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# ***DAIRY FARM BUSINESS SUMMARY***

## **INTENSIVE GRAZING FARMS NEW YORK 2004**



**George Conneman  
James Grace  
Jason Karszes  
Jacob Schuelke  
David L. Munsee  
A. Fay Benson  
Linda D. Putnam  
A. Edward Staehr  
Janice Degni**

**Department of Applied Economics and Management  
College of Agriculture and Life Sciences  
Cornell University, Ithaca, New York 14853-7801**

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**Intensive Grazing Farms**  
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## 2004 DAIRY FARM BUSINESS SUMMARY INTENSIVE GRAZING FARMS

### INTRODUCTION

Dairy farm managers throughout New York State have been participating in Cornell Cooperative Extension's farm business summary and analysis program since the early 1950's. Managers of each participating farm business receive a comprehensive summary and analysis of the farm business.

This is the ninth year that a study of intensive grazing farms has been done. The farms included in the study are a subset of New York State farms participating in the Dairy Farm Business Summary (DFBS). Thirty-two New York farms indicated that they grazed dairy cows at least three months, moving to a fresh paddock at least every three days and more than 30% of the forage consumed during the growing season was from grazing. Operators of these 32 farms were asked to complete a grazing practices survey. Twenty-four of the New York farms did complete it. The investigators had special interest in practices used on farms with above average profitability. **Therefore the study centered on 30 New York farms which were not organic farms, were not first year grazers and on which at least 30 percent of forage consumed during the grazing season was grazed. The "Average Top 30% Farms" are ten farms with the highest labor and management incomes per operator per cow and are compared to the average of the 30 farms.**

### Program Objective

The primary objective of the dairy farm business summary, DFBS, is to help farm managers improve the business and financial management of their business through appropriate use of historical farm data and the application of modern farm business analysis techniques. This information can also be used to establish goals that will enable the business to better meet its objectives. In short, DFBS provides business and financial information needed in identifying and evaluating strengths and weaknesses of the farm business.

### Format Features

The first section compares intensive grazing farms that participated in the Dairy Farm Business Summary project in 2003 and 2004. The second section of this publication reports data from the grazing practices survey. A comparison of intensive grazing farms with non-grazing farms is included on page 8. The third section, Case Studies, describes three grazing farms. The fourth section summarizes grazing farms by herd size.

The summary and analysis portion of this report follows the same general format as in the 2004 DFBS individual farm report received by all participating dairy farmers. It may be used by any dairy farm manager who wants to compare his or her business with the average data of intensive grazing farms. Non-DFBS participants can download a DFBS Data Check-In Form at <http://dfbs.cornell.edu>. After collecting data on the form, it can be entered in the U.S. Top Dairies business summary program at the same website to obtain a summary of their business.

The summary and analysis portion of the report features:

- (1) an income statement including accrual adjustments for farm business expenses and receipts, as well as measures of profitability with and without appreciation,
- (2) a complete balance sheet with analytical ratios;
- (3) a statement of owner equity which shows the sources of the change in owner equity during the year;
- (4) a cash flow statement and debt repayment ability analysis;
- (5) an analysis of crop acreage, yields, and expenses;
- (6) an analysis of dairy livestock numbers, production, and expenses; and
- (7) a capital and labor efficiency analysis.

## PROGRESS OF THE FARM BUSINESS

Comparing your business with average financial data from Dairy Farm Business Summary (DFBS) grazing farms that participated in both of the last two years can be helpful in comparing performance<sup>1</sup> and establishing goals for your business. It is equally important for you to determine the progress your business has made over the past two or three years, to compare this progress to your goals, and to set goals for the future. Please refer to the table on page 3 for selected factors from 22 farms that were grazing in both 2003 and 2004 and participated in the DFBS project for both years.

These 22 farms remained at the same herd size, 88 cows, in 2004 as in 2003. With no change in herd size, worker equivalents, pasture acreage, and tillable acreage stayed nearly the same. However production per cow increased 3 percent to 16,831 pounds per cow. This enabled the total pounds of milk sold off the farm to increase by 2.5 percent.

With both herd size and worker equivalents showing little change cows per worker decreased by one to 33. Reflecting the increase in production per cow the milk sold per worker increased 0.6 percent. Hired labor costs per worker equivalent increased 5.1 percent and on a hundredweight basis the increase was 15.1 percent, but as a percentage of milk sales there was a 10.6 percent decrease. This was due to an increase in the price per hundredweight of milk sold.

The 2004 growing season was a good year for grazers. Abundant rain in most of the state led to excellent pasture conditions and higher hay and corn silage yields. The price of milk increased from \$13.47 to \$17.24, a 28 percent increase. Sales of cull cows nearly doubled from 2003 to \$221 per cow in 2004. Government receipts were down as the Milk Income Loss Compensation payments decreased but still averaged \$.44 per hundredweight.

The same rain that increased crop yields made it difficult to harvest the hay crop and the energy level of the corn silage was lower than normal. Thus feed quality was lower than in 2003, causing more grain to be fed and increasing the grain per hundredweight cost 5.3 percent. Nevertheless, with the higher milk price, the percentage of milk sales spent on grain decreased 17.9 percent. However, feed and crop expense per hundredweight increased 7.7 percent.

The amount of investment per cow continued its upward trend, increasing from \$6,392 to \$6,979 or 9.2 percent. This resulted from the value of machinery and equipment increasing and cattle being worth more than in 2003. Farm net worth increased 15.3 percent and debt per cow decreased 3.3 percent as graziers paid down debt.

Income per hundredweight was, milk sales \$17.24, cattle \$1.32, calves \$0.33, and government payments \$0.44 for a total income of \$19.33 versus income of \$15.97 for the same items in 2003. The operating cost of producing a hundredweight of milk was \$11.06, a 19.2 percent increase from 2003's \$9.28. Part of this increase in operating costs was due to grazers purchasing inputs that had been delayed from previous low profit years.

The increase in milk price more than offset the increase in costs and decrease in government receipts, resulting in an increase in farm profitability.

### **Profitability Measures**

- Net farm income without appreciation increased 68.2 percent to \$69,135.
- Net farm income per cow without appreciation increased from \$467 to \$786.
- Net farm income with appreciation increased 55 percent to \$87,001.
- Labor and management income per operator increased from \$8,063 to \$26,533.
- Rate of return on equity capital without appreciation was 6.0 percent.
- Rate of return on all capital without appreciation 5.6 percent.

In summary, 2004 was a better year than 2003 for grazers primarily due to the increase in the price of milk and that there was good to excellent grazing all season. Profitability and net worth both increased and debt per cow decreased.

<sup>1</sup>The importance of trend analysis is to identify what areas changed, ask why they changed, and look at what you can do differently in the future to influence that change. If you would like help in developing and looking at the trends in your business, contact your local extension service and become involved in a financial management education program.

**PROGRESS OF THE FARM BUSINESS**  
Same 22 Grazing Dairy Farms, 2003 & 2004

Selected Factors	Average of 22 Farms		Percent Change
	2003	2004	
<u>Size of Business</u>			
Average number of cows	88	88	0.0
Average number of heifers	63	71	12.7
Milk sold, lbs.	1,438,467	1,474,244	2.5
Worker equivalent	2.62	2.67	1.9
Total nontillable and tillable pasture & hay acres	256	255	-0.4
Total nontillable pasture & tillable acres	298	298	0.0
<u>Rates of Production</u>			
Milk sold per cow, lbs.	16,346	16,831	3.0
Hay DM per acre, tons	2.3	2.7	17.4
Corn silage per acre, tons	15.4	17.9	16.2
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	34	33	-2.9
Milk sold per worker, lbs.	549,026	552,151	0.6
Hired labor cost per cwt.	\$1.26	\$1.45	15.1
Hired labor cost per worker	\$22,257	\$23,393	5.1
Hired labor cost as % of milk sales	9.4%	8.4%	-10.6
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	28%	23%	-17.9
Grain & concentrate per cwt. milk	\$3.81	\$4.01	5.3
Dairy feed & crop expense per cwt. milk	\$4.81	\$5.18	7.7
Labor & mach. costs per cow	\$1,230	\$1,356	10.2
Total farm operating costs per cwt. sold	\$12.54	\$13.62	8.6
Interest costs per cwt. milk	\$0.52	\$0.53	1.9
Milk marketing costs per cwt. milk sold	\$0.89	\$0.87	-2.3
Operating cost of producing cwt. of milk	\$9.28	\$11.06	19.2
Total costs of producing cwt. of milk	\$14.98	\$16.96	13.2
<u>Capital Efficiency (average for the year)</u>			
Farm capital per cow	\$6,392	\$6,979	9.2
Mach. & equip. per cow	\$1,333	\$1,415	6.2
Asset turnover ratio	0.45	0.51	13.3
<u>Income Generation</u>			
Gross milk sales per cow	\$2,201	\$2,889	31.3
Gross milk sales per cwt.	\$13.47	\$17.24	28.0
Net milk sales per cwt.	\$12.58	\$16.37	30.1
Dairy cattle sales per cow	\$112	\$221	97.3
Dairy calf sales per cow	\$84	\$55	-34.5
Government receipts per cwt.	\$1.30	\$0.44	-66.2
<u>Profitability</u>			
Net farm income without appreciation	\$41,105	\$69,135	68.2
Net farm income with appreciation	\$56,135	\$87,001	55.0
Labor & mgt. income per operator/manager	\$8,063	\$26,533	229.1
Rate of return on equity capital without apprec.	-0.5%	6.0%	1300.0
Rate of return on all capital without apprec.	1.0%	5.6%	460.0
<u>Financial Summary</u>			
Farm net worth, end year	\$405,933	\$468,132	15.3
Debt to asset ratio	0.30	0.27	-10.0
Farm debt per cow	\$2,026	\$1,962	-3.3

## INTENSIVE GRAZING SURVEY SUMMARY

From the survey data of the 28 selected grazing farms in New York (24) and Ohio (4), analysis of average production levels and profitability measures are shown below. Labor and management income per operator per cow without appreciation was used this year to evaluate whether certain practices contributed favorably to improved profitability. Labor and management income per operator per cow is a measure of the net annual return after the operators' unpaid family labor, and an equity charge for capital used in the business have been applied. This is the best way to compare diverse businesses that may have high debt to those with no debt and those that may rely heavily on unpaid labor with those that have all paid labor. The farms were divided into two sets of the top half and the bottom half scaled by the highest to lowest labor and management incomes per operator per cow.

### SELECTED PRODUCTION AND PROFITABILITY MEASURES

Intensive Grazing Dairy Farms, 2004

	Average 28 Farms	14 Above Average Farms	14 Below Average Farms
Pounds milk sold per cow	16,671	18,436	14,906
Labor and management income per operator per cow	\$282	\$549	\$16
Operating cost of producing milk per cwt.	\$11.93	\$11.06	\$12.79
Total cost of producing milk per cwt.	\$19.25	\$16.33	\$22.18

Comparison of survey data on the various grazing practices, such as water availability, supplemental feeding, pasture species, pasture management, milking system type and frequency of rotation are shown in the following table. Not every farm answered every part of the survey and those instances have been noted with the number of farms in parentheses.

### GRAZING PRACTICES

Intensive Grazing Dairy Farms, 2004

	Number of Farms	Average of All Farms Answer- ing Question	Above Average Farms	Below Average Farms
Average number of cows	28	105	119	90
Average years of farming experience	28	19.25	16.64	21.86
Percent of farms with seasonal or semi-seasonal calving	28	36%	36%	36%
Percent of farms with parlor-type milking system	23	52%	58% (12)	45% (11)
Average percent forage from pasture	25	69%	66% (13)	72% (12)
Average length (days) of grazing season	27	199	197 (14)	202 (13)
Average pounds dry matter supplemented grain	25	15.49	16.17 (13)	14.75 (12)
Percent farms supplement pasture with forage	25	80%	77% (13)	83% (12)
Average pounds dry matter supplemented forage (of those who supplement)	25	10.57	12.50 (13)	8.65 (12)
Percent rotated after each milking	28	50%	57%	43%
Percent rotated one time a day	28	32%	36%	29%
Percent rotated every other day	28	11%	7%	14%
Percent other rotation	28	7%	0%	14%
Percent farms applied commercial fertilizer to pasture	28	61%	71%	50%
Percent farms applied manure to pasture	28	64%	79%	50%
Percent farms applied lime to pasture	28	32%	43%	21%
Percent farms that clipped pasture	28	96%	100%	93%
Percent farms weed problems	28	64%	57%	71%
Percent farms water every paddock	28	61%	64%	57%
Average percent pasture that was reseeded in the last 10 years	27	27%	31% (14)	24% (13)
Percent farms harvested mechanically	27	67%	64% (14)	69% (13)
Average percent pasture harvested by machine (of those who mechanically harvest)	27	43%	54%	31%
Most common pasture species:	22			
First		Orchardgrass	Orchardgrass	Orchardgrass
Second		Native Clover	Bluegrass	Native Clover
Third		Bluegrass	Native Clover	Bluegrass



Practices to increase pasture quality tended to indicate higher profitability. Those practices are utilizing a shorter grazing period, rotating pasture after each milking, use of manure and fertilizer, clipping, avoiding weeds, re-seeding pasture, and mechanically harvesting pasture before it becomes overgrown.

### **Breeds**

Holstein was the most common breed with 48 percent of the herd, the second most common was crossbreeds with 34 percent, and the third most common breed was Jersey with 16 percent of the animals. Farms with high percentages of Holstein animals tended to be more profitable than those with crossbreeds and other breeds.

#### **FARMS SCALED BY LABOR AND MANAGEMENT INCOMES PER COW**

Intensive Grazing Dairy Farms, 2004

	Number of Farms	Average of All Farms Answer- ing Question	14 Above Average Farms	13 Below Average Farms
Percent of Farms that are 95-100% Holstein	27	41%	57%	23%
Percent of Farms with a Holstein animal	27	86%	79%	93%
Percent of Farms with a Crossbreed animal	27	48%	43%	54%

### **Supplemental Feeding**

The table below compares the farms that fed corn silage, grain, and other forage to those that fed only grain and other forage. Farms that incorporated corn silage into their grazing forages tended to have higher milk production but not necessarily higher profitability. For a more specific look at what was being fed to these grazing herds, see the following section “Ration Details”.

#### **SUPPLEMENTAL FEEDING**

Intensive Grazing Farms, 2004

	12 Above Average Farms		13 Below Average Farms	
	No Corn Silage		No Corn Silage	
	Corn Silage (7)	(5)	Corn Silage (4)	(9)
Labor and management income per operator/cow	\$547	\$549	\$-18	\$8
Pounds milk sold per cow	20,532	16,731	19,447	15,030
Pounds dry matter of grain	16.15	10.80	17.00	14.20
Pounds dry matter of corn silage	8.5	0	6.9	0
Pounds dry matter of other forage <sup>2</sup>	2.6	2.5	5.1	4.8
Percent forage from pasture	62%	73%	66%	72%

<sup>2</sup>Other includes baleage, dry hay, or other forage.

