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DAIRY FARM BUSINESS SUMMARY

INTENSIVE GRAZING FARMS NEW YORK 2000



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2000 DAIRY FARM BUSINESS SUMMARY
Intensive Grazing Farms
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2000 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 fifth 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). Sixty-five 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 65 farms were asked to complete a grazing practices survey. Thirty-eight of the farms did complete it. The investigators had special interest in practices used on farms with above average profitability. Therefore the study centered on 30 farms which were not first year grazers and on which at least 40 percent of forage consumed during the grazing season was grazed. These 30 farms were divided on the basis of net farm income per cow (without appreciation) above and below \$450 which was the average for these 30 intensive grazing farms. Seventeen farms with net farm income per cow above \$450 are in the "Above Average" group and thirteen farms with net farm income per cow below \$450 comprise the "Below Average" group.

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 1999 and 2000. 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 7. The third section, Case Studies, describes three New York grazing farms. The fourth section summarizes grazing farms that had more than 100 cows.

The summary and analysis portion of this report follows the same general format as in the 2000 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. A DFBS Data Check-in Form can be used by non-DFBS participants to summarize their businesses.

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 DFBS grazing dairy farms that participated in both of the last two years can be helpful in comparing performance 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 47 farms that were grazing in both 1999 and 2000 and participated in the DFBS project for both years.

These 47 farms expanded herd size from 1999 to 2000 by five cows, or 5.4 percent. Along with this herd size increase, worker equivalent increased by 3.7 percent, and nontillable and tillable pasture and hay acres increased 7.1 percent. Milk sold per cow decreased 4.6 percent to 17,401 pounds. This decrease in production offset the increase in herd size; therefore, total milk production shipped off the farm only increased by .4 percent.

With both herd size and worker equivalent increasing, cows per worker equivalent stayed the same. However, again reflecting the decrease in milk sold per cow, milk sold per worker equivalent decreased 3.2 percent. With labor efficiency decreasing, corresponding labor costs increased. Hired labor cost per worker equivalent increased 0.5 percent to \$21,406. The decrease in labor efficiency coupled with the increase in cost per worker equivalent led to 4.4 percent increase in hired labor expense per cwt. of milk shipped. With this increase in hired labor costs and the decrease in milk price, hired labor cost as a percent of milk sales increased to 10.6 percent.

The 2000 growing season was a different challenge than previous years. With the wet and cool spring many grasses responded well and pasture growth and hay yields were improved over the previous year. Hay yields increased 17.4 percent from 1999. While there was sufficient quantity of pasture, due to the wet and cool spring, the quality was not ideal and was a major contributor to lower milk production per cow. Last year was also a challenging year for corn production, with yields decreasing by 11.2 percent and quality also suffering. This also led to challenges in maintaining milk production once pasture was not utilized anymore.

With the challenging growing conditions and less favorable forage quality, feed costs increased for the year. Grain and concentrate purchased per cwt. increased 3 percent to \$3.43 per cwt. and dairy feed and crop expense per cwt. increased 1.4 percent. These increases in feed costs coupled with the decrease in milk price led to an increase of 13 percent in the percent of milk check used to purchase grain and concentrate. Total farm operating expenses per cwt. of milked shipped increased 1.6 percent to \$12.63.

Gross milk price decreased 9.4 percent to \$13.31 per cwt. and net milk price decreased 11.7 percent to \$12.47 per cwt. The decrease in milk price coupled with the decrease in milk sold per cow led to a decrease in gross milk sales per cow of 13.8 percent. Dairy cattle sales per cow increased 16.7 percent while dairy calf sales per cow increased 68.2 percent.

The significant decrease in milk price, the decrease in milk sold per cow, and the small increase in operating expense lead to declines in farm profitability.

- Net farm income without appreciation fell 15.5 percent to \$36,918.
- Net farm income with appreciation fell 4.1 percent to \$51,768.
- Labor and management income per operator fell 42.2 percent to \$8,185.
- Rate of return on equity capital without appreciation fell to -0.5 percent.
- Rate of return on all capital without appreciation fell to 1.6 percent.

While profits did decrease from 1999, they were still positive and are reflected in the financial summary of these farms. Net worth increased 4.4 percent, debt per cow increased 1.6 percent to \$1,783, and debt to asset ratio held steady at .30.

Overall, 2000 was a challenging year for the grazing dairy. While on average, profits decreased from 1999, the changes on individual farms varied, with some farms actually doing better in 2000 than in 1999.

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 47 Grazing Dairy Farms, 1999 & 2000

Selected Factors	Average of 47 Farms		Percent Change
	1999	2000	
<u>Size of Business</u>			
Average number of cows	92	97	5.4
Average number of heifers	71	73	2.8
Milk sold, lbs.	1,681,922	1,687,854	0.4
Worker equivalent	2.73	2.83	3.7
Total nontillable and tillable pasture & hay acres	241	258	7.1
Total nontillable pasture & tillable acres	315	321	1.9
<u>Rates of Production</u>			
Milk sold per cow, lbs.	18,244	17,401	-4.6
Hay DM per acre, tons	2.3	2.7	17.4
Corn silage per acre, tons	13.4	11.9	-11.2
<u>Labor Efficiency & Costs</u>			
Cows per worker	34	34	0.0
Milk sold per worker, lbs.	616,089	596,415	-3.2
Hired labor cost per cwt.	\$1.35	\$1.41	4.4
Hired labor cost per worker	\$21,303	\$21,406	0.5
Hired labor cost as % of milk sales	9.2%	10.6%	15.2
<u>Cost Control</u>			
Grain & conc. purchased as % of milk sales	23%	26%	13.0
Grain & conc. per cwt. milk	\$3.33	\$3.43	3.0
Dairy feed & crop expense per cwt. milk	\$4.39	\$4.45	1.4
Labor & mach. costs per cow	\$1,168	\$1,125	-3.7
Total farm operating costs per cwt. sold	\$12.43	\$12.63	1.6
Interest costs per cwt. milk	\$0.67	\$0.67	0.0
Milk marketing costs per cwt. milk sold	\$0.57	\$0.84	47.4
Operating cost of producing cwt. of milk	\$10.71	\$9.84	-8.1
Total costs of producing cwt. of milk	\$15.45	14.60	-5.5
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$5,942	\$5,825	2.0
Mach. & equip. per cow	\$1,162	\$1,163	0.1
Asset turnover ratio	0.53	0.51	-3.8
<u>Income Generation</u>			
Gross milk sales per cow	\$2,686	\$2,316	-13.8
Gross milk sales per cwt.	\$14.69	\$13.31	-9.4
Net milk sales per cwt.	\$14.12	\$12.47	-11.7
Dairy cattle sales per cow	\$174	\$203	16.7
Dairy calf sales per cow	\$22	\$37	68.2
<u>Profitability</u>			
Net farm income without appreciation	\$43,695	\$36,918	-15.5
Net farm income with appreciation	\$53,962	\$51,768	-4.1
Labor & mgt. income per operator/manager	\$14,152	\$8,185	-42.2
Rate of return on equity capital without apprec.	1.6%	-0.5%	-131.3
Rate of return on all capital without apprec.	3.2%	1.6%	-50.0
<u>Financial Summary</u>			
Farm net worth, end year	\$386,634	\$403,610	4.4
Debt to asset ratio	0.30	0.30	0.0
Farm debt per cow	\$1,755	\$1,783	1.6

INTENSIVE GRAZING SURVEY SUMMARY

Net farm income per cow without appreciation was used this year to evaluate whether certain practices contributed favorably to improved profitability. Net farm income is a measure of the net annual return from working, managing, and financing the farm business. The average net farm income per cow from the 30 selected farms of \$450 was used to divide the 30 farms into 17 “above average” farms and 13 “below average” farms. Reported below are the average production levels and profitability measures of the 30 selected grazing farms.

SELECTED PRODUCTION AND PROFITABILITY MEASURES

Intensive Grazing Dairy Farms, 2000

	17 Above Average Farms	13 Below Average Farms
Pounds milk sold per cow	19,075	14,808
Net farm income per cow without appreciation	\$692	\$44
Operating cost of producing milk per cwt.	\$8.59	\$11.64
Total cost of production per cwt.	\$13.71	\$17.23

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 as follows:

GRAZING PRACTICES

Intensive Grazing Dairy Farms, 2000

	17 Above Average Farms	13 Below Average Farms
Average number of cows	71	126
Percent of farms with seasonal or semi-seasonal calving	53%	31%
Percent of farms with parlor-type milking system	35%	54%
Average percent forage from pasture	72%	75%
Average length of grazing season	184	180
Average pounds dry matter supplemented grain	14.4	12.3
Percent farms supplement with forage	76%	54%
Average pounds dry matter supplemented forage	11.2	9.9
Percent rotated after each milking	71%	62%
Percent rotated one time a day	18%	31%
Percent rotated every other day	6%	7%
Percent other rotation	5%	0%
Percent farms applied fertilizer	59%	30%
Percent farms applied manure to pasture	53%	62%
Percent farms that clipped pasture	96%	92%
Percent farms weed problems	30%	54%
Percent farms water every paddock	53%	77%
Percent farms water every laneway	47%	33%
Average percent pasture that was reseeded in the last 10 years	35%	35%
Percent farms harvested mechanically	70%	85%
Average percent pasture harvested by machine	42%	44%
Most common pasture species:		
First	Orchard grass	Orchard grass
Second	Native clover	Native clover
Third	Ladino clover	Ladino clover

Seasonal calving, rotating after each milking, supplementing with forage and applying fertilizer all appear to be associated with higher profitability and higher production per cow within the above average group. Some of the farms in the below average group used these same practices. The tables on the next page compare the above average group of farms to the below average group of farms for certain practices. Successful managers of grazing farms need all of the skills for managing the herd in the barn during the winter in addition to grazing management skills.

Seasonal Calving

The study of the financial data to determine the effect of employing seasonal or semi-seasonal calving on farm profitability shown above was further analyzed. This is the first year that calving practices have been explored. A seasonal herd is where no milking is done for one or more days during the year. A semi-seasonal herd has calving grouped at one or more seasons, and milking is done every day of the year.

SEASONAL CALVING Intensive Grazing Farms, 2000

	17 Above Average Farms		13 Below Average Farms	
	Seasonal or Semi-Seasonal Calving?		Seasonal or Semi-Seasonal Calving?	
	(8) Yes	(9) No	(4) Yes	(9) No
Pounds milk sold per cow	18,560	19,258	11,827	16,557
Net farm income per cow without appreciation	\$820	\$824	\$-96	\$254
Operating cost of producing milk/cwt.	\$8.57	\$8.23	\$12.32	\$10.93
Number of farms strictly seasonal	1	--	2	--
Percent of average number of cows when semi-seasonal farms are at lowest number milking	46%	--	64%	--

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. The farms that fed grain, corn silage, and other forage in both the above average group and below average group had higher labor and management income per operator per cow and pounds of milk sold per cow than the farms that fed only grain and other forage. However, other factors influence the profitability, such as cost of feed. In past years, incorporation of corn silage has been an identified as a forage supplement associated with 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, 2000

	17 Above Average Farms		13 Below Average Farms	
	(9) Corn Silage	(8) No Corn Silage	(3) Corn Si- lage	(10) No Corn Silage
Net farm income per cow without appreciation	\$707	\$748	\$-146	\$162
Pounds dry matter of grain	11.5	14.3	14	11.8
Pounds dry matter of corn silage	7.91	-----	10.16	-----
Pounds dry matter of other forage*	2.65	3.5	1	4.18
Percent forage from pasture	50%	85%	63%	68%

*Other includes baleage, dry hay, or other forage.

Ration Details

Of the 17 above average grazing farms (based on net farm income per cow without appreciation), all fed grain during the grazing season. Nine of the farms fed corn silage. None of the farms fed baleage, five farms reported feeding haylage at an average of 6.37 pounds of dry matter per cow per day and four 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 (based on net farm income per cow without appreciation), all fed grain during the grazing season. Three of the farms fed corn silage. None of the farms fed baleage, two farms fed haylage at an average of 13.55 pounds of dry matter per day, and five farms fed dry hay at an average rate of 4 pounds dry matter, one farm fed haylage at an average rate of 7.5 pounds dry matter, and one farm reported feeding other forage with 4 pounds dry matter.

