21,215	21,880	21,763
2.8	3.1	2.6	2.7	2.4	3.0
15	17	14	15	14	15
38	38	39	40	40	39
747,159	801,326	815,871	838,297	865,575	854,046
28%	27%	27%	29%	31%	24%
\$4.69	\$4.52	\$4.36	\$5.30	\$5.25	\$4.89
\$9.80	\$9.88	\$10.03	\$11.27	\$11.33	\$10.63
\$14.81	\$14.85	\$14.79	\$16.25	\$16.12	\$15.46
\$1.43	\$1.40	\$1.42	\$1.48	\$1.47	\$1.49
\$0.73	\$0.70	\$0.77	\$0.76	\$0.76	\$0.72
\$1,077	\$1,112	\$1,084	\$1,161	\$1,152	\$1,190
\$6,231	\$8,194	\$4,409	\$5,273	\$6,482	\$11,502
\$11,539	\$10,897	\$11,900	\$6,824	\$6,755	\$10,109
\$7,497	\$7,432	\$7,330	\$7,374	\$7,397	\$7,471
\$1,499	\$1,492	\$1,462	\$1,469	\$1,498	\$1,535
\$3,500	\$3,402	\$3,366	\$3,376	\$3,373	\$3,362
\$1,523	\$1,559	\$1,540	\$1,537	\$1,528	\$1,540
0.45	0.47	0.44	0.49	0.44	0.53
\$68,911	\$84,921	\$78,473	\$107,393	\$58,555	\$168,177
\$89,191	\$104,179	\$91,616	\$122,344	\$66,814	\$196,206
\$19,113	\$28,981	\$22,677	\$42,806	\$5	\$68,599
2.9%	3.5%	0.8%	4.2%	-2.3%	12.3%
3.9%	4.2%	2.9%	4.9%	0.7%	9.8%
1.9%	2.8%	2.0%	3.6%	0.1%	7.2%
\$749,898	\$796,800	\$834,292	\$915,334	\$913,374	\$1,040,129
\$37,769	\$50,166	\$40,169	\$74,204	\$-1,579	\$123,139
0.30	0.30	0.30	0.28	0.29	0.27
\$2,066	\$2,067	\$2,000	\$1,969	\$2,005	\$1,908

Debt to asset ratio and debt per cow have remained stable with farm net worth almost doubled. During this time, crop yields have fluctuated, largely due to weather. Purchased grain and concentrate as a percent of milk sales has varied only from 24 to 31 percent, with the high being in 1997 and the low in 1998.

**Milk Cow Operations and Milk Cow Inventory**



As the number of milk cow operations decreases, the average number of milk cows per operation increases as shown by the above chart. There were 5,500 less milk cow operations in 1998 than there were in 1988. The average number of milk cows per operation has increased by 26 cows, or 47 percent over the same period. On January 1, 1999, 35 percent of the total milk cows were in herds with 50-99 head, 52 percent were in herds with over 100 milk cows, and 13 percent were in herds with less than 50 head.

**TABLE 7-6. MILK COW OPERATIONS AND MILK COW INVENTORY by Herd Size, 1987 to 1999**

MILK COW OPERATIONS BY HERD SIZE & TOTAL, 1987-1998 (Number of Milk Cows in Herd)							MILK COWS ON FARMS, JAN. 1 BY HERD SIZE & TOTAL, 1988-1999 (Number of Milk Cows in Herd)						
Year	1-29	30-49	50-99	100-199 <sup>a</sup>	200 plus	Total	Year	1-29	30-49	50-99	100-199 <sup>a</sup>	200 plus	Total
	(Number of Operations)							(Thousand Head)					
1987	3,300	4,300	5,000	1,900		14,500	1988	32	171	332	281		816
1988	3,200	3,850	5,300	1,850		14,200	1989	30	144	335	271		780
1989	2,700	3,400	5,400	2,000		13,500	1990	29	121	321	289		760
1990	2,650	3,150	5,300	1,900		13,000	1991	27	116	319	288		750
1991	2,500	2,900	5,000	1,800		12,200	1992	24	111	314	291		740
1992	2,600	2,600	4,400	1,900		11,500	1993	22	102	285	190	131	730
1993	2,400	2,500	4,200	1,500	400	11,000	1994	22	87	297	189	130	725
1994	2,400	2,200	4,200	1,500	400	10,700	1995	21	92	277	178	142	710
1995	2,100	2,200	4,000	1,300	400	10,000	1996	19	79	259	189	154	700
1996	1,800	2,000	3,700	1,300	400	9,200	1997	18	73	245	189	175	700
1997	1,700	1,900	3,600	1,300	500	9,000	1998	18	73	245	189	175	700
1998	1,600	1,800	3,500	1,300	500	8,700	1999	18	73	245	190	176	702

<sup>a</sup>100 plus category prior to 1993.