### **Ration Details**

Of the 12 above average grazing farms, all fed grain during the grazing season. Seven of the farms fed corn silage. Two farms reported feeding haylage. Two farms fed baleage, at an average of 6.7 pounds of dry matter per cow per day and six farms reported feeding dry hay at an average of 4.4 pounds of dry matter per cow per day.

Of the 13 below average farms for labor and management income per operator per cow, all fed grain during the grazing season. Four of the farms fed corn silage. Four of the farms fed baleage at an average of 11.7 dry matter pounds, four farms fed haylage at an average of 6.2 dry matter pounds, and four farms fed dry hay at an average rate of 4.2 pounds dry matter.

### **Frequency of Rotation**

Fourteen of the farms rotate their pastures for milk cows after every milking, 9 of the farms rotated pasture every day, 3 farms rotated pasture every other day, one farm noted that they rotate pastures as they are eaten, and the last farm used different fields for day and night grazing periods. The table below compares the rotation frequency to milk production and labor and management incomes per operator per cow.

**ROTATION FREQUENCY**  
Intensive Grazing Farms, 2004

	14 Above Average Farms		14 Below Average Farms	
	Rotate after Each Milking (8)	Other Rotation Schedule (6)	Rotate after Each Milking (6)	Other Rotation Schedule (8)
Pounds milk sold per cow	17,582	19,575	13,506	15,956
Labor and management income per operator/cow	\$603	\$476	\$7	\$22

### **Water Source**

There are various options for providing water to pasture. Fourteen farms provided the majority of water through a well and the remaining thirteen provided water through a natural source (pond 7, spring 4, and stream 2).

**WATER SOURCE**  
Intensive Grazing Farms, 2004

	14 Above Average Farms		13 Below Average Farms	
	Well (8)	Natural Source (6)	Well (6)	Natural Source (7)
Pounds milk sold per cow	17,598	19,553	14,431	17,443
Labor and management income per operator/cow	\$513	\$596	\$-1	\$10

### **Milking System**

There are several ways to classify milking systems. For the purposes of this analysis, all farms utilizing some sort of a parlor (herringbone, parallel, rotary, flat barn or other) were separated from those utilizing pipeline. The type of milking system may impact the degree of control the manager has over the supplemental feeding system and the capital investment level of the farm. In total there were 11 parlor systems (8 pit parlor, 2 flat parlor, and 1 step-up) and the remaining 12 farms used pipeline systems.

**MILKING SYSTEM**  
Intensive Grazing Farms, 2004

	12 Above Average Farms		11 Below Average Farms	
	Pipeline (7)	Parlor (5)	Pipeline (5)	Parlor (6)
Pounds milk sold per cow	21,173	14,338	16,535	14,315
Percent of farms with primary housing outside	0%	60%	0%	33%
Labor and management income per operator/cow	\$496	\$651	\$62	\$9
Average number of cows	60	228	43	98

### **Commercial Fertilizer**

Seventeen farms applied fertilizer to the paddocks during the growing season. Fertilizers other than urea that were applied included ammonium sulfate and some blends. Most applied all the fertilizer in one application in the spring to early June and others applied fertilizer at multiple times through the season, while one farm made a single fall application. It is not possible to compare pasture yields in the different systems because quantities were not measured from farms who mechanically harvested hay from pasture.

**COMMERCIAL FERTILIZER**

Intensive Grazing Farms, 2004

	14 Above Average Farms		14 Below Average Farms	
	Applied Fertilizer (10)	Did Not Apply Fertilizer (4)	Applied Fertilizer (7)	Did Not Apply Fertilizer (7)
Pounds milk sold per cow	17,667	20,357	15,540	14,273
Labor and management income per operator/cow	\$607	\$404	\$29	\$3
Most common product applied	Urea/Nitrogen	-	Urea/Nitrogen	-

**Intensive Grazing Satisfaction Comments**

On a scale of 1 to 5, with 5 being the highest, 27 farms responded with the average rating of grazing satisfaction of 4.4 with 14 farms responding “very satisfied”, 11 responding “satisfied”, and 2 responding “average”. When asked whether their life-style has improved with the adoption of rotational grazing, 26 farms responded with 19 saying yes, 4 saying no, and 3 stating a mixed response.

**Grazing Trends**

The table below compared key figures from 1996 (the first year of the intensive grazing summary), 2004, and an eight-year average. Cow numbers have increased but milk sold per cow has remained basically the same.<sup>3</sup> Operating cost of producing milk in 2004 averaged \$1.23 above the eight-year average but only \$0.54 above 1996. Net farm income per cow without appreciation was over \$200 higher than the eight-year average. Due to the high milk price in 2004, the grain cost as a percent of milk receipts decreased but on a per hundredweight basis was slightly above the eight-year average.

**2004 GRAZING INFORMATION COMPARED TO 1996 AND 1996 – 2003 AVERAGE**

Intensive Grazing Farms, 1996 – 2004

	59 Grazing Dairy Farms, 1996 Average	30 Grazing Dairy Farms, 2004 Average	50 Grazing Dairy Farms, 1996 – 2003 Average
Number of cows	78	104	88
Pounds milk sold per cow <sup>3</sup>	17,270	17,144	17,037
Operating cost of producing milk per cwt.	\$11.29	\$11.83	\$10.60
Net farm income per cow without appreciation	\$409	\$652	\$441
Grain and concentrate as % of milk receipts	30%	25%	27%
Grain and concentrate expense per cwt. milk	\$4.41	\$4.24	\$4.04
Price of milk per cwt.	\$14.78	\$17.27	\$14.35

<sup>3</sup> In 1996, similar size non-grazers sold 17,547 pounds of milk per cow and in 2004 similar size non-grazers sold 19,202 pounds per cow.

**Open Ended Comments**

When given the opportunity to state anything about the grazing season this year or in general, seven farms responded with these comments:

- Barn is labor intensive so having cows on pasture reduces workload. Would prefer better pasture and more acreage to increase percent of grass ration.
- Grazing is the best situation for my cows. I look forward to April every year.
- Non labor efficient.
- Never managed anything else.
- Never barn fed, too lazy.
- We spend too much time building paddocks. This season we hope to build some permanent subdivision fence. Wet lanes were a real problem this year

**INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS**  
**New York State Dairy Farms, 2004**

Item	All Intensive		Average Top 30% Farms <sup>6</sup>	Profitable Non- Grazing Farms <sup>7</sup>
	Grazing Farms <sup>4</sup>	Non-Grazing Farms <sup>5</sup>		
Number of farms	30	84	10	11
<b><u>Business Size &amp; Production</u></b>				
Number of cows	104	103	110	114
Number of heifers	74	84	96	102
Milk sold, lbs.	1,774,400	1,982,870	1,885,320	2,453,174
Milk sold/cow, lbs.	17,144	19,202	17,186	21,434
Milk plant test, % butterfat	3.50%	3.34%	3.66%	3.76%
Cull rate	22.1%	29.6%	20.0%	25.9%
Tillable acres, total	267	321	265	370
Hay crop, tons DM/acre	2.9	2.9	3.2	3.7
Corn silage, tons/acre	15.3	16.5	18.0	19.4
Forage DM/cow, tons	5.8	9.3	5.9	10.9
<b><u>Labor &amp; Capital Efficiency</u></b>				
Worker equivalent	2.90	3.30	2.63	3.35
Milk sold/worker, lbs.	611,862	600,870	716,852	732,291
Cows/worker	36	31	42	34
Farm capital/worker	\$261,810	\$291,433	\$271,470	\$275,594
Farm capital/cow	\$7,300	\$9,337	\$6,491	\$8,099
Farm capital/cwt. milk	\$43	\$49	\$38	\$38
Machinery & equipment per cow	\$1,287	\$1,998	\$1,306	\$1,917
<b><u>Milk Production Costs &amp; Returns</u></b>				
Selected costs/cwt.:				
Hired labor	\$1.71	\$1.71	\$1.39	\$1.78
Grain & concentrate	\$4.24	\$4.67	\$3.96	\$3.69
Purchased roughage	\$0.52	\$0.17	\$0.25	\$0.06
Replacements purchased	\$0.06	\$0.26	\$0.05	\$0.01
Vet & medicine	\$0.43	\$0.54	\$0.41	\$0.53
Milk marketing	\$0.85	\$0.88	\$0.83	\$0.57
Other dairy expenses	\$1.12	\$1.34	\$1.04	\$1.36
Operating cost of producing milk/cwt.	\$11.83	\$12.63	\$10.50	\$10.22
Total labor cost/cwt.	\$4.29	\$4.32	\$3.45	\$3.80
Operator resources/cwt.	\$3.82	\$3.90	\$3.18	\$3.16
Total cost of producing milk/cwt.	\$17.66	\$18.30	\$14.89	\$14.80
Average farm price/cwt.	\$17.27	\$17.02	\$17.12	\$16.83
<b><u>Related Cost Factors</u></b>				
Hired labor/cow	\$291	\$329	\$239	\$384
Total labor/cow	\$732	\$831	\$592	\$817
Purchased dairy feed/cow	\$812	\$931	\$721	\$807
Purchased grain & conc. as % of milk receipts	25%	27%	23%	22%
Vet & medicine/cow	\$74	\$103	\$71	\$115
Machinery costs/cow	\$598	\$714	\$499	\$728
Feed & crop exp./cwt.	\$5.55	\$5.79	\$5.30	\$4.89
<b><u>Profitability Analysis</u></b>				
Net farm income (with appreciation)	\$98,089	\$91,775	\$121,675	\$158,621
Net farm income (without appreciation)	\$67,810	\$58,833	\$105,259	\$131,318
Net farm income per cow (w/o appreciation)	\$652	\$571	\$957	\$1,152
Net farm income per cwt. (w/o appreciation)	\$3.82	\$2.97	\$5.58	\$5.35
Labor & management income/operator	\$22,397	\$9,555	\$57,202	\$57,373
Labor & mgmt. income/operator/cow	\$215	\$103	\$520	\$503
Rates of return on: Equity capital with apprec.	9.3%	6.1%	17.0%	18.5%
All capital with appreciation	8.1%	5.7%	13.2%	13.4%

<sup>4</sup>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.

<sup>5</sup>Farms with similar herd size, as the 30 rotational grazing farms.

<sup>6</sup>Top 30 percent of grazing farms by Labor and Management Income Per Operator Per Cow.

<sup>7</sup>Farms with similar herd size as the "Top 30%" grazing farms and Labor and Management Income Per Operator Per Cow greater than \$460.

## CASE STUDIES

### **Forni Dairy**

Forni Dairy, located in New Matamoras, Ohio is a grazing dairy started in 2004 by Kyle Forni.

While attending Ohio State University, majoring in Animal Science and Agricultural Business, Kyle researched many different ways that he could enter production agriculture. When evaluating different production agricultural areas, from dairy to grain to hogs, some of the criteria that he used were:

- Exciting
- Sustainable
- Profitable
- Good family environment
- Low initial input to get started

With these criteria, he felt that a grazing dairy was the best approach and he started to develop and work on his plan to start a grazing dairy.

Graduating from college in December of 2000, the first thing Kyle did was to go to New Zealand to gain experience managing cows on grass. Over the next 18 months, he worked on 8 different farms and visited with 12 additional dairies to learn as much as he could about cows and grass. He then returned home to start putting resources together to begin his own dairy.

### **Development of the Business**

Utilizing the Dairy Farm Business Summary (DFBS) reports for some grazing dairies that he met through a grazing discussion group in the northeast and financial benchmarks for grazing dairies from various sources, he developed budgets for the farm. Utilizing these budgets, benchmarks, and DFBS reports (with permission from the individual dairies), he presented his business plan to his family for their approval. After seeing his plans, they felt it was a good investment. They were willing to rent him some farm land, allow the land to be used for collateral for a bank loan, and also provide a loan to help buy cattle.

With this backing in place, in August of 2003, he started to buy yearling heifers that were mostly Jersey/Holstein crosses and got them bred and grazing the rented pastures. The cattle are housed outdoors year round. The 107 animals were purchased utilizing his savings from previous jobs and the loan from the family.

While purchasing cattle, he also started working on the milking complex and the grazing layout for the dairy. Borrowing 100 percent of the funds from a bank, Kyle invested \$110,000 in a new milking complex. The swing 21 parlor comprised of both new and used equipment from New Zealand and US companies is housed in a pole shed that has open ends. The rectangle-shaped holding pen is outdoors. Driveways and laneways were also added to the property.

### **First Year**

With bred cattle on the way and the milking center built, Kyle was ready to start milking cows. Animals started to calve in March of 2004 and a peak of 107 cows milking was reached with an average of 87 cows through the grazing season. For 2004, the labor for the farm consisted of Kyle and one other full-time employee, along with two part-time employees that worked March and April to help out during the calving season. For 2004, this worked out to 44 cows per worker and 521,069 pounds of milk sold per worker.

During the grazing season, cows received 14 pounds of grain supplementation, with additional hay as needed, based on how well the pastures were growing. Breeding was accomplished utilizing purchased Jersey bulls.

With the intent to be a seasonal herd, all cattle were dried off by December 23 of 2004 with calving to start early March of 2005. With no facilities to house animals, limited ability to make additional investment, and the goal to have time to travel, Kyle feels that maintaining a seasonal herd makes the most sense at this point. Winter feed consisted of first cutting of hay from pastures not needed for grazing, purchased local dry hay, and stockpiled paddocks along with 3-4 pounds of grain supplementation.

### The Future

With the first year under his belt, he feels that he has made a good decision. By utilizing the Dairy Farm Business Summary to look at the performance of the business the first year, with the combination of lower costs of a grazing dairy, a high milk price year, and the growth of animals due to internal herd growth, the business generated over \$100,000 of retained earnings. This was utilized to offset lost capital of the milk center investment and make additional investment in cattle with little additional borrowings.

Over the next five years, Kyle would like to maximize the current pasture base with 215 cows and related replacements, have two full-time employees with seasonal part-time help during calving, buy the rented pasture, and start a family. Key focus areas will be on managing cows to minimize culls for poor performance and for missing the breeding window, lowering costs, and building net worth. Time will also be spent looking for additional opportunities for land and people that might be utilized to grow in the grazing business.

Looking back to his criteria that he utilized for deciding to enter dairying utilizing the grazing approach, Kyle feels that he has reconfirmed his feelings on the sustainability, profitability, ability to get started, and family environment of his choice. He also loves the excitement level that is being created with his business and looks forward to the additional challenges and rewards as he builds his grazing business.