Frequency of Rotation

In the above average group, 12 farms rotated cows into a fresh paddock after each milking, three farms provided new pasture once per day, one farm moved the cows every other day, and one farm rotated every three days. In the below average group, eight farms rotated cows into a fresh paddock after each milking, four moved the cows to a new pasture one time per day, and one farm provided a fresh paddock every other day. The table below compares the rotation program of cows on new pasture to milk production and net farm income per cow without appreciation.

	ROTATION FREQUENCY			
	Intensive Grazing Farms, 2000			
	<u>17 Above Average Farms</u>		<u>13 Below Average Farms</u>	
	Rotation		Rotation	
	(12) After Each Milking	(5) Other	(8) After Each Milking	(5) Other
Pounds milk sold per cow	19,545	17,314	14,642	15,873
Net farm income per cow without appreciation	\$727	\$719	\$101	\$-33

Water Source

There are various options for providing water to pasture. In the above average group, eight farms used a well, three farms used a spring, two farms used a pond, one farm used a stream and two farms used combinations of pond and spring or pond and stream. In the below average group, 10 farms used a well, one farm used a stream, one farm used a pond, and one farm used a combination of a spring and a stream.

	WATER SOURCE			
	Intensive Grazing Farms, 2000			
	<u>17 Above Average Farms</u>		<u>13 Below Average Farms</u>	
	(8) Well	(9) Other	(9) Well	(6) Other
Pounds milk sold per cow	18,180	19,499	14,043	15,178
Net farm income per cow without appreciation	\$725	\$724	\$65	\$130

*Pond, stream, spring, or combination.

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, parrabone, rotary, or other) were separated from those utilizing pipeline, dumping station, or bucket and carry system. The type of milking system may impact the degree of control the manager has over the supplemental feeding system. This is the first year that this has been evaluated.

MILKING SYSTEM
Intensive Grazing Farms, 2000

	17 Above Average Farms		13 Below Average Farms	
	(6)	(11)	(6)	(7)
	With parlor	Without parlor	With parlor	Without parlor
Pounds milk sold per cow	19,551	18,528	15,147	15,089
Net farm income per cow without appreciation	\$702	\$737	-\$98	\$136
Average number of cows	106	55	212	65
Operating cost of producing milk/cwt	\$8.75	\$8.22	\$12.63	\$10.50

Commercial Fertilizer

Six farms in the above average group and six farms in the below average group applied fertilizer to the paddocks during the growing season.

COMMERCIAL FERTILIZER
Intensive Grazing Farms, 2000

	17 Above Average Farms		13 Below Average Farms	
	(6)	(11)	(6)	(7)
	Applied Fertilizer	Did not apply fertilizer	Applied Fertilizer	Did not apply fertilizer
Pounds milk sold per cow	19,514	17,996	15,794	15,714
Net farm income per cow without appreciation	\$729	\$718	\$58	\$115
Most common product applied	urea	--	urea	--
Operating cost of producing milk/cwt	\$8.42	\$8.41	\$11.60	\$11.43

Intensive Grazing Satisfaction Comments

On a scale of 1 to 5, with 5 being the highest, the average rating of grazing satisfaction was 4. When asked whether their lifestyle has improved with the adoption rotational grazing, all but two indicated their lifestyle has improved. Other comments from graziers are:

- “Have grazed for many years.”
- “Economically satisfying but more management intensive.”
- “We have always pastured from May to October but now we are learning how to get more from our pastures.”
- “We likely would not farm any other way.”
- “It’s nice to have the cows outside.”
- “It’s the only way to dairy!”

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2000

Item	All Intensive Grazing Farms*	Non-Grazing Farms**	Profitable Grazing Farms***	Profitable Non- Grazing Farms****
Number of farms	65	143	17	40
<u>Business Size & Production</u>				
Number of cows	93	90	72	72
Number of heifers	67	67	48	59
Milk sold, lbs.	1,585,980	1,710,187	1,368,938	1,459,937
Milk sold/cow, lbs.	17,107	19,001	19,075	20,277
Milk plant test, % butterfat	3.73%	3.73%	3.72%	3.70%
Tillable acres, total	271	282	190	214
Hay crop, tons DM/acre	2.7	2.6	2.8	2.7
Corn silage, tons/acre	12.1	12.8	15.1	14.9
Forage DM/cow, tons	6.1	7.4	4.9	7.9
<u>Labor & Capital Efficiency</u>				
Worker equivalent	2.76	2.93	2.40	2.50
Milk sold/worker, lbs.	574,630	583,682	570,391	583,975
Cows/worker	34	31	30	29
Farm capital/worker	\$217,163	\$228,866	\$163,696	\$232,042
Farm capital/cow	\$6,445	\$7,451	\$5,457	\$8,057
Farm capital/cwt. milk	\$38	\$39	\$29	\$40
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.28	\$1.19	\$0.83	\$0.82
Grain & concentrate	\$3.54	\$3.65	\$3.26	\$3.40
Purchased roughage	\$0.34	\$0.34	\$0.47	\$0.30
Replacements purchased	\$0.25	\$0.25	\$0.40	\$0.10
Vet & medicine	\$0.39	\$0.41	\$0.29	\$0.35
Milk marketing	\$0.83	\$0.78	\$0.81	\$0.79
Other dairy expenses	\$1.05	\$1.20	\$0.98	\$1.09
Operating cost/cwt.	\$10.17	\$10.49	\$8.59	\$8.87
Total labor cost/cwt.	\$3.78	\$3.73	\$3.95	\$3.65
Operator resources/cwt.	\$3.32	\$3.45	\$3.47	\$4.24
Total cost/cwt.	\$15.28	\$15.57	\$13.71	\$14.33
Average farm price/cwt.	\$13.37	\$13.30	\$13.36	\$13.33
Return over total costs/cwt.	\$-1.91	\$-2.27	\$-0.35	\$-1.00
<u>Related Cost Factors</u>				
Hired labor/cow	\$219	\$226	\$157	\$165
Total labor/cow	\$644	\$709	\$751	\$741
Purchased dairy feed/cow	\$662	\$760	\$709	\$752
Purchased grain & concentrate as % of milk receipts	27%	27%	24%	26%
Vet & medicine/cow	\$66	\$78	\$56	\$71
Machinery costs/cow	\$501	\$552	\$472	\$498
Feed & crop exp./cwt.	\$4.56	\$4.80	\$4.34	\$4.30
<u>Profitability Analysis</u>				
Net farm income (without apprec.)	\$28,866	\$26,417	\$49,803	\$51,116
Net farm income per cow (w/o apprec.)	\$310	\$294	\$692	\$710
Labor & management income/operator	\$1,693	\$-1,822	\$20,813	\$15,594
Labor & mgmt. income/oper./cow	\$18	\$-20	\$289	\$217
Rates of return on:				
Equity capital with appreciation	1.1%	0.4%	6.1%	3.9%
All capital with appreciation	3.0%	2.4%	6.5%	4.6%

*Farms grazing at least 3 months of year, changing paddock at least every 3 days, and forage from pasture at least 30 percent.

**Farms with similar herd size, as the 65 rotational grazing farms.

***Farms with net farm income per cow greater than \$450, had been grazing at least two years, and forage from pasture at least 40 percent.

****Farms with similar herd size as the 17 profitable grazing farms and net farm income per cow greater than \$450.

CASE STUDIES

Sawyer Family Farm

The Sawyer Farm

Matt and Darcy Sawyer have been dairy farming together for 8 years and have used intensive grazing since the beginning. They currently milk about 70 cows on their farm near Locke, New York.

Matt Sawyer started his dairy career as a milk inspector for Sunnysdale Farms in 1989. In 1991 Matt met Darcy and they were married in 1992. Darcy was interested in starting a dairy farm, and within two months they started milking cows on a rented farm in Greene, New York. At this location they were milking about 24 cows in a tie stall/stanchion barn with a dump station. The Sawyers quickly decided that this was a lot of work for Darcy, especially with Matt's full-time job at Sunnysdale. By early 1993, they had sold the herd of cows and started looking for a new farm site.

In 1994, Matt and Darcy found the ideal site—about 17 acres in Cayuga County. After purchasing the land, they moved a mobile home onto the site and the two set to work building their own freestall barn with a home-made flat barn double 6 parlor. Soon after the barn was completed, Darcy gave birth to their son, Jesse.

As the herd continued to grow, Matt and Darcy built a new double 9 swing parlor in 1998. Matt also decided that he needed to spend more time on the farm and quit his job as a milk inspector in 1999. By 2000, the Sawyers were milking 50 cows on their new farm.

Grazing

The Sawyers started grazing in Greene, New York because their operation was very labor intensive. The farm they had rented had no silo, so all forage harvested had to be dry hay. Being short of help (Matt still had his full time job) and having old equipment, they decided to turn the cows out after the first hay cutting. Although the pastures were large and the grasses native, the cows did relatively well. In fact, the only problem they encountered that first year was deer running through their pasture fences. The pasture system at this first location consisted of a few large paddocks divided with a single wire.

Since moving to their current location in 1994, the Sawyers have intensified their pasture management. Currently, the pasture is divided into several large subdivisions with the cows being given fresh grass each day. Water is provided to the cows in every paddock and the cows are supplemented with a TMR (consisting of corn silage, corn meal, and a protein supplement) as well as free choice dry hay. They keep track of pasture quality through daily visual assessment that is recorded in their feeding records. They are very satisfied with using pasture and feel that it is a key to their farm's profitability. As their farm has expanded, they have needed to alter their pasture management to meet the herd's needs while maintaining high quality forage. However, grazing will certainly be a part of the farm's future.

Management Style

Matt and Darcy's mission is to provide a reasonable living for their family by doing what they enjoy most—farming. They characterize their management style as medium production with low input cost, which includes a very low debt-load. The Sawyers rent most of their land and only own equipment that they use frequently, making use of custom operators for hay and corn harvesting.

Extensive record keeping has allowed the Sawyers to track their progress and make good management decisions. Keeping milk income over feed cost as high as possible is one of their main goals. To achieve this goal, Matt and Darcy record daily milk production and feeding information to calculate their feed costs per hundredweight on a monthly basis. When faced with a management decision, they refer to their records and decide what changes will result in the highest margin possible between milk income and feed costs. While the Sawyers don't find record keeping as one of the most enjoyable aspects of farming, they have found it necessary to make good management decisions.

Future Goals

Matt and Darcy are very happy with the way things have progressed. Currently, they are striving to make their herd seasonal. Not only will this provide some time off during the winter, but will allow them to manage the cows and calves more efficiently. As of 2001, they have expanded the herd up to 70 cows and plan to stay at this size for the foreseeable future. Matt says, "We credit our success to God's blessing on our efforts."

Ara-Kuh Farm

History

The name "Ara-Kuh" comes from an area of Delaware County where Tom and Peg Shultz bought their original herd of cows and brought them to Lewis County in 1971. "Kuh" is German for cow.

In 1985, Joe's dad was interested in rotational grazing. Working with Dr. Lucy from the Cornell research center in Chazy, NY, and with help from Joe who was at SUNY Morrisville at the time, they drew up plans for rotational paddocks.

He started with 10 acres of grazing, 10 one-acre paddocks. He was milking 30 cows. In four years he added another 10 acres for a total of 20 one-acre paddocks.

Joe graduated from Cornell University in 1988 and spent one year working on his masters. He then took a job with ASCS in Oswego County. Joe continued to come home weekends to help out on the farm. In 1995, Joe left ASCS and took over the farm.

Grazing Program

The biggest improvement Joe feels he made was to add black plastic piping to all the paddocks. Before this, he had water vats in the middle and end of the lanes. This allows him to have water available to the cows in every paddock. In 1995, Joe seeded 15 acres with reed canary grass, knowing he would eventually need more pasture. In 1998, he turned these acres into grazing paddocks.

Joe uses one strand of smooth wire on 4 feet of ½ roerd. The roerd is sturdy and is easy to pull up and move. He says keeping native pastures works best for him. Most of his second cutting is grazed.