Source: NYASS, New York Agricultural Statistics, 1998-1999.



### Prices Paid and Received by New York Dairy Farmers

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. The table below shows average prices of selected goods and services used on New York dairy farms.

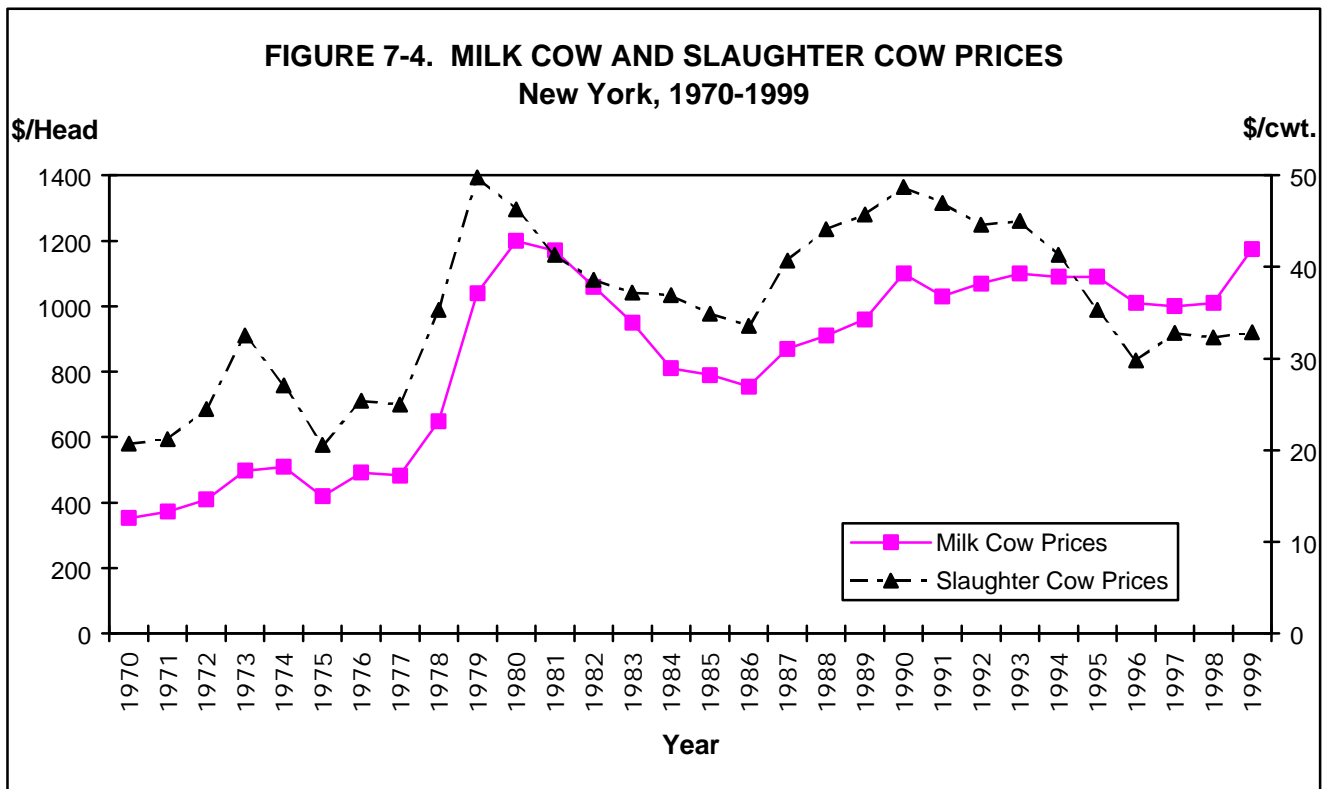
TABLE 7-7. PRICES PAID AND RECEIVED BY NEW YORK FARMERS FOR SELECTED ITEMS Northeast <sup>a</sup> , 1988-1999						
Year	Mixed Dairy Feed 16% Protein (\$/ton)	Soybean Meal 44% Protein (\$/cwt)	Fertilizer, Urea 45-46%N (\$/ton)	Fertilizer 10-20-20 (\$/ton)	Seed Corn, Hybrid <sup>b</sup> (\$/80,000) Kernels	Tractor 50-59PTO <sup>b</sup> (\$)
1988	181	15.65	208	206	64.20	17,150
1989	189	15.88	227	207	71.40	17,350
1990	177	13.25	215	199	69.90	17,950
1991	172	12.90	243	205	70.20	18,650
1992	174	12.70	221	194	71.80	18,850
1993	171	13.35	226	185	72.70	19,200
1994	181	14.10	233	192	73.40	19,700
1995	175 <sup>c</sup>	12.80 <sup>c</sup>	316 <sup>c</sup>	223 <sup>c</sup>	77.10	20,100
1996	226	15.80	328	228	77.70	20,600
1997	216	18.00	287	225	83.50	21,200
1998	199	14.20	221	225	86.90	21,800
1999	175	12.20	180	211	88.10	21,900
Year	Diesel Fuel (\$/gal)	Gasoline, Unleaded, Bulk Delivery <sup>d</sup> (\$/gal)	New York and New England Wage Rate All Hired Farm Workers (\$/hr)	Ground Limestone Spread on Field (\$/ton)	Prices Received Alfalfa Hay Baled <sup>e</sup> (\$/ton)	Corn Grain <sup>f</sup> (\$/bu)
1988	0.81	0.94	5.02	23.30	N/A	2.83
1989	0.83	1.05	5.25	24.30	88.00	2.80
1990	1.08	1.19	5.51	25.30	85.50	2.44
1991	1.00	1.25	6.06	23.10	84.50	2.70
1992	0.91	1.18	6.42	25.70	95.50	2.30
1993	0.90	1.20	6.76	26.60	97.00	2.85
1994	0.85	1.14	6.96	27.10	93.00	2.65
1995	0.85 <sup>c</sup>	1.17 <sup>c</sup>	6.92	22.30 <sup>c</sup>	94.00	3.85
1996	1.02	1.30	7.19	23.30	99.50	2.98
1997	0.96	1.33	7.63	27.60	110.00	2.61
1998	0.81	1.17	7.63	29.80	101.00	2.15
1999	0.75	1.17	8.12	25.40	----	----