### **Finn-Star Farm**

Paul and Robin Starceski were married in June of 1989, after Robin graduated from Penn State University. As a wedding gift, Robin's college friends gave the couple a Holstein heifer. This one heifer was the start of what is now a 45-cow high-producing herd. At that time Paul and Robin lived in Gettysburg, PA where Paul worked as an Artificial Insemination Technician. The Starceskis pet heifer needed company, so soon after six more heifers were acquired.

In the fall of 1989 Paul and Robin decided to buy a farm in Sherman, NY that was across the road from Robin's grandparents' farm. After moving, Paul was able to transfer locations and continue to work as an AI Tech with the same company and Robin began work as a DHIA tester and relief milker for nearby farms.

One year later in the fall of 1990 with two fresh heifers and not wanting to sell their pets, the Starceskis started to milk cows in Robin's grandfather's barn. With a milking string of five animals, the Starceskis started shipping milk that same month. By mid winter nine more animals had freshened and the Starceskis were off and running. At that time both Paul and Robin worked off farm jobs and milked cows. Due to time constraints, limited machinery, and a growing herd; a rotational grazing system was started in the spring of 1991.

Under the close supervision of David Snyder, a college friend who worked with intensive grazing, the existing pasture was divided into seven one-acre paddocks. Two larger paddocks were added at that time, a four-acre and a 10-acre paddock. It did not take long for the Starceskis to become "Sold" on intensive grazing. They were impressed with profitability, cow comfort and the potential for high milk yields.

Starceskis had been using much of the grandfather's equipment. As their herd expanded so did their commitment and desire to continue dairy farming. The Starceskis continued to grow and started buying a line of used equipment. In the fall of 1993 with 37 cows, the Starceskis decided to quit working off-farm and start dairying full-time. Having been gifted the grandfather's farm; the Starceskis started to make improvements.

Over the past 14 years Starceskis have invested over \$80,000 to improve/renovate their older facility. The following is a list of improvements made by the Starceskis; a pipeline, tiled mangers, controlled photoperiod lighting, added stalls, stall mats, a bedded pack for special needs animals, 18'x 60' silo, TMR cart, and a blacktop pad to utilize custom harvested corn silage.

### Keys to Success

Being a small sized farm, high milk production at a reasonable cost is essential for success. Finn-Star Farms focuses on a few key things to achieve success.

**High Quality Forage:** Allowing cows to graze optimizes quality while reducing harvesting costs. Emphasis is also put on timely mechanical harvesting. All haylage is harvested by Finn-Star Farms while a custom harvester is used for corn silage. Forage is also purchased from a nearby large farm on an as-needed basis

**Environment:** Pasture is nature's cow comfort. Also, the use of stall mats, tiled mangers, ventilation, controlled lighting and a TMR improve cow comfort and productivity.

**Genetics:** Starceskis state that it costs as much to raise poor genetics as it does good genetics. Thus in their 100% registered Holstein herd they use the best sires available. Maintaining cow health and top genetics allows for selective culling and merchandizing of excess animals.

**Equipment:** Proper maintenance of used equipment reduces the need for replacement. Having a modest line of equipment frees up money to be spent on improving cow comfort and improvements in milk production.

Starceskis closely attribute milk production to forage quality and digestibility. They are aggressive when it comes to feeding their cows. Typically their herd averages around 80 pounds of milk per milking cow per day. 2004 was a wet year, causing some digestibility problems for pasture and harvested forage; therefore, during 2004, the herd dropped to 70 pounds per cow per day. For the beginning of 2005 the herd is averaging 73 pounds, forages are looking good, and hopes are high for continued improvement. Their rations are as follows:

#### **Winter Ration**

Corn Silage (25-35#)  
Haylage (35-45#)  
Grain (20-23#)

#### **Pasture Ration**

All they can eat pasture (up to 20# DM)  
Corn Silage (25# as fed)  
Grain (20-23#)  
Oatlage and Haylage Supplement pasture, if needed

Paul and Robin Starceski are content with grazing their cows. They enjoy the labor and cost savings aspect experienced from grazing. Although they have five children, who all help on the farm, they do not rely on the children as a labor source. All the kids are encouraged to participate in off-farm activities such as FFA, 4-H, church and sports. Paul and Robin would enjoy having their children farm, but are encouraging them to go to college and explore their interests. As for the future of Finn-Star Farms, plans are being made to improve laneways, watering systems and cow comfort in the barn.

### **Sgrecci Farm**

Dana and Gail Sgrecci of Odessa, New York, are seasonal graziers. They have utilized Intensive Rotational Grazing for the eight years they have farmed, first on a rented farm near Nichols, New York, and now on their farm in Schuyler County.

They state that the most difficult task on the farm is the day-to-day management of their pastures. Their philosophy is to manage the farm for maximum pasture production. Each daily decision is made with that in mind. They harvest for baleage or hay what the cows do not graze. Last year they estimated that 86 percent of forage during the grazing season came from pasture. They try to err on the side of offering too much grass rather than just enough. Any residue is clipped or harvested by their clean-up herd of beef cows and horses.

To implement this philosophy they switched to seasonal milking when they moved to Odessa. This was achieved by breeding the heifers for spring calving, selling their Holstein herd and buying a mixed herd that was mostly spring calving. January 1, 2001, was the first time they stopped milking. After selling some cows that did not fit their calving window they are presently milking 56 head and have 41 heifers. The herd they purchased was Jersey or Jersey crossbreeds. They are presently trying to increase frame size of the cows yet retain milk components at the same time. To achieve this they have used Ayrshire, Dutch Belts, Shorthorn and now Normande sires.

Cows are milked and fed grain in an 8-stall flat parlor and housing is in a freestall barn. They are fed baleage outside during the winter and have access to the barn, which they only use during inclement weather.

The farm has 28 acres of permanent pasture and 44 acres of tillable pasture. If extra pasture is needed during the late summer, hay fields are brought into the rotation. Cows are turned out in mid-April onto fields that will be harvested later for hay. At first they have access to several acres and as growth increases the acreage is reduced. Then the paddocks are brought into the rotation. They are grazed late into the fall each year and thus the paddocks are slow to regrow in the spring. This system also retards the maturity of the hay fields, allowing for a June harvest when the weather is usually more favorable. The grass varieties vary by paddock but the ones used are orchard grass, white clover, Kentucky bluegrass, and some fescue and reeds canary. Each paddock is supplied with water by a one-inch plastic line and a movable tub.

Dana and Gail are able to use their years of grazing experience to estimate the size of the paddock to offer each time. Factors they consider are the number of cows, level of milk production, height and thickness of the grass, and palatability (their cows

do not like fescue). They want the grass to be between six and eight inches in height and thick when the cows are turned in. If the grass is shorter, thinner, or less palatable then more acreage is provided for the cows.

The cows are moved to a new pasture after each milking and poly-wire is used to form rectangle shaped paddocks. Paddocks are kept approximately the same width and the posts the same number of paces apart so they simply count off the number of posts to control the acreage offered each time. The only high-tensile fence on the farm are the perimeter and laneway fences. This year, due to dry weather, the cows are receiving 1½ acres per rotation or three acres per day as well as ten pounds per cow of supplemental forage.

On hot days cows are offered paddocks with some shade trees, then at night they are returned to the normal rotation. If there is not enough grass in shaded paddocks the cows are brought back to the barn and fed hay or baleage. Another thing they have tried is moving the break wire ahead on hot afternoons. The cows will leave the shade, get up and start eating again.

Their goals were to raise their children on a successful farm and for Dana to be able to quit his off-farm job. He was a regional manager for Dairy Marketing Services while Gail managed the dairy herd and pastures. Cow numbers have now increased and he has been able to stay home full-time since October 2004.

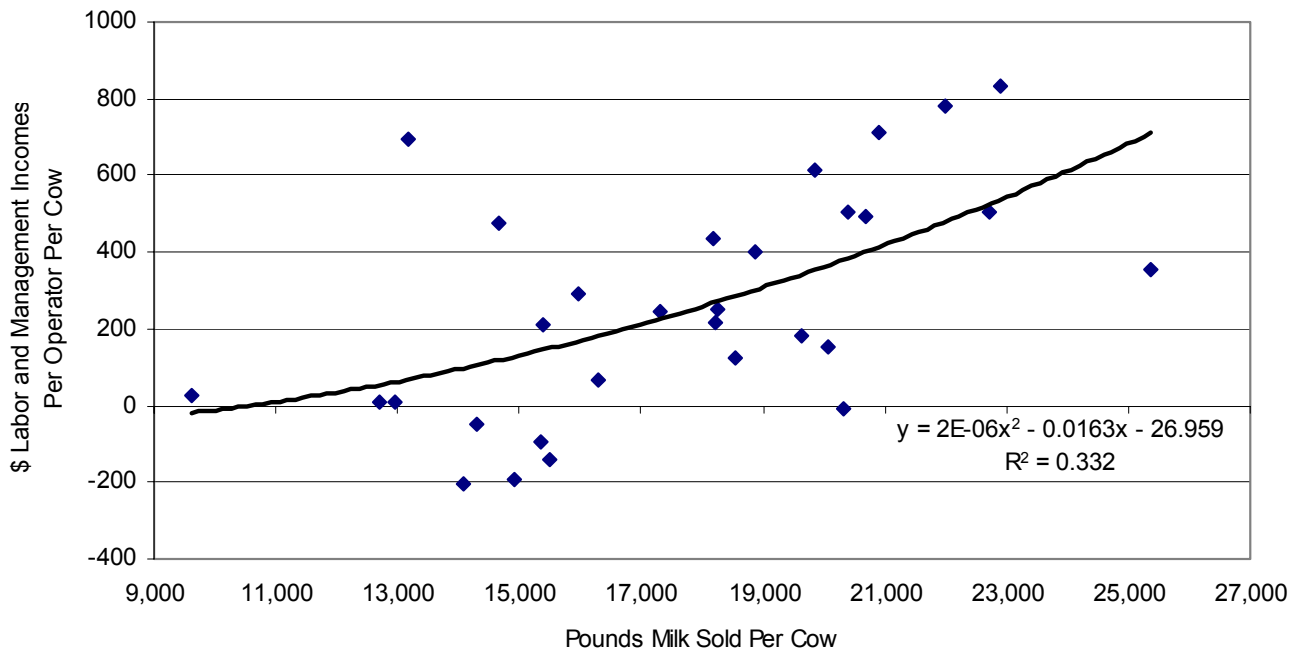
Their farm has been operated naturally since they purchased it and they have applied for organic certification, expecting to receive it in January 2006. This will allow their family farm to successfully compete with larger farms.



### SUMMARY OF GRAZING FARMS BY HERD SIZE

There were seven New York grazing farms with more than 100 cows. Herd size does not guarantee profitability, however, as small farms that are able to produce higher levels of milk per cow also show higher levels of profitability. The chart below shows the variation in labor and management income per operator by pounds of milk sold per cow. The table on the following page compares grazing farms by herd size group.

**LABOR AND MANAGEMENT INCOMES PER OPERATOR PER COW AND MILK PER COW**  
30 Intensive Grazing Farms, 2004



**INTENSIVE GRAZING FARMS BY HERD SIZE GROUP**

30 Intensive Grazing Dairy Farms, 2004

Item	Less Than 51 Cows	51 to 80 Cows	80 Cows Or More
Number of farms	9	12	9
<u>Business Size &amp; Production</u>			
Number of cows	43	62	220
Number of heifers	28	46	158
Milk sold, lbs.	739,976	1,081,093	3,733,235
Milk sold/cow, lbs.	17,388	17,531	16,952
Milk plant test, % butterfat	3.82%	3.82%	3.70%
Cull rate	30.7%	20.6%	21.6%
Tillable acres, total	122	167	548
Hay crop, tons DM/acre	2.3	2.5	3.3
Corn silage, tons/acre	13.0	18.1	18.0
Forage DM/cow, tons	5.5	6.5	6.5
<u>Labor &amp; Capital Efficiency</u>			
Worker equivalent	2.18	1.96	4.86
Milk sold/worker, lbs.	339,439	551,578	768,155
Cows/worker	20	32	45
Farm capital/worker	\$165,645	\$221,764	\$327,197
Farm capital/cow	\$8,398	\$7,011	\$7,228
Farm capital/cwt. milk	\$49	\$40	\$43
<u>Milk Production Costs &amp; Returns</u>			
Selected costs/cwt.:			
Hired labor	\$0.51	\$0.75	\$2.32
Grain & concentrate	5.50	4.49	3.89
Purchased roughage	0.53	0.69	0.45
Replacements purchased	0.20	0.11	0.01
Vet & medicine	0.40	0.43	0.44
Milk marketing	0.96	0.94	0.80
Other dairy expenses	1.38	1.21	1.03
Operating cost of producing milk/cwt.	11.67	11.70	11.90
Operator resources/cwt.	7.39	4.22	2.96
Total labor cost/cwt.	7.56	4.40	3.59
Total cost of producing milk/cwt.	21.03	17.89	16.90
Average farm price/cwt.	17.06	17.04	17.41
<u>Related Cost Factors</u>			
Hired labor/cow	\$88	\$130	\$393
Total labor/cow	1,301	768	610
Purchased dairy feed/cow	1,037	904	736
Purchased grain & concentrate as % of milk receipts	32%	26%	22%
Vet & medicine/cow	\$68	\$74	\$75
Machinery costs/cow	\$561	\$620	\$600
Feed & crop exp./cwt.	\$6.66	\$5.83	\$5.21
<u>Profitability Analysis</u>			
Net farm income (without appreciation)	\$29,912	\$45,892	\$134,940
Net farm income/cow (without appreciation)	\$696	\$740	\$613
Net farm income/cwt. (without appreciation)	\$4.04	\$4.24	\$3.61
Labor & management income/operator	\$6,115	\$18,052	\$44,805
Labor & management income/operator/cow	\$142	\$291	\$204
Rates of return on:			
Equity capital with appreciation	-2.1%	5.0%	13.6%
All capital with appreciation	-0.5%	4.8%	11.3%

## SUMMARY AND ANALYSIS OF THE FARM BUSINESS

### Business Characteristics

Planning the optimal management strategies is a crucial component of operating a successful farm. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the grazing dairy farmers in New York. The following table shows important farm business characteristics and the number of farms with each characteristic.

#### **BUSINESS CHARACTERISTICS** 30 Intensive Grazing Dairy Farms, 2004

Type of Farm	Number	Milking System	Number
Dairy	30	Bucket & carry	0
Part-time dairy	0	Dumping station	0
Dairy cash-crop	0	Pipeline	19
		Herringbone-conventional exit	5
		Herringbone-rapid exit	0
Type of Ownership	Number	Parallel	2
Owner	27	Parabone	1
Renter	3	Rotary	0
		Other	3
Type of Business	Number	Production Records	Number
Sole Proprietorship	21	Testing Service	25
Partnership	7	On-Farm System	1
Limited Liability Corporation	2	Other	0
Subchapter S Corporation	0	None	4
Subchapter C Corporation	0		
Type of Barn	Number	bST Usage	Number
Stanchion or Tie-Stall	20	Used consistently	3
Freestall	9	Used inconsistently	2
Combination	1	Started using in 2004	0
		Stopped using in 2004	1
Milking Frequency	Number	Not used in 2004	24
2 times per day	30	Average percent usage, if used	56%
3 times per day	0		
Other	0	Business Record System	Number
		Account Book	8
Breed	Percent	Accounting Service	3
Holstein	78	On-farm computer software	18
Jersey	10	Other	1
Other	12		

The averages used in this report were compiled using data from all the participating grazing dairy farms in New York unless noted otherwise. There are full-time dairy farms, farm renters, partnerships, and corporations included in the average. Average data for these specific types of farms are presented in the State Business Summary.