From May until October he feeds his cows corn silage and about 17 pounds of grain. In the winter he feeds corn silage, grain and a "little bit of dry hay". He ups the grain to 20 pounds. Most years he must supplement the grazing with dry wrapped bales, but in 2000 he did not have to do this. As was the case with all silage, the quality of the grasses was not as good in 2000, but there was plenty.

Philosophy

Joe definitely is happy with his grazing program. He milks 50 cows and would like to max out at 60 head with 50 milking all the time. He does not want to get any larger. He grazes for a variety of reasons. He enjoys having free time to spend with his wife and infant son. He also likes that he and his wife Sue are able to do all the work themselves. He also enjoys the changes that grazing allows him. He looks forward to letting the cows out in the spring and shortening his barn chores, but also looks forward to bringing them in the barn in the fall and not having to check on the paddocks every day. He knows that he sacrifices production, but his production was 21,000 pounds per cow in 2000. He also feels his cows are healthier.

Improvements

Joe would like to be able to have 100-gallon galvanized steel water vats in all the paddocks. Even though he has the water line to all the paddocks, he still has to move the vats. He also knows that he needs to do a better job clipping the pastures. He would like to purchase a mower like the highway department uses. Right now he has to use his hay mower, which is too big, or his brush hog, which is too small.

He keeps up on any new grazing practices by reading, attending programs and talking to other grazers. Joe feels that grazing is the way for him.

Grazing to Reach Their Goal (Shaklee & Brown Farm)

Kim Shaklee & Janice Brown operate a 40-cow grazing dairy adjoining the Keeney Swamp in Birdsall, NY. They operate the farm business with a goal: “Earn a livelihood through agriculture operations with the farm as the sole means of support for their family.” With this end in mind, Kim & Janice are quick to evaluate the marginal return of new methods or projects before embracing them. Participation in the Dairy Farm Business Summary yields financial information that helps with their evaluations.

To achieve their goal Shaklee & Brown like to make milk when the margin between costs and receipts is maximum. They find it easiest to maximize margin during the grazing season. They try to optimize the relationship between purchased feed and homegrown grazed grass. They plan for most of their herd to be dry during the winter when quality feed is most expensive.

Shaklee & Brown have participated in the Cornell Dairy Farm Business Summary Program for several years. They appreciate the thoroughness and standardization the program provides for farm records and bench marking. The key factors they like to monitor are listed in the table below along with their farm’s performance and the average of all New York grazing farms in the summary.

Cornell Dairy Farm Business Summary, 2000		
Performance Measure	Brown/Shaklee Farm	Average NY Grazing Farms
Operating Cost of Production	\$8.02	\$10.17
Asset Turnover Ratio	0.62	0.46
Debt to Asset Ratio	0.35	0.33
Total Farm Debt per Cow	\$1,530	\$2,149
Net Farm Income w/o Appreciation Per Cow	\$677	\$310

Their farm is located on highly erodible land in an environmentally sensitive area. Neighboring Keeney Swamp State Wildlife Management Area is a favorite bird watching destination. Kim & Janice together with Allegany County Bird Club, Cornell Cooperative Extension, New York Pasture Association, Roger Tory Peterson Institute and Shawmut Grasslanders sponsored a spring open house for bird watchers, farmers and others concerned about the ecosystems surrounding the Swamp. The open house provided an opportunity for non-farm people to learn about how grazing enhances the environment.

Shaklee & Brown’s pastures include a diverse mix of grasses. The herd is overwintered outside on a pasture they plan to renovate. The abuse area is re-seeded by overwintering on late cut, seed bearing grass hay bedding. They focus on training cattle to graze a wide range of pasture conditions caused by the constantly changing climatic conditions in Southwestern New York. Temporary fence is used for both perimeter and division fences. Clipping pastures is an exception rather than the norm for Kim and Janice. Clipping is avoided because it creates a bristly stubble that discourages close cropping by the cow, it destroys forage that might be needed in a dry year, and depletes the seed bank of the field. By not clipping, plants have a running start to adapt to changing conditions, animals are enabled to make grazing choices and tall plants with deep roots to share resources with bitten plants through mycorrhizal interaction.

Their feeding program utilizes homegrown grass or purchased hay and a basic grain mix of corn meal, soybean meal and roasted soybeans. Minerals are fed free choice throughout the year. Purchased large hay bales are the winter forage source. During the grazing season, pasture is the sole source of forage for the herd. The amount of soybean meal in the grain mix is adjusted according to pasture quality during the grazing season. They regularly measure the urine pH and manure consistency to determine when the grain mix needs changing. If pH drops below 7, the percent protein in the grain is increased. If it approaches 9, the protein level in the grain is dropped.

They utilize cross breeding extensively and are not afraid of milking second generation crosses regardless of which breed they mate back with. About one-third of the herd is straight bred Holstein. In 2000, they sold 16,923 pounds of milk per cow. They prefer to raise their own replacements because they can teach them to graze early. Heifers are pastured from weaning until they are ready to calve.

Kim Shaklee and Janice Brown look at their farm and family as a unit. Decisions in the farming operation are evaluated according to how they will impact the family from financial, moral and lifestyle perspectives. They expect to continue to make capital investments and recognize the need to make capital improvements to the farm business. Kim is always looking for ways to stretch the dollar available to sustain their family in a comfortable lifestyle while relying on the farm to support their family.

SUMMARY OF GRAZING FARMS WITH OVER 100 COWS

There were 18 farms with more than 100 cows that indicated on the 2000 Dairy Farm Business Summary that they were grazers. The table on the following page compares these 18 grazing farms with 28 non-grazing farms of similar size and location. Surveys were collected from 10 of these 18 large grazing farms.

Grazing Practices From 10 Grazing Farms With More Than 100 Cows:

- Average length of 2000 grazing season was 184 days.
- Of the ten, 8 moved the cows to a fresh paddock after each milking, 2 moved to a fresh paddock every day.
- All but one of the ten clipped their paddocks at least once a year.
- Six of the farms spread manure on the paddocks, 4 used commercial fertilizer.
- Nine of the farms provided water in every paddock, the other provided it in the laneway.
- Eight of the farms obtained their water from a well, two from a spring.
- The ten farms average 61% of forage consumption from pasture.
- Eight farms fed some supplemental forage, four fed corn silage.
- Four of the farms had seasonal or semi-seasonal calving.
- They had re-seeded an average of 50% of the paddocks for grazing.
- Eight of the farms mechanically harvested some of their grazing acreage with an average of 50% harvested by machine.

Of the ten farms, four indicated the highest level of satisfaction, five the second highest level, and one the third highest level. Six of the farms were more satisfied with grazing than conventional feeding.

**INTENSIVE GRAZING FARMS WITH MORE THAN 100 COWS
VS. NON-GRAZING FARMS OF SIMILAR SIZE, 2000**

Item	Grazing Farms >100 Cows	Non-Grazing Farms
Number of farms	18	28
<u>Business Size & Production</u>		
Number of cows	183	182
Number of heifers	132	115
Milk sold, lbs.	3,096,276	3,680,281
Milk sold/cow, lbs.	16,940	20,277
Milk plant test, % butterfat	3.78%	3.72%
Tillable acres, total	483	397
Hay crop, tons DM/acre	3.3	3.1
Corn silage, tons/acre	11.4	13.4
Forage DM/cow, tons	6.3	6.2
<u>Labor & Capital Efficiency</u>		
Worker equivalent	4.33	4.40
Milk sold/worker, lbs.	715,075	836,428
Cows/worker	42	41
Farm capital/worker	\$260,347	\$269,835
Farm capital/cow	\$6,160	\$6,523
Farm capital/cwt. milk	\$36	\$32
<u>Milk Production Costs & Returns</u>		
Selected costs/cwt.:		
Hired labor	\$1.64	\$1.47
Grain & concentrate	3.68	3.74
Purchased roughage	0.20	0.51
Replacements purchased	0.18	0.59
Vet & medicine	0.43	0.44
Milk marketing	0.82	0.70
Other dairy expenses	0.94	1.20
Operating cost/cwt.	10.39	11.11
Operator resources/cwt.	2.58	2.37
Total labor cost/cwt.	3.02	2.74
Total cost/cwt.	14.66	14.86
Average farm price/cwt.	13.38	13.31
Return over total costs/cwt.	-1.28	-1.55
<u>Related Cost Factors</u>		
Hired labor/cow	\$277	\$297
Total labor/cow	512	554
Purchased dairy feed/cow	656	858
Purchased grain & concentrate as % of milk receipts	27%	28%
Vet & medicine/cow	\$73	\$88
Machinery costs/cow	\$499	\$479
Feed & crop exp./cwt.	\$4.61	\$4.92
<u>Profitability Analysis</u>		
Net farm income (without appreciation)	\$45,652	\$34,942
Net farm income/cow (without appreciation)	\$249	\$192
Labor & management income/operator	\$1,840	\$-4,182
Rates of return on:		
Equity capital with appreciation	3.1%	3.0%
All capital with appreciation	4.5%	4.8%

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
65 Intensive Grazing Dairy Farms, 2000

Type of Farm	Number	Milking System	Number
Dairy	65	Bucket & carry	0
Part-time dairy	0	Dumping station	1
Dairy cash-crop	0	Pipeline	42
		Herringbone-conventional exit	9
		Herringbone-rapid exit	0
		Parallel	7
		Parabone	0
		Rotary	0
		Other	6
Type of Ownership	Number	Production Records	Number
Owner	56	Testing Service	47
Renter	9	On-Farm System	6
		Other	4
		None	8
Type of Business	Number	bST Usage	Number
Sole Proprietorship	50	Used on <25% of herd	4
Partnership	11	Used on 25-75% of herd	9
Limited Liability Corporation	3	Used on >75% of herd	2
Subchapter S Corporation	0	Stopped using in 2000	3
Subchapter C Corporation	1	Not used in 2000	47
Type of Barn	Number	Business Record System	Number
Stanchion or Tie-Stall	41	Account Book	22
Freestall	21	Accounting Service	8
Combination	3	On-farm computer software	34
		Other	1
Milking Frequency	Number		
2 times per day	61		
3 times per day	2		
Other	2		

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 2000.

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
65 Intensive Grazing Dairy Farms, 2000

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 20,252		\$ 0	<<	\$ 106		\$ 20,358
<u>Feed</u>							
Dairy grain & concentrate	54,678		-880		652		56,210
Dairy roughage	4,861		-265		254		5,380
Nondairy	95		0		-1		94
<u>Machinery</u>							
Machinery hire, rent & lease	7,031		163	<<	16		6,883
Machinery repairs & farm vehicle exp.	13,258		72		364		13,550
Fuel, oil & grease	6,440		-30		129		6,599
<u>Livestock</u>							
Replacement livestock	3,994		0	<<	-52		3,942
Breeding	3,008		-60		14		3,081
Veterinary & medicine	6,375		-21		-223		6,173
Milk marketing	13,127		0	<<	16		13,143
Bedding	1,375		9		-1		1,366
Milking supplies	6,319		-7		137		6,463
Cattle lease & rent	572		0	<<	0		572
Custom boarding	597		0	<<	-1		596
bST expense	1,189		29		-50		1,110
Other livestock expense	3,370		-21		1		3,392
<u>Crops</u>							
Fertilizer & lime	4,318		-1,015		86		5,419
Seeds & plants	2,616		-140		101		2,857
Spray, other crop expense	2,834		-27		-354		2,506
<u>Real Estate</u>							
Land, building & fence repair	4,174		-13		38		4,225
Taxes	6,023		-30	<<	-3		6,051
Rent & lease	6,515		0	<<	65		6,579
<u>Other</u>							
Insurance	4,372		0	<<	8		4,380
Utilities (farm share)	7,240		0	<<	39		7,279
Interest paid	13,586		0	<<	-83		13,503
Miscellaneous	3,588		-87		15		3,689
Total Operating	\$ 201,810		\$ -2,321		\$ 1,273		\$ 205,404
Expansion livestock	4,164		0	<<	0		4,164
Machinery depreciation							13,476
Building depreciation							8,427
TOTAL ACCRUAL EXPENSES							\$ 231,471

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 2000 but not paid for. A decrease is subtracted because it represents payment for resources used before 2000.