SOURCE: NYASS, New York Agricultural Statistics.  
USDA, NASS, Agricultural Prices.

<sup>a</sup>Northeast region includes New England, New York, Pennsylvania, New Jersey, Maryland, and Delaware.  
<sup>b</sup>United States average.  
<sup>c</sup>Prices prior to 1995 are annual averages. Beginning 1995, prices refer to April 1.  
<sup>d</sup>Prices prior to 1993 represent gasoline, regular, bulk delivery.  
<sup>e</sup>Marketing year average, June through May.  
<sup>f</sup>Marketing year average, October through September.

Milk cow prices steadily increased in 1998 to \$1,050 in October. In 1999, milk cow prices remained level for the first part of the year. Slaughter cow prices averaged \$0.12 per hundredweight less than a year earlier. Calf prices averaged \$14.96 per hundredweight higher in 1999 compared to 1998. Beef cattle prices average \$0.09 per hundredweight less than a year earlier.

Month	Milk Cows \$/Head		Slaughter Cows \$/Cwt.		Calves \$/Cwt.		Beef Cattle \$/Cwt.	
	1998	1999	1998	1999	1998	1999	1998	1999
January	\$ 980	\$ 1,150	\$30.40	\$32.00	\$47.50	\$55.90	\$31.60	\$33.50
February	---	---	33.60	32.40	58.00	66.40	34.60	33.90
March	---	---	33.50	31.90	51.50	58.60	35.10	33.50
April	1,000	1,150	33.80	31.60	56.70	68.40	35.70	33.70
May	---	---	34.80	35.00	64.10	75.00	36.60	36.60
June	---	---	35.20	35.10	53.00	77.80	36.60	36.30
July	1,020	1,200	32.50	31.10	47.40	69.70	33.70	32.70
August	---	---	31.80	33.50	50.30	71.10	33.20	34.20
September	---	---	29.90	31.80	44.30	64.50	31.40	33.30
October	1,050	1,200	29.10	---	50.00	---	30.70	---
November	---	---	29.60	---	50.80	---	30.90	---
December	---	---	30.50	---	53.10	---	31.70	---