### Income Statement

In order for an income statement to accurately measure farm income, it must include cash transactions and accrual adjustments (changes in accounts payable, accounts receivable, inventories, and prepaid expenses).

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 2004.

Change in inventory: Increases in inventories of supplies and other purchased inputs are subtracted in computing accrual expenses because they represent purchased inputs not actually used during the year. Decreases in purchased inventories are added to expenses because they represent inputs purchased in a prior year and used this year.

**CASH AND ACCRUAL FARM EXPENSES**

30 Intensive Grazing Dairy Farms, 2004

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 29,755		\$ 0	<<	\$ 529		\$ 30,294
<u>Feed</u>							
Dairy grain & concentrate	77,803		2,509		-125		75,169
Dairy roughage	8,223		-1,909		-911		9,221
Nondairy	16		0		0		16
Professional nutritional services	175		0		0		175
<u>Machinery</u>							
Machinery hire, rent & lease	9,635		0	<<	530		10,165
Machinery repairs & farm vehicle exp.	18,619		24		6		18,601
Fuel, oil & grease	8,312		157		-131		8,024
<u>Livestock</u>							
Replacement livestock	1,044		0	<<	0		1,044
Breeding	4,415		292		42		4,165
Veterinary & medicine	7,754		206		140		7,688
Milk marketing	15,074		0	<<	21		15,095
Bedding	2,143		53		0		2,090
Milking supplies	5,177		6		114		5,285
Cattle lease & rent	384		0	<<	0		384
Custom boarding	1,784		0	<<	9		1,793
bST expense	791		-1		9		801
Livestock professional fees	1,654		0		31		1,685
Other livestock expense	3,603		-46		14		3,663
<u>Crops</u>							
Fertilizer & lime	9,491		1,480		136		8,147
Seeds & plants	2,683		203		-100		2,380
Spray, other crop expense	3,097		-29		19		3,145
Crop professional fees	269		0		66		335
<u>Real Estate</u>							
Land, building & fence repair	6,661		-13		-54		6,620
Taxes	7,173		4	<<	-119		7,050
Rent & lease	4,077		0	<<	-30		4,047
<u>Other</u>							
Insurance	4,047		0	<<	60		4,107
Utilities (farm share)	7,944		0	<<	-74		7,870
Interest paid	10,706		0	<<	28		10,735
Other professional fees	1,917		0		70		1,987
Miscellaneous	1,576		-1		-16		1,561
Total Operating	\$256,004		\$ 2,932		\$ 274		\$ 253,346
Expansion livestock	1,679		0	<<	0		1,679
Extraordinary expense	1,181		0		0		1,181
Machinery depreciation							18,745
Building depreciation							8,873
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$ 283,824</b>

Change in prepaid expenses (noted above by <<) is a net change in non-inventory expenses that have been paid in advance of their use. For example, prepaid lease expense on the beginning of year balance sheet represents last year's payment for use of the asset during this year. End of year prepaid expense represents payments made this year for next year's use of the asset. Adding payments made last year for this year's use of the asset, and subtracting payments made this year for next year's use of the asset is accomplished by subtracting the difference.

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 2004 but not paid for. A decrease is subtracted because it represents payment for resources used before 2004.

Accrual expenses are an estimate of the costs of inputs actually used in this year's production. They are the cash paid, less changes in inventory and prepaid expenses, plus accounts payable.

**CASH AND ACCRUAL FARM RECEIPTS**  
30 Intensive Grazing Dairy Farms, 2004

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 302,947				\$ 3,540		\$ 306,487
Dairy cattle	13,755		\$ 9,933		-72		23,616
Dairy calves	4,709		718		0		5,427
Other livestock	736		73		0		809
Crops	687		1,519		-32		2,174
Government receipts	9,391		0 <sup>8</sup>		0		9,391
Custom machine work	232				0		232
Gas tax refund	260				0		260
Other	3,981				-107		3,874
Less nonfarm noncash capital <sup>9</sup>		(-)	636 <sup>9</sup>			(-)	636
Total Receipts	\$ 336,698		\$ 11,607		\$ 3,329		\$ 351,634

<sup>8</sup>Change in advanced government receipts.

<sup>9</sup>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 from the sale of farm products, services, and government programs. Nonfarm income is not included in calculating farm profitability.

Changes in inventory of assets produced by the business are calculated by subtracting beginning of year values from end of year values excluding appreciation. Increases in livestock inventory caused by herd growth and/or quality are added, and decreases caused by herd reduction and/or quality are subtracted. Changes in inventories of crops grown are also included. An increase in advanced government receipts is subtracted from cash income because it represents income received in 2004 for the 2005 crop year in excess of funds earned for 2004. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2004 but received in 2003.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January for milk produced in December 2004 compared to January 2004 payments for milk produced in 2003 are included as a change in accounts receivable.

Accrual receipts represent the value of all farm commodities produced and services actually generated by the farm business during the year.

### **Profitability Analysis**

Farm operators<sup>10</sup> contribute labor, management, and equity capital to their businesses and the combination of these resources, and the other resources used in the business, determines profitability. Farm profitability 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.

These measures should be considered estimates as they include inventory values that are only estimates and they include an unknown degree of error stemming from cash flow imbalances.

<sup>10</sup>Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who are the owner of a sole proprietorship or are formally a member of the partnership or corporation.

Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, and financing 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 both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

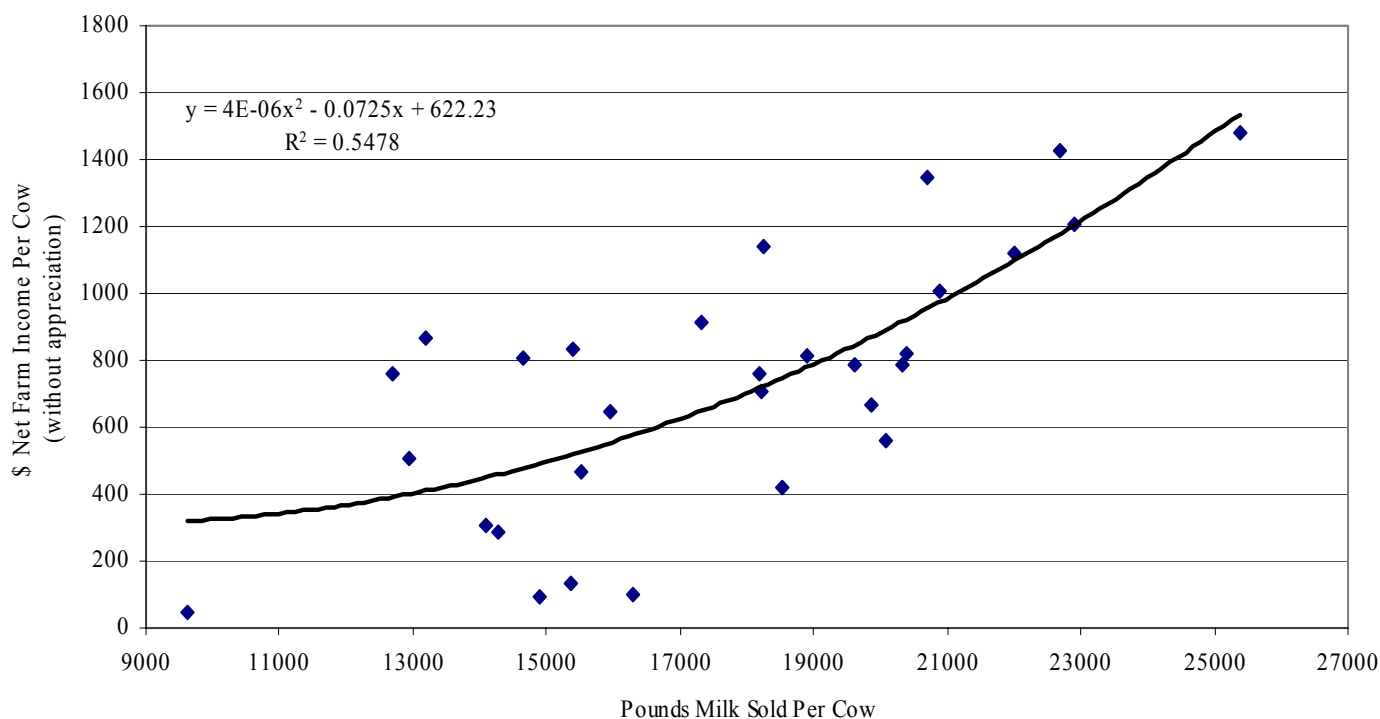
**NET FARM INCOME**  
Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms <sup>11</sup>	Average Top 30% Farms <sup>11</sup>
Total accrual receipts	\$ 351,634	\$ 377,779
Appreciation: Livestock	10,479	11,278
Machinery	3,005	-3,213
Real Estate	16,816	8,498
Other Stock & Certificates	-21	-147
Total Including Appreciation	\$ 381,913	\$ 394,195
Total accrual expenses	- 283,824	- 272,520
Net Farm Income (with appreciation)	\$ 98,089	\$ 121,675
Net Farm Income Per Cow (with appreciation)	\$ 943	\$ 1,106
Net Farm Income (without appreciation)	\$ 67,810	\$ 105,259
Net Farm Income Per Cow (without appreciation)	\$ 652	\$ 957

<sup>11</sup>See page 1 for a description of these groups of farms.

The chart below shows the relationship between net farm income per cow (without appreciation) and pounds of milk sold per cow. Higher net farm incomes can be achieved across a range of production levels as a result of different management systems, such as grazing, being utilized by the participating dairies.

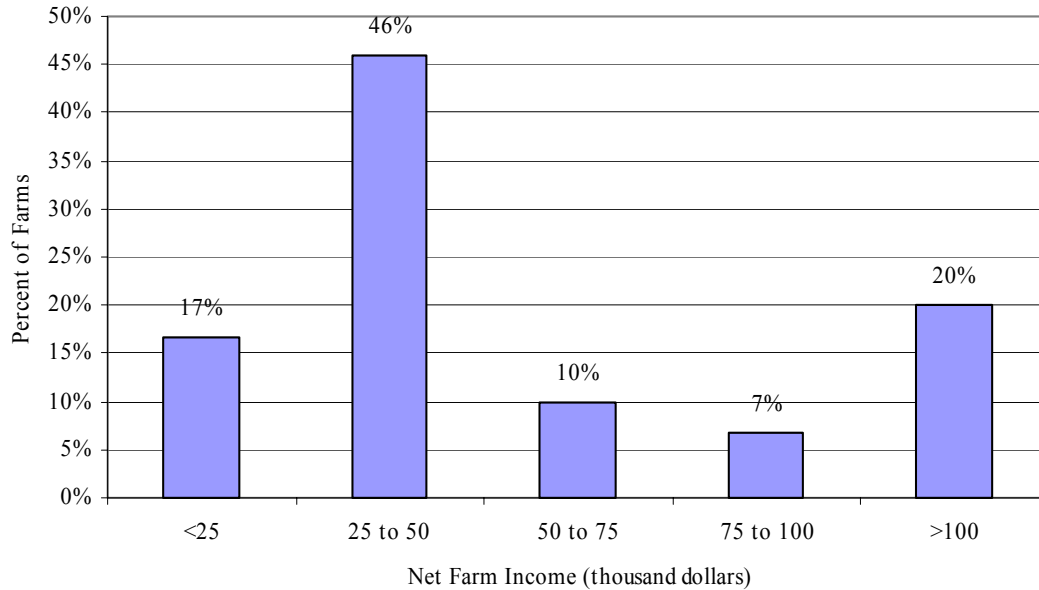
**NET FARM INCOME PER COW AND MILK PER COW**  
30 Intensive Grazing Farms, 2004



Net farm income without appreciation averaged \$67,810 on these 30 farms in 2004. The range in net farm income without appreciation was from less than \$2,000 to more than \$400,000. Net farm income was less than \$50,000 on 63 percent of the farms, between \$50,000 and \$100,000 on 17 percent of the farms, while 20 percent showed net farm incomes of \$100,000 or more.

#### DISTRIBUTION OF NET FARM INCOME WITHOUT APPRECIATION

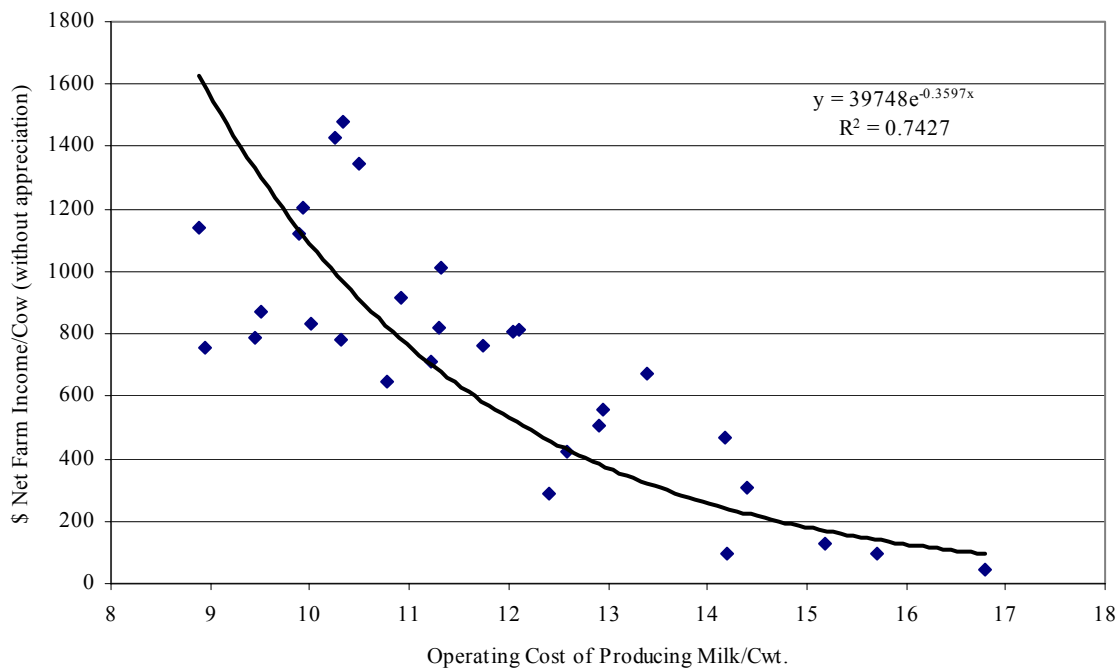
30 Intensive Grazing Farms, 2004



The importance of cost control and its impact on farm profitability are illustrated in the chart below. As the operating cost of producing milk per hundredweight increased, net farm income per cow fell.