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
65 Intensive Grazing Dairy Farms, 2000

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 211,002				\$ 1,054		\$ 212,057
Dairy cattle	12,200		\$ 5,480		-383		17,297
Dairy calves	3,357				0		3,357
Other livestock	1,603		-87		19		1,535
Crops	1,014		1,080		61		2,155
Government receipts	18,302		0 *		418		18,720
Custom machine work	2,100				-278		1,821
Gas tax refund	156				0		156
Other	<u>3,618</u>				<u>-225</u>		3,393
Less nonfarm noncash capital**		(-)	<u>154</u> **			(-)	<u>154</u>
Total Receipts	\$ 253,353		\$ 6,319		\$ 666		\$ 260,337

*Change in advanced government receipts.

**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 2000 for the 2001 crop year in excess of funds earned for 2000. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2000 but received in 1999.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January for milk produced in December 2000 compared to January 2000 payments for milk produced in 1999 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* 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.

* 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.

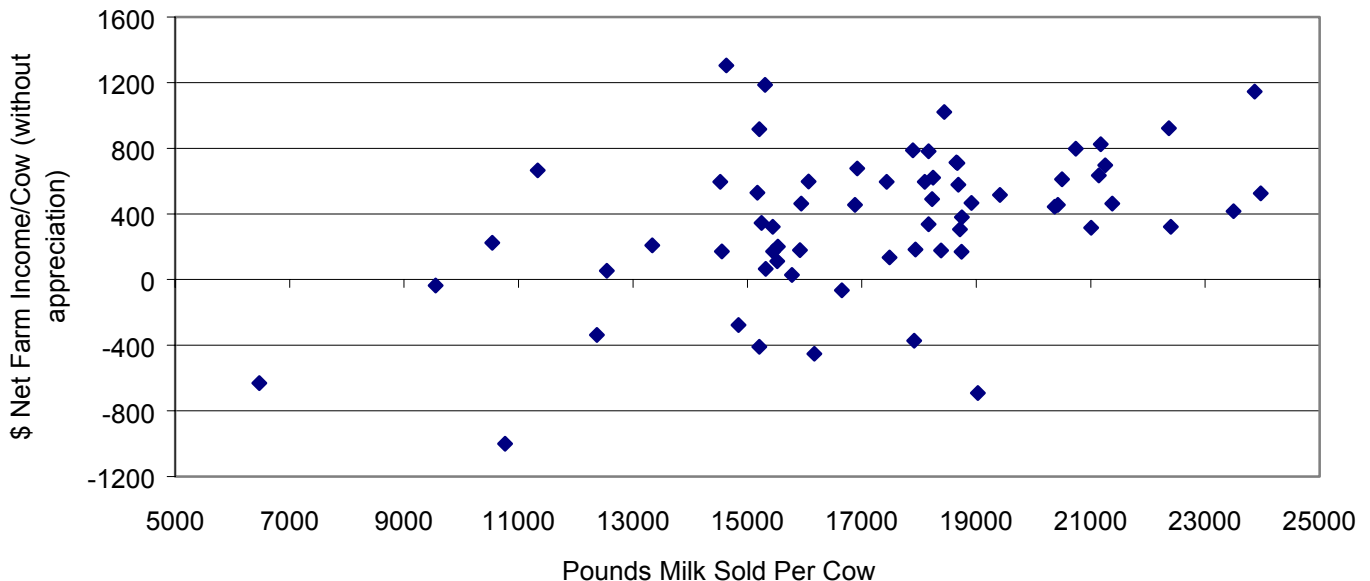
NET FARM INCOME
Intensive Grazing Dairy Farms, 2000

Item	65 Grazing Dairy Farms*	17 Above Average Farms*	13 Below Average Farms*
Total accrual receipts	\$ 260,337	\$ 221,532	\$ 338,940
Appreciation: Livestock	4,003	3,299	5,377
Machinery	5,238	2,514	9,931
Real Estate	4,714	2,634	12,743
Other Stock & Certificates	592	-323	629
Total Including Appreciation	\$ 274,884	\$ 229,656	\$ 367,620
Total accrual expenses	- 231,471	- 171,729	- 333,164
Net Farm Income (with appreciation)	\$ 43,413	\$ 57,927	\$ 34,456
Net Farm Income Per Cow (with appreciation)	\$ 467	\$ 805	\$ 263
Net Farm Income (without appreciation)	\$ 28,866	\$ 49,803	\$ 5,776
Net Farm Income Per Cow (without appreciation)	\$ 310	\$ 692	\$ 44

* See page 1 for a description of these groups of farms.

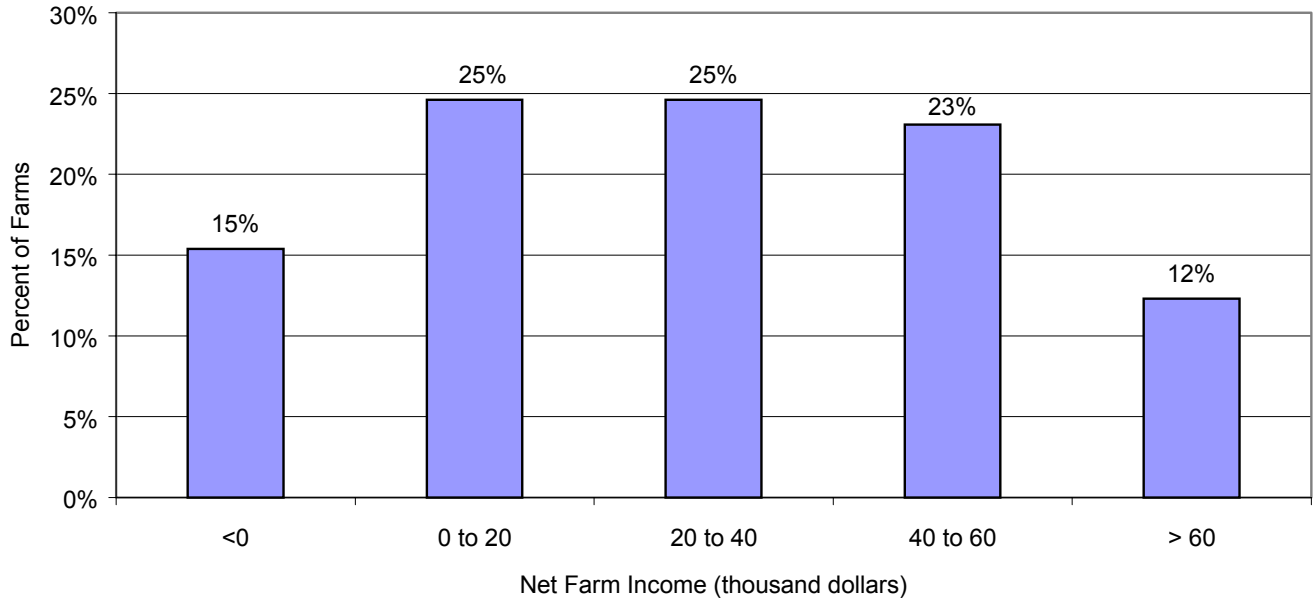
The chart below shows the relationship between net farm income per cow (with appreciation) and pounds of milk sold per cow. Generally, farms with a higher production per cow have higher profitability per cow.

NET FARM INCOME PER COW AND MILK PER COW
65 Intensive Grazing Farms, 2000



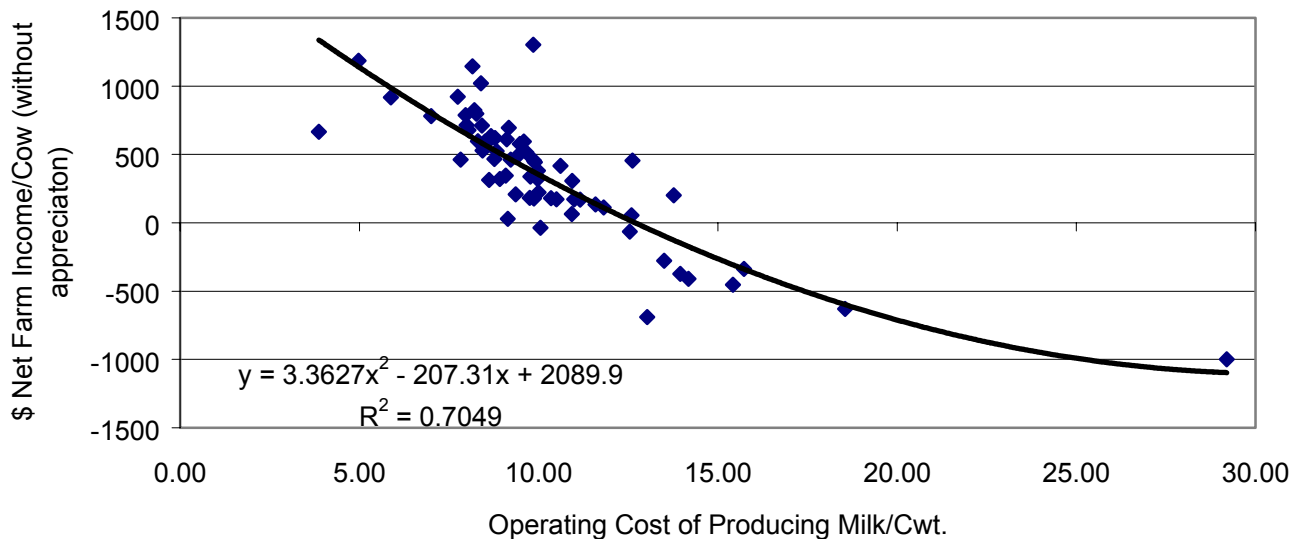
Net farm income without appreciation averaged \$28,866 on these 65 farms in 2000. The range in net farm income without appreciation was from less than \$-63,000 to more than \$266,000. Net farm income was less than \$20,000 on 40 percent of the farms, between \$20,000 and \$40,000 on 25 percent of the farms, while 35 percent showed net farm income of \$40,000 or more.

DISTRIBUTION OF NET FARM INCOME WITHOUT APPRECIATION
65 Intensive Grazing Dairy Farms, 2000



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.
65 Intensive Grazing Farms, 2000



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.

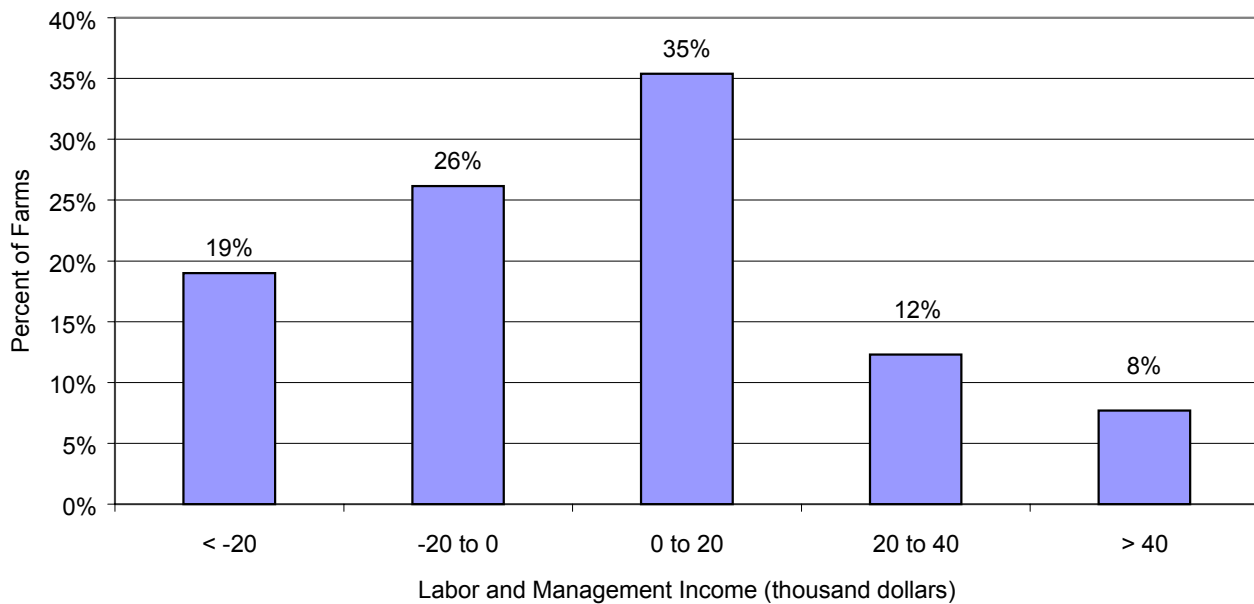
LABOR AND MANAGEMENT INCOME
Intensive Grazing Dairy Farms, 2000

Item	65 Grazing Dairy Farms*	17 Above Average Farms*	13 Below Average Farms*
Net farm income without appreciation	\$ 28,866	\$ 49,803	\$ 5,776
Family labor unpaid @ \$1,900 per month	- 6,460	- 7,220	- 6,650
Interest on average equity capital @ 5% real rate	- 20,120	- 14,278	- 27,502
Labor & Management Income per farm	\$ 2,286	\$ 28,305	\$ -28,376
Labor & Management Income per Operator/Manager	\$ 1,693	\$ 20,813	\$ -24,047
Labor & Management Income per Operator per Cow	\$ 18	\$ 289	\$ 184

* See page 1 for a description of these groups of farms.

