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DAIRY FARM BUSINESS SUMMARY

INTENSIVE GRAZING FARMS NEW YORK 2003



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2003 DAIRY FARM BUSINESS SUMMARY
Intensive Grazing Farms
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2003 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 eighth year that a study of intensive grazing farms has been done. The farms included in the study are a subset of New York State farms participating in the Dairy Farm Business Summary (DFBS). Thirty 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 30 farms were asked to complete a grazing practices survey. Twenty-two 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 27 farms which were not organic farms, were not first year grazers and on which at least 40 percent of forage consumed during the grazing season was grazed. Twenty of these 27 farms completed a grazing practices survey.** These 20 farms were divided on the basis of net farm income per cow (without appreciation) above and below \$600 which was the median for these 20 intensive grazing farms. **Ten farms with net farm income per cow above \$600 are in the "Above Average" (more profitable) group and ten farms with net farm income per cow below \$600 comprise the "Below Average" (less profitable) 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 2002 and 2003. The second section of this publication reports data from the grazing practices survey. A comparison of intensive grazing farms with non-grazing farms is included on page 8. The third section, Case Studies, describes three grazing farms. The fourth section summarizes grazing farms by herd size.

The summary and analysis portion of this report follows the same general format as in the 2003 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 Dairy Farm Business Summary (DFBS) grazing dairy farms that participated in both of the last two years can be helpful in comparing performance¹ 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 23 farms that were grazing in both 2002 and 2003 and participated in the DFBS project for both years.

These 23 farms increased herd size, with average cow numbers increasing by four head to 106 cows. Although the herd size increased, the average number of worker equivalents remained basically the same at 2.74. Non-tillable and tillable pasture and hay acres increased 3.0 percent. Milk sold per cow decreased 4.5 percent to 15,469 pounds. The increase in cow numbers partially offset the decrease in production per cow, resulting in a decline of only 0.7 percent for total milk sold.

The herd size increase offset the decrease in milk sold per cow, allowing the milk sold per worker equivalent to remain nearly the same at 596,950, only a 0.3 percent decrease. With the herd size increase and worker equivalents remaining the same, cows per worker equivalent increased from 37 to 39 cows per worker, a 5.4 percent increase. Correspondingly labor costs increased. Hired labor cost per worker equivalent increased 5.7 percent, from \$22,960 to \$24,264. Hired labor costs per hundredweight of milk sold increased 10.9 percent to \$1.43 per cwt. While hired labor expenses did increase, with the increase in the milk price, hired labor as a percent of milk sales only increased .4 percent to 10.4 percent.

The 2003 growing season was another challenging year for grazers. Hay yields remained close to the same at 2.3 ton per acre but corn silage fall from 12.1 ton per acre in 2002 to 9.9 ton in 2003, an 18.2 percent decrease.

The amount of investment per cow increased from \$5,669 to \$6,794 or 19.8 percent. This resulted from the value of machinery and equipment increasing and cattle being worth more than in 2002.

Grain and concentrate as a percentage of milk sales increased 3.6 percent from 28 percent to 29 percent. Coupled with fewer total pounds sold, the per hundredweight cost increased 10.6 percent to \$3.96. Dairy feed and crop expenses increased 3.6 percent to \$5.13 per hundredweight. All the costs except interest increased in 2003, resulting in a 4.3 percent increase in operating cost per hundredweight.

However, the gross milk price increased from \$12.93 to \$13.71, a 6.0 percent increase. Cattle sales per cow decreased from \$188 to \$121 but calf sales increased from \$40 to \$69 per cow. Government payments continue to be important, averaging \$1.41 per hundredweight, a decrease of eight cents from 2002.

Income per hundredweight was, milk sales \$13.71, cattle \$.78, calves \$.45, and government payments \$1.41 for a total income of \$16.35. The total farm operating expenses were \$12.90 per hundredweight. This left \$3.45 for principal payments, unpaid family labor, operators' labor and management, an interest charge for owner's equity, and to make new purchases.

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

- Net farm income without appreciation increased 21.2 percent to \$46,554.
- Net farm income with appreciation increased 39.6 percent to \$63,579.
- Labor and management income per operator had a 56.8 percent increase to \$10,826.
- Rate of return on equity capital without appreciation averaged 1.1 percent.
- Rate of return on all capital without appreciation averaged 2.3 percent.

Overall, profits were up and this was further reflected by an increase in net worth of 2.1 percent with the debt to asset ratio falling to .29 from .33. There was a slight increase in debt per cow of \$15 or .8 percent to \$1,913.

In spite of the weather, 2003 was a better year for grazers than 2002, mainly due to the increase in the price of milk. Increased costs of production reduced the profitability from the price increase but net farm income per cow without appreciation still increased from \$376 to \$439.

¹The 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 23 Grazing Dairy Farms, 2002 & 2003

| Selected Factors | Average of 23 Farms | | Percent Change |
|--|---------------------|-----------|----------------|
| | 2002 | 2003 | |
| <u>Size of Business</u> | | | |
| Average number of cows | 102 | 106 | 3.9 |
| Average number of heifers | 75 | 76 | 1.3 |
| Milk sold, lbs. | 1,646,581 | 1,635,642 | -0.7 |
| Worker equivalent | 2.75 | 2.74 | -0.4 |
| Total nontillable and tillable pasture & hay acres | 267 | 275 | 3.0 |
| Total nontillable pasture & tillable acres | 311 | 326 | 4.8 |
| <u>Rates of Production</u> | | | |
| Milk sold per cow, lbs. | 16,205 | 15,469 | -4.5 |
| Hay DM per acre, tons | 2.4 | 2.3 | -4.2 |
| Corn silage per acre, tons | 12.1 | 9.9 | -18.2 |
| <u>Labor Efficiency & Costs</u> | | | |
| Cows per worker | 37 | 39 | 5.4 |
| Milk sold per worker, lbs. | 598,757 | 596,950 | -0.3 |
| Hired labor cost per cwt. | \$1.29 | \$1.43 | 10.9 |
| Hired labor cost per worker | \$22,960 | \$24,264 | 5.7 |
| Hired labor cost as % of milk sales | 10.0% | 10.4% | 4.0 |
| <u>Cost Control</u> | | | |
| Grain & conc. purchased as % of milk sales | 28% | 29% | 3.6 |
| Grain & conc. per cwt. milk | \$3.58 | \$3.96 | 10.6 |
| Dairy feed & crop expense per cwt. milk | \$4.95 | \$5.13 | 7.7 |
| Labor & mach. costs per cow | \$1,083 | \$1,100 | 3.6 |
| Total farm operating costs per cwt. sold | \$12.37 | \$12.90 | 4.3 |
| Interest costs per cwt. milk | \$0.68 | \$0.59 | -13.2 |
| Milk marketing costs per cwt. milk sold | \$0.79 | \$0.88 | 11.4 |
| Operating cost of producing cwt. of milk | \$9.29 | \$9.55 | 2.8 |
| Total costs of producing cwt. of milk | \$14.30 | \$14.72 | 2.9 |
| <u>Capital Efficiency (average for the year)</u> | | | |
| Farm capital per cow | \$5,669 | \$6,794 | 19.8 |
| Mach. & equip. per cow | \$1,106 | \$1,423 | 28.7 |
| Asset turnover ratio | 0.47 | 0.48 | 2.1 |
| <u>Income Generation</u> | | | |
| Gross milk sales per cow | \$2,087 | \$2,116 | 1.4 |
| Gross milk sales per cwt. | \$12.93 | \$13.71 | 6.0 |
| Net milk sales per cwt. | \$12.14 | \$12.83 | 5.7 |
| Dairy cattle sales per cow | \$188 | \$121 | -35.6 |
| Dairy calf sales per cow | \$40 | \$69 | 72.5 |
| Government receipts per cwt. | \$1.49 | \$1.41 | -5.4 |
| <u>Profitability</u> | | | |
| Net farm income without appreciation | \$38,414 | \$46,554 | 21.2 |
| Net farm income with appreciation | \$45,541 | \$63,579 | 39.6 |
| Labor & mgt. income per operator/manager | \$6,906 | \$10,826 | 56.8 |
| Rate of return on equity capital without apprec. | -0.9% | 1.1% | 222.2 |
| Rate of return on all capital without apprec. | 1.4% | 2.3% | 64.3 |
| <u>Financial Summary</u> | | | |
| Farm net worth, end year | \$392,994 | \$401,328 | 2.1 |
| Debt to asset ratio | 0.33 | 0.29 | -12.1 |
| Farm debt per cow | \$1,898 | \$1,913 | 0.8 |

INTENSIVE GRAZING SURVEY SUMMARY

From the survey data of the 20 selected grazing farms, analysis of average production levels and profitability measures are shown below. 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 farms were divided into two sets of 10 farms each scaled from with the highest to lowest average net farm income per cow. The net farm income per cow of the top 10 farms ranged from \$600 to over \$1,000 while the lower 10 farms ranged from around \$-200 to \$600 net farm income per cow without appreciation.

SELECTED PRODUCTION AND PROFITABILITY MEASURES

Intensive Grazing Dairy Farms, 2003

| | 10 Above Average Farms | 10 Below Average Farms |
|--|---------------------------|---------------------------|
| Pounds milk sold per cow | 18,728 | 13,768 |
| Net farm income per cow without appreciation | \$759 | \$280 |
| Operating cost of producing milk per cwt. | \$8.40 | \$10.53 |
| Total cost of production per cwt. | \$14.48 | \$15.50 |

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, 2003

| | 10 Above Average Farms | 10 Below Average Farms |
|--|---------------------------|---------------------------|
| Average number of cows | 62 | 133 |
| Percent of farms with seasonal or semi-seasonal calving | 30% | 30% |
| Percent of farms with parlor-type milking system | 0% | 50% |
| Average percent forage from pasture | 65% | 76% |
| Average length of grazing season | 187 | 193 |
| Average pounds dry matter supplemented grain | 17.3 | 15.8 |
| Percent farms supplement with forage | 100% | 100% |
| Average pounds dry matter supplemented forage | 13.9 | 9.6 |
| Percent rotated after each milking | 30% | 40% |
| Percent rotated one time a day | 20% | 50% |
| Percent rotated every other day | 20% | 10% |
| Percent other rotation | 20% | 0% |
| Percent farms applied fertilizer | 50% | 70% |
| Percent farms applied manure to pasture | 50% | 64% |
| Percent farms that clipped pasture | 90% | 90% |
| Percent farms weed problems | 30% | 50% |
| Percent farms water every paddock | 60% | 60% |
| Average percent pasture that was reseeded in the last 10 years | 43% | 35% |
| Percent farms harvested mechanically | 50% | 80% |
| Average percent pasture harvested by machine | 30% | 30% |
| Most common pasture species: | | |
| First | Orchard grass | Orchard grass |
| Second | Ladino | Native clover |
| Third | Quackgrass/Bluegrass | Bluegrass |

Breeds

There is some information that suggests that some breeds are more efficient graziers. Since Holsteins have years of breeding for confinement and production levels they may not be the most effective at harvesting their own forage. The participants in this summary predominantly graze Holsteins or Holstein/Jersey crosses. Of the 10 above average grazing farms for net farm income per cow without appreciation, 80 percent graze herds that are greater than 75 percent Holstein. One herd is greater than 75 percent crossbreeds. One is a mix of Holstein and Jersey. Of the 10 below average grazing farms for net farm income per cow without appreciation, 50 percent graze herds that are greater than 75 percent Holstein and thirty percent graze herds with 50 percent or greater Jersey/Holstein crosses.