#### NET FARM INCOME/COW & OPERATING COST OF PRODUCING MILK/CWT.

30 Intensive Grazing Farms, 2004



Labor and management income is the return which farm operators receive for their labor and management used in the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting a charge for family labor unpaid and the opportunity cost of using equity capital, at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

### LABOR AND MANAGEMENT INCOME

Intensive Grazing Dairy Farms, 2004

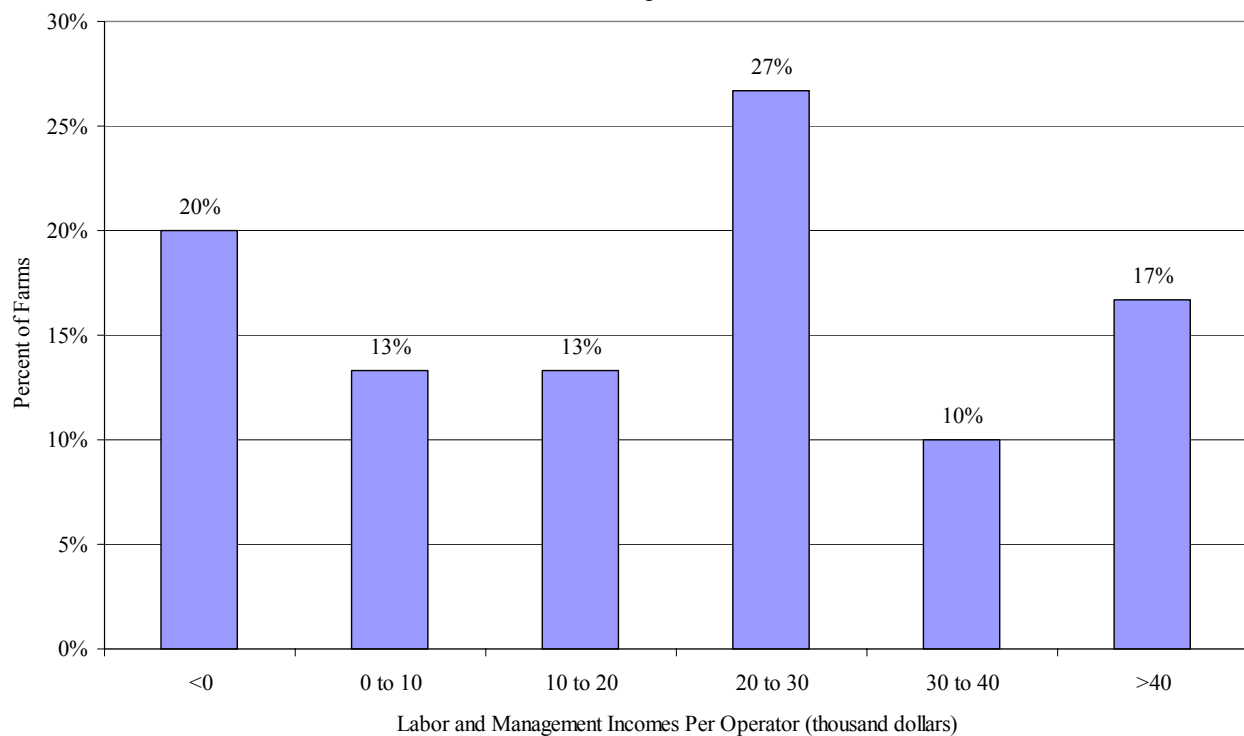
Item	30 Grazing Dairy Farms <sup>12</sup>	Average Top 30% Farms <sup>12</sup>
Net farm income without appreciation	\$ 67,810	\$ 105,259
Family labor unpaid @ \$2,200 per month	- 6,813	- 3,146
Interest on average equity capital @ 5% real rate	- 27,402	- 24,318
Labor & Management Income per farm	\$ 33,595	\$ 77,795
Labor & Management Income per Operator/Manager	\$ 22,397	\$ 7,202
Labor & Management Income per Operator per Cow	\$ 215	\$ 520

<sup>12</sup>See page 1 for a description of these groups of farms.

Labor and management income per operator averaged \$22,397 on these 30 farms in 2004. The range in labor and management income per operator was from less than \$-58,000 to more than \$300,000. Returns to labor and management were less than \$0 on 20 percent of the farms. Labor and management incomes per operator were between \$0 and \$30,000 on 53 percent of the farms while 27 percent showed labor and management incomes of \$30,000 or more per operator.

### DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR

30 Intensive Grazing Farms, 2004



The distribution of labor and management incomes per operator on grazing farms is somewhat similar to the distribution for all farms across the state that participate in the DFBS project. A large percentage of farms fall near \$0 to \$20,000 with a considerable percentage less than zero. One comparison to make to the state distribution is the percentage of farms that were above \$20,000 labor and management income per operator. For the intensive grazing farms, 54% of the farms had returns that were over \$20,000, while for 196 farms across the state, 57% had returns greater than \$20,000 in 2004.



Return on 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. The earnings or amount of net farm income allocated to labor and management is the opportunity cost of operators' 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 average farm net worth or equity capital. Return on total 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 total capital. Net farm income from operations ratio is net farm income (without appreciation) divided by total accrual receipts.

### RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL

Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms <sup>13</sup>	Average Top 30% Farms <sup>13</sup>
Net farm income with appreciation	\$ 98,089	\$ 121,675
Family labor unpaid @\$2,200 per month	- 6,813	- 3,146
Value of operators' labor & management	- 40,400	- 35,700
Return on equity capital with appreciation	\$ 50,876	\$ 82,829
Interest paid	+ 10,735	+ 11,277
Return on total capital with appreciation	\$ 61,611	\$ 94,106
Return on equity capital without appreciation	\$ 20,597	\$ 66,413
Return on total capital without appreciation	\$ 31,332	\$ 77,690
Rate of return on average equity capital:		
with appreciation	9.3%	17.0%
without appreciation	3.8%	13.7%
Rate of return on average total capital:		
with appreciation	8.1%	13.2%
without appreciation	4.1%	10.9%
Net farm income from operations ratio	0.19	0.28

<sup>13</sup>See page 1 for a description of these groups of farms.

### **Farm and Family Financial Status**

The first step in evaluating the financial position of the farm is to construct a balance sheet which identifies and values all the assets and liabilities of the business. The second step is to evaluate the relationship between assets, liabilities, and net worth and changes that occurred during the year.

Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business. For 2004, lease payments were discounted by 5.75 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2004 that are for participation in the 2005 program are the end year balance and payments received in 2003 for participation in the 2004 program are the beginning year balance.

Current Portion or principal due in the next year for intermediate and long term debt is included as a current liability.

**2004 FARM BUSINESS & NONFARM BALANCE SHEET**

30 Intensive Grazing Dairy Farms, 2004

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 3,663	\$ 3,562	Accounts payable	\$ 9,771	\$ 10,045
Accounts receivable	19,297	22,627	Operating debt	8,046	7,800
Prepaid expenses	39	42	Short Term	604	133
Feed & supplies	<u>47,557</u>	<u>52,006</u>	Advanced govt. receipts	0	0
Total Current	\$ 70,556	\$ 78,237	Current Portion:		
			Intermediate	14,725	17,666
			Long Term	<u>4,952</u>	<u>5,669</u>
			Total Current	\$ 38,098	\$ 41,313
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 114,341	\$ 125,223	1-10 years	\$ 74,825	\$ 68,095
leased	0	0	Financial lease		
Heifers	55,436	65,592	(cattle/machinery)	460	868
Bulls & other livestock	3,005	3,170	Farm Credit stock	<u>1,363</u>	<u>1,400</u>
Mach. & equip. owned	129,282	137,064	Total Intermediate	\$ 76,648	\$ 65,827
Mach. & equip. leased	460	868			
Farm Credit stock	1,363	1,400			
Other stock/certificate	<u>4,937</u>	<u>4,852</u>			
Total Intermediate	\$ 308,824	\$ 338,169			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 349,380	\$ 373,333	>10 years	\$ 100,287	\$ 103,895
leased	<u>0</u>	<u>0</u>	Financial lease		
Total Long Term	\$ 349,380	\$ 373,333	(structures)	<u>0</u>	<u>0</u>
			Total Long Term	\$ 100,287	\$ 103,895
Total Farm Assets	\$ 728,760	\$ 789,739	Total Farm Liab.	\$ 215,033	\$ 211,035
			FARM NET WORTH	\$ 513,727	\$ 578,704

## Nonfarm Assets, Liabilities &amp; Net Worth (Average of 16 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 11,517	\$ 14,492	Nonfarm Liabilities	\$ 0	\$ 0
Cash value life insurance	17,398	18,253			
Nonfarm real estate	9,528	29,063			
Auto (personal share)	6,438	6,725			
Stocks & bonds	33,208	37,085			
Household furnishings	9,406	10,156			
All other nonfarm assets	<u>6,341</u>	<u>6,902</u>			
Total Nonfarm Assets	\$ 93,836	\$ 122,676	NONFARM NET WORTH	\$ 93,836	\$ 122,676

Farm & Nonfarm Assets, Liabilities, and Net Worth <sup>14</sup>	Jan. 1	Dec. 31
Total Assets	\$ 822,596	\$ 912,415
Total Liabilities	<u>215,033</u>	<u>211,035</u>
TOTAL FARM & NONFARM NET WORTH	\$ 607,563	\$ 701,380

<sup>14</sup>Assumes that average nonfarm assets and liabilities for the nonreporting farms were the same as for those reporting.

Balance sheet analysis involves examination of relative asset and debt levels for the business. Percent equity is calculated by dividing end of year net worth by end of year assets and multiplying by 100. The debt to asset ratio is compiled by dividing liabilities by assets. Low debt to asset ratios reflect business solvency and the potential capacity to borrow. 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 productive unit represent old standards that are still useful if used with measures of cash flow and repayment ability. A current ratio that has been falling or is less than 1.5 warrants additional evaluation. An adequate amount of working capital will be related to the size of the farm business.

**BALANCE SHEET ANALYSIS**  
Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms <sup>15</sup>	Average Top 30% Farms <sup>15</sup>
<u>Financial Ratios - Farm:</u>		
Percent equity	73%	71%
Debt/asset ratio: total	0.27	0.29
long-term	0.28	0.36
intermediate/current	0.26	0.25
Leverage Ratio	0.36	0.41
Current Ratio	1.89	1.49
Working Capital: \$36,924, As % of Expenses	13%	(\$27,281) 10%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt	5%	4%
Long-term liabilities as a % of total debt	49%	47%
Current & inter. liabilities as a % of total debt	51%	53%
Cost of term debt (weighted average)	5.3%	5.4%
	30 Grazing Dairy Farms	Average Top 30% Farms <sup>17</sup>
	Per Cow	Per Cow
	Per Tillable Acre Owned	Per Tillable Acre Owned
<u>Farm Debt Levels:</u>		
Total farm debt	\$ 2,029	\$ 1,966
Long-term debt	999	922
Intermediate & long term	1,632	1,465
Intermediate & current debt	1,030	1,044

<sup>15</sup> See page 1 for a description of these groups of farms.

Farm inventory balance is an accounting of the value of assets used on the balance sheet and the changes that occur from the beginning to end of year. Changes in the livestock inventory are included in the dairy analysis. Net investment indicates whether the capital stock is being expanded (positive) or depleted (negative).

**FARM INVENTORY BALANCE**  
30 Intensive Grazing Dairy Farms, 2004

Item	Real Estate	Machinery & Equipment
Value beginning of year	\$ 349,380	\$ 129,282
Purchases	\$ 18,462 <sup>16</sup>	\$ 24,612
Gift & inheritance	+ 0	+ 0
Lost capital	- 2,147	
Sales	- 305	- 1,090
Depreciation	- 8,873	- 18,745
Net investment	= 7,137	= 4,777
Appreciation	+ 16,816	+ 3,005
Value end of year	\$ 373,333	\$ 137,064

<sup>16</sup>\$7,102 land and \$11,360 building and/or depreciable improvements.

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 you to determine to what degree the change in equity was caused by (1) earnings from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) , (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity), and (4) the error in the business cash flow accounting.

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

**STATEMENT OF OWNER EQUITY (RECONCILIATION)**  
Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms <sup>17</sup>	Average Top 30% Farms <sup>17</sup>
Beginning of year farm net worth	\$ 513,727	\$ 446,561
Net farm income w/o appreciation	\$ 67,810	\$ 105,259
+Nonfarm cash income	+ 4,930	+ 4,104
-Personal withdrawals & family expenditures excluding nonfarm borrowings	- 36,831	- 41,708
RETAINED EARNINGS	+\$ 35,909	+\$ 67,655
Nonfarm noncash transfers to farm	\$ 636	\$ 0
+Cash used in business from nonfarm capital	+ 1,111	+ 3,232
-Note or mortgage from farm real estate sold (nonfarm)	- 0	- 0
CONTRIBUTED/ WITHDRAWN CAPITAL	+\$ 1,747	+\$ 3,232
Appreciation	\$ 30,279	\$ 16,416
-Lost capital	- 2,147	- 6,142
CHANGE IN VALUATION EQUITY	+\$ 28,132	+\$ 10,274
IMBALANCE/ERROR	- 811	- 1,560
End of year net worth <sup>18</sup>	=\$578,704	=\$526,162
<u>Change in Net Worth</u>		
Without appreciation	\$ 34,698	\$ 63,185
With appreciation	\$ 64,977	\$ 79,601

<sup>17</sup>See page 1 for a description of these groups of farms.

<sup>18</sup>May not add due to rounding.

**Cash Flow Statement**

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward 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, including beginning and end balances, 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 inflows/outflows. You should be aware that all profitability measures may be affected by this error.