Labor and management income per operator averaged \$1,693 on these 65 farms in 2000. The range in labor and management income per operator was from less than \$-132,000 to more than \$97,000. Returns to labor and management were less than \$0 on 45 percent of the farms. Labor and management income per operator was between \$0 and \$20,000 on 35 percent of the farms while 20 percent showed labor and management incomes of \$20,000 or more per operator.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
65 Intensive Grazing Dairy Farms, 2000



The distribution of labor and management income per operator on grazing farms is very similar to the distribution for all farms across the state that participate in the DFBS project. The largest 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, 20% of the farms had returns that were over \$20,000, while for the 294 farms across the state, 26% had returns greater than \$20,000 in 2000.

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, 2000

Item	65 Grazing Dairy Farms*	17 Above Average Farms*	13 Below Average Farms*
Net farm income with appreciation	\$ 43,413	\$ 57,927	\$ 34,456
Family labor unpaid @\$1,900 per month	- 6,460	- 7,220	- 6,650
Value of operators' labor & management	<u>- 32,583</u>	<u>- 33,176</u>	<u>- 36,522</u>
Return on equity capital with appreciation	\$ 4,370	\$ 17,531	\$ -8,716
Interest paid	<u>+ 13,503</u>	<u>+ 8,158</u>	<u>+ 22,177</u>
Return on total capital with appreciation	\$ 17,873	\$ 25,689	\$ 13,461
Return on equity capital without appreciation	\$ -10,177	\$ 9,407	\$ -37,396
Return on total capital without appreciation	\$ 3,326	\$ 17,565	\$ -15,219
Rate of return on average equity capital:			
with appreciation	1.1%	6.1%	-1.6%
without appreciation	-2.5%	3.3%	-6.8%
Rate of return on average total capital:			
with appreciation	3.0%	6.5%	1.6%
without appreciation	0.6%	4.5%	-1.8%
Net farm income from operations ratio	0.11	0.22	0.02

* 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 2000, lease payments were discounted by 9.75 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2000 that are for participation in the 2001 program are the end year balance and payments received in 1999 for participation in the 2000 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.

2000 FARM BUSINESS & NONFARM BALANCE SHEET
65 Intensive Grazing Dairy Farms, 2000

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 10,364	\$ 10,702	Accounts payable	\$ 5,392	\$ 6,665
Accounts receivable	17,249	17,915	Operating debt	4,686	7,646
Prepaid expenses	330	464	Short Term	2,591	2,354
Feed & supplies	39,854	38,479	Advanced govt. receipts	7	8
			Current Portion:		
			Intermediate	15,854	18,071
			Long Term	<u>3,456</u>	<u>5,004</u>
Total Current	\$ 67,797	\$ 67,560	Total Current	\$ 31,986	\$ 39,748
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 94,884	\$ 101,876	1-10 years	\$ 82,566	\$ 82,516
leased	290	890	Financial lease		
Heifers	43,033	45,518	(cattle/machinery)	2,648	2,469
Bulls & other livestock	1,312	1,231	Farm Credit stock	<u>1,354</u>	<u>1,235</u>
Mach. & equip. owned	116,104	124,775	Total Intermediate	\$ 86,568	\$ 86,220
Mach. & equip. leased	2,358	1,579			
Farm Credit stock	1,354	1,235			
Other stock/certificate	<u>3,426</u>	<u>4,477</u>			
Total Intermediate	\$ 262,761	\$ 281,581			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 255,531	\$ 263,512	>10 years	\$ 73,392	\$ 76,013
leased	<u>0</u>	<u>0</u>	Financial lease		
Total Long Term	\$ 255,531	\$ 263,512	(structures)	<u>0</u>	<u>0</u>
			Total Long Term	\$ 73,392	\$ 76,013
Total Farm Assets	\$ 586,089	\$ 612,653	Total Farm Liab.	\$ 191,946	\$ 201,981
			FARM NET WORTH	\$ 394,143	\$ 410,672

Nonfarm Assets, Liabilities & Net Worth (Average of 40 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 3,471	\$ 4,177	Nonfarm Liabilities	\$ 5,893	\$ 5,718
Cash value life insurance	5,270	5,947			
Nonfarm real estate	15,078	21,696			
Auto (personal share)	4,408	6,009			
Stocks & bonds	5,464	6,275			
Household furnishings	10,353	10,605			
All other nonfarm assets	<u>1,069</u>	<u>1,067</u>			
Total Nonfarm Assets	\$ 45,113	\$ 55,776	NONFARM NET WORTH	\$ 39,220	\$ 50,058

Farm & Nonfarm Assets, Liabilities, and Net Worth*	Jan. 1	Dec. 31
Total Assets	\$ 631,202	\$ 668,429
Total Liabilities	<u>197,839</u>	<u>207,699</u>
TOTAL FARM & NONFARM NET WORTH	\$ 433,363	\$ 460,730

*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 of less than 1.5 or that has been falling warrants additional evaluation. The amount of working capital that is adequate must be related to the size of the farm business.

BALANCE SHEET ANALYSIS
Intensive Grazing Dairy Farms, 2000

Item	65 Grazing Dairy Farms*	17 Above Average Farms*	13 Below Average Farms*
<u>Financial Ratios - Farm:</u>			
Percent equity	67%	73%	64%
Debt/asset ratio: total	0.33	0.27	0.36
long-term	0.29	0.32	0.28
intermediate/current	0.36	0.24	0.41
Leverage Ratio	0.49	0.36	0.55
Current Ratio	1.70	2.10	1.26
Working Capital: \$27,812, As % of Expenses	12%	(\$25,974) 15%	(\$18,568) 6%
<u>Farm Debt Analysis:</u>			
Accounts payable as % of total debt	3%	2%	4%
Long-term liabilities as a % of total debt	38%	40%	34%
Current & inter. liabilities as a % of total debt	62%	60%	66%
Cost of term debt (weighted average)	8.0%	8.0%	7.5%
	65 Grazing Dairy Farms	17 Above Average Farms	13 Below Average Farms
	Per Tillable Per Cow	Per Tillable Per Cow	Per Tillable Per Cow
<u>Farm Debt Levels:</u>	Per Acre Owned	Per Acre Owned	Per Acre Owned
Total farm debt	\$ 2,149	\$ 1,464	\$ 2,341
Long-term debt	809	551	807
Intermediate & long term	1,726	1,176	1,814
Intermediate & current debt	1,340	913	1,533

* 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
65 Intensive Grazing Dairy Farms, 2000

Item	Real Estate	Machinery & Equipment
Value beginning of year	\$ 255,531	\$ 116,104
Purchases	\$ 16,890*	\$ 19,115
Gift & inheritance	+ 0	+ 191
Lost capital	- 3,957	
Sales	- 1,239	- 2,396
Depreciation	- 8,427	- 13,476
Net investment	= 3,267	= 3,433
Appreciation	+ 4,714	+ 5,238
Value end of year	\$ 263,512	\$ 124,775

*\$6,492 land and \$10,398 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, 2000

Item	65 Grazing Dairy Farms*	17 Above Average Farms*	13 Below Average Farms*
Beginning of year farm net worth	\$ 394,143	\$ 274,936	\$ 538,385
Net farm income w/o appreciation	\$ 28,866	\$ 49,803	\$ 5,776
+Nonfarm cash income	+ 10,055	+ 2,980	+ 23,421
-Personal withdrawals & family expenditures excluding nonfarm borrowings	- 33,188	- 37,621	- 30,419
RETAINED EARNINGS	+\$ 5,733	+\$ 15,162	+\$ -1,222
Nonfarm noncash transfers to farm	\$ 345	\$ 729	\$ 0
+Cash used in business from nonfarm capital	+ 661	+ 890	+ 956
-Note or mortgage from farm real estate sold (nonfarm)	- 0	- 0	- 0
CONTRIBUTED/ WITHDRAWN CAPITAL	+\$ 1,006	+\$ 1,619	+\$ 956
Appreciation	\$ 14,547	\$ 8,124	\$ 28,680
-Lost capital	- 3,957	- 3,735	- 3,846
CHANGE IN VALUATION EQUITY	+\$ 10,590	+\$ 4,389	+\$ 24,834
IMBALANCE/ERROR	- \$800	- \$-96	- \$1,258
End of year net worth**	=\$410,672	=\$296,202	=\$561,695
<hr/>			
<u>Change in Net Worth</u>			
Without appreciation	\$ 1,982	\$ 13,142	\$ -5,370
With appreciation	\$ 16,529	\$ 21,266	\$ 23,310

* See page 1 for a description of these groups of farms.

**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
65 Intensive Grazing Dairy Farms, 2000

Item	Average	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 253,353	
- Cash farm expenses	<u>201,810</u>	
= Net cash farm income		\$ 51,543
Personal withdrawals & family expenses including nonfarm debt payments	\$ 33,378	
- Nonfarm income	<u>10,055</u>	
- Net cash withdrawals from the farm		<u>\$ 23,323</u>
= Net Provided by Operating Activities		\$ 28,220
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 2,396	
+ real estate	1,239	
+ other stock & cert.	<u>79</u>	
= Total asset sales		\$ 3,714
Capital purchases: expansion livestock	\$ 4,164	
+ machinery	19,115	
+ real estate	16,890	
+ other stock & cert.	<u>538</u>	
- Total invested in farm assets		<u>\$ 40,707</u>
= Net Provided by Investment Activities		\$ -36,993
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 33,476	
+ Money borrowed (short term)	3,805	
+ Increase in operating debt	2,961	
+ Cash from nonfarm capital used in business	661	
+ Money borrowed - nonfarm	<u>189</u>	
= Cash inflow from financing		\$ 41,092
Principal payments (intermediate & long term)	\$ 27,140	
+ Principal payments (short term)	4,042	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$ 31,182</u>
= Net Provided by Financing Activities		\$ 9,910
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 10,364
- Ending farm cash, checking & savings		<u>10,702</u>
= Net Provided from Reserves		\$ -338
Imbalance (error)		<u>\$ 799</u>

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 2001. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2001 debt payments shown below.

FARM DEBT PAYMENTS PLANNED

Same Intensive Grazing Dairy Farms, 1999 & 2000

Debt Payments	Same 54 Grazing			Same 16 Above Average Farms			Same 11 Below Average Farms		
	2000 Payments		Planned 2001	2000 Payments		Planned 2001	2000 Payments		Planned 2001
	Planned	Made		Planned	Made		Planned	Made	
Long term	\$ 10,107	\$ 12,484	\$ 11,465	\$ 7,099	\$ 7,477	\$ 7,125	\$ 13,183	\$ 23,170	\$ 17,910
Intermediate term	25,198	30,212	26,689	14,466	16,956	17,134	39,619	43,576	41,028
Short term	1,109	3,504	1,784	181	561	3,651	2,889	14,314	2,545
Operating (net reduction)	1,206	0	705	1,599	0	531	814	0	455
Accounts Pay. (net reduction)	713	0	204	0	446	250	591	0	45
Total	\$ 38,333	\$ 46,200	\$ 40,847	\$ 23,345	\$ 25,440	\$ 28,691	\$ 57,096	\$ 81,060	\$ 61,983
Per cow	\$ 391	\$ 471		\$ 320	\$ 348		\$ 423	\$ 600	
Per cwt. 2000 milk	\$ 2.26	\$ 2.72		\$ 1.67	\$ 1.82		\$ 2.85	\$ 4.04	
Percent of total 2000 farm receipts	14%	17%		10%	11%		16%	23%	
Percent of 2000 milk receipts	17%	20%		13%	14%		21%	29%	

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 2000 (as of December 31, 1999) that could have been made with the amount available for debt service in 2000. Farmers who did not participate in DFBS in 1999 have their 2000 coverage ratios based on planned debt payments for 2001.