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. Incorporation of corn silage was not 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, 2003

| | 10 Above Average Farms | | 10 Below Average Farms | |
|--|---------------------------|-----------------------|---------------------------|-----------------------|
| | (7) Corn Si- lage | (3) No Corn Silage | (2) Corn Si- lage | (8) No Corn Silage |
| Net farm income per cow without appreciation | \$735 | \$863 | \$401 | \$204 |
| Pounds milk sold per cow | 19,736 | 16,854 | 16,000 | 14,628 |
| Operating Cost per cwt of milk | \$11.98 | \$11.83 | \$14.22 | \$14.07 |
| Pounds dry matter of grain | 17 | 19 | 17 | 16 |
| Pounds dry matter of corn silage | 8.5 | ----- | 7.0 | ----- |
| Pounds dry matter of other forage ² | 2.7 | 7.0 | 7.5 | 4.8 |

²Other includes baleage, dry hay, or other forage.

Ration Details

Of the 10 above average grazing farms for net farm income per cow without appreciation, all fed grain during the grazing season. Seven of the farms fed corn silage. One farm reported feeding haylage. Five farms fed baleage, at an average of 4.4 pounds of dry matter per cow per day and three farms reported feeding dry hay at an average of 4.7 pounds of dry matter per cow per day.

Of the 10 below average farms for net farm income per cow without appreciation, all fed grain during the grazing season. Two of the farms fed corn silage. One of the farms fed baleage, two farms fed haylage and five farms fed dry hay at an average rate of 4.2 pounds dry matter.

Frequency of Rotation

In the above average group, three farms rotated cows into a fresh paddock after each milking, three farms provided new pasture once per day, two farms moved the cows every other day, and two farms rotated every three days. In the below average group, four farms rotated cows into a fresh paddock after each milking, five 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, 2003 | | | |
| | 10 Above Average Farms | | 10 Below Average Farms | |
| | Rotation | | Rotation | |
| | (3) After Each Milking | (7) Other | (4) After Each Milking | (6) Other |
| Pounds milk sold per cow | 22,367 | 17,374 | 14,201 | 15,471 |
| Net farm income per cow without appreciation | \$858 | \$737 | \$351 | \$172 |

Water Source

There are various options for providing water to pasture. In the above average group, two farms used a well, three farms used ponds or springs in combination, and one farm used a stream. In the below average group, 6 farms used a well, one farm used a stream, two farms used a pond, and one farm used a spring.

| | WATER SOURCE | | | |
|--|-------------------------------|--|------------------------|------------------------|
| | Intensive Grazing Farms, 2003 | | | |
| | 10 Above Average Farms | | 10 Below Average Farms | |
| | (2) Well | (5) Other ³ (3) Unreported | (6) Well | (4) Other ³ |
| Pounds milk sold per cow | 22,242 | 18,029 | 14,856 | 14,972 |
| Net farm income per cow without appreciation | \$767 | \$775 | \$312 | \$139 |

³Pond, 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, parabolic, rotary, flat barn 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. In the above average group one farm had a flat barn parlor, the other used pipelines. In the below average group 3 had pit parlors, one uses a flat barn parlor, one uses a New Zealand Swing-type parlor and five milked with a pipeline.

| | MILKING SYSTEM | | | |
|--|-------------------------------|-----------------------|------------------------|-----------------------|
| | Intensive Grazing Farms, 2003 | | | |
| | 10 Above Average Farms | | 10 Below Average Farms | |
| | (1) With parlor | (9) Without parlor | (5) With parlor | (5) 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

Five farms in the above average group and seven farms in the below average group applied fertilizer to the paddocks during the growing season. Fertilizers other than urea that were applied included ammonium sulfate, map (11-52-0) and some blends. Some chose to fertilize only a small number of acres in the early season. Some fertilized after the first and second rotations and late June. One farm applied small amounts of nitrogen several times in the season with the last application in September of 50 pounds of actual nitrogen.

COMMERCIAL FERTILIZER Intensive Grazing Farms, 2003

| | 10 Above Average Farms | | 10 Below Average Farms | |
|--|---------------------------|---------------------------------|---------------------------|---------------------------------|
| | (5) Applied Fertilizer | (5) Did not apply fertilizer | (7) Applied Fertilizer | (3) Did not apply fertilizer |
| Pounds milk sold per cow | 20,112 | 18,542 | 15,256 | 14,076 |
| Net farm income per cow without appreciation | \$763 | \$780 | \$259 | \$206 |
| Most common product applied | urea | -- | urea | -- |
| Operating cost of producing milk/cwt | \$11.98 | \$11.91 | \$13.96 | \$14.40 |

Intensive Grazing Satisfaction Comments

On a scale of 1 to 5, with 5 being the highest, the average rating of grazing satisfaction was 4.5. When asked whether their lifestyle has improved with the adoption of rotational grazing, a majority indicated that their lifestyle has improved. One farmer commented that even though his lifestyle had not improved, the cows' had.

Grazing Trends

The table below compares key figures from 2003 grazing farms to an average of the last eight years. The average cow numbers are up considerably (18 percent). Milk sold per cow is down one percent. Operating cost per hundredweight is one of the indicators of why grazing farms are as profitable, if not more profitable, than non-grazing farms. An average operating cost of \$9.19 per hundredweight in 2003 was the third lowest since grazing summaries have been published. Net farm income per cow was a positive figure in 2003 showing that grazing farmers did well in adapting to different situations. Grain expense as a percent of milk income and cost of grain per hundredweight were impacted by another challenging growing season.

2003 GRAZING INFORMATION COMPARED TO 1996 - 2003 Averages Same 14 Grazing Farms, 1996-2003

| | 14 Grazing Dairy Farms, 2003 Averages | 1996 - 2003 Average of 14 Grazing Farms |
|---|--|--|
| Number of cows | 93 | 79 |
| Pounds milk sold per cow | 17,463 | 17,676 |
| Operating cost of producing milk per cwt. | \$ 9.19 | \$ 9.76 |
| Net farm income per cow without appreciation | \$ 530 | \$ 591 |
| Purchased grain and concentrate as % of milk receipts | 32 | 28 |
| Grain and concentrate per cwt. | \$ 4.19 | \$ 3.91 |

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2003

| Item | All Intensive | | | |
|---|----------------------------|--------------------------------|---------------------------------------|---|
| | Grazing Farms ⁴ | Non-Grazing Farms ⁵ | Profitable Grazing Farms ⁶ | Profitable Non-Grazing Farms ⁷ |
| Number of farms | 27 | 76 | 10 | 16 |
| <u>Business Size & Production</u> | | | | |
| Number of cows | 98 | 99 | 66 | 57 |
| Number of heifers | 71 | 75 | 47 | 37 |
| Milk sold, lbs. | 1,536,133 | 1,954,323 | 1,234,196 | 1,108,671 |
| Milk sold/cow, lbs. | 15,728 | 19,741 | 18,728 | 19,471 |
| Milk plant test, % butterfat | 3.78% | 3.50% | 3.75% | 3.66% |
| Cull rate | 25.6% | 30.9% | 27.3% | 25.4% |
| Tillable acres, total | 256 | 322 | 195 | 170 |
| Hay crop, tons DM/acre | 2.3 | 2.5 | 2.2 | 2.4 |
| Corn silage, tons/acre | 9.7 | 14.6 | 15.7 | 13.8 |
| Forage DM/cow, tons | 5.7 | 8.2 | 6.1 | 7.1 |
| <u>Labor & Capital Efficiency</u> | | | | |
| Worker equivalent | 2.64 | 3.32 | 2.54 | 2.15 |
| Milk sold/worker, lbs. | 581,869 | 588,652 | 485,904 | 515,661 |
| Cows/worker | 37 | 30 | 26 | 27 |
| Farm capital/worker | \$233,569 | \$250,388 | \$199,922 | \$185,983 |
| Farm capital/cow | \$6,292 | \$8,397 | \$7,694 | \$7,015 |
| Farm capital/cwt. milk | \$40 | \$43 | \$41 | \$36 |
| Machinery & equipment per cow | \$1,515 | \$1,862 | \$1,523 | \$1,807 |
| <u>Milk Production Costs & Returns</u> | | | | |
| Selected costs/cwt.: | | | | |
| Hired labor | \$1.07 | \$1.32 | \$1.33 | \$0.39 |
| Grain & concentrate | \$4.21 | \$4.03 | \$3.65 | \$3.69 |
| Purchased roughage | \$0.56 | \$0.29 | \$0.40 | \$0.43 |
| Replacements purchased | \$0.14 | \$0.24 | \$0.16 | \$0.13 |
| Vet & medicine | \$0.38 | \$0.49 | \$0.32 | \$0.41 |
| Milk marketing | \$0.94 | \$0.86 | \$1.05 | \$0.79 |
| Other dairy expenses | \$1.01 | \$1.28 | \$1.08 | \$1.25 |
| Operating cost of producing milk/cwt. | \$9.25 | \$10.49 | \$8.40 | \$7.83 |
| Total labor cost/cwt. | \$5.29 | \$4.91 | \$4.82 | \$5.27 |
| Operator resources/cwt. | \$3.45 | \$3.53 | \$4.39 | \$4.70 |
| Total cost of producing milk/cwt. | \$15.94 | \$16.49 | \$14.48 | \$14.52 |
| Average farm price/cwt. | \$13.51 | \$13.16 | \$13.55 | \$12.96 |
| <u>Related Cost Factors</u> | | | | |
| Hired labor/cow | \$185 | \$261 | \$249 | \$74 |
| Total labor/cow | \$882 | \$916 | \$901 | \$998 |
| Purchased dairy feed/cow | \$799 | \$831 | \$757 | \$802 |
| Purchased grain & conc. as % of milk receipts | 31% | 31% | 27% | 28% |
| Vet & medicine/cow | \$65 | \$98 | \$60 | \$79 |
| Machinery costs/cow | \$510 | \$599 | \$495 | \$526 |
| Feed & crop exp./cwt. | \$5.26 | \$5.12 | \$4.61 | \$4.66 |
| <u>Profitability Analysis</u> | | | | |
| Net farm income (with appreciation) | \$62,249 | \$38,727 | \$63,645 | \$50,124 |
| Net farm income (without appreciation) | \$44,046 | \$19,143 | \$50,092 | \$45,318 |
| Net farm income per cow (w/o appreciation) | \$449 | \$193 | \$759 | \$795 |
| Net farm income per cwt. (w/o appreciation) | \$2.87 | \$0.98 | \$4.06 | \$4.09 |
| Labor & management income/operator | \$9,744 | \$-14,952 | \$16,702 | \$13,040 |
| Labor & mgmt. income/oper./cow | \$99 | \$-151 | \$253 | \$229 |
| Rates of return on: Equity capital with apprec. | 4.6% | -1.4% | 5.5% | 1.8% |
| All capital with appreciation | 4.7% | 0.2% | 5.3% | 2.3% |

⁴Farms grazing at least three months of year, changing paddock at least every three days, forage from pasture at least 30 percent, and no organic farms.

⁵Farms with similar herd size, as the 27 rotational grazing farms.

⁶Farms with net farm income/cow greater than \$600, had been grazing at least two years, and forage from pasture at least 40 percent.

⁷Farms with similar herd size as the 10 profitable grazing farms and net farm income per cow greater than \$600.

CASE STUDIES

Deysenroth Farm

Paul and Gwen Deysenroth started dairy farming together nineteen years ago in Bloomville, New York in Delaware County, the heart of the Catskill Mountains. Their farm has been in Gwen's family for seven generations and they are hoping that at least one of their three sons will someday continue to farm there.

In 1985, Paul built a milk house onto the existing barn and they began milking a herd of forty Holsteins and Jerseys. There was no room to raise calves, so they purchased all of their replacements. At that time, all of the pastureland on their farm was surrounded by one large perimeter fence as Gwen's father had been raising heifers only for the past 12 years. They began pasturing, never knowing on foggy mornings in which corner of the farm they might find their cows. Gradually, Paul divided the pastureland with more and more fences and in 1990 became interested in intensive grazing. He purchased a charger and some portable fencing and began replacing barbed wire fences with high tensile wire. A bedded pack heifer facility was funded by the Watershed Agricultural Council in 1994 and all replacements are now home-raised. Calves are started in hutches and stay there until they are weaned at three months of age. Heifers are grazed starting at eight months of age.