**ANNUAL CASH FLOW STATEMENT**  
30 Intensive Grazing Dairy Farms, 2004

Item		Average	
<b>Cash Flow from Operating Activities</b>			
Cash farm receipts	\$ 336,698		
- Cash farm expenses	256,004		
- Extraordinary expense	<u>1,181</u>		
= Net cash farm income		\$ 79,513	
Personal withdrawals & family expenses including nonfarm debt payments	\$ 36,831		
- Nonfarm income	<u>4,930</u>		
- Net cash withdrawals from the farm		\$ <u>31,901</u>	
= Net Provided by Operating Activities			\$ 47,612
<b>Cash Flow From Investing Activities</b>			
Sale of assets: machinery	\$ 1,090		
+ real estate	305		
+ other stock & cert.	<u>281</u>		
= Total asset sales		\$ 1,676	
Capital purchases: expansion livestock	\$ 1,679		
+ machinery	24,612		
+ real estate	18,462		
+ other stock & cert.	<u>217</u>		
- Total invested in farm assets		\$ <u>44,970</u>	
= Net Provided by Investment Activities			\$ -43,294
<b>Cash Flow From Financing Activities</b>			
Money borrowed (intermediate & long term)	\$ 19,168		
+ Money borrowed (short term)	273		
+ Increase in operating debt	0		
+ Cash from nonfarm capital used in business	1,111		
+ Money borrowed - nonfarm	<u>0</u>		
= Cash inflow from financing		\$ 20,552	
Principal payments (intermediate & long term)	\$ 23,170		
+ Principal payments (short term)	744		
+ Decrease in operating debt	<u>246</u>		
- Cash outflow for financing		\$ <u>24,160</u>	
= Net Provided by Financing Activities			\$ -3,608
<b>Cash Flow From Reserves</b>			
Beginning farm cash, checking & savings		\$ 3,663	
- Ending farm cash, checking & savings		<u>3,562</u>	
= Net Provided from Reserves			\$ 101
Imbalance (error)			\$ 811

### Repayment Analysis

A valuable use of cash flow analysis is to compare the debt payments planned for the last year with the amount actually paid. The measures listed below provide a number of different perspectives on the repayment performance of the business. However, the critical question to many farmers and lenders is whether planned payments can be made in 2005. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2005 debt payments shown below.

#### **FARM DEBT PAYMENTS PLANNED** Same Intensive Grazing Dairy Farms, 2003 & 2004

Debt Payments	Same 22 Grazing Dairy Farms			Same 9 Farms in Top 30% Farms		
	2004 Payments		Planned 2005	2004 Payments		Planned 2005
	Planned	Made		Planned	Made	
Long term	\$ 9,504	\$ 11,242	\$ 10,357	\$ 15,029	\$ 17,974	\$ 14,655
Intermediate term	19,095	19,759	20,802	29,451	29,876	33,542
Short term	364	368	0	889	899	0
Operating (net reduction)	444	791	518	1,085	1,789	0
Accounts payable (net reduction)	<u>91</u>	<u>373</u>	<u>169</u>	<u>0</u>	<u>229</u>	<u>0</u>
Total	\$ 29,498	\$ 32,533	\$ 31,846	\$ 46,454	\$ 50,767	\$ 48,197
Per cow	\$ 335	\$ 370		\$ 397	\$ 434	
Per cwt. 2004 milk	\$ 2.00	\$ 2.21		\$ 2.33	\$ 2.55	
Percent of total 2004 farm receipts	10%	11%		12%	13%	
Percent of 2004 milk receipts	12%	13%		14%	15%	

The coverage ratios measure the ability of the farm business to meet its planned debt payment schedule. The ratios show the percentage of payments planned for 2004 (as of December 31, 2003) that could have been made with the amount available for debt service in 2004. Farmers who did not participate in DFBS in 2003 have their 2004 coverage ratios based on planned debt payments for 2005.

#### **COVERAGE RATIOS**

Same Intensive Grazing Dairy Farms, 2003 & 2004

Item	Average	Item	Average
Same 22 Grazing Dairy Farms, 2003 & 2004			
(A)=Amount Available for Debt Service	\$ 49,988	(A')=Repayment Capacity	\$ 67,525
(B)=Debt Payments Planned for 2004	\$ 29,498	(B)=Debt Payments Planned for 2004	\$ 29,498
(A/B)=Cash Flow Coverage Ratio for 2004	1.69	(A'/B)=Debt Coverage Ratio for 2004	2.29
-----			
Same 9 Farms in Top 30% Farms, 2003 & 2004			
(A)=Amount Available for Debt Service	\$ 70,879	(A')=Repayment Capacity	\$ 103,758
(B)=Debt Payments Planned for 2004	\$ 46,454	(B)=Debt Payments Planned for 2004	\$ 46,454
(A/B)=Cash Flow Coverage Ratio for 2004	1.53	(A'/B)=Debt Coverage Ratio for 2004	2.23

**ANNUAL CASH FLOW WORKSHEET**

Intensive Grazing Dairy Farms, 2004

Item	27 Grazing Dairy Farms		Average Top 30% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average no. of cows	104		110	
Total cwt. of milk sold		17,744		18,853
<u>Accrual Operating Receipts</u>				
Milk	\$ 2,947	\$ 17.27	\$ 2,935	\$ 17.12
Dairy cattle	227	1.33	272	1.59
Dairy calves	52	0.31	62	0.36
Other livestock	8	0.05	9	0.05
Crops	21	0.12	62	0.36
Misc. Receipts	126	0.73	95	0.55
Total	\$ 3,381	\$ 19.81	\$ 3,435	\$ 20.03
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 291	\$ 1.71	\$ 239	\$ 1.39
Dairy grain & concentrate	723	4.24	679	3.96
Dairy roughage	89	0.52	42	0.25
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	2	0.01	1	0.01
Mach. hire, rent & lease	98	0.57	136	0.79
Mach. repair & vehicle expense	179	1.05	154	0.90
Fuel, oil & grease	77	0.45	54	0.32
Replacement livestock	10	0.06	9	0.05
Breeding	40	0.23	38	0.22
Vet & medicine	74	0.43	71	0.41
Milk marketing	145	0.85	142	0.83
Bedding	20	0.12	18	0.11
Milking supplies	51	0.30	48	0.28
Cattle lease	4	0.02	0	0.00
Custom boarding	17	0.10	21	0.12
bST expense	8	0.05	7	0.04
Livestock professional fees	16	0.09	10	0.06
Other livestock expense	35	0.21	37	0.21
Fertilizer & lime	78	0.46	138	0.81
Seeds & plants	23	0.13	22	0.13
Spray & other crop expense	30	0.18	18	0.11
Crop professional fees	3	0.02	9	0.05
Land, bldg., fence repair	64	0.37	57	0.33
Taxes	68	0.40	63	0.37
Real estate rent & lease	39	0.23	37	0.22
Insurance	39	0.23	35	0.21
Utilities	76	0.44	77	0.45
Miscellaneous	34	0.20	24	0.14
Total Less Interest Paid	\$ 2,333	\$ 13.68	\$ 2,186	\$ 12.76
<u>Net Accrual Operating Income</u>	<u>Total</u>		<u>Total</u>	
(without interest paid)	\$ 109,023		\$ 137,301	
- Change in livestock & crop invent. <sup>19</sup>	11,607		21,980	
- Change in accounts receivable	3,329		2,582	
- Change in feed & supply inventory <sup>20</sup>	2,932		8,860	
+ Change in accounts payable <sup>21</sup>	246		57	
NET CASH FLOW	\$ 91,401		\$ 103,936	
- Net family withdrawals	- 31,901		- 37,603	
Available for Farm	\$ 59,500		\$ 66,333	
- Farm debt payments	- 37,625		- 47,565	
Available for Farm Investment	\$ 21,875		\$ 18,768	
- Capital purchases	\$ 44,970		\$ 39,558	
Additional Capital Needed	\$ 23,095		\$ 20,790	

<sup>19</sup>Includes change in advance government receipts. <sup>20</sup>Includes change in prepaid expenses. <sup>21</sup>Excludes change in interest account payable.

### Cropping Analysis

The cropping program is an important part of the dairy farm business and often represents opportunities for improved productivity and profitability. A complete evaluation of what the available land resources are, how they are being used, how well crops are producing, and what it costs to produce them is important to evaluating alternative cropping and feed purchasing alternatives.

#### **LAND RESOURCES AND CROP PRODUCTION**

Intensive Grazing Dairy Farms, 2004

30 Grazing Dairy Farms				Average Top 30% Farms		
Item						
<u>Land</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Tillable	171	96	267	163	102	265
Nontillable	32	12	44	51	11	62
Other nontill.	94	18	112	104	25	129
Total	297	126	423	318	138	456
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres<sup>22</sup></u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres<sup>22</sup></u>	<u>Prod/Acre</u>
Hay crop	28	142	2.9 tn DM	10	138	3.2 tn DM
Corn silage	17	68	15.3 tn	7	47	18.0 tn
			5.1 tn DM			6.0 tn DM
Other forage	0	0	0.0 tn DM	0	0	0.0 tn DM
Total forage	28	183	3.4 tn DM	10	171	3.7 tn DM
Corn grain	4	33	134 bu	0	0	0 bu
Oats	3	31	46 bu	0	0	0 bu
Wheat	0	0	0 bu	0	0	0 bu
Other crops	5	41		0	0	
Tillable pasture	24	90		9	55	
Idle	9	32		3	25	
Total Tillable						
Acres	29	277		10	265	

<sup>22</sup>This column represents the average acreage for the farms producing that crop. For the 30 New York dairy farms, average acreages including those farms not producing were hay crop 133, corn silage 38, corn grain 4, oats 3, wheat 1, tillable pasture 72, and idle 10.

Average crop acres and yields compiled for the region are for the farms reporting each crop. 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 based on dry matter information provided.

The following crop/dairy ratios indicate the relationship between forage production, forage production resources, and the dairy herd.

#### **CROP/DAIRY RATIOS**

Intensive Grazing Dairy Farms, 2004

Item	28 Grazing Dairy Farms <sup>23</sup>	Average Top 30% Farms <sup>23</sup>
Total tillable acres per cow	2.66	2.41
Total forage acres per cow	1.71	1.55
Harvested forage dry matter, tons per cow	5.83	5.85

<sup>23</sup>See page 1 for a description of these groups of farms. Excludes farms that do not harvest forages.



**Cropping Analysis** (continued)

A number of cooperators have allocated crop expenses among the hay crop, corn, and other crops produced. Fertilizer and lime, seeds and plants, and spray and other crop expenses have been computed per acre and per production unit for hay and corn. Additional expense items such as fuels, labor, and machinery repairs are not included. Intensive grazing was used by all farms reported in the below tables.

**CROP RELATED ACCRUAL EXPENSES**  
Intensive Grazing Dairy Farms Reporting, 2004

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop		Pasture	
					Per Acre	Per Ton DM	Per Till. Pasture Acre	Per Total Pasture Acre
<b><u>All Grazing Farms</u></b>								
No. of farms reporting	28 <sup>24</sup>	4			6		5	
Ave. number of acres	285	40			99		37	131
Fert. & lime	\$ 30.63	\$ 80.10	\$ 17.44	\$ 0.00	\$ 27.38	\$ 9.62	\$ 79.26	\$ 32.75
Seeds & plants	8.95	56.07	10.10	0.00	6.83	2.12	11.84	2.32
Spray & other	11.82	48.57	9.60	0.00	7.76	2.52	1.23	0.46
TOTAL	\$ 51.40	\$ 184.74	\$ 37.14	\$ 0.00	\$ 41.97	\$ 14.26	\$ 92.33	\$ 35.53
<b><u>Average Top 30% Farms</u></b>								
No. of farms reporting	10	4			5		5	
Ave. number of acres	265	40			138		37	131
Fert. & lime	\$ 57.34	\$ 80.10	\$ 17.44	\$ 0.00	\$ 31.71	\$ 11.00	\$ 79.26	\$ 32.75
Seeds & plants	9.32	56.07	10.10	0.00	8.20	2.54	11.84	2.32
Spray & other	7.58	48.57	9.60	0.00	9.31	3.03	1.23	0.46
TOTAL	\$ 74.24	\$ 184.74	\$ 37.14	\$ 0.00	\$ 49.22	\$ 16.57	\$ 92.33	\$ 35.53

<sup>24</sup>Excludes farms that do not harvest forages.

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. Although machinery costs have not been allocated to individual crops, they are shown below per total tillable acre.

**ACCRUAL MACHINERY EXPENSES**  
Intensive Grazing Dairy Farms, 2004

Machinery Expense	28 Grazing Dairy Farms <sup>25</sup>		Average Top 30% Farms <sup>25</sup>	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$ 8,336	\$ 29.25	\$ 5,947	\$ 22.44
Mach. repair & vehicle exp.	19,745	69.28	16,942	63.93
Machine hire, rent & lease	10,891	38.21	14,955	56.43
Interest (5%)	7,054	24.75	6,091	22.98
Depreciation	19,999	70.17	10,968	41.39
Total	\$ 66,025	\$ 231.67	\$ 54,903	\$ 207.17

<sup>25</sup>See page 1 for a description of these groups of farms. Excludes farms that do not harvest forages.

## Dairy Analysis

Analysis of the dairy enterprise can reveal strengths and weaknesses of the dairy farm business. Information on this page should be used in conjunction with DHI and other dairy production information. Changes in dairy herd size and market values that occur during the year are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. Any change in inventory is included as an accrual farm receipt when calculating all of the profitability measures on pages 18 through 21.

### DAIRY HERD INVENTORY

Intensive Grazing Dairy Farms, 2004

Item	Dairy Cows		Bred Heifers		Open Heifers		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
<b>30 Grazing Dairy Farms<sup>26</sup></b>								
Beg. year (owned)	96	\$ 114,341	26	\$ 27,871	25	\$ 18,076	21	\$ 9,488
+ Change w/o apprec.		5,598		1,914		2,421		718
+ Appreciation		<u>5,285</u>		<u>2,307</u>		<u>1,262</u>		<u>1,533</u>
End year (owned)	101	\$ 125,224	28	\$ 32,092	28	\$ 21,759	23	\$ 11,739
End including leased	104							
Average number	104		74	(all age groups)				
<b>Average Top 30% Farms<sup>26</sup></b>								
Beg. year (owned)	106	\$ 131,475	30	\$ 35,582	27	\$ 23,838	31	\$ 17,264
+ Change w/o apprec.		7,230		6,120		1,783		730
+ Appreciation		<u>4,255</u>		<u>2,291</u>		<u>1,593</u>		<u>2,865</u>
End year (owned)	112	\$ 142,960	35	\$ 43,993	29	\$ 27,214	33	\$ 20,859
End including leased	111							
Average number	110		96	(all age groups)				

<sup>26</sup> See page 1 for a description of these groups of farms.

Total milk sold and milk sold per cow are extremely valuable measures of size and productivity, respectively, on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year.

### MILK PRODUCTION

Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms <sup>27</sup>	Average Top 30% Farms <sup>27</sup>
Total milk sold, pounds	1,774,400	1,885,320
Milk sold per cow, pounds	17,144	17,186
Average milk plant test, percent butterfat	3.50%	3.66%

<sup>27</sup> See page 1 for a description of these groups of farms.

Monitoring and evaluating culling practices and experiences on an annual basis are important herd management tools. Culling rate can have an effect on both milk per cow and profitability.