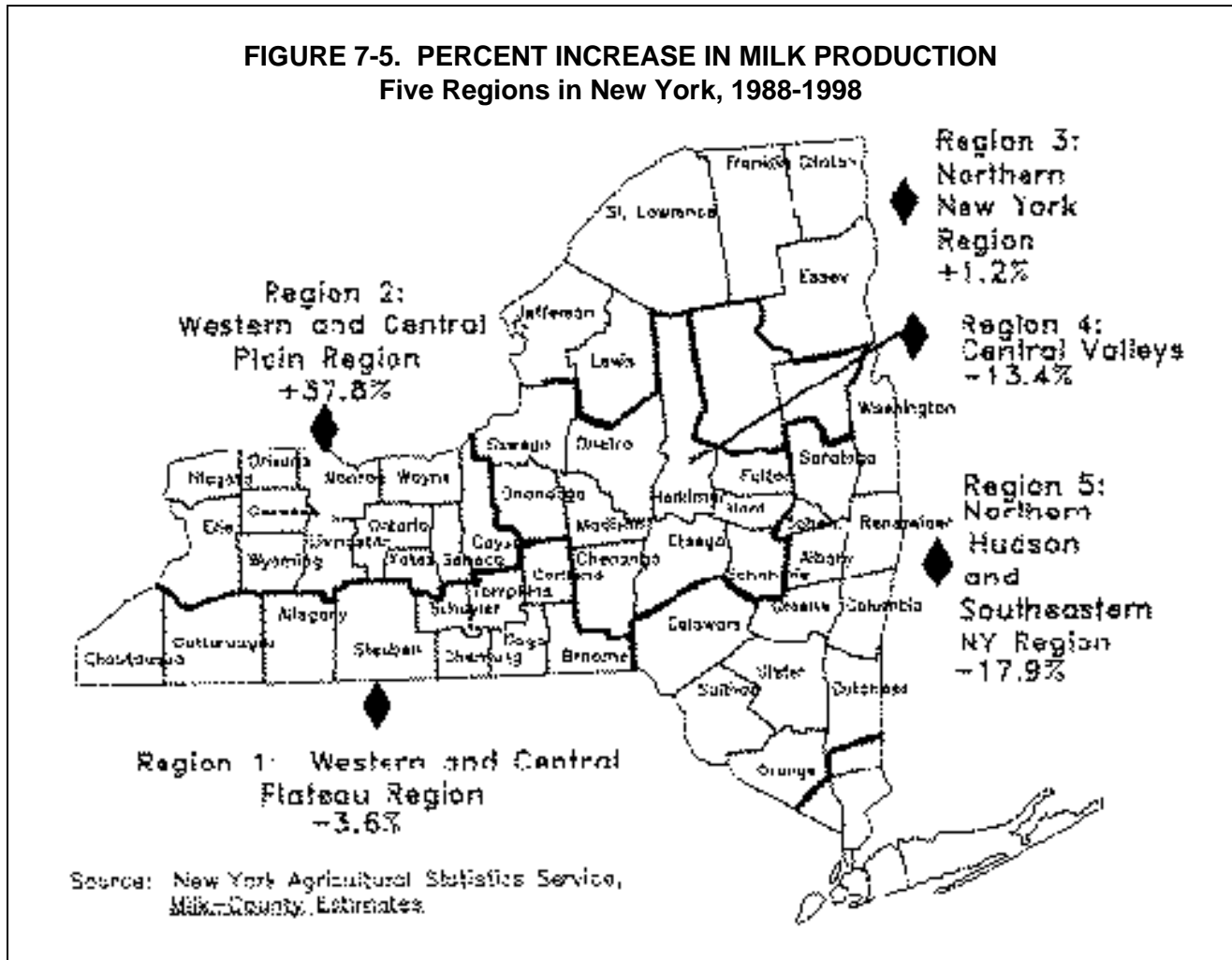


SOURCE: New York Agricultural Statistics.

See Dairy2lan file for Table 7-9.