Since there were no silos or tillage equipment on the farm, growing corn was not considered. Paul purchased a power no-till seeder and reseeds at least one meadow per year to a variety of crops including alfalfa, clover, orchard grass and brome grass, depending on the field. Fields are sprayed the previous fall so that sod can rot down over the winter. No-till significantly decreases labor with the stony soils they have to work with. The Deysenroth's own their hay equipment and share baleage equipment with a neighbor.

The cows are grazed on native pastures in the spring, then through the summer are rotated on some meadows following first or second cutting. Plenty of fresh, cool water is available to the cows at all times while on pasture. A spring was developed on the hill which gravity feeds portable water vats. In order to maintain milk production, cows are grazed mornings, brought into the tiestall barn, which has tunnel ventilation, early afternoons for an extra feeding of grain and hay, then grazed all night. Fences are moved each time the cows go out to eat. Ideally, the Deysenroth's like to have their cows freshen in the late summer and fall. Pasture quality is good in the fall and higher production can be maintained while cows are stabled in the winter. In the spring, production gets a boost when cows go out on pasture. Then they are dry during the heat of the summer. Unfortunately, keeping cows seasonal does not always work.

In the summer, milking cows are fed a total of twenty to twenty-seven pounds of a custom mix concentrate of about 15 percent protein, three times per day. Eight to twelve pounds of dry matter forage are fed to the cows in the barn as dry hay or baleage. In the winter, pounds of grain and percent protein are increased. Good quality forage is pushed so that cows get about 30 pounds of dry matter from it. The herd now consists entirely of Holsteins and production averages about 23,000 pounds per cow.

Pasture is regarded as high quality feed for cows and not as the sole source of summer forage. It allows the Deysenroth's to get better quality feed from some lesser quality land. Paul and Gwen try to balance good production with moderate costs. Advantages of grazing include harvest cost savings and less time spent in the barn as well as healthier calvings. Disadvantages include more foot injuries due to poor lanes. Future plans include improving lanes. Paul spends lots of time and effort moving fences and maintaining pastures properly. The Deysenroth's rely on the help of their three sons as well as a neighbor part-time.

Paul, Gwen and their boys are in the process of planning to make some of their milk into cheese in order to increase profits. Initially, they plan to use cheese-making facilities on another farm about 15 miles away to make a raw milk gouda cheese. Paul is constructing a temporary aging room on his farm where the cheese will be aged for at least sixty days. If marketing their cheese is a success, the Deysenroth's hope to someday make a permanent cheese plant on their farm.

Switch to Grazing Benefited Family and Finances⁸

They have nearly tripled the size of their herd and their annual milk production...without adding any labor and without adding new buildings or feed storage. On top of that, they are making a lot more money. And they have more time for family activities. Sound impossible? The impossible became possible for Robert and Barbara Eder of Weyauwega, Wisconsin, when they started grazing their herd seven months of the year.

Robert, who was raised on a Wisconsin dairy farm, moved to Arizona after high school and worked as a carpenter. However, when he and Barb married and started a family, they decided to return to the home farm where they worked for his uncle for seven years.

The Eders were in their mid-30s when they rented their own farm in January 1988 and later purchased it in 1990. With a good herd of 40 to 50 Holsteins and conscientious care, they were able to get the rolling herd average over 21,000 pounds per cow within two years. But they weren't showing much of a profit, so they went to 3 time-a-day milking in 1990. When they cut back to milking five times every two days late in 1991, their rolling herd average was over 26,000 pounds per cow and one of the highest in the county. Early in 1992, they added 10 stalls to their 39-stall barn so they could grow to nearly 60 cows.

Still life wasn't what they wanted it to be. "We worked so hard. It was always a struggle to make ends meet," Eder said. "We were pretty well burned out," he continued. "We looked at each other and asked, 'Do we want to be doing this when we're 50 years old?' We were doing chores all day long, every day."

For the Eders, the conversion came when they attended a two-day grazing conference early in 1992. The conference was attended by 70 New Zealand dairy farmers who were touring the United States. "They were successful men in their 50's," Eder pointed out. "They were wealthy and happy. They weren't burned out. And they were all graziers. That night we knew that we were going to make a major change on the farm."

And change they did. Heifers went out on pasture in the spring of 1992. Cows were put on pasture in the fall of that year. In November of 1992, the Eders traveled to New Zealand to see first-hand how rotational grazing works. By the spring of 1993, their rotational grazing system was up and running. Each year since, they've added more cows. Today, they're milking about 130 head 2 times a day. Pounds of milk sold per cow have ranged from 16,818 to 20,520 during the last six years.

The Eders farm is forage self-sufficient for cows and youngstock. All grain and protein are purchased. They have about 300 acres in permanent pasture; they also take one or two crops of hay silage from this ground. In addition, they raise 60 to 70 acres of corn silage each year. All other forage harvesting is done by the herd. In a typical grazing season, heifers are put on pasture the second week of April and cows by the end of April. For two weeks, the milking herd still receives the winter total mixed ration. For another two weeks, the forage is gradually reduced in the total mixed ration until the cows are getting 20 pounds of grain and 5 pounds of corn silage per day (dry matter basis) to supplement the grazing—an 18-1/2 percent ration.

Cows are on pasture until late November. Then it's back to being fed entirely at the bunk with a 16 percent protein total mixed ration.

The herd is bred for spring and fall calving, with about 80 percent of calving in March, April, and May. The Eders are down to as few as 40 cows in milk during February.

Although their switch to rotational grazing was sudden, it wasn't without thought. The Eders believed it would help eliminate three problems they faced with their "traditional" stall barn and confinement feeding system. "One, we wanted to produce high-quality forage but were unable to due to our shortage of labor and equipment, and we couldn't afford to increase either," Eder explained. "Second, we weren't able to use the silo unloader (we had only one hay silage silo) while filling during the harvest period. This led to a lot of hand labor. Third, we didn't like keeping cows in the barn all day, every day, so we let them outside. But we felt this 'dry out' handling of dairy cows was a waste of manure nutrients and not very hygienic."

The switch to rotational grazing brought many benefits. With cattle on pasture seven months of the year, the need for mechanically harvested and stored forage was cut by 50 percent. They no longer have to throw down hay silage by hand during the harvest season. And fieldwork was reduced by 75 percent.

For the winter months, the Eders fill one 20-by 50-foot silo with first-crop hay silage. They also fill some silage bags and make 100 to 200 round bales for heifers and dry cows. "We know, through forage analysis, that our cows are getting better-

⁸Most of this case farm report has been excerpted from the April 25, 1997 issue of *Hoard's Dairyman*. It has been updated from the previous version.

quality forage on pasture which reduces their grain requirements,” Eder said. “Cows can harvest forage, even in the rain, at quality levels that are not practical with mechanical harvesting—shorter lengths and on a more frequent basis.”

The switch to a rotational grazing system also eliminated the need for housing and the many chores associated with it. During grazing season, all cattle are kept outside. In winter, the milking herd is kept on a bedded pack in an open shed. Heifers are kept outside near a grove of trees

The financial gains have been rewarding for the Eders. “When you are making money in farming, your whole outlook is different. You can wake up in the morning and feel good,” Eder pointed out.

The first year in farming (1988), the Eders shipped 807,000 pounds of milk for the year. In 2000, they shipped 2,778,609 pounds. The labor it took to produce that milk was the same both years—the Eders plus one part-time employee. Labor efficiency is a key strength of the operation. And, with cattle outside and harvesting their own forage most of the year, no new buildings or feed storage facilities have been needed. The only major building project was to install a double-14 swing parlor (14 units in center of pit) in one wing of their existing stall barn. The actual parlor (concrete work, stalls, and milking units) cost \$15,000. Improvements to the building (insulation, new ceiling, new interior walls, new windows, making it a clear-span structure) cost \$35,000. Automatic takeoffs and a crowd gate were added later at a cost of \$14,000. Even with this \$64,000 parlor project, the Eders were able to pay off lots of short-term debt since switching to grazing. And they’ve been able to boost their net worth substantially. Eder is quick to emphasize that his rotational grazing system is not low cost when it comes to variable inputs. They have a good herd of cows, and they feed them well. “We spent \$75,000-\$95,000 on feed,” he said, adding that they purchase all grain, protein, mineral, and calf feed.

After a few years of grazing, the Eders are convinced that the switch to rotational grazing was a good fit for their farm and lifestyle. On a daily basis, they have more time to do things with their children. On an annual basis, they’re able to take more—and longer—family vacations. And it gives them peace of mind to look out and see their children working with contented cows in green grass. “Many dairy producers are making the jump to large, confinement dairies to get the financial advantages that go with it. We’ve achieved financial advantages without making that big jump,” Eder concluded.

After only a few years of switching to grazing, the Eders shifted a significant amount of their attention to helping others in the dairy industry. They have shared their success with others. They have encouraged others to try grazing as active members of several farm organizations, including their local grazing network (which they helped start). As a producer-member of the American Grassland and Forage Council, Robert won the organization’s nation forage spokesperson contest in 2000 with his enthusiastic portrayal of what the grazing system has done for their farm, their family and for the environment. They have mentored several aspiring graziers and are gracious hosts to anyone who visits their farm. They are enthusiastic charter members of the Wisconsin Grazing Dairy Profitability Analysis.

Recently Eders have formed a cooperative with four other graziers to manufacture cheese from milk produced on pasture.

The Straub Case Farm from Michigan⁹

In 1992, Howard and Mary Jo Straub milked 80 cows three times a day, and their 24,800-pound rolling herd average was listed as second highest in their county. Howard says they were making a living and slowly paying off debt, but working far too hard in doing so. Looking back, Howard and Mary Jo agree that there appeared to be little chance their children would want to milk cows for a living. Or, even if the kids wanted to dairy, the margins were so thin, and the debt retirement so slow, that there would be no way the parents could provide much help in helping them get started.

Roll ahead to January 2004. Last year the Straubs shipped just 12,000 pounds of milk from about 95, largely crossbred, cows milked twice a day (once daily during the last few weeks of lactation), and bred seasonally to calve in April and dry up in February. Since starting with managed grazing in 1993, the Straubs have paid off a \$250,000 mortgage. They sold most of their equipment and cut their involuntary culling rate by two-thirds. Today they are nearly debt free, and spend more time planning trips and working on ways to reduce income tax payments than they do in worrying about per-cow production. With an 18 percent culling rate (7 percent from failure to meet their seasonal breeding window), Howard and Mary Jo could have milked more than 150 cows this year. But instead they will be milking closer to 60 because they have sold or traded (in return for labor) dozens of cattle to their kids.

⁹ Reprinted with slight modifications with permission from the February 2004 issue of *Graze* magazine.

There are lots of fairly similar financial success stories about people who have “switched” to grazing. But perhaps as least as well as anyone, the Straubs have accomplished something perhaps even more important: they’ve succeeded in attracting three of their four children into grazing-based dairying on their own operations.

Seven miles away, 23-year-old daughter Terri Hawbaker, and her husband, Rick, last year started milking 60 cows on 120 acres of pasture they purchased from Howard and Mary Jo with a bank loan. Closer to home, Patti Warnke, 31, and her husband, John, also borrowed money last year to buy 40 acres and build an attractive, six-unit swing parlor with a walk-in pit. Son Howie, 29, is recently married and starting a dairy in northern Ohio with a string of cattle from the home farm.

With the change over to grazing, many things changed on the farm, that both impacted the bottom line of the farm and also created a positive influence on the next generation for being involved in the dairy industry. What follows are a few of the changes.

The change to grazing ... and in attitude

Howard says that in his conventional era he would usually work 12 to 14-hour days growing crops and doing chores like mixing five separate daily rations. “Chores were a grind, and we didn’t really get to go anywhere,” Terri recalls.

But within a few years after the cows first went out on pasture (and most of the equipment was sold, most of the ration mixing ditched, and the old double-six parlor was retrofitted to a swing-11) Howard says his typical working day was down to eight to 10 hours. “And I started having more fun in the process,” he admits.