### ANIMALS LEAVING THE HERD

Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms		Average Top 30% Farms	
	Number	Percent <sup>28</sup>	Number	Percent <sup>28</sup>
Cows sold for beef	18	17.3	18	16.4
Cows sold for dairy	2	1.9	4	3.6
Cows died	5	4.8	4	3.6
Culling rate <sup>29</sup>		22.1		20.0

<sup>28</sup> Percent of average number of cows in the herd. <sup>29</sup> Cows sold for beef plus cows died.

The cost of producing milk has been compiled using the whole farm method and is featured in the following table. Accrual receipts from milk sales can be compared with the accrual costs of producing milk per cow and per hundredweight of milk. Using the whole farm method, operating costs of producing milk are estimated by deducting nonmilk accrual receipts from total accrual operating expenses including expansion livestock purchased. Purchased inputs cost of producing milk are the operating costs plus depreciation. Total costs of producing milk include the operating costs of producing milk plus depreciation on machinery and buildings, the value of unpaid family labor, the value of operators' labor and management, and the interest charge for using equity capital.

**ACCRUAL RECEIPTS FROM DAIRY, COSTS OF PRODUCING MILK,  
AND PROFITABILITY**  
Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms <sup>30</sup>		Average Top 30% Farms <sup>30</sup>	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>				
Operating costs	\$ 2,018	\$ 11.83	\$ 1,799	\$ 10.50
Purchased inputs costs	\$ 2,295	\$ 13.45	\$ 1,978	\$ 11.54
Total Costs	\$ 3,012	\$ 17.66	\$ 2,552	\$ 14.89
<u>Accrual Receipts From Milk</u>	\$ 2,947	\$ 17.27	\$ 2,935	\$ 17.12
Net milk receipts	\$ 2,802	\$ 16.42	\$ 2,793	\$ 16.29
Net Farm Income				
without Appreciation	\$ 652	\$ 3.82	\$ 957	\$ 5.58
Net Farm Income				
with Appreciation	\$ 943	\$ 5.53	\$ 1,106	\$ 6.45

<sup>30</sup> See page 1 for a description of these groups of farms.

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 an evaluation of the dairy enterprise.

**DAIRY RELATED ACCRUAL EXPENSES**  
Intensive Grazing Dairy Farms, 2004

Item	30 Grazing Dairy Farms		Average Top 30% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 723	\$ 4.24	\$ 679	\$ 3.96
Purchased dairy roughage	89	0.52	42	0.25
Total Purchased Dairy Feed	\$ 812	\$ 4.76	\$ 721	\$ 4.21
Purchased grain & concentrate as % of milk receipts		25%		23%
Purchased feed & crop expense	\$ 946	\$ 5.55	\$ 909	\$ 5.30
Purchased feed & crop expense as % of milk receipts		32%		31%
Breeding	\$ 40	\$ 0.23	\$ 38	\$ 0.22
Veterinary & medicine	74	0.43	71	0.41
Milk marketing	145	0.85	142	0.83
Bedding	20	0.12	18	0.11
Milking supplies	51	0.30	48	0.28
Cattle lease	4	0.02	0	0.00
Custom boarding	17	0.10	21	0.12
bST expense	8	0.05	7	0.04
Livestock professional fees	16	0.09	10	0.06
Other livestock expense	35	0.21	37	0.21

### **Capital and Labor Efficiency Analysis**

Capital efficiency factors measure how intensively the capital is being used in the farm business. Measures of labor efficiency are key indicators of management's success in generating products per unit of labor input.

#### **CAPITAL EFFICIENCY** Intensive Grazing Dairy Farms, 2004

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>30 Grazing Dairy Farms</u> <sup>31</sup>				
Farm capital	\$ 261,810	\$ 7,300	\$ 2,833	\$ 4,440
Real estate		3,475		2,113
Machinery & equipment	46,151	1,287	499	
<u>Ratios:</u>				
Asset Turnover Ratio 0.50	Operating Expense 0.70	Interest Expense 0.03	Depreciation Expense 0.08	
<u>Average Top 30% Farms</u> <sup>31</sup>				
Farm capital	\$ 271,470	\$ 6,491	\$ 2,694	\$ 4,380
Real estate		2,564		1,730
Machinery & equipment	54,612	1,306	542	
<u>Ratios:</u>				
Asset Turnover Ratio 0.55	Operating Expense 0.64	Interest Expense 0.03	Depreciation Expense 0.05	

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<sup>31</sup> See page 1 for a description of these groups of farms.

**Capital and Labor Efficiency Analysis** (continued)**LABOR FORCE INVENTORY AND ANALYSIS**

Intensive Grazing Dairy Farms, 2004

Labor Force	Months	Age	Years of Education	Value of Labor & Management
<u>30 Grazing Dairy Farms</u>				
Operator number 1	13.4	46	15	\$ 31,333
Operator number 2	4.3	43	13	9,067
Family paid	3.0			
Family unpaid	3.1			
Hired	<u>11.0</u>			
Total	34.8	/ 12 = 2.90 Worker Equivalent 1.50 Operator/Manager Equivalent		
<u>Average Top 30% Farms</u>				
Total Labor Force	31.6	/ 12 = 2.63 Worker Equivalent		
Operator's Labor		1.36 Operator/Manager Equivalent		

Labor Efficiency	30 Grazing Dairy Farms		Average Top 30% Farms	
	Total	Per Worker	Total	Per Worker
Cows, average number	104	36	110	42
Milk sold, pounds	1,774,400	611,862	1,885,320	716,852
Tillable acres	268	92	265	101

Labor Costs	30 Grazing Dairy Farms		Average Top 30% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,200/month)	\$ 375	\$ 2.20	\$ 324	\$ 1.89
Family unpaid (\$2,200/month)	66	0.38	29	0.17
Hired	<u>291</u>	<u>1.71</u>	<u>239</u>	<u>1.39</u>
Total Labor	\$ 732	\$ 4.29	\$ 592	\$ 3.45
Machinery Cost	<u>\$ 598</u>	<u>\$ 3.51</u>	<u>\$ 499</u>	<u>\$ 2.91</u>
Total Labor & Machinery	\$ 1,330	\$ 7.80	\$ 1,091	\$ 6.36
Hired labor expense per hired worker equivalent	\$25,966		\$22,570	
Hired labor expense as % of milk sales	9.9%		8.1%	

## COMPARATIVE ANALYSIS OF THE FARM BUSINESS

### Progress of the Farm Business

Comparing your business with average data from regional DFBS cooperators that participated in both of the last two years can be helpful to establishing your goals for these parameters. It is equally important for you to determine the progress your business has made over the past two or three years, to compare this progress to your goals, and to set goals for the future.

### PROGRESS OF THE FARM BUSINESS Same Intensive Grazing Dairy Farms, 2003 & 2004<sup>32</sup>

Selected Factors	Same 22 Grazing Dairy Farms		Same 9 Farms in Top 30% Farms	
	2003	2004	2003	2004
<u>Size of Business</u>				
Average number of cows	88	88	117	117
Average number of heifers	63	71	87	102
Milk sold, pounds	1,438,467	1,474,244	1,874,722	1,991,384
Worker equivalent	2.62	2.67	2.72	2.65
Total tillable acres	245	246	270	275
<u>Rates of Production</u>				
Milk sold per cow, pounds	16,346	16,831	16,023	16,972
Hay DM per acre, tons	2.3	2.7	2.6	3.4
Corn silage per acre, tons	15.4	17.9	17.3	19.3
<u>Labor Efficiency</u>				
Cows per worker	34	33	43	44
Milk sold/worker, pounds	549,026	552,151	689,236	751,466
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	28%	23%	27%	23%
Dairy feed & crop expense per cwt. milk	\$ 4.81	\$ 5.18	\$ 4.78	\$ 5.18
Labor & machinery costs/cow	\$ 1,230	\$ 1,356	\$ 944	\$ 1,053
Operating cost of producing cwt. of milk	\$ 9.28	\$ 11.06	\$ 9.02	\$ 10.51
<u>Capital Efficiency</u> <sup>33</sup>				
Farm capital per cow	\$ 6,392	\$ 6,979	\$ 5,714	\$ 6,296
Machinery & equipment per cow	\$ 1,333	\$ 1,415	\$ 1,026	\$ 1,067
Asset turnover ratio	0.45	0.51	0.50	0.56
<u>Profitability</u>				
Net farm income without appreciation	\$ 41,105	\$ 69,135	\$ 62,156	\$ 110,458
Net farm income with appreciation	\$ 56,135	\$ 87,001	\$ 82,706	\$ 127,314
Labor & management income per operator/manager	\$ 8,063	\$ 26,533	\$ 33,060	\$ 73,889
Rate of return on equity capital with appreciation	3.3%	10.0%	10.9%	18.0%
Rate of return on all capital with appreciation	3.6%	8.5%	8.5%	13.7%
<u>Financial Summary</u>				
Farm net worth, end year	\$ 405,933	\$ 468,132	\$ 446,313	\$ 541,079
Debt to asset ratio	0.30	0.27	0.36	0.30
Farm debt per cow	\$ 2,026	\$ 1,960	\$ 2,178	\$ 1,946

<sup>32</sup>Farms participating both years.

<sup>33</sup>Average for the year.

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**  
Same 22 Intensive Grazing Dairy Farms, 2003 & 2004

Item	2003		2004	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	88		88	
Cwt. Of Milk Sold		14,385		14,742
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$ 2,201	\$ 13.47	\$ 2,889	\$ 17.24
Dairy cattle	112	0.68	221	1.32
Dairy calves	84	0.52	55	0.33
Other livestock	12	0.07	13	0.07
Crops	71	0.44	35	0.21
Miscellaneous receipts	254	1.54	111	0.65
Total Receipts	\$ 2,734	\$ 16.72	\$ 3,324	\$ 19.84
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 207	\$ 1.26	\$ 243	\$ 1.45
Dairy grain & concentrate	623	3.81	673	4.01
Dairy roughage	47	0.29	48	0.29
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	1	0.01	2	0.01
Machine hire/rent/lease	56	0.35	102	0.61
Machinery repair & vehicle expense	141	0.87	185	1.10
Fuel, oil & grease	63	0.39	71	0.42
Replacement livestock	43	0.26	6	0.04
Breeding	34	0.21	36	0.22
Veterinary & medicine	53	0.32	61	0.36
Milk marketing	146	0.89	146	0.87
Bedding	12	0.07	15	0.09
Milking supplies	43	0.26	52	0.31
Cattle lease	0	0.00	0	0.00
Custom boarding	18	0.11	24	0.14
bST expense	14	0.09	12	0.07
Livestock professional fees	10	0.06	16	0.10
Other livestock expense	36	0.22	44	0.26
Fertilizer & lime	70	0.43	104	0.62
Seeds & plants	32	0.20	22	0.13
Spray/other crop expense	14	0.09	22	0.13
Crop professional fees	0	0.00	0	0.00
Land, building, fence repair	36	0.22	51	0.30
Taxes	58	0.35	72	0.43
Real estate rent/lease	67	0.41	47	0.28
Insurance	38	0.23	42	0.25
Utilities	74	0.46	74	0.44
Interest paid	85	0.52	89	0.53
Other professional fees	8	0.05	5	0.03
Miscellaneous	19	0.12	18	0.11
Total Operating Expenses	\$ 2,050	\$ 12.54	\$ 2,282	\$ 13.62
Expansion Livestock	0	0.00	6	0.03
Extraordinary Expense	0	0.00	18	0.11
Machinery Depreciation	156	0.95	155	0.92
Real Estate Depreciation	61	0.37	77	0.46
Total Expenses	\$ 2,267	\$ 13.87	\$ 2,538	\$ 15.15
Net Farm Income Without Appreciation	\$ 467	\$ 2.86	\$ 786	\$ 4.69

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**  
Same 9 Farms in Top 30% Intensive Grazing Dairy Farms, 2003 & 2004

Item	2003		2004	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	117		117	
Cwt. Of Milk Sold		18,747		19,914
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$ 2,153	\$ 13.44	\$ 2,906	\$ 17.08
Dairy cattle	135	0.84	258	1.51
Dairy calves	135	0.84	60	0.35
Other livestock	5	0.03	9	0.05
Crops	47	0.30	59	0.35
Miscellaneous receipts	228	1.42	92	0.54
Total Receipts	\$ 2,703	\$ 16.87	\$ 3,384	\$ 19.88
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 219	\$ 1.37	\$ 248	\$ 1.46
Dairy grain & concentrate	590	3.68	664	3.90
Dairy roughage	42	0.27	43	0.25
Nondairy feed	1	0.00	0	0.00
Professional nutritional services	0	0.00	1	0.01
Machine hire/rent/lease	76	0.47	142	0.83
Machinery repair & vehicle expense	120	0.75	152	0.89
Fuel, oil & grease	44	0.28	52	0.30
Replacement livestock	77	0.48	9	0.05
Breeding	35	0.22	39	0.23
Veterinary & medicine	59	0.37	71	0.42
Milk marketing	133	0.83	142	0.83
Bedding	13	0.08	16	0.10
Milking supplies	34	0.21	47	0.27
Cattle lease	0	0.00	0	0.00
Custom boarding	12	0.07	22	0.13
bST expense	7	0.04	7	0.04
Livestock professional fees	6	0.04	7	0.04
Other livestock expense	35	0.22	38	0.23
Fertilizer & lime	86	0.54	137	0.80
Seeds & plants	36	0.23	22	0.13
Spray/other crop expense	11	0.07	17	0.10
Crop professional fees	1	0.00	0	0.00
Land, building, fence repair	32	0.20	55	0.32
Taxes	48	0.30	62	0.37
Real estate rent/lease	63	0.40	37	0.22
Insurance	31	0.19	35	0.21
Utilities	66	0.41	72	0.42
Interest paid	93	0.58	98	0.58
Other professional fees	7	0.05	4	0.03
Miscellaneous	17	0.11	20	0.12
Total Operating Expenses	\$ 1,995	\$ 12.45	\$ 2,257	\$ 13.26
Expansion Livestock	0	0.00	11	0.06
Extraordinary Expense	0	0.00	0	0.00
Machinery Depreciation	109	0.68	97	0.57
Real Estate Depreciation	67	0.42	76	0.45
Total Expenses	\$ 2,172	\$ 13.55	\$ 2,441	\$ 14.34
Net Farm Income Without Appreciation	\$ 531	\$ 3.32	\$ 944	\$ 5.55



### Grazing Farm Business Chart

The Farm Business Chart is a tool, which can be used in analyzing your business. Compare your business by drawing a line through or near the figure in each column, which represents your current level of performance. The five figures in each column represent the average of each 20 percent or quintile of farms included in the regional summary. Use this information to identify business areas where more challenging goals are needed.