COVERAGE RATIOS

Same Intensive Grazing Dairy Farms, 1999 & 2000

Item	Average	Item	Average
Same 54 Grazing Dairy Farms, 1999 & 2000			
(A)=Amount Available for Debt Service	\$ 42,477	(A')=Repayment Capacity	\$ 40,492
(B)=Debt Payments Planned for 2000	\$ 38,333	(B)=Debt Payments Planned for 2000	\$ 38,333
(A/B)=Cash Flow Coverage Ratio for 2000	1.11	(A'/B)=Debt Coverage Ratio for 2000	1.06

Same 16 Above Average Farms, 1999 & 2000			
(A)=Amount Available for Debt Service	\$ 34,304	(A')=Repayment Capacity	\$ 39,428
(B)=Debt Payments Planned for 2000	\$ 23,345	(B)=Debt Payments Planned for 2000	\$ 23,345
(A/B)=Cash Flow Coverage Ratio for 2000	1.47	(A'/B)=Debt Coverage Ratio for 2000	1.69

Same 11 Below Average Farms, 1999 & 2000			
(A)=Amount Available for Debt Service	\$ 61,108	(A')=Repayment Capacity	\$ 48,911
(B)=Debt Payments Planned for 2000	\$ 57,096	(B)=Debt Payments Planned for 2000	\$ 57,096
(A/B)=Cash Flow Coverage Ratio for 2000	1.07	(A'/B)=Debt Coverage Ratio for 2000	0.86

*Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If family withdrawals are excluded, or inaccurately included, the cash flow coverage ratio will be incorrect.

ANNUAL CASH FLOW WORKSHEET

Intensive Grazing Dairy Farms, 2000

Item	65 Grazing Dairy Farms		17 Above Average Farms		13 Below Average Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average no. of cows	93		72		131	
Total cwt. of milk sold		15,860		13,689		19,455
<u>Accrual Oper. Receipts</u>						
Milk	\$ 2,280	\$ 13.37	\$ 2,540	\$ 13.36	\$ 2,064	\$ 13.90
Dairy cattle	186	1.09	217	1.14	261	1.76
Dairy calves	36	0.21	51	0.27	31	0.21
Other livestock	17	0.10	3	0.01	35	0.23
Crops	23	0.14	38	0.20	-18	-0.12
Misc. Receipts	257	1.51	228	1.20	215	1.45
Total	\$ 2,799	\$ 16.41	\$ 3,077	\$ 16.18	\$ 2,587	\$ 17.42
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 219	\$ 1.28	\$ 157	\$ 0.83	\$ 337	\$ 2.27
Dairy grain & concentrate	604	3.54	620	3.26	531	3.58
Dairy roughage	58	0.34	89	0.47	46	0.31
Nondairy feed	1	0.01	2	0.01	1	0.01
Mach. hire, rent & lease	74	0.43	84	0.44	51	0.35
Mach. repair & vehicle expense	146	0.85	124	0.65	158	1.06
Fuel, oil & grease	71	0.42	61	0.32	71	0.48
Replacement livestock	42	0.25	77	0.40	39	0.26
Breeding	33	0.19	39	0.20	25	0.17
Vet & medicine	66	0.39	56	0.29	62	0.42
Milk marketing	141	0.83	153	0.81	139	0.94
Bedding	15	0.09	15	0.08	17	0.12
Milking supplies	69	0.41	66	0.35	49	0.33
Cattle lease	6	0.04	0	0.00	11	0.08
Custom boarding	6	0.04	14	0.07	6	0.04
bST expense	12	0.07	13	0.07	6	0.04
Other livestock expense	36	0.21	41	0.21	35	0.24
Fertilizer & lime	58	0.34	48	0.25	65	0.44
Seeds & plants	31	0.18	33	0.17	24	0.16
Spray & other crop expense	27	0.16	35	0.19	20	0.13
Land, bldg., fence repair	45	0.27	44	0.23	32	0.22
Taxes	65	0.38	52	0.27	62	0.42
Real estate rent & lease	71	0.41	70	0.37	62	0.42
Insurance	47	0.28	41	0.22	32	0.22
Utilities	78	0.46	78	0.41	64	0.43
Miscellaneous	40	0.23	38	0.20	34	0.23
Total Less Interest Paid	\$ 2,063	\$ 12.10	\$ 2,051	\$ 10.79	\$ 1,981	\$ 13.34
<u>Net Accrual Operating Income</u>		<u>Total</u>		<u>Total</u>		<u>Total</u>
(without interest paid)	\$ 68,436		\$ 73,867		\$ 79,384	
- Change in livestock & crop invent.*	6,319		7,122		11,602	
- Change in accounts receivable	666		1,788		939	
- Change in feed & supply inventory**	-2,321		-2,558		-6,103	
+ Change in accounts payable***	1,356		-329		2,725	
NET CASH FLOW	\$ 65,129		\$ 67,187		\$ 75,670	
- Net family withdrawals	- 23,134		- 34,641		- 6,998	
Available for Farm	\$ 41,995		\$ 32,546		\$ 68,672	
- Farm debt payments	- 44,372		- 24,126		- 82,907	
Available for Farm Investment	\$ -2,377		\$ 8,420		\$ -14,235	
- Capital purchases	\$ 40,707		\$ 27,081		\$ 66,364	
Additional Capital Needed	\$ 43,084		\$ 18,661		\$ 80,599	

*Includes change in advance government receipts. **Includes change in prepaid expenses. ***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, 2000

Item	65 Grazing Dairy Farms			17 Above Average Farms			13 Below Average Farms		
	Owned	Rented	Total	Owned	Rented	Total	Owned	Rented	Total
Land									
Tillable	138	133	271	89	102	190	183	149	332
Nontillable	35	19	54	24	13	37	33	34	67
Other nontill.	83	12	95	54	20	74	115	8	123
Total	255	165	420	167	134	301	331	191	522
Crop Yields	Farms	Acres*	Prod/Acre	Farms	Acres*	Prod/Acre	Farms	Acres*	Prod/Acre
Hay crop	62	145	2.7 tn DM	15	101	2.8 tn DM	13	168	3.0 tn DM
Corn silage	45	64	12.0 tn	9	43	15.3 tn	7	51	10.5 tn
			4.0 tn DM			4.8 tn DM			3.4 tn DM
Other forage	10	41	2.6 tn DM	0	0	0.0 tn DM	2	77	3.5 tn DM
Total forage	62	198	3.0 tn DM	15	127	3.2 tn DM	13	208	3.1 tn DM
Corn grain	9	52	51 bu	3	60	84 bu	0	0	0 bu
Oats	2	21	55 bu	2	21	55 bu	0	0	0 bu
Wheat	2	32	40 bu	1	35	30 bu	0	0	0 bu
Other crops	14	22		2	23		2	28	
Tillable pas- ture	49	82		15	67		11	133	
Idle	18	22		2	13		2	47	
Total Tillable Acres	65	271		17	190		13	332	

*This column represents the average acreage for the farms producing that crop. For the 65 New York dairy farms, average acreages including those farms not producing were hay crop 139, corn silage 44, corn grain 7, oats 1, wheat 1, tillable pasture 62, and idle 6.

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, 2000

Item	65 Grazing Dairy Farms*	17 Above Average Farms*	13 Below Average Farms*
Total tillable acres per cow	2.91	2.64	2.53
Total forage acres per cow	2.03	1.56	1.59
Harvested forage dry matter, tons per cow	6.12	4.92	4.90

* See page 1 for a description of these groups of farms.

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, 2000

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 Acre	Per Total Acre
All Grazing Farms								
No. of farms reporting	65	6			6		3	
Ave. number of acres	271	73			104		59	119
Fert. & lime	\$ 20.00	\$ 30.22	\$ 9.24	\$ 0.24	\$ 11.24	\$ 3.12	\$ 2.83	\$ 1.40
Seeds & plants	10.54	19.89	6.08	0.16	7.53	2.09	13.44	6.66
Spray & other	<u>9.25</u>	<u>14.44</u>	<u>4.41</u>	<u>0.12</u>	<u>1.40</u>	<u>0.39</u>	<u>0.25</u>	<u>0.13</u>
TOTAL	\$ 39.79	\$ 64.55	\$ 19.73	\$ 0.52	\$ 20.17	\$ 5.60	\$ 16.52	\$ 8.19
Above Average Grazing Farms								
No. of farms reporting	17	----- NONE REPORTED -----						
Ave. number of acres	190							
Fert. & lime	\$ 18.25							
Seeds & plants	12.48							
Spray & other	<u>13.44</u>							
TOTAL	\$ 44.17							
Below Average Grazing Farms								
No. of farms reporting	13	----- NONE REPORTED -----						
Ave. number of acres	332							
Fert. & lime	\$ 25.74							
Seeds & plants	9.58							
Spray & other	<u>7.70</u>							
TOTAL	\$ 43.02							

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, 2000

Machinery Expense	65 Grazing Dairy*		17 Above Average Farms*		13 Below Average Farms*	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 6,599	\$ 24.35	\$ 4,374	\$ 23.02	\$ 9,250	\$ 27.86
Mach. repair & vehicle exp.	13,550	50.00	8,913	46.91	20,639	62.17
Machine hire, rent & lease	6,883	25.40	6,024	31.71	6,731	20.27
Interest (5%)	6,120	22.58	4,573	24.07	8,695	26.19
Depreciation	<u>13,476</u>	<u>49.73</u>	<u>10,089</u>	<u>53.10</u>	<u>23,816</u>	<u>71.73</u>
Total	\$ 46,628	\$ 172.06	\$ 33,973	\$ 178.81	\$ 69,131	\$ 208.23

* See page 1 for a description of these groups of farms.

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 16 and 17.

DAIRY HERD INVENTORY
Intensive Grazing Dairy Farms, 2000

Item	Dairy Cows		Bred Heifers		Open Heifers		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
65 Grazing Dairy Farms*								
Beg. year (owned)	88	\$ 94,884	25	\$ 23,802	24	\$ 13,822	18	\$ 5,409
+ Change w/o apprec.		5,011		-1,060		1,783		-255
+ Appreciation		<u>1,981</u>		<u>1,018</u>		<u>873</u>		<u>126</u>
End year (owned)	93	\$ 101,876	24	\$ 23,760	27	\$ 16,478	17	\$ 5,280
End including leased	94							
Average number	93		67	(all age groups)				
17 Above Average Dairy Farms*								
Beg. year (owned)	71	\$ 78,357	17	\$ 16,259	15	\$ 8,553	15	\$ 4,132
+ Change w/o apprec.		1,530		26		4,562		-1,061
+ Appreciation		<u>1,307</u>		<u>968</u>		<u>853</u>		<u>153</u>
End year (owned)	73	\$ 81,194	17	\$ 17,253	22	\$ 13,968	11	\$ 3,224
End including leased	73							
Average number	72		48	(all age groups)				
13 Below Average Dairy Farms*								
Beg. year (owned)	119	\$ 126,992	45	\$ 42,569	34	\$ 20,223	21	\$ 8,523
+ Change w/o apprec.		15,208		-646		905		81
+ Appreciation		<u>3,862</u>		<u>1,339</u>		<u>223</u>		<u>-46</u>
End year (owned)	133	\$ 146,062	44	\$ 43,262	36	\$ 21,351	21	\$ 7,558
End including leased	133							
Average number	131		101	(all age groups)				

* 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, 2000

Item	65 Grazing Dairy Farms	17 Above Average Dairy Farms	13 Below Average Dairy Farms
Total milk sold, lbs.	1,585,980	1,368,938	1,945,511
Milk sold per cow, lbs.	17,107	19,075	14,808
Average milk plant test, percent butterfat	3.73%	3.72%	3.83%