The change was obvious to the kids. Patti was already off on her own, but nevertheless saw the difference. “(Howard’s attitude) just turned when he started grazing.” “Their moods changed,” Terri says of her parents. “It was much more positive. They were happy and making money, and still got the chance to get away from the farm. My dad never wasted a chance to pop in and say that if you did it this way, you could have time off.”

“Yes, attitude has a lot to do with it,” Howard offers. “You can’t be whiney for very long and not have the kids pick up on that.” Adds Mary Jo: “You have to make them think they have an advantage being a farm kid.” That attitude seems to have rubbed off. In comparing herself to her non-farming peers, “I don’t envy them at all,” Terri asserts. She describes a recent dairy cooperative meeting where the attitude was definitely negative toward the future of smaller family farms. “It frustrates me that more people don’t encourage people our age to farm,” Terri says. “Those people are really missing out. We have the ability to do as well or better than the people in town.”

Help from home

Twelve years ago, the Straubs had a \$250,000 mortgage that was being whittled away very slowly. “I guess we didn’t really know at that time whether the kids would farm or not, and we just didn’t know if we could pull it off financially,” Mary Jo says.

Howard is a bit more certain when asked whether he could have helped any of his kids get into farming if he’d continued his conventional ways. “Absolutely not!”

This is pretty close to a textbook grazing story. Howard stopped buying equipment, and started selling most of what he had. Profit margins increased. Culling rates dropped from 32 percent to 18 percent (11 percent not counting sales of animals not fitting the breeding window), and the herd started growing from within.

Within a dozen years the mortgage was gone. Some of that was due to Howard and Mary Jo selling 120 acres to Terri and Rick, although Howard notes that capital gains taxes took a substantial bite from that payment and they sold the land at less than highest value so that the next generation could get a break.

Also over the years, selling heifers and cows to the kids in exchanged for labor, they have provided 25 cows and 66 youngstock to the various farming enterprises.

Perhaps more interesting is the fact that the older Straubs were able to leverage low culling rates and minimal investment in depreciable assets to put themselves into position to be able to offer such benefits in return for a little financial farsightedness from their children.

Developing a financial mindset

The Straubs began doing detailed financial analyses of their operation about four years ago. More importantly, they also shared the information with the family. It didn't take very long for the kids to start noticing their results.

Says Howie, who had graduated from Michigan State University with a degree in animal science (no grazing in the curriculum): "When I got to see the numbers, I got interested in grazing."

Adds Terri: "When they started running their numbers, that was pretty impressive." In her three-semester dairy program at MSU, a professor talked about setting a goal of netting \$400 per cow. "We were doing better than twice that," Terri marvels.

As he progressed in grazing and in analyzing his finances, Howard says he started learning about the financial power of equity growth through low culling rates, reducing depreciable asset overhead, and keeping overall debt to manageable levels in order to take advantage of opportunities when they present themselves.

"I tried to preach that the fastest way to build equity is through dairy cattle," he describes. And, while he certainly works to avoid income taxes, Howard suggests that it's "cheaper to pay the tax than to buy the equipment." His children were quick learners.

"I think they picked up on the concepts fairly quickly — especially when they went off to college and saw what others were doing compared to what we were doing." Howard says.

SUMMARY OF GRAZING FARMS BY HERD SIZE

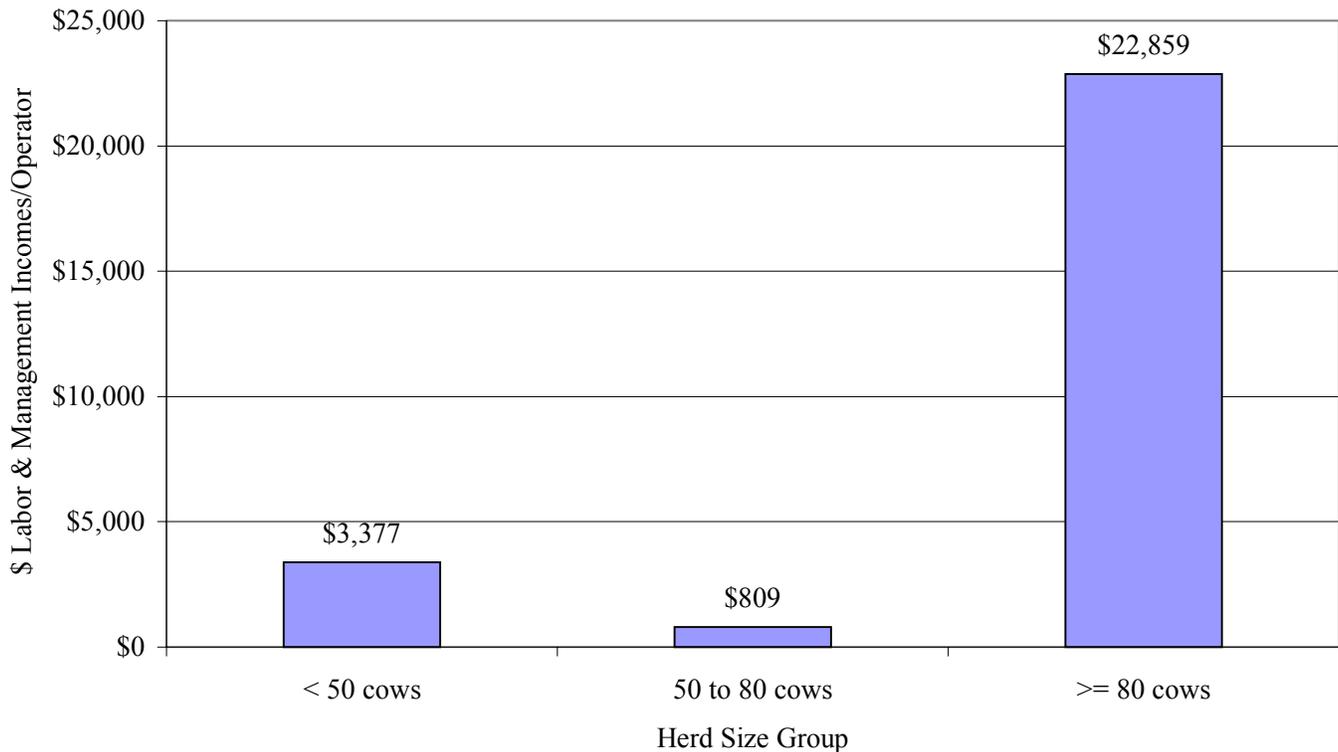
There were six grazing farms with more than 100 cows. The chart below shows the variation in labor and management income per operator by herd size group. The table on the following page compares grazing farms by herd size group.

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

- ◆ Average size of the herd was 245 cows.
- ◆ This group as an average received 83 percent of their forage DM from pasture during the grazing season.
- ◆ All but two of the farms provided water in every pasture
- ◆ Three of these farms fed additional forage.
- ◆ None of the farms fed baleage.
- ◆ All farms clipped pastures at least once during the year.
- ◆ One of the farms was a seasonal herd.
- ◆ Three farms selected the highest score for satisfaction (5), two others chose the second highest score (4), and one chose average satisfaction (3) compared to “in-barn” feeding.
- ◆ The average grazing season for this group was 199 days.
- ◆ Four of the herds moved their cows after each milking, while two herds moved the herd once a day.

DISTRIBUTION OF LABOR AND MANAGEMENT INCOMES PER OPERATOR

27 Intensive Grazing Dairy Farms, 2003



INTENSIVE GRAZING FARMS BY HERD SIZE GROUP
27 Intensive Grazing Dairy Farms, 2003

| Item | Less Than 50 Cows | 50 to 80 Cows | 80 Cows Or More |
|---|----------------------|------------------|--------------------|
| Number of farms | 8 | 10 | 9 |
| <u>Business Size & Production</u> | | | |
| Number of cows | 43 | 66 | 187 |
| Number of heifers | 33 | 47 | 136 |
| Milk sold, lbs. | 786,092 | 1,131,167 | 2,735,572 |
| Milk sold/cow, lbs. | 18,123 | 17,036 | 14,646 |
| Milk plant test, % butterfat | 3.84% | 3.71% | 3.80% |
| Cull rate | 21.6% | 29.9% | 25.0% |
| Tillable acres, total | 173 | 161 | 477 |
| Hay crop, tons DM/acre | 1.9 | 2.1 | 3.0 |
| Corn silage, tons/acre | 6.7 | 7.1 | 16.7 |
| Forage DM/cow, tons | 6.6 | 4.9 | 6.5 |
| <u>Labor & Capital Efficiency</u> | | | |
| Worker equivalent | 1.93 | 2.20 | 3.96 |
| Milk sold/worker, lbs. | 407,302 | 514,167 | 690,801 |
| Cows/worker | 22 | 30 | 47 |
| Farm capital/worker | \$202,781 | \$211,856 | \$257,590 |
| Farm capital/cow | \$9,102 | \$7,062 | \$5,455 |
| Farm capital/cwt. milk | \$50 | \$41 | \$37 |
| <u>Milk Production Costs & Returns</u> | | | |
| Selected costs/cwt.: | | | |
| Hired labor | \$0.60 | \$0.99 | \$1.80 |
| Grain & concentrate | 4.18 | 4.20 | 3.74 |
| Purchased roughage | 0.32 | 0.78 | 0.45 |
| Replacements purchased | 0.00 | 0.25 | 0.27 |
| Vet & medicine | 0.39 | 0.35 | 0.39 |
| Milk marketing | 1.02 | 0.97 | 0.88 |
| Other dairy expenses | 1.05 | 1.24 | 0.97 |
| Operating cost of producing milk/cwt. | 8.41 | 9.59 | 9.78 |
| Operator resources/cwt. | 6.07 | 3.92 | 2.69 |
| Total labor cost/cwt. | 6.25 | 4.92 | 3.60 |
| Total cost of producing milk/cwt. | 16.98 | 15.68 | 14.25 |
| Average farm price/cwt. | 13.43 | 13.31 | 14.01 |
| <u>Related Cost Factors</u> | | | |
| Hired labor/cow | \$110 | \$169 | \$264 |
| Total labor/cow | 1,143 | 843 | 527 |
| Purchased dairy feed/cow | 821 | 852 | 614 |
| Purchased grain & concentrate as % of milk receipts | 31% | 32% | 27% |
| Vet & medicine/cow | \$71 | \$60 | \$57 |
| Machinery costs/cow | \$563 | \$508 | \$403 |
| Feed & crop exp./cwt. | \$4.90 | \$5.46 | \$4.90 |
| <u>Profitability Analysis</u> | | | |
| Net farm income (without appreciation) | \$28,625 | \$29,413 | \$76,615 |
| Net farm income/cow (without appreciation) | \$666 | \$446 | \$410 |
| Net farm income/cwt. (without appreciation) | \$3.64 | \$2.60 | \$2.80 |
| Labor & management income/operator | \$3,377 | \$809 | \$22,859 |
| Rates of return on: | | | |
| Equity capital with appreciation | 1.0% | -0.8% | 8.7% |
| All capital with appreciation | 1.7% | 0.5% | 7.4% |

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 27 Intensive Grazing Dairy Farms, 2003

| Type of Farm | Number | Milking System | Number |
|-------------------------------|---------|--------------------------------|--------|
| Dairy | 27 | Bucket & carry | 0 |
| Part-time dairy | 0 | Dumping station | 0 |
| Dairy cash-crop | 0 | Pipeline | 16 |
| | | Herringbone-conventional exit | 5 |
| | | Herringbone-rapid exit | 0 |
| | | Parallel | 0 |
| | | Parabone | 2 |
| | | Rotary | 0 |
| | | Other | 4 |
| Type of Ownership | Number | Production Records | Number |
| Owner | 26 | Testing Service | 21 |
| Renter | 1 | On-Farm System | 1 |
| | | Other | 0 |
| | | None | 5 |
| Type of Business | Number | bST Usage | Number |
| Sole Proprietorship | 20 | Used consistently | 3 |
| Partnership | 4 | Used inconsistently | 2 |
| Limited Liability Corporation | 3 | Started using in 2003 | 0 |
| Subchapter S Corporation | 0 | Stopped using in 2003 | 0 |
| Subchapter C Corporation | 0 | Not used in 2003 | 22 |
| | | Average percent usage, if used | 73% |
| Type of Barn | Number | Business Record System | Number |
| Stanchion or Tie-Stall | 17 | Account Book | 10 |
| Freestall | 8 | Accounting Service | 2 |
| Combination | 2 | On-farm computer software | 15 |
| | | Other | 0 |
| Milking Frequency | Number | | |
| 2 times per day | 27 | | |
| 3 times per day | 0 | | |
| Other | 0 | | |
| Breed | Percent | | |
| Holstein | 73 | | |
| Jersey | 8 | | |
| Other | 19 | | |

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 2003.