**TABLE 7-10. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION**  
**305 New York Dairy Farms, 1998**

Item	Western & Central Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	No. Hudson & South- eastern New York
Number of farms	53	90	40	27	95
<b>ACCRUAL EXPENSES</b>					
Hired labor	\$47,280	\$196,803	\$56,267	\$43,769	\$41,364
Feed	101,980	348,020	142,850	111,398	112,230
Machinery	36,526	102,032	49,373	42,716	43,545
Livestock	51,264	212,180	68,815	64,079	69,096
Crops	20,891	59,114	29,386	27,680	26,801
Real estate	23,360	54,588	27,209	29,212	20,228
Other	45,807	124,277	51,495	41,376	38,972
Total Operating Expenses	327,109	\$1,097,013	\$425,395	\$360,231	\$352,234
Expansion livestock	2,239	19,755	7,063	4,138	5,074
Machinery depreciation	20,912	43,439	26,606	26,298	14,512
Building depreciation	13,791	39,976	16,675	13,466	10,071
Total Accrual Expenses	\$364,051	\$1,200,183	\$475,739	\$404,133	\$381,891
<b>ACCRUAL RECEIPTS</b>					
Milk sales	\$389,822	\$1,278,329	\$538,436	\$454,389	\$416,439
Livestock	19,414	88,218	46,062	28,763	29,624
Crops	9,286	27,171	12,210	13,931	9,709
All other	12,111	36,203	12,152	11,701	11,586
Total Accrual Receipts	\$430,633	\$1,429,921	\$608,860	\$505,783	\$467,358
<b>PROFITABILITY ANALYSIS</b>					
Net farm income (w/o appreciation)	\$66,582	\$229,738	\$133,123	\$104,650	\$85,467
Net farm income (w/ appreciation)	\$88,246	\$277,044	\$154,266	\$121,699	\$95,058
Labor & management income	\$34,513	\$169,853	\$98,653	\$71,133	\$49,191
Number of operators	1.41	1.68	1.56	1.68	1.65
Labor & mgmt. income/operator	\$24,477	\$101,103	\$63,239	\$42,341	\$29,813
<b>BUSINESS FACTORS</b>					
Worker equivalent	3.89	8.57	4.37	3.81	3.98
Number of cows	131	382	167	139	131
Number of heifers	109	269	124	112	98
Acres of hay crops <sup>a</sup>	202	292	238	211	217
Acres of corn silage <sup>a</sup>	100	313	155	106	113
Total tillable acres	370	744	451	435	372
Pounds of milk sold	2,525,828	8,279,773	3,468,250	2,817,012	2,597,383
Pounds of milk sold/cow	19,306	21,696	20,725	20,229	19,886
Tons hay crop dry matter/acre	2.7	3.7	2.7	3.5	2.6
Tons corn silage/acre	17.2	20.2	15.6	16.5	14.6
Cows/worker	34	45	38	36	33
Pounds of milk sold/worker	649,313	966,135	793,650	739,373	652,609
% grain & conc. of milk receipts	25%	26%	25%	24%	26%
Feed & crop expense/cwt. milk	\$4.85	\$4.92	\$4.97	\$4.94	\$5.35
Fertilizer & lime/crop acre	\$23.77	\$31.97	\$25.35	\$26.24	\$37.55
Machinery cost/tillable acre	\$178	\$221	\$192	\$179	\$178
*Average of all farms in the region, not only those producing the crop.					



**TABLE 7-11. MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK  
Five Regions of New York, 1998**

Item	Region <sup>a</sup>				
	1	2	3	4	5
<b>Milk Production<sup>b</sup></b>	(million pounds)				
1988	2,157.0	2,434.4	2,199.9	2,989.1	1,650.8
1998	2,078.7	3,339.6	2,253.3	2,643.0	1,420.8
Percent change	-3.6%	+37.2%	+2.4%	-11.6%	-13.9%
<b>Cost of Producing Milk<sup>c</sup></b>	(\$ per hundredweight milk)				
Operating cost	\$11.42	\$11.66	\$10.44	\$11.00	\$11.80
Total cost	15.48	14.08	13.89	15.05	15.53
Average price received	15.43	15.44	15.52	16.13	16.03
Return per cwt. to operator labor, management & capital	\$2.47	\$2.73	\$3.63	\$3.60	\$3.08

<sup>a</sup>See Figure 7-5 for region descriptions.  
<sup>b</sup>Source: New York Agricultural Statistics Service, Milk-County Estimates.  
<sup>c</sup>From Dairy Farm Business Summary data

## 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 305 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 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 7-12. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS  
305 New York Dairy Farms, 1998**