#### **FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS**

30 Intensive Grazing Dairy Farms, 2004

Size of Business			Rate 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) <sup>34</sup>	(12)	(12)	(12)	(11)	(11)	(14)	(14)
5.42	279	4,550,380	22,427	4.0	24	53	892,176
3.34	89	1,769,700	19,855	3.2	19	39	705,022
2.37	59	1,076,178	17,800	2.5	16	30	553,389
1.91	51	891,971	15,296	2.1	13	24	410,280
1.46	39	583,776	12,799	1.4	10	17	260,625

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
(12)	(12)	(14)	(14)	(12)	(12)
\$503	18%	\$268	\$980	\$625	\$3.99
679	24	484	1,296	889	5.06
805	26	607	1,543	1,070	5.71
962	29	735	1,735	1,144	6.71
1,100	39	969	2,116	1,388	7.88

Value and Cost of Production			Profitability			Change in Net Worth w/Apprec.
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income w/Apprec.	Net Farm Inc. w/o Apprec.	Labor & Mgt. Inc. Per Oper.	
(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$3,810	\$9.44	\$14.67	\$276,995	\$178,477	\$101,422	\$212,814
3,404	10.37	16.90	91,541	65,579	29,980	54,739
3,009	11.42	18.52	61,715	45,769	19,925	35,715
2,632	12.72	20.09	44,466	36,625	6,134	19,114
2,251	15.08	24.94	15,734	12,611	-14,601	2,493

<sup>34</sup>Page number of the participant's DFBS where the factor is located.

### **SUPPLEMENTARY INFORMATION**

Each year DFBS cooperators volunteer to complete supplementary data collection forms looking at selected management aspects of the business or specific research areas being studied. This is in addition to the normal DFBS data collection form. Two areas that were examined this year were the source of dairy replacements and the breakdown of the milk income and marketing expenses. Following is a summary of this information.

#### **SOURCE OF DAIRY REPLACEMENTS** 48 New York Dairy Farms, 2004

<u>Animals Entering Herd</u>	<u>Average</u>
Number calving in 2004 for first time	145
Animals purchased, percent <sup>35</sup>	11%
Animals raised by farm, percent <sup>36</sup>	89%
<u>Current Heifer Inventory</u>	
Raised on dairy, percent	70%
Raised by a custom grower, percent	30%

<sup>35</sup>Animals purchased are animals purchased from a different farm and were not the farm's genetics.

<sup>36</sup>Animals raised by farm are animals that were born on the farm and entered the herd, which includes animals raised by the farm or custom grower.

On the average farm, 145 animals calved for the first time in 2004. The breakdown of these animals for source was 11 percent purchased and 89 percent raised by the farm. Of the current heifer inventory, 70 percent were raised on the dairy and 30 percent were being raised by a custom grower. There is increased interest in evaluating the dairy replacement enterprise.

#### **Milk Income and Marketing Expense Breakdown**

Starting January 1<sup>st</sup>, 2000, the Northeast switched to multiple components 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, 14 intensive grazing farms filled out a detailed form for 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 areas, each representing a different area of income or expenses.

The first section looks at the value of the milk components on a per cwt. basis. The second area looks at the Producer Price Differential. The third area looks at the premiums a farm receives. Any premiums not specifically noted as quality or volume related are included in market premiums. The fourth area looks at the expenses associated with marketing milk. A new line item in this section is the expenses associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees. The fifth area is income from the compact program or from forward contracting or hedging programs. The sixth area is the patronage dividends or refunds from the milk cooperatives. Equity purchased in the milk cooperative utilizing a monthly deduction from the milk check or a percent of the patronage dividend is treated as a capital purchase and is not a milk marketing expense. The cumulative total for these six areas is the net price received on farms. Your net farm price can be found on page 12 of your farm's DFBS report.

The table on page 39 reports the averages for these different areas. The table on page 40 contains the range for each of the individual lines of the report. This table is in farm business chart format with each item sorted independently and ranked by fourths. Numbers for the different areas will not add to the totals for that quartile or to the net price received because the highest farms for each item were averaged, not the same farms throughout the six areas. This table shows the range of income and expenses received by farms for all the different areas.

For your individual farm, compare your accrual numbers following this same format to look at how you compare to other farms in your region and to identify possible areas to generate additional revenue.

**AVERAGE<sup>37</sup> MILK INCOME AND MARKETING REPORT**  
14 Intensive Grazing Dairy Farms, 2004

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	73,240.21	3.67%	\$ 2.071	\$ 151,695.00	\$ 7.61
Protein	59,497.36	2.98%	\$ 2.695	\$ 160,367.00	\$ 8.04
Solids	109,189.70	5.48%	\$ 0.086	\$ 9,349.86	\$ 0.47
<b>Total Component Contribution</b>					<b>\$16.12</b>
<b>PPD</b>	1,994,267.00			\$ 8,467.86	<b>\$ 0.42</b>
<b>Base Farm Price</b>					<b>\$ 16.54</b>
<b>Premiums</b>					
Quality				\$ 2,861.57	\$ 0.14
Volume				\$ 2,442.93	\$ 0.12
Market Premiums				\$ 6,256.64	\$ 0.31
<b>Total Premiums</b>					<b>\$ 0.57</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 17.11</b>
<hr style="border-top: 1px dashed black;"/>					
<b>Deductions</b>					
Promo				\$ 3,041.21	\$ 0.15
Hauling + Stop Charges				\$ 12,715.50	\$ 0.64
Market Fees & Coop Dues				\$ 1,734.43	\$ 0.09
<b>Total Deductions</b>					<b>\$ 0.88</b>
<b>BASE FARM PRICE + PREMIUMS - DEDUCTIONS</b>					<b>\$ 16.23</b>
<b>Marketing Programs</b>					
Futures Contracts, Forward Contracting, Etc.				\$ 32.64	\$ 0.00
<b>Total Marketing Income</b>					<b>\$ 0.00</b>
<b>Patronage Dividends</b>				\$ 1,796.57	<b>\$ 0.09</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 16.32</b>
<hr/>					
<b>PPD - Hauling, \$ per cwt.</b>					\$-0.22
<b>PPD - Hauling + Market Premiums, \$ per cwt.</b>					\$ 0.09
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.</b>					\$ 0.11

<sup>37</sup>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.

**MILK PRICE INFORMATION BY QUARTILE**<sup>38, 39</sup>  
 (Each Category Sorted Independently)  
 14 Intensive Grazing Dairy Farms, 2004

	Lowest Quartile	←————→		Highest Quartile
Butterfat, %	2.61	3.75	3.83	4.27
Protein, %	2.24	3.01	3.05	3.22
Other Solids, %	4.24	5.65	5.68	5.90
Butterfat, \$ per Cwt.	7.11	7.46	7.69	7.88
Protein, \$ per Cwt.	7.56	7.79	8.01	8.36
Other solids, \$ per Cwt.	0.40	0.42	0.45	0.77
<b>Total Component Value per Cwt.</b>	<b>\$15.12</b>	<b>\$15.82</b>	<b>\$16.15</b>	<b>\$16.77</b>
PPD, \$ per Cwt.	0.18	0.39	0.79	1.15
<b>Base Farm Price per Cwt.</b>	<b>\$15.77</b>	<b>\$16.30</b>	<b>\$16.89</b>	<b>\$17.22</b>
Quality, \$ per Cwt.	.02	.12	.23	.64
Volume, \$ per Cwt.	.00	.03	.11	.29
Market premium, \$ per Cwt.	-.03	.16	.38	1.03
<b>Total Premium, \$ per Cwt.</b>	<b>.26</b>	<b>.49</b>	<b>.84</b>	<b>1.24</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$16.15</b>	<b>\$16.96</b>	<b>\$17.73</b>	<b>\$18.05</b>
Promotion, \$ per Cwt.	.15	.15	.15	.18
Hauling, \$ per Cwt.	.41	.63	.78	1.25
Market fees & coop dues per Cwt.	.05	.06	.12	.15
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ .68</b>	<b>\$ .86</b>	<b>\$1.07</b>	<b>\$1.45</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$15.35</b>	<b>\$15.77</b>	<b>\$16.66</b>	<b>\$17.22</b>
Futures contract, forward contracting, \$ per Cwt.	.00	.00	.00	.02
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .02</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .09</b>	<b>\$ .41</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$15.42</b>	<b>\$15.88</b>	<b>\$16.81</b>	<b>\$17.34</b>
PPD - hauling, \$ per Cwt.	-0.42	-0.22	-0.08	0.21
PPD - hauling + mkt premiums, \$ per Cwt.	-0.36	0.05	0.39	0.87
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per Cwt.</b>	<b>-0.35</b>	<b>0.19</b>	<b>0.48</b>	<b>0.93</b>

<sup>38</sup>Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals.

<sup>39</sup>Holstein and Jersey herds are included.

## IDENTIFY AND SET GOALS

If businesses are to be successful, they must have direction. Written goals help provide businesses with an identifiable direction over both the long and short term. Goal setting is as important on a dairy farm as it is in other businesses. Written goals are a tool which farm operators can use to ensure that the business continues to move in the desired direction. Goals should be SMART:

1. Goals should be Specific.
2. Goals should be Measurable.
3. Goals should be Achievable but challenging.
4. Goals should be Rewarding.
5. Goals should be Timed with a designated date by which the goal will be achieved.

Goal setting on a dairy farm should be a process for writing down and agreeing on goals that you have already given some thought to. It is also important to remember that once you write out your goals they are not cast in concrete. If a change takes place which has a major impact on the farm business, the goals should be reworked to accommodate that change. Refer to your goals as often as necessary to keep the farm business progressing.

It is important to identify both objectives (long-range) and goals (short-range) when looking at the future of your farm business.

A suggested format for writing out your goals is as follows:

- a. Begin with a mission statement which describes why the business exists based on the preferences and values of the owners.
- b. Identify 4-6 objectives.
- c. Identify SMART goals.

### Worksheet for Setting Goals

#### I. Mission and Objectives

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## Worksheet for Setting Goals (Continued)

## II. Goals

What	How	When	Who is Responsible
_____	_____	_____	_____
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_____	_____	_____	_____
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_____	_____	_____	_____
_____	_____	_____	_____

## Summarize Your Business Performance

The Farm Business Chart on page 37 can be used to help identify strengths and weaknesses of your farm business. Identify three major strengths and three areas of your farm business that need improvement.

Strengths: \_\_\_\_\_

Needs improvement: \_\_\_\_\_

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## 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 Expenses** - (defined on page 16)

**Accrual Receipts** - (defined on page 17)

**Annual Cash Flow Statement** - (defined on page 25)

**Appreciation** - (defined on page 18)

**Asset Turnover Ratio** - The ratio of total farm income to total farm assets, calculated by dividing total accrual operating receipts plus appreciation by average total farm assets.

**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.

**bST Usage** - An estimate of the percentage of herd, on average, that was injected with bovine somatotropin during the year.

**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.

**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 Flow Coverage Ratio** - (defined on page 26)

**Cash Paid** - (defined on page 15)

**Cash Receipts** - (defined on page 17)

**Change in Accounts Payable** - (defined on page 16)

**Change in Accounts Receivable** - (defined on page 17)

**Change in Inventory** - (defined on page 17)

**Cost of Term Debt** - A weighted average of the cost of borrowed capital to 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** - (defined on page 30)

**Current Portion** - (defined on page 21)

**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 (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.

**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 10 percent of accrual milk receipts.

**Debt Coverage Ratio** – (defined on page 26)

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

**Debt to Asset Ratios** - (defined on page 23)

**Depreciation Expense Ratio** – Machinery and building depreciation divided by total accrual receipts.

**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** - Purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year.

**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 page 26.

**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.

**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.

**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.

**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.

**Income Statement** - A complete and accurate account of farm business receipts and expenses used to measure profitability over a period of time such as one year or one month.

**Interest Expense Ratio** – Accrual interest expense divided by total accrual receipts.

**Labor and Management Income** - (defined on page 20)

**Labor and Management Income Per Operator** - The return to the owner/manager's labor and management per full-time operator.

**Labor Efficiency** - Production capacity and output per worker.

**Leverage Ratio** – (defined on page 23)

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

**Net Farm Income** - (defined on page 18)

**Net Farm Income from Operations Ratio** – (defined on page 21)

**Net Milk Receipts** – Accrual milk receipts less milk marketing expense.

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



**Operating Costs of Producing Milk** - (defined on page 31)

**Operating Expense Ratio** – Total accrual expenses less interest and machinery and building depreciation, divided by total accrual receipts.

**Operator Resources/cwt.** - The total value of labor contributed to the farm from all owner/operators. This measure is calculated by multiplying the number of months of labor provided by all owner/operators by \$2,200 and dividing by the number of cwt. produced during the year.

**Opportunity Costs** - 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 Livestock Expenses** - All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include DHIC, registration fees and transfers.

**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.

**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.

**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 the costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

**Purchased Inputs Cost of Producing Milk** - (defined on page 31)

**Renter** - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

**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 21)

**Return on Total Capital** - (defined on page 21)

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

**Total Costs of Producing Milk** - (defined on page 31)

**Total Labor Cost/cwt.** - The total cost of all labor used on the farm on a per cwt. basis. The value of unpaid labor at \$2,200 per month plus the value of operator(s) labor at \$2,200 per month plus total hired labor expense divided by the number of cwt. produced.

**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.

**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.

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## OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2005-07	Dairy Farm Business Summary, Northern New York Region, 2004	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Murray, P., Vokey, F., Ames, M. and W. Van Loo
2005-06	Cost of Establishment and Production of Vinifera Grapes in the Finger Lakes Region of New York State - 2004	(\$10.00)	White, G.
2005-05	DFBS New York Large Herd Farms, 300 Cows or Larger 2004		Karszes, J., Knoblauch, W. and L. Putnam
2005-04	Wind Energy Development in New York State: Issues for Landowners		Dorociak, C., Chapman, D., Henehan, B. and J. Barry
2005-03	Dairy Farm Business Summary, Western and Central Plain Region, 2004	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Hanchar, J. and J. Murphy
2005-02	Dairy Farm Business Summary, Northern Hudson Region, 2004	(\$12.00)	Conneman, G., Putnam, L., Wickswat, C., Buxton, S., Smith, R. and J. Karszes
2005-01	Timber Prices: A Guide for Woodlot Owners in New York State		Brian, J. and D. Chapman
2004-22	Dairy Farm Business Summary, New York Dairy Farm Renters, 2003	(\$16.00)	Knoblauch, W. and L. Putnam
2004-21	Dairy Farm Business Summary, New York Small Herd Farms, 80 Cows or Fewer, 2003	(\$16.00)	Knoblauch, W., Putnam, L., Kiraly, M. and J. Karszes
2004-20	New York Economic Handbook 2005	(\$7.00)	Extension Staff
2004-19	Dairy Farm Business Summary, Northern New York Region, 2003	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Murray, P., Vokey, F., Ames, M., VanLoo, W., Nobles, C. and A. Deming
2004-18	Dairy Farm Business Summary, Western and Central Plateau Region, 2003	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Allhusen, G., Grace, J., Petzen, J. and A. Dufresne

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