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

27 Intensive Grazing Dairy Farms, 2003

| Expense Item | Cash Paid | - | Change in Inventory or Prepaid Expense | + | Change in Accounts Payable | = | Accrual Expenses |
|---------------------------------------|-----------|---|--|----|----------------------------------|---|---------------------|
| <u>Hired Labor</u> | \$ 21,774 | | \$ -41 | << | \$ 142 | | \$ 21,957 |
| <u>Feed</u> | | | | | | | |
| Dairy grain & concentrate | 61,517 | | 15 | | -81 | | 61,421 |
| Dairy roughage | 7,144 | | 130 | | 1,111 | | 8,125 |
| Nondairy | 85 | | 15 | | 0 | | 70 |
| Professional nutritional services | 67 | | 0 | | 0 | | 67 |
| <u>Machinery</u> | | | | | | | |
| Machinery hire, rent & lease | 4,626 | | 0 | << | 115 | | 4,741 |
| Machinery repairs & farm vehicle exp. | 13,237 | | 21 | | 46 | | 13,262 |
| Fuel, oil & grease | 6,296 | | 27 | | -99 | | 6,170 |
| <u>Livestock</u> | | | | | | | |
| Replacement livestock | 3,501 | | 0 | << | 0 | | 3,501 |
| Breeding | 3,296 | | -7 | | -18 | | 3,285 |
| Veterinary & medicine | 5,726 | | -53 | | 124 | | 5,903 |
| Milk marketing | 14,432 | | 0 | << | 8 | | 14,440 |
| Bedding | 1,267 | | 50 | | 0 | | 1,217 |
| Milking supplies | 4,599 | | 35 | | 354 | | 4,918 |
| Cattle lease & rent | 570 | | 0 | << | 0 | | 570 |
| Custom boarding | 1,313 | | 0 | << | -6 | | 1,306 |
| bST expense | 1,132 | | 19 | | -20 | | 1,093 |
| Livestock professional fees | 781 | | 0 | | 0 | | 781 |
| Other livestock expense | 3,332 | | 17 | | -1 | | 3,314 |
| <u>Crops</u> | | | | | | | |
| Fertilizer & lime | 6,234 | | -343 | | -969 | | 5,608 |
| Seeds & plants | 2,181 | | -244 | | 0 | | 2,425 |
| Spray, other crop expense | 1,369 | | 32 | | 52 | | 1,389 |
| Crop professional fees | 21 | | 0 | | 8 | | 29 |
| <u>Real Estate</u> | | | | | | | |
| Land, building & fence repair | 3,238 | | 6 | | 204 | | 3,436 |
| Taxes | 5,834 | | -4 | << | -84 | | 5,754 |
| Rent & lease | 4,957 | | 0 | << | 0 | | 4,957 |
| <u>Other</u> | | | | | | | |
| Insurance | 3,937 | | 0 | << | -93 | | 3,844 |
| Utilities (farm share) | 6,423 | | 0 | << | 74 | | 6,497 |
| Interest paid | 9,162 | | 0 | << | -13 | | 9,149 |
| Other professional fees | 671 | | 0 | | 0 | | 671 |
| Miscellaneous | 1,946 | | -4 | | -21 | | 1,929 |
| Total Operating | \$200,669 | | \$ -327 | | \$ 831 | | \$ 201,827 |
| Expansion livestock | 2,027 | | 0 | << | 0 | | 2,027 |
| Extraordinary expense | 0 | | 0 | | 0 | | 0 |
| Machinery depreciation | | | | | | | 14,584 |
| Building depreciation | | | | | | | 6,291 |
| TOTAL ACCRUAL EXPENSES | | | | | | | \$ 224,729 |

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 2003 but not paid for. A decrease is subtracted because it represents payment for resources used before 2003.

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

27 Intensive Grazing Dairy Farms, 2003

| Receipt Item | Cash Receipts | + | Change in Inventory | + | Change in Accounts Receivable | = | Accrual Receipts |
|--|------------------|-----|------------------------|---|-------------------------------------|-----|---------------------|
| Milk sales | \$ 212,557 | | | | \$ 2,192 | | \$ 214,749 |
| Dairy cattle | 12,596 | | \$ 197 | | 179 | | 12,972 |
| Dairy calves | 2,291 | | 4,379 | | -58 | | 6,612 |
| Other livestock | 1,272 | | -320 | | -30 | | 922 |
| Crops | 866 | | 7,263 | | 37 | | 8,166 |
| Government receipts | 22,903 | | 0 ¹⁰ | | -816 | | 22,087 |
| Custom machine work | 279 | | | | -30 | | 250 |
| Gas tax refund | 51 | | | | 0 | | 51 |
| Other | 4,004 | | | | -212 | | 3,792 |
| Less nonfarm noncash capital ¹¹ | | (-) | 0 ¹¹ | | | (-) | 0 |
| Total Receipts | \$ 256,820 | | \$ 11,519 | | \$ 1,262 | | \$ 269,601 |

¹⁰Change in advanced government receipts.

¹¹Gifts 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 2003 for the 2004 crop year in excess of funds earned for 2003. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2003 but received in 2002.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January for milk produced in December 2003 compared to January 2003 payments for milk produced in 2002 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 operators¹² 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.

¹²Operators 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.

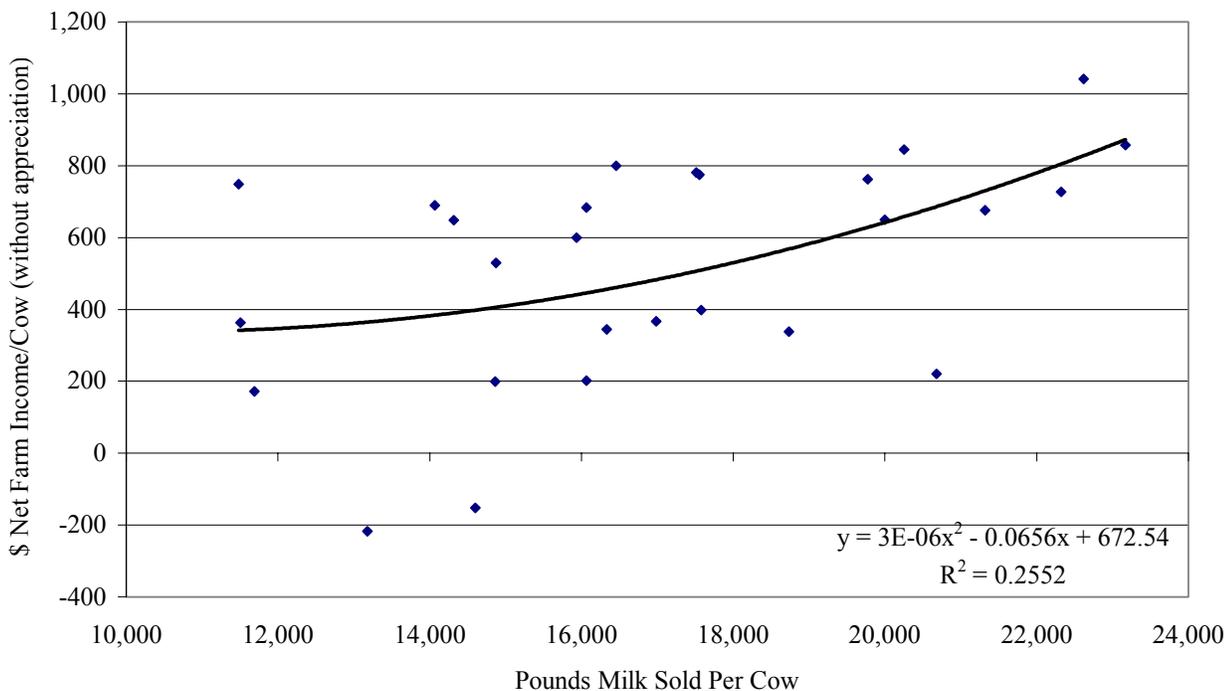
NET FARM INCOME
Intensive Grazing Dairy Farms, 2003

| Item | 27 Grazing Dairy Farms ¹³ | 10 Above Average Farms ¹³ | 10 Below Average Farms ¹³ |
|--|--------------------------------------|--------------------------------------|--------------------------------------|
| Total accrual receipts | \$ 269,601 | \$ 210,891 | \$ 350,333 |
| Appreciation: Livestock | 3,686 | 4,388 | -270 |
| Machinery | 5,725 | 4,415 | 8,528 |
| Real Estate | 8,125 | 4,573 | 9,136 |
| Other Stock & Certificates | <u>253</u> | <u>177</u> | <u>507</u> |
| Total Including Appreciation | \$ 287,390 | \$ 224,444 | \$ 368,234 |
| Total accrual expenses | <u>- 224,729</u> | <u>- 160,799</u> | <u>- 309,802</u> |
| Net Farm Income (with appreciation) | \$ 62,661 | \$ 63,645 | \$ 58,432 |
| Net Farm Income Per Cow (with appreciation) | \$ 627 | \$ 964 | \$ 403 |
| Net Farm Income (without appreciation) | \$ 44,872 | \$ 50,092 | \$ 40,531 |
| Net Farm Income Per Cow (without appreciation) | \$ 449 | \$ 759 | \$ 280 |

¹³See page 1 for a description of these groups of farms.

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

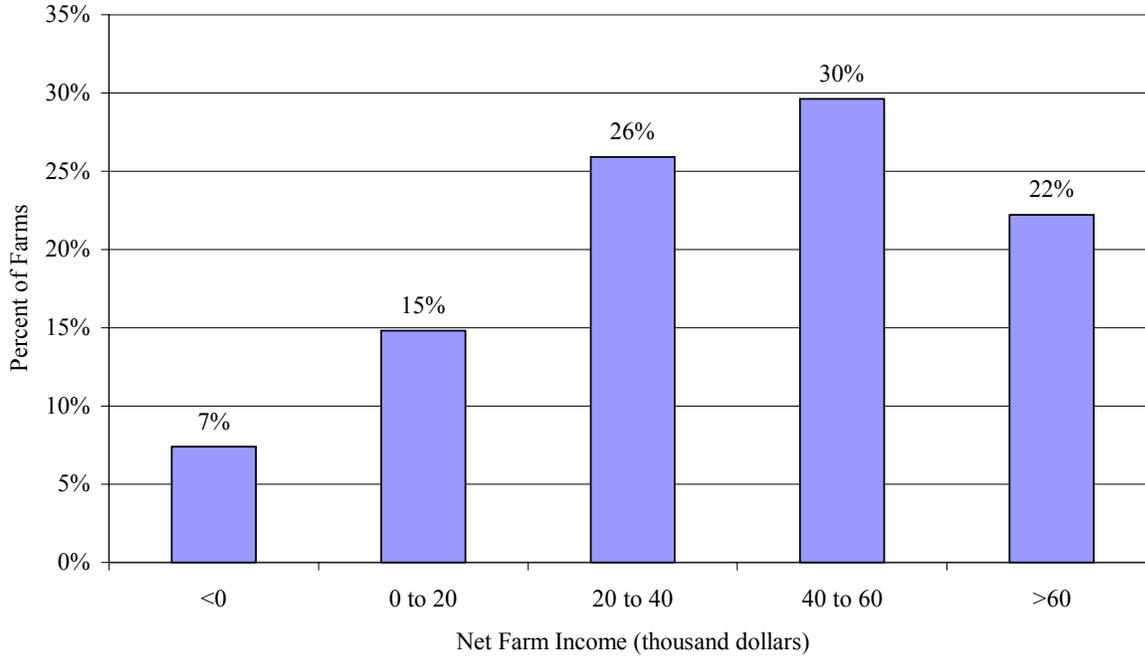
NET FARM INCOME PER COW AND MILK PER COW
27 Intensive Grazing Farms, 2003



Net farm income without appreciation averaged \$44,872 on these 27 farms in 2003. The range in net farm income without appreciation was from less than \$-9,000 to more than \$175,000. Net farm income was less than \$20,000 on 22 percent of the farms, between \$20,000 and \$60,000 on 56 percent of the farms, while 22 percent showed net farm income of \$60,000 or more.