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, 2000

Item	65 Grazing Dairy Farms		17 Above Average Dairy Farms		13 Below Average Dairy Farms	
	Number	Percent*	Number	Percent*	Number	Percent*
Cows sold for beef	22	23.7	18	25.0	34	26.0
Cows sold for dairy	2	2.2	2	2.8	7	5.3
Cows died	3	3.2	3	4.2	4	3.1
Culling rate**		26.9		29.2		29.0

*Percent of average number of cows in the herd. **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, 2000

Item	65 Grazing Dairy Farms*		17 Above Average Dairy Farms*		13 Below Average Dairy Farms*	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating costs	\$ 1,734	\$ 10.17	\$ 1,633	\$ 8.59	\$ 1,729	\$ 11.64
Purchased inputs costs	\$ 1,970	\$ 11.55	\$ 1,848	\$ 9.72	\$ 2,020	\$ 13.60
Total Costs	\$ 2,606	\$ 15.28	\$ 2,607	\$ 13.71	\$ 2,559	\$ 17.23
<u>Accrual Receipts From Milk</u>						
Net milk receipts	\$ 2,280	\$ 13.37	\$ 2,540	\$ 13.36	\$ 2,064	\$ 13.90
Net Farm Income without Apprec.	\$ 2,139	\$ 12.54	\$ 2,386	\$ 12.55	\$ 1,924	\$ 12.96
Net Farm Income with Apprec.	\$ 310	\$ 1.82	\$ 692	\$ 3.64	\$ 44	\$ 0.30
	\$ 467	\$ 2.74	\$ 805	\$ 4.23	\$ 263	\$ 1.77

* 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, 2000

Item	65 Grazing Dairy Farms		17 Above Average Dairy Farms		13 Below Average Dairy Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 604	\$ 3.54	\$ 620	\$ 3.26	\$ 531	\$ 3.58
Purchased dairy roughage	58	0.34	89	0.47	46	0.31
Total Purchased Dairy Feed	\$ 662	\$ 3.88	\$ 709	\$ 3.73	\$ 577	\$ 3.89
Purchased grain & conc. as % of milk receipts		27%		24%		26%
Purchased feed & crop exp.	\$ 778	\$ 4.56	\$ 826	\$ 4.34	\$ 686	\$ 4.62
Purchased feed & crop exp. as % of milk receipts		34%		33%		33%
Breeding	\$ 33	\$ 0.19	\$ 39	\$ 0.20	\$ 25	\$ 0.17
Veterinary & medicine	66	0.39	56	0.29	62	0.42
Milk marketing	141	0.83	153	0.81	139	0.94
Bedding	15	0.09	15	0.08	17	0.12
Milking supplies	69	0.41	66	0.35	49	0.33
Cattle lease	6	0.04	0	0.00	11	0.08
Custom boarding	6	0.04	14	0.07	6	0.04
bST expense	12	0.07	13	0.07	6	0.04
Other livestock expense	36	0.21	41	0.21	35	0.24

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, 2000

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>65 Grazing Dairy Farms*</u>				
Farm capital	\$ 217,163	\$ 6,445	\$ 2,212	\$ 4,343
Real estate		2,791		1,881
Machinery & equipment	44,351	1,316	452	
<u>Ratios:</u>				
Asset Turnover Ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.46	0.75	0.05	0.08	
<u>17 Above Average Dairy Farms*</u>				
Farm capital	\$ 163,696	\$ 5,457	\$ 2,068	\$ 4,414
Real estate		1,865		1,509
Machinery & equipment	38,112	1,270	481	
<u>Ratios:</u>				
Asset Turnover Ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.58	0.67	0.04	0.07	
<u>13 Below Average Dairy Farms*</u>				
Farm capital	\$ 258,050	\$ 6,540	\$ 2,581	\$ 4,682
Real estate		2,831		2,027
Machinery & equipment	52,382	1,328	524	
<u>Ratios:</u>				
Asset Turnover Ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.43	0.81	0.07	0.11	

* 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, 2000

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
<u>65 Grazing Dairy Farms</u>				
Operator number 1	13.6	46	14	\$ 26,903
Operator number 2	3.2	43	13	5,228
Operator number 3	0.6	48	11	342
Family paid	3.2			
Family unpaid	3.4			
Hired	<u>9.0</u>			
Total	33.1	/ 12 = 2.76 Worker Equivalent 1.35 Operator/Manager Equivalent		
<u>17 Above Average Dairy Farms</u>				
Total Labor Force	28.9	/ 12 = 2.40 Worker Equivalent		
Operator's Labor		1.36 Operator/Manager Equivalent		
<u>13 Below Average Dairy Farms</u>				
Total Labor Force	39.8	/ 12 = 3.32 Worker Equivalent		
Operator's Labor		1.18 Operator/Manager Equivalent		

Labor Efficiency	65 Grazing Dairy Farms		17 Above Average Dairy Farms		13 Below Average Dairy Farms	
	Total	Per Worker	Total	Per Worker	Total	Per Worker
Cows, average number	93	34	72	30	131	39
Milk sold, pounds	1,585,980	574,630	1,368,938	570,391	1,945,511	585,997
Tillable acres	271	98	190	79	332	100
Work units	921	334	685	285	1,259	379

Labor Costs	65 Grazing Dairy Farms		17 Above Average Dairy Farms		13 Below Average Dairy Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value of operator(s) labor (\$1,900/mo.)	\$ 355	\$ 2.08	\$ 493	\$ 2.60	\$ 235	\$ 1.58
Family unpaid (\$1,900/mo.)	69	0.41	100	0.53	51	0.34
Hired	<u>219</u>	<u>1.28</u>	<u>157</u>	<u>0.83</u>	<u>337</u>	<u>2.27</u>
Total Labor	\$ 644	\$ 3.78	\$ 751	\$ 3.95	\$ 623	\$ 4.19
Machinery Cost	<u>\$ 501</u>	<u>\$ 2.94</u>	<u>\$ 472</u>	<u>\$ 2.48</u>	<u>\$ 528</u>	<u>\$ 3.55</u>
Total Labor & Mach.	\$ 1,145	\$ 6.72	\$ 1,223	\$ 6.43	\$ 1,151	\$ 7.75
Hired labor expense per hired worker equivalent	\$ 20,024		\$ 21,251		\$ 26,239	
Hired labor expense as % of milk sales		9.6%		6.2%		16.3%

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, 1999 & 2000

Selected Factors	Same 54 Grazing Dairy Farms		Same 16 Above Average Dairy Farms		Same 11 Below Average Dairy Farms	
	1999	2000	1999	2000	1999	2000
<u>Size of Business</u>						
Average number of cows	93	98	70	73	122	135
Average number of heifers	71	72	47	50	102	104
Milk sold, lbs.	1,689,896	1,696,695	1,343,965	1,396,863	2,083,762	2,004,030
Worker equivalent	2.73	2.82	2.30	2.43	3.07	3.26
Total tillable acres	272	275	194	195	319	324
<u>Rates of Production</u>						
Milk sold per cow, lbs.	18,138	17,300	19,148	19,102	17,080	14,895
Hay DM per acre, tons	2.2	2.8	1.8	2.7	2.9	3.1
Corn silage per acre, tons	13.8	11.9	16.1	15.4	12.1	9.3
<u>Labor Efficiency</u>						
Cows per worker	34	35	30	30	40	41
Milk sold/worker, lbs.	619,010	601,665	584,333	574,841	678,750	614,733
<u>Cost Control</u>						
Grain & conc. purchased as % of milk sales	23%	26%	22%	24%	22%	26%
Dairy feed & crop exp. per cwt. milk	\$ 4.44	\$ 4.51	\$ 4.31	\$ 4.31	\$ 4.33	\$ 4.56
Labor & mach. costs/cow	\$ 1,183	\$ 1,123	\$ 1,229	\$ 1,217	\$ 1,181	\$ 1,114
Operating cost of producing cwt. of milk	\$ 10.74	\$ 10.04	\$ 9.75	\$ 8.60	\$ 11.11	\$ 11.39
<u>Capital Efficiency**</u>						
Farm capital per cow	\$ 6,262	\$ 6,124	\$ 5,544	\$ 5,533	\$ 6,165	\$ 5,738
Mach. & equip. per cow	\$ 1,237	\$ 1,231	\$ 1,212	\$ 1,294	\$ 1,240	\$ 1,201
Asset turnover ratio	0.51	0.49	0.60	0.57	0.48	0.49
<u>Profitability</u>						
Net farm income w/o apprec.	\$ 42,231	\$ 32,644	\$ 47,782	\$ 49,725	\$ 31,166	\$ 10,501
Net farm income w/apprec.	\$ 54,529	\$ 48,445	\$ 57,990	\$ 57,766	\$ 39,739	\$ 42,432
Labor & mgt. income per operator/manager	\$ 11,900	\$ 4,677	\$ 21,302	\$ 20,361	\$ 107	\$ -18,430
Rate of return on equity capital w/appreciation	4.1%	2.4%	7.2%	6.1%	-0.2%	0.1%
Rate of return on all capital w/appreciation	5.1%	3.8%	7.3%	6.5%	2.6%	2.9%
<u>Financial Summary</u>						
Farm net worth, end year	\$ 398,503	\$ 411,522	\$ 285,600	\$ 302,504	\$ 457,295	\$ 474,381
Debt to asset ratio	0.32	0.33	0.27	0.27	0.40	0.40
Farm debt per cow	\$ 2,005	\$ 2,040	\$ 1,482	\$ 1,510	\$ 2,433	\$ 2,326

*Farms participating both years.

**Average for the year.

RECEIPTS AND EXPENSES PER COW AND PER CWT.

Same 54 Intensive Grazing Dairy Farms, 1999 & 2000

Item	1999		2000	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	93		98	
Cwt. Of Milk Sold		16,899		16,967
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$ 2,672	\$ 14.70	\$ 2,303	\$ 13.30
Dairy cattle	162	0.89	194	1.12
Dairy calves	22	0.12	37	0.21
Other livestock	19	0.10	17	0.10
Crops	-11	-0.06	18	0.11
Miscellaneous receipts	179	0.98	262	1.52
Total Receipts	\$ 3,043	\$ 16.74	\$ 2,830	\$ 16.35
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 226	\$ 1.25	\$ 222	\$ 1.28
Dairy grain & concentrate	609	3.35	607	3.50
Dairy roughage	54	0.30	60	0.34
Nondairy feed	1	0.00	1	0.01
Machine hire/rent/lease	82	0.45	75	0.43
Mach. repair & vehicle exp.	183	1.01	147	0.85
Fuel, oil & grease	53	0.29	73	0.42
Replacement livestock	58	0.32	40	0.23
Breeding	37	0.20	35	0.20
Veterinary & medicine	69	0.38	67	0.38
Milk marketing	104	0.57	146	0.84
Bedding	16	0.09	14	0.08
Milking supplies	76	0.42	72	0.41
Cattle lease	12	0.06	7	0.04
Custom boarding	8	0.04	7	0.04
bST expense	18	0.10	13	0.07
Other livestock expense	38	0.21	31	0.18
Fertilizer & lime	69	0.38	60	0.34
Seeds & plants	37	0.20	29	0.17
Spray/other crop expense	38	0.21	27	0.15
Land, building, fence repair	66	0.36	49	0.28
Taxes	54	0.29	62	0.36
Real estate rent/lease	75	0.41	77	0.44
Insurance	54	0.30	47	0.27
Utilities	76	0.42	75	0.43
Interest paid	144	0.79	138	0.80
Miscellaneous	42	0.23	39	0.22
Total Operating Expenses	\$ 2,298	\$ 12.65	\$ 2,215	\$ 12.79
Expansion Livestock	25	0.14	51	0.30
Machinery Depreciation	176	0.97	142	0.82
Real Estate Depreciation	90	0.49	89	0.52
Total Expenses	\$ 2,589	\$ 14.25	\$ 2,497	\$ 14.42
Net Farm Income Without Appreciation	\$ 454	\$ 2.50	\$ 333	\$ 1.92

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 16 Above Average Intensive Grazing Dairy Farms, 1999 & 2000