Size of Business		Rates of Production				Labor Efficiency	
Worker Equivalent	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
17.7	818	18,659,239	24,782	5.6	25	60	1,213,375
9.0	365	7,984,872	22,729	4.0	20	49	982,534
6.3	249	5,091,408	21,731	3.5	19	43	873,970
4.9	186	3,588,651	20,901	3.2	18	39	794,942
4.1	141	2,697,927	20,005	2.9	17	36	723,687
3.4	114	2,120,238	18,963	2.6	15	33	634,010
2.9	87	1,569,921	18,013	2.4	15	31	571,211
2.4	70	1,208,198	16,811	2.0	13	28	497,995
2.0	55	945,508	15,346	1.7	12	24	406,116
1.5	41	605,365	12,354	1.2	9	19	286,759
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		
\$372	15%	\$240	\$677	\$527	\$3.31		
531	19	333	854	709	4.15		
602	21	391	946	821	4.49		
667	23	430	1,015	902	4.75		
736	24	461	1,084	963	4.92		
786	26	489	1,139	1,021	5.14		
858	27	538	1,216	1,069	5.35		
910	29	589	1,280	1,117	5.67		
965	30	650	1,396	1,189	6.06		
1,086	36	814	1,636	1,345	6.95		

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

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.

<b>TABLE 7-12.(CONTINUED) FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS 305 New York Dairy Farms, 1998</b>						
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.	
\$3,923	\$17.67	\$1,145	\$7.54	\$1,989	\$12.16	
3,542	16.44	1,620	9.21	2,433	13.53	
3,375	16.14	1,840	10.11	2,648	14.03	
3,262	15.91	2,007	10.78	2,837	14.48	
3,118	15.68	2,152	11.21	2,953	15.01	
2,989	15.49	2,266	11.58	3,063	15.58	
2,834	15.33	2,357	11.94	3,158	16.16	
2,642	15.15	2,483	12.36	3,292	16.92	
2,403	14.94	2,638	13.10	3,468	18.02	
1,955	14.46	2,970	14.67	3,804	21.84	
Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts	Total	Per Cow	Per Farm	Per Operator
\$558,217	\$1,400	36.2%	\$637,385	\$1,600	\$445,672	\$279,033
239,284	1,008	28.8	286,419	1,163	183,141	123,641
163,816	847	24.3	192,008	1,011	117,794	81,298
120,708	736	21.4	138,655	886	78,588	53,310
89,022	664	19.6	111,202	778	52,535	37,531
65,933	587	17.2	81,693	695	36,739	25,362
48,395	503	14.8	60,860	616	22,436	18,606
35,925	417	12.6	45,218	519	13,801	10,644
24,337	288	8.9	32,533	408	613	585
-2,216	-29	-2.3	9,630	81	-31,139	-25,856

### Financial Analysis Chart

The farm financial analysis chart is designed just like the farm business chart on pages 7-14 and 7-15 and may be used to measure the financial health of the farm business.

TABLE 7-13. FINANCIAL ANALYSIS CHART 305 New York Dairy Farms, 1998							
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
\$153	\$1,029	4.05	5.71	5%	\$245	57%	21.41
257	786	2.17	3.34	8	996	35	4.68
332	699	1.64	2.58	10	1,455	28	3.33
376	620	1.33	2.05	12	1,878	23	2.55
428	551	1.17	1.74	14	2,234	18	2.20
466	501	1.05	1.54	16	2,552	15	1.83
521	434	0.93	1.37	17	2,846	11	1.53
592	363	0.82	1.18	20	3,232	7	1.23
672	286	0.65	0.96	24	3,720	-1	0.89
916	121	0.31	0.45	34	4,872	-19	0.37
Solvency				Profitability			
Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:			
		Current & Intermediate	Long Term	Equity	Investment**		
0.03	97%	0.03	0.00	66%	22%		
0.15	88	0.12	0.00	25	16		
0.26	80	0.21	0.05	19	14		
0.39	73	0.27	0.20	15	12		
0.50	67	0.34	0.31	12	10		
0.66	60	0.39	0.40	8	8		
0.86	54	0.44	0.50	6	6		
1.05	49	0.52	0.59	4	5		
1.46	40	0.64	0.74	0	2		
5.11	22	0.89	1.06	-11	-3		
Efficiency (Capital)							
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year		
.88	\$1,168	\$468	\$4,082	\$478,029	\$2,785,709		
.73	1,799	735	4,883	219,066	1,321,601		
.67	2,046	920	5,485	141,745	976,350		
.61	2,338	1,053	5,884	96,333	778,003		
.57	2,552	1,166	6,276	69,352	603,968		
.52	2,883	1,284	6,684	51,363	495,813		
.47	3,368	1,451	7,292	34,092	419,736		
.42	3,719	1,668	7,893	21,295	333,496		
.38	4,437	1,972	8,959	12,506	239,027		
.28	6,703	2,685	11,552	-7,015	109,101		

\*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

\*\*Return on all farm capital (no deduction for interest paid) divided by total farm assets.