DISTRIBUTION OF NET FARM INCOME WITHOUT APPRECIATION

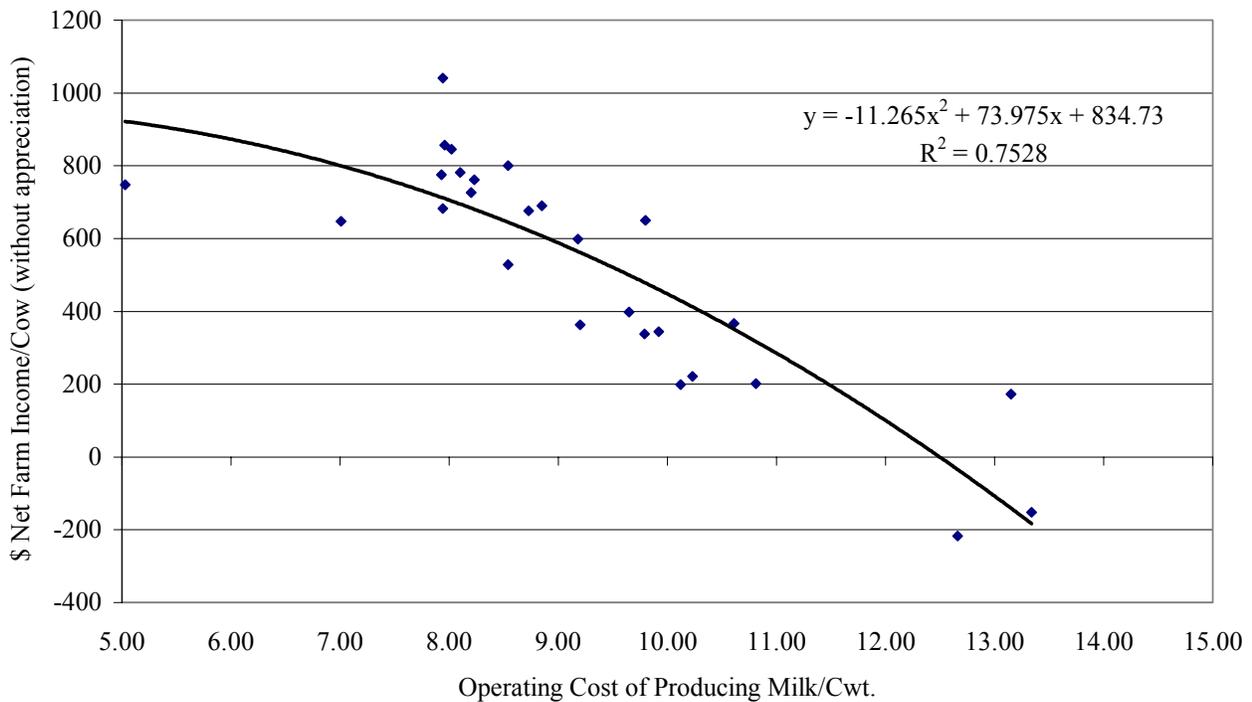
27 Intensive Grazing Farms, 2003



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.

27 Intensive Grazing Farms, 2003



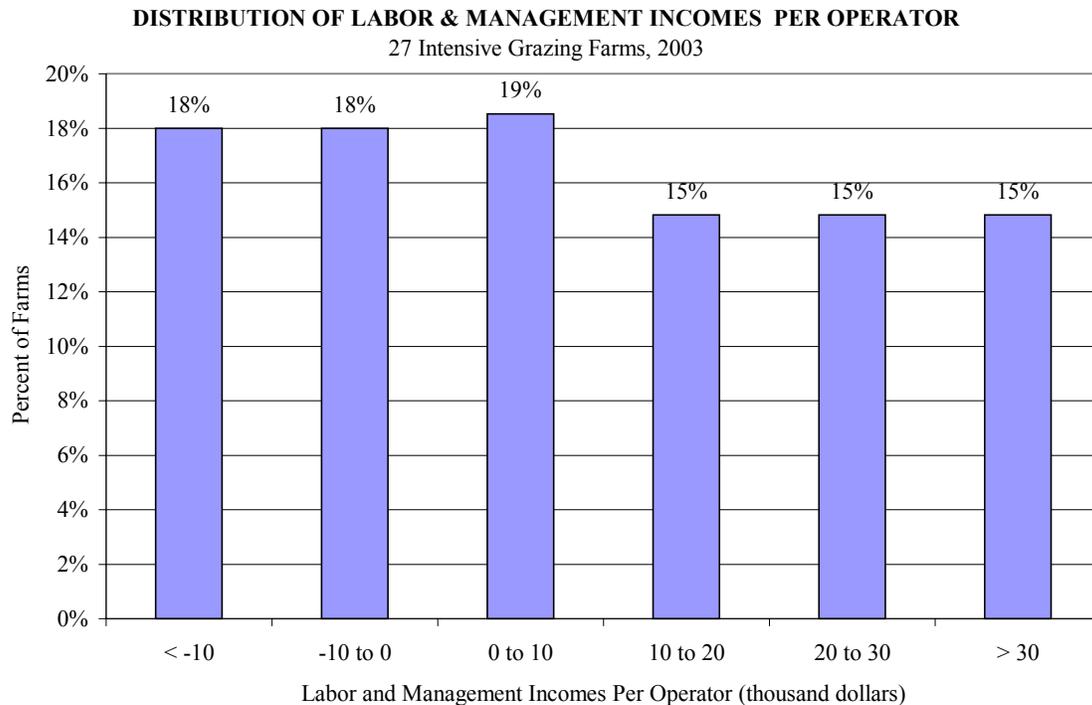
Labor and management income is the return which farm operators receive for their labor and management used in the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and 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, 2003

| Item | 27 Grazing Dairy Farms ¹⁴ | 10 Above Average Farms ¹⁴ | 10 Below Average Farms ¹⁴ |
|---|--------------------------------------|--------------------------------------|--------------------------------------|
| Net farm income without appreciation | \$ 44,872 | \$ 50,092 | \$ 40,531 |
| Family labor unpaid @ \$2,200 per month | - 10,234 | - 7,392 | - 9,878 |
| Interest on average equity capital @ 5% real rate | - 21,530 | - 20,152 | - 25,553 |
| Labor & Management Income per farm | \$ 13,108 | \$ 22,548 | \$ 5,100 |
| Labor & Management Income per Operator/Manager | \$ 9,638 | \$ 16,702 | \$ 3,984 |
| Labor & Management Income per Operator per Cow | \$ 96 | \$ 253 | \$ 27 |

¹⁴See page 1 for a description of these groups of farms.

Labor and management income per operator averaged \$9,638 on these 27 farms in 2003. The range in labor and management income per operator was from less than \$-56,000 to more than \$110,000. Returns to labor and management were less than \$0 on 36 percent of the farms. Labor and management income per operator was between \$0 and \$20,000 on 34 percent of the farms while 30 percent showed labor and management incomes of \$20,000 or more per operator.



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. A large percentage of farms fall near \$0 to \$20,000 with a considerable percentage less than zero. One comparison to make to the state distribution is the percentage of farms that were above \$20,000 labor and management income per operator. For the intensive grazing farms, 30% of the farms had returns that were over \$20,000, while for 170 farms across the state, 18% had returns greater than \$20,000 in 2003.

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, 2003

| Item | 27 Grazing Dairy Farms ¹⁵ | 10 Above Average Farms ¹⁵ | 10 Below Average Farms ¹⁵ |
|---|---|---|---|
| Net farm income with appreciation | \$ 62,661 | \$ 63,645 | \$ 58,432 |
| Family labor unpaid @\$2,200 per month | - 10,234 | - 7,392 | - 9,878 |
| Value of operators' labor & management | <u>- 33,593</u> | <u>- 34,000</u> | <u>- 34,200</u> |
| Return on equity capital with appreciation | \$ 18,834 | \$ 22,253 | \$ 14,354 |
| Interest paid | <u>+ 9,149</u> | <u>+ 4,882</u> | <u>+ 14,859</u> |
| Return on total capital with appreciation | \$ 27,983 | \$ 27,135 | \$ 29,213 |
| Return on equity capital without appreciation | \$ 1,045 | \$ 8,700 | \$ -3,547 |
| Return on total capital without appreciation | \$ 10,194 | \$ 22,253 | \$ 11,312 |
| Rate of return on average equity capital: | | | |
| with appreciation | 4.4% | 5.5% | 2.8% |
| without appreciation | 0.2% | 2.2% | -0.7% |
| Rate of return on average total capital: | | | |
| with appreciation | 4.5% | 5.3% | 3.6% |
| without appreciation | 1.6% | 2.7% | 1.4% |
| Net farm income from operations ratio | 0.17 | 0.24 | 0.12 |

¹⁵See 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 2003, lease payments were discounted by 5.5 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2003 that are for participation in the 2004 program are the end year balance and payments received in 2002 for participation in the 2003 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.

2003 FARM BUSINESS & NONFARM BALANCE SHEET

27 Intensive Grazing Dairy Farms, 2003

| Farm Assets | Jan. 1 | Dec. 31 | Farm Liabilities & Net Worth | Jan. 1 | Dec. 31 |
|----------------------------------|---------------|---------------|---------------------------------|--------------|--------------|
| <u>Current</u> | | | <u>Current</u> | | |
| Farm cash, checking & savings | \$ 7,552 | \$ 5,479 | Accounts payable | \$ 6,962 | \$ 7,793 |
| Accounts receivable | 14,858 | 16,122 | Operating debt | 6,978 | 4,575 |
| Prepaid expenses | 198 | 154 | Short Term | 772 | 1,855 |
| Feed & supplies | <u>35,710</u> | <u>42,691</u> | Advanced govt. receipts | 0 | 0 |
| Total Current | \$ 58,318 | \$ 64,446 | Current Portion: | | |
| | | | Intermediate | 17,740 | 18,307 |
| | | | Long Term | <u>8,887</u> | <u>8,144</u> |
| | | | Total Current | \$ 41,339 | \$ 40,674 |
| <u>Intermediate</u> | | | <u>Intermediate</u> | | |
| Dairy cows: | | | Structured debt | | |
| owned | \$ 106,628 | \$ 109,530 | 1-10 years | \$ 67,808 | \$ 60,222 |
| leased | 77 | 0 | Financial lease | | |
| Heifers | 52,553 | 57,913 | (cattle/machinery) | 1,290 | 972 |
| Bulls & other livestock | 3,775 | 3,454 | Farm Credit stock | <u>1,450</u> | <u>1,679</u> |
| Mach. & equip. owned | 115,498 | 120,582 | Total Intermediate | \$ 70,548 | \$ 62,873 |
| Mach. & equip. leased | 1,213 | 972 | | | |
| Farm Credit stock | 1,450 | 1,679 | | | |
| Other stock/certificate | <u>5,523</u> | <u>5,902</u> | | | |
| Total Intermediate | \$ 286,717 | \$ 300,032 | | | |
| <u>Long Term</u> | | | <u>Long Term</u> | | |
| Land & buildings: | | | Structured debt | | |
| owned | \$ 256,326 | \$ 291,369 | >10 years | \$ 82,732 | \$ 97,835 |
| leased | <u>0</u> | <u>0</u> | Financial lease | | |
| Total Long Term | \$ 256,326 | \$ 291,369 | (structures) | <u>0</u> | <u>0</u> |
| | | | Total Long Term | \$ 82,732 | \$ 97,835 |
| Total Farm Assets | \$ 601,361 | \$ 655,847 | Total Farm Liab. | \$ 194,619 | \$ 201,382 |
| | | | FARM NET WORTH | \$ 406,742 | \$ 454,465 |