Item	1999		2000	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	70		73	
Cwt. Of Milk Sold		13,440		13,969
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$ 2,834	\$ 14.76	\$ 2,544	\$ 13.30
Dairy cattle	166	0.86	201	1.05
Dairy calves	34	0.18	51	0.27
Other livestock	9	0.05	3	0.01
Crops	-8	-0.04	39	0.20
Miscellaneous receipts	131	0.68	233	1.22
Total Receipts	\$ 3,166	\$ 16.49	\$ 3,070	\$ 16.05
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 141	\$ 0.73	\$ 159	\$ 0.83
Dairy grain & concentrate	610	3.18	619	3.23
Dairy roughage	91	0.48	94	0.49
Nondairy feed	1	0.01	2	0.01
Machine hire/rent/lease	65	0.34	80	0.42
Mach. repair & vehicle exp.	163	0.85	122	0.64
Fuel, oil & grease	52	0.27	61	0.32
Replacement livestock	28	0.14	71	0.37
Breeding	39	0.21	40	0.21
Veterinary & medicine	67	0.35	56	0.29
Milk marketing	124	0.64	149	0.78
Bedding	13	0.07	15	0.08
Milking supplies	84	0.44	68	0.36
Cattle lease	0	0.00	0	0.00
Custom boarding	11	0.06	14	0.07
bST expense	15	0.08	14	0.07
Other livestock expense	42	0.22	41	0.22
Fertilizer & lime	55	0.29	46	0.24
Seeds & plants	36	0.19	32	0.17
Spray/other crop expense	36	0.19	34	0.18
Land, building, fence repair	70	0.37	46	0.24
Taxes	69	0.36	53	0.28
Real estate rent/lease	52	0.27	72	0.38
Insurance	50	0.26	43	0.22
Utilities	79	0.41	79	0.41
Interest paid	123	0.64	116	0.61
Miscellaneous	46	0.24	38	0.20
Total Operating Expenses	\$ 2,161	\$ 11.26	\$ 2,165	\$ 11.31
Expansion Livestock	43	0.23	7	0.03
Machinery Depreciation	199	1.04	142	0.74
Real Estate Depreciation	79	0.41	76	0.40
Total Expenses	\$ 2,483	\$ 12.93	\$ 2,389	\$ 12.49
Net Farm Income Without Appreciation	\$ 683	\$ 3.56	\$ 681	\$ 3.56

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 11 Below Average Intensive Grazing Dairy Farms, 1999 & 2000

Item	1999		2000	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	122		135	
Cwt. Of Milk Sold		20,838		20,040
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$ 2,468	\$ 14.45	\$ 2,045	\$ 13.78
Dairy cattle	217	1.27	286	1.92
Dairy calves	10	0.06	33	0.22
Other livestock	41	0.24	40	0.27
Crops	23	0.13	-29	-0.20
Miscellaneous receipts	136	0.79	215	1.45
Total Receipts	\$ 2,895	\$ 16.95	\$ 2,589	\$ 17.44
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 330	\$ 1.93	\$ 325	\$ 2.19
Dairy grain & concentrate	531	3.11	522	3.51
Dairy roughage	57	0.33	52	0.35
Nondairy feed	0	0.00	1	0.01
Machine hire/rent/lease	47	0.28	49	0.33
Mach. repair & vehicle exp.	189	1.11	162	1.09
Fuel, oil & grease	48	0.28	73	0.49
Replacement livestock	102	0.60	45	0.30
Breeding	34	0.20	24	0.16
Veterinary & medicine	68	0.40	61	0.41
Milk marketing	85	0.50	146	0.98
Bedding	18	0.11	14	0.09
Milking supplies	46	0.27	46	0.31
Cattle lease	13	0.08	13	0.09
Custom boarding	11	0.07	7	0.05
bST expense	14	0.08	7	0.05
Other livestock expense	40	0.24	29	0.20
Fertilizer & lime	92	0.54	65	0.44
Seeds & plants	38	0.22	24	0.16
Spray/other crop expense	22	0.13	14	0.10
Land, building, fence repair	49	0.29	34	0.23
Taxes	39	0.23	50	0.33
Real estate rent/lease	57	0.34	66	0.45
Insurance	48	0.28	30	0.20
Utilities	70	0.41	60	0.40
Interest paid	170	0.99	161	1.09
Miscellaneous	52	0.30	38	0.25
Total Operating Expenses	\$ 2,270	\$ 13.29	\$ 2,117	\$ 14.26
Expansion Livestock	54	0.31	117	0.78
Machinery Depreciation	214	1.26	182	1.22
Real Estate Depreciation	101	0.59	95	0.64
Total Expenses	\$ 2,639	\$ 15.45	\$ 2,511	\$ 16.91
Net Farm Income Without Appreciation	\$ 255	\$ 1.50	\$ 78	\$ 0.52

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

65 Intensive Grazing Dairy Farms, 2000

Size of Business			Rate of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
5.11	208	3,561,489	21,825	4.2	18	54	871,899
3.20	97	1,670,409	18,848	3.1	15	38	673,764
2.35	67	1,215,679	17,535	2.6	13	31	539,620
1.81	52	941,749	15,536	2.1	10	25	418,577
1.32	39	540,573	12,358	1.5	8	19	303,967

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	
(10)	(10)	(11)	(11)	(10)	(10)	
\$325	15%	\$247	\$794	\$527	\$3.44	
522	23	393	1,022	692	4.11	
621	26	485	1,208	775	4.60	
710	29	567	1,409	897	5.02	
834	35	865	1,882	1,086	6.28	

Value and Cost of Production			Profitability			
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.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(3)	(3)	(6)
\$2,912	\$7.25	\$12.08	\$111,967	\$85,132	\$43,207	\$70,198
2,495	8.70	13.88	54,417	44,096	13,972	28,211
2,364	9.55	15.30	39,865	26,733	3,215	14,679
2,089	10.54	17.31	24,594	14,291	-8,928	3,718
1,679	15.15	24.22	-13,773	-25,920	-51,937	-34,155

*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

91 New York Dairy Farms, 2000

<u>Animals Entering Herd</u>	Average
Number calving in 2000 for first time	118
Animals purchased, % ¹	17.2
Animals raised by farm, % ²	82.8
 <u>Current Heifer Inventory</u>	
Raised on dairy, %	81
Raised by a custom grower, %	19

¹ Animals purchased are animals purchased from a different farm and were not the farm's genetics.

² 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, 118 animals calved for the first time in 2000. The breakdown on these animals for source was 17.2% purchased and 82.8% raised by the farm. Of the current heifer inventory, 81% were raised on the dairy and 19% 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 1st, 2001, 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, 74 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 10 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 fifths. Numbers for the different areas will not add to the totals for that quintile 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 MILK INCOME AND MARKETING REPORT
74 New York Dairy Farms, 2000

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	317,577.00	3.71%	\$ 1.2634	\$ 398,523.66	\$ 4.68
Protein	261,077.90	3.03%	\$ 1.6813	\$ 433,854.43	\$ 5.06
Solids	489,113.09	5.63%	\$ 0.0525	\$ 25,680.42	\$ 0.30
Total Component Contribution					\$10.04
PPD	8,617,559.41		\$ 2.5458	\$ 213,842.50	\$ 2.55
Base Farm Price					\$ 12.59
Premiums					
Quality				\$ 12,344.17	\$ 0.13
Volume				\$ 21,946.03	\$ 0.16
Market Premiums				\$ 28,483.59	\$ 0.26
Total Premiums					\$ 0.55
BASE FARM PRICE + PREMIUM					\$ 13.13
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$ 13,049.68	\$ 0.15
Hauling + Stop Charges.				\$ 40,008.64	\$ 0.52
Market Fees & Coop Dues				\$ 5,638.69	\$ 0.07
Futures/Contract Fees				\$ 3.40	\$ 0.00
Total Deductions					\$ 0.74
BASE FARM PRICE + PREMIUMS - DEDUCTIONS					\$ 12.40
Marketing Programs					
Compact				\$ 8,158.92	\$ 0.14
Futures Contracts, Forward Contracting, Etc.				\$ 7,197.64	\$ 0.05
Total Marketing Income					\$ 0.20
Patronage Dividends				\$ 13,846.23	\$ 0.23
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$ 12.82
PPD - Hauling, per cwt.					\$ 2.02
PPD - Hauling + Market Premiums, per cwt.					\$ 2.28

MILK PRICE INFORMATION BY QUINTILE

(Each Category Sorted Independently)

74 New York Dairy Farms, 2000

	Lowest Quintile				Highest Quintile
Butterfat, %	3.49	3.63	3.68	3.78	4.00
Protein, %	2.84	2.93	2.97	3.03	3.41
Other Solids, %	5.18	5.63	5.70	5.75	5.90
Butterfat, \$ per Cwt.	4.37	4.52	4.61	4.73	5.22
Protein, \$ per Cwt.	4.76	4.93	5.03	5.12	5.50
Other solids, \$ per Cwt.	0.28	0.29	0.29	0.29	0.34
Total Component Value per Cwt.	\$ 9.50	\$ 9.77	\$ 9.91	\$ 10.11	\$ 10.98
PPD, \$ per Cwt.	2.24	2.31	2.42	2.68	3.12
Base Farm Price per Cwt.	\$ 11.87	\$ 12.16	\$ 12.38	\$ 12.72	\$ 13.90
Quality, \$ per Cwt.	.01	.08	.13	.20	.27
Volume, \$ per Cwt.	.00	.00	.07	.24	.50
Market premium, \$ per Cwt.	.00	.01	.19	.28	.84
Total Premium, \$ per Cwt.	.07	.35	.47	.70	1.19
Base Farm Price + Premiums per Cwt.	\$ 12.29	\$ 12.67	\$ 12.86	\$ 13.32	\$ 14.62
Promotion, \$ per Cwt.	.13	.15	.15	.15	.17
Hauling, \$ per Cwt.	.28	.40	.50	.57	.90
Market fees & coop dues per Cwt.	.00	.03	.06	.07	.17
Futures/contract fees, \$ per Cwt.	.00	.00	.00	.00	.00
Total Marketing Expenses per Cwt.	\$.47	\$.60	\$.68	\$.79	\$ 1.18
Base + Premiums – Deductions per Cwt.	\$ 11.59	\$ 11.98	\$ 12.19	\$ 12.51	\$ 13.80
Compact, \$ per Cwt.	.00	.00	.00	.00	.76
Futures contract, forward contracting, \$ per Cwt.	.00	.00	.00	.00	.28
Total Marketing Income, \$ per Cwt.	\$.00	\$.00	\$.00	\$.16	\$.87
Patronage Dividends, \$ per Cwt.	\$.00	\$.00	\$.00	\$.12	\$ 1.07
Net Price Received From All Sources, \$ per Cwt.	\$ 11.86	\$ 12.36	\$ 12.66	\$ 13.09	\$ 14.24
PPD - hauling, \$ per Cwt.	1.73	1.88	1.97	2.11	2.44
PPD - hauling + mkt premiums, \$ per Cwt.	1.85	2.01	2.13	2.38	3.07

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

Worksheet for Setting Goals (Continued)

II. Goals

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

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 15)

Accrual Receipts - (defined on page 16)

Annual Cash Flow Statement - (defined on page 24)

Appreciation - (defined on page 17)

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 25)

Cash Paid - (defined on page 14)

Cash Receipts - (defined on page 16)

Change in Accounts Payable - (defined on page 15)

Change in Accounts Receivable - (defined on page 16)

Change in Inventory - (defined on page 16)

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 29)

Current Portion - (defined on page 20)

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 25)

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

Debt to Asset Ratios - (defined on page 22)

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 25.

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 18)

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 22)

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

Net Farm Income - (defined on page 17)

Net Farm Income from Operations Ratio – (defined on page 20)

Net Milk Receipts – Accrual milk receipts less milk marking 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 30)

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 \$1,800 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 30)

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 20)

Return on Total Capital - (defined on page 20)

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 30)

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 \$1,900 per month plus the value of operator(s) labor at \$1,900 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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EB No	Title	Fee (if applicable)	Author(s)
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2001-11	Northern Hudson Region 2000 Dairy Farm Business Summary	(\$8.00)	Conneman, G. J., L. D. Putnam, C. S. Wickswat, S. Buxton, D. Maxwell, and J. Karszes
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