Nonfarm Assets, Liabilities & Net Worth (Average of 19 farms reporting)

| Assets | Jan. 1 | Dec. 31 | Liabilities & Net Worth | Jan. 1 | Dec. 31 |
|--------------------------------------|--------------|---------------|-------------------------|-----------|-----------|
| Personal cash, checking & savings | \$ 6,326 | \$ 9,222 | Nonfarm Liabilities | \$ 173 | \$ 0 |
| Cash value life insurance | 12,031 | 11,741 | | | |
| Nonfarm real estate | 13,763 | 14,182 | | | |
| Auto (personal share) | 7,548 | 6,500 | | | |
| Stocks & bonds | 19,161 | 24,815 | | | |
| Household furnishings | 12,842 | 12,895 | | | |
| All other nonfarm assets | <u>5,895</u> | <u>10,262</u> | | | |
| Total Nonfarm Assets | \$ 77,566 | \$ 89,617 | NONFARM NET WORTH | \$ 77,393 | \$ 89,617 |

Farm & Nonfarm Assets, Liabilities, and Net Worth¹⁶

| | Jan. 1 | Dec. 31 |
|--------------------------------|----------------|----------------|
| Total Assets | \$678,927 | \$ 745,464 |
| Total Liabilities | <u>194,792</u> | <u>201,382</u> |
| TOTAL FARM & NONFARM NET WORTH | \$ 484,135 | \$ 544,082 |

¹⁶Assumes that average nonfarm assets and liabilities for the nonreporting farms were the same as for those reporting.

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

BALANCE SHEET ANALYSIS
Intensive Grazing Dairy Farms, 2003

| Item | 27 Grazing Dairy Farms ¹⁷ | 10 Above Average Farms ¹⁷ | 10 Below Average Farms ¹⁷ |
|---|---|---|---|
| <u>Financial Ratios - Farm:</u> | | | |
| Percent equity | 69% | 81% | 64% |
| Debt/asset ratio: total | 0.31 | 0.19 | 0.36 |
| long-term | 0.34 | 0.18 | 0.41 |
| intermediate/current | 0.28 | 0.20 | 0.32 |
| Leverage Ratio | 0.44 | 0.28 | 0.56 |
| Current Ratio | 1.58 | 3.73 | 0.97 |
| Working Capital: \$23,772, As % of Expenses | 11% | (\$26,938) 17% | (\$-2,252) -1% |
| <u>Farm Debt Analysis:</u> | | | |
| Accounts payable as % of total debt | 4% | 2% | 6% |
| Long-term liabilities as a % of total debt | 49% | 38% | 52% |
| Current & inter. liabilities as a % of total debt | 51% | 51% | 48% |
| Cost of term debt (weighted average) | 4.7% | 4.7% | 4.8% |
| | 27 Grazing Dairy Farms | 10 Above Average Farms | 10 Below Average Farms |
| | Per Tillable | Per Tillable | Per Tillable |
| | Per Cow | Per Cow | Per Cow |
| | Per Acre Owned | Per Acre Owned | Per Acre Owned |
| <u>Farm Debt Levels:</u> | | | |
| Total farm debt | \$ 2,014 | \$ 1,398 | \$ 1,526 |
| Long-term debt | 978 | 679 | 727 |
| Intermediate & long term | 1,607 | 1,116 | 635 |
| Intermediate & current debt | 1,035 | 719 | 466 |
| | \$ 2,036 | \$ 1,750 | \$ 2,036 |
| | \$ 1,750 | \$ 1,750 | \$ 1,750 |

¹⁷ 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
27 Intensive Grazing Dairy Farms, 2003

| Item | Real Estate | Machinery & Equipment |
|-------------------------|-------------------------|-----------------------|
| Value beginning of year | \$ 256,326 | \$ 115,498 |
| Purchases | \$ 36,671 ¹⁸ | \$ 14,727 |
| Gift & inheritance | + 1,852 | + 0 |
| Lost capital | - 5,312 | - |
| Sales | - 0 | - 784 |
| Depreciation | - 6,291 | - 14,584 |
| Net investment | = 26,918 | = -641 |
| Appreciation | + 8,125 | + 5,725 |
| Value end of year | \$ 291,369 | \$ 120,582 |

¹⁸\$18,624 land and \$18,047 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, 2003

| Item | 27 Grazing Dairy Farms ¹⁹ | 10 Above Average Farms ¹⁹ | 10 Below Average Farms ¹⁹ |
|--|---|---|---|
| Beginning of year farm net worth | \$ 406,742 | \$ 382,042 | \$ 484,762 |
| Net farm income w/o appreciation | \$ 44,872 | \$ 50,092 | \$ 40,531 |
| +Nonfarm cash income | + 9,233 | + 9,614 | + 5,646 |
| -Personal withdrawals & family expenditures excluding nonfarm borrowings | - 37,200 | - 42,937 | - 34,387 |
| RETAINED EARNINGS | +\$ 16,905 | +\$ 16,769 | +\$ 11,790 |
| Nonfarm noncash transfers to farm | \$ 1,852 | \$ 5,000 | \$ 0 |
| +Cash used in business from nonfarm capital | + 16,833 | + 8,684 | + 29,050 |
| -Note or mortgage from farm real estate sold (nonfarm) | - 0 | - 0 | - 0 |
| CONTRIBUTED/ WITHDRAWN CAPITAL | +\$ 18,685 | +\$ 13,684 | +\$ 29,050 |
| Appreciation | \$ 17,789 | \$ 13,553 | \$ 17,901 |
| -Lost capital | - 5,312 | - 1,870 | - 5,242 |
| CHANGE IN VALUATION EQUITY | +\$ 12,477 | +\$ 11,683 | +\$ 12,659 |
| IMBALANCE/ERROR | - 344 | - 128 | - 925 |
| End of year net worth ²⁰ | =\$454,465 | =\$424,050 | =\$537,336 |
| <hr/> | | | |
| <u>Change in Net Worth</u> | | | |
| Without appreciation | \$ 29,934 | \$ 28,455 | \$ 34,673 |
| With appreciation | \$ 47,723 | \$ 42,008 | \$ 52,574 |

¹⁹See page 1 for a description of these groups of farms.

²⁰May 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
27 Intensive Grazing Dairy Farms, 2003

| Item | Average | |
|---|--------------|------------------|
| <u>Cash Flow from Operating Activities</u> | | |
| Cash farm receipts | \$ 256,820 | |
| - Cash farm expenses | 200,669 | |
| - Extraordinary expense | <u>0</u> | |
| = Net cash farm income | | \$ 56,151 |
| Personal withdrawals & family expenses including nonfarm debt payments | \$ 37,200 | |
| - Nonfarm income | <u>9,233</u> | |
| - Net cash withdrawals from the farm | | <u>\$ 27,967</u> |
| = Net Provided by Operating Activities | | \$ 28,184 |
| <u>Cash Flow From Investing Activities</u> | | |
| Sale of assets: machinery | \$ 784 | |
| + real estate | 0 | |
| + other stock & cert. | <u>290</u> | |
| = Total asset sales | | \$ 1,074 |
| Capital purchases: expansion livestock | \$ 2,027 | |
| + machinery | 14,727 | |
| + real estate | 36,671 | |
| + other stock & cert. | <u>415</u> | |
| - Total invested in farm assets | | <u>\$ 53,840</u> |
| = Net Provided by Investment Activities | | \$ -52,766 |
| <u>Cash Flow From Financing Activities</u> | | |
| Money borrowed (intermediate & long term) | \$ 36,003 | |
| + Money borrowed (short term) | 1,266 | |
| + Increase in operating debt | 0 | |
| + Cash from nonfarm capital used in business | 16,833 | |
| + Money borrowed - nonfarm | <u>0</u> | |
| = Cash inflow from financing | | \$ 54,102 |
| Principal payments (intermediate & long term) | \$ 28,662 | |
| + Principal payments (short term) | 183 | |
| + Decrease in operating debt | <u>2,403</u> | |
| - Cash outflow for financing | | <u>\$ 31,248</u> |
| = Net Provided by Financing Activities | | \$ 22,854 |
| <u>Cash Flow From Reserves</u> | | |
| Beginning farm cash, checking & savings | | \$ 7,552 |
| - Ending farm cash, checking & savings | | <u>5,479</u> |
| = Net Provided from Reserves | | \$ 2,073 |
| Imbalance (error) | | <u>\$ 345</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 2004. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2004 debt payments shown below.

FARM DEBT PAYMENTS PLANNED Same Intensive Grazing Dairy Farms, 2002 & 2003

| Debt Payments | Same 23 Grazing | | | Same 7 Above Average Farms | | | Same 9 Below Average Farms | | |
|-------------------------------------|-----------------|-----------|-----------------|----------------------------|-----------|-----------------|----------------------------|-----------|-----------------|
| | 2003 Payments | | Planned 2004 | 2003 Payments | | Planned 2004 | 2003 Payments | | Planned 2004 |
| | Planned | Made | | Planned | Made | | Planned | Made | |
| Long term | \$ 9,867 | \$ 13,622 | \$ 13,142 | \$ 8,981 | \$ 9,740 | \$ 9,670 | \$ 12,113 | \$ 19,912 | \$ 15,225 |
| Intermediate term | 19,852 | 25,924 | 24,243 | 10,998 | 13,225 | 11,860 | 27,061 | 35,204 | 36,885 |
| Short term | 859 | 328 | 1,678 | 1,886 | 150 | 2,000 | 566 | 561 | 2,733 |
| Operating (net reduction) | 3,319 | 4,150 | 424 | 529 | 296 | 1,271 | 7,967 | 8,408 | 0 |
| Accounts Pay. (net reduction) | 630 | 407 | 88 | 0 | 324 | 2 | 1,533 | 787 | 222 |
| Total | \$ 34,527 | \$ 44,431 | \$ 39,575 | \$ 22,393 | \$ 23,735 | \$ 24,803 | \$ 49,240 | \$ 64,872 | \$ 55,065 |
| Per cow | \$ 326 | \$ 419 | | \$ 334 | \$ 354 | | \$ 322 | \$ 424 | |
| Per cwt. 2003 milk | \$ 2.11 | \$ 2.72 | | \$ 1.76 | \$ 1.86 | | \$ 2.35 | \$ 3.10 | |
| Percent of total 2003 farm receipts | 12% | 16% | | 10% | 11% | | 14% | 18% | |
| Percent of 2003 milk receipts | 15% | 20% | | 13% | 14% | | 17% | 22% | |

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 2003 (as of December 31, 2002) that could have been made with the amount available for debt service in 2003. Farmers who did not participate in DFBS in 2002 have their 2003 coverage ratios based on planned debt payments for 2004.

COVERAGE RATIOS

Same Intensive Grazing Dairy Farms, 2002 & 2003

| Item | Average | Item | Average |
|--|-----------|-------------------------------------|-----------|
| Same 23 Grazing Dairy Farms, 2002 & 2003 | | | |
| (A)=Amount Available for Debt Service | \$ 39,103 | (A')=Repayment Capacity | \$ 48,017 |
| (B)=Debt Payments Planned for 2003 | \$ 34,527 | (B)=Debt Payments Planned for 2003 | \$ 34,527 |
| (A/B)=Cash Flow Coverage Ratio for 2003 | 1.13 | (A'/B)=Debt Coverage Ratio for 2003 | 1.39 |
| ----- | | | |
| Same 7 Above Average Farms, 2002 & 2003 | | | |
| (A)=Amount Available for Debt Service | \$ 21,889 | (A')=Repayment Capacity | \$ 34,275 |
| (B)=Debt Payments Planned for 2003 | \$ 22,393 | (B)=Debt Payments Planned for 2003 | \$ 22,393 |
| (A/B)=Cash Flow Coverage Ratio for 2003 | 0.98 | (A'/B)=Debt Coverage Ratio for 2003 | 1.53 |
| ----- | | | |
| Same 9 Below Average Farms, 2002 & 2003 | | | |
| (A)=Amount Available for Debt Service | \$ 52,223 | (A')=Repayment Capacity | \$ 56,975 |
| (B)=Debt Payments Planned for 2003 | \$ 49,240 | (B)=Debt Payments Planned for 2003 | \$ 49,240 |
| (A/B)=Cash Flow Coverage Ratio for 2003 | 1.06 | (A'/B)=Debt Coverage Ratio for 2003 | 1.160 |

ANNUAL CASH FLOW WORKSHEET

Intensive Grazing Dairy Farms, 2003

| Item | 27 Grazing Dairy Farms | | 10 Above Average Farms | | 10 Below Average Farms | |
|--|---------------------------|--------------|---------------------------|--------------|---------------------------|--------------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Average no. of cows | 100 | | 66 | | 145 | |
| Total cwt. of milk sold | | 15,637 | | 12,342 | | 20,004 |
| <u>Accrual Operating Receipts</u> | | | | | | |
| Milk | \$ 2,147 | \$ 13.73 | \$ 2,534 | \$ 13.55 | \$ 1,938 | \$ 14.05 |
| Dairy cattle | 130 | 0.83 | 224 | 1.20 | 114 | 0.82 |
| Dairy calves | 66 | 0.42 | 24 | 0.13 | 96 | 0.69 |
| Other livestock | 9 | 0.06 | 5 | 0.03 | 6 | 0.04 |
| Crops | 81 | 0.52 | 79 | 0.42 | 50 | 0.36 |
| Misc. Receipts | <u>262</u> | <u>1.67</u> | <u>330</u> | <u>1.76</u> | <u>213</u> | <u>1.54</u> |
| Total | \$ 2,696 | \$ 17.23 | \$ 3,196 | \$ 17.09 | \$ 2,417 | \$ 17.50 |
| <u>Accrual Operating Expenses</u> | | | | | | |
| Hired labor | \$ 220 | \$ 1.40 | \$ 249 | \$ 1.33 | \$ 220 | \$ 1.60 |
| Dairy grain & concentrate | 614 | 3.93 | 682 | 3.65 | 559 | 4.05 |
| Dairy roughage | 81 | 0.52 | 75 | 0.40 | 72 | 0.52 |
| Nondairy feed | 1 | 0.01 | 0 | 0.00 | 1 | 0.01 |
| Professional nutritional services | 1 | 0.01 | 0 | 0.00 | 0 | 0.00 |
| Mach. hire, rent & lease | 47 | 0.30 | 30 | 0.16 | 55 | 0.40 |
| Mach. repair & vehicle expense | 133 | 0.85 | 164 | 0.87 | 111 | 0.80 |
| Fuel, oil & grease | 62 | 0.39 | 72 | 0.39 | 54 | 0.39 |
| Replacement livestock | 35 | 0.22 | 30 | 0.16 | 46 | 0.34 |
| Breeding | 33 | 0.21 | 47 | 0.25 | 27 | 0.20 |
| Vet & medicine | 59 | 0.38 | 60 | 0.32 | 53 | 0.39 |
| Milk marketing | 144 | 0.92 | 197 | 1.05 | 135 | 0.98 |
| Bedding | 12 | 0.08 | 17 | 0.09 | 9 | 0.06 |
| Milking supplies | 49 | 0.31 | 52 | 0.28 | 49 | 0.36 |
| Cattle lease | 6 | 0.04 | 3 | 0.02 | 9 | 0.07 |
| Custom boarding | 13 | 0.08 | 10 | 0.05 | 7 | 0.05 |
| bST expense | 11 | 0.07 | 7 | 0.04 | 13 | 0.09 |
| Livestock professional fees | 8 | 0.05 | 16 | 0.09 | 2 | 0.01 |
| Other livestock expense | 33 | 0.21 | 49 | 0.26 | 25 | 0.18 |
| Fertilizer & lime | 56 | 0.36 | 51 | 0.27 | 62 | 0.45 |
| Seeds & plants | 24 | 0.16 | 31 | 0.17 | 16 | 0.11 |
| Spray & other crop expense | 14 | 0.09 | 22 | 0.12 | 10 | 0.07 |
| Crop professional fees | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Land, bldg., fence repair | 34 | 0.22 | 47 | 0.25 | 27 | 0.19 |
| Taxes | 58 | 0.37 | 73 | 0.39 | 53 | 0.39 |
| Real estate rent & lease | 50 | 0.32 | 17 | 0.09 | 62 | 0.45 |
| Insurance | 38 | 0.25 | 54 | 0.29 | 31 | 0.22 |
| Utilities | 65 | 0.42 | 70 | 0.01 | 61 | 0.44 |
| Miscellaneous | <u>26</u> | <u>0.17</u> | <u>38</u> | <u>0.20</u> | <u>21</u> | <u>0.15</u> |
| Total Less Interest Paid | \$ 1,927 | \$ 12.32 | \$ 2,158 | \$ 11.54 | \$ 1,790 | \$ 12.98 |
| <u>Net Accrual Operating Income</u> | | <u>Total</u> | | <u>Total</u> | | <u>Total</u> |
| (without interest paid) | \$ 76,923 | | \$ 68,444 | | \$ 90,915 | |
| - Change in livestock & crop invent. ²¹ | 11,519 | | 7,880 | | 14,411 | |
| - Change in accounts receivable | 1,262 | | 2,886 | | -366 | |
| - Change in feed & supply inventory ²² | -327 | | 1,929 | | -1,205 | |
| + Change in accounts payable ²³ | <u>844</u> | | <u>-157</u> | | <u>1,789</u> | |
| NET CASH FLOW | \$ 65,313 | | \$ 55,592 | | \$ 79,864 | |
| - Net family withdrawals | <u>- 27,967</u> | | <u>- 33,323</u> | | <u>- 28,741</u> | |
| Available for Farm | \$ 37,346 | | \$ 22,269 | | \$ 51,123 | |
| - Farm debt payments | <u>- 42,104</u> | | <u>- 23,437</u> | | <u>- 63,052</u> | |
| Available for Farm Investment | \$ -4,758 | | \$ -1,168 | | \$ -11,929 | |
| - Capital purchases | \$ 53,840 | | \$ 22,783 | | \$ 60,849 | |
| Additional Capital Needed | \$ 58,598 | | \$ 23,951 | | \$ 72,778 | |

²¹Includes change in advance government receipts. ²²Includes change in prepaid expenses. ²³Excludes 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, 2003

| Item | 27 Grazing Dairy Farms | | | 10 Above Average Farms | | | 10 Below Average Farms | | |
|-------------------------|------------------------|---------------------------|----------------------|------------------------|---------------------------|----------------------|------------------------|---------------------------|----------------------|
| | <u>Owned</u> | <u>Rented</u> | <u>Total</u> | <u>Owned</u> | <u>Rented</u> | <u>Total</u> | <u>Owned</u> | <u>Rented</u> | <u>Total</u> |
| <u>Land</u> | | | | | | | | | |
| Tillable | 144 | 126 | 270 | 128 | 67 | 195 | 171 | 205 | 376 |
| Nontillable | 41 | 11 | 52 | 38 | 6 | 44 | 38 | 15 | 53 |
| Other nontill. | <u>109</u> | <u>15</u> | <u>124</u> | <u>126</u> | <u>20</u> | <u>146</u> | <u>131</u> | <u>19</u> | <u>150</u> |
| Total | 294 | 152 | 446 | 292 | 93 | 385 | 340 | 239 | 579 |
| <u>Crop Yields</u> | <u>Farms</u> | <u>Acres²⁴</u> | <u>Prod/Acre</u> | <u>Farms</u> | <u>Acres²⁴</u> | <u>Prod/Acre</u> | <u>Farms</u> | <u>Acres²⁴</u> | <u>Prod/Acre</u> |
| Hay crop | 25 | 161 | 3.7 tn DM | 9 | 132 | 2.2 tn DM | 10 | 198 | 3.0 tn DM |
| Corn silage | 18 | 42 | 15.3 tn 5.4 tn DM | 6 | 31 | 15.7 tn 5.5 tn DM | 7 | 40 | 16.0 tn 5.5 tn DM |
| Other forage | 3 | 20 | 1.0 tn DM | 2 | 28 | 0.9 tn DM | 0 | 0 | 0.0 tn DM |
| Total forage | 25 | 193 | 3.1 tn DM | 9 | 159 | 2.8 tn DM | 10 | 226 | 3.3 tn DM |
| Corn grain | 7 | 35 | 115 bu | 2 | 21 | 112 bu | 3 | 35 | 104 bu |
| Oats | 2 | 26 | 33 bu | 0 | 0 | 0 bu | 0 | 0 | 0 bu |
| Wheat | 0 | 0 | 0 bu | 0 | 0 | 0 bu | 0 | 0 | 0 bu |
| Other crops | 2 | 11 | | 0 | 0 | | 2 | 11 | |
| Tillable pas- ture | 21 | 89 | | 7 | 59 | | 9 | 130 | |
| Idle | 10 | 26 | | 2 | 22 | | 6 | 25 | |
| Total Tillable Acres | 27 | 270 | | 10 | 195 | | 10 | 376 | |

²⁴This column represents the average acreage for the farms producing that crop. For the 27 New York dairy farms, average acreages including those farms not producing were hay crop 149, corn silage 28, corn grain 9, oats 2, wheat 1, tillable pasture 69, and idle 9.

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, 2003

| Item | 27 Grazing Dairy Farms ²⁵ | 10 Above Average Farms ²⁵ | 10 Below Average Farms ²⁵ |
|---|--------------------------------------|--------------------------------------|--------------------------------------|
| Total tillable acres per cow | 2.70 | 2.95 | 2.59 |
| Total forage acres per cow | 1.79 | 1.68 | 1.56 |
| Harvested forage dry matter, tons per cow | 5.56 | 6.12 | 5.15 |

²⁵See 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, 2003

| Item | Total | All | Corn | Corn | Hay Crop | | Pasture | |
|------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|--------------|---------------|----------------------|----------------------|
| | Per Till. Acre | Corn Per Acre | Silage Per Ton DM | Grain Per Dry Sh. Bu. | Per Acre | Per Ton DM | Per Till. Acre | Per Total Acre |
| All Grazing Farms | | | | | | | | |
| No. of farms reporting | 27 | 2 | | | 3 | | 4 | |
| Ave. number of acres | 270 | 65 | | | 139 | | 34 | 144 |
| Fert. & lime | \$ 20.77 | \$ 32.00 | \$ 6.44 | \$ 0.32 | \$ 9.88 | \$ 4.93 | \$ 52.93 | \$ 21.48 |
| Seeds & plants | 8.98 | 48.20 | 9.80 | 0.45 | 4.67 | 1.94 | 7.43 | 5.70 |
| Spray & other | <u>5.25</u> | <u>25.02</u> | <u>4.94</u> | <u>0.28</u> | <u>6.91</u> | <u>2.49</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL | \$ 35.00 | \$ 105.22 | \$ 21.18 | \$ 1.05 | \$ 21.46 | \$ 9.36 | \$ 60.36 | \$ 27.18 |
| Above Average Grazing Farms | | | | | | | | |
| No. of farms reporting | 10 | 2 | | | 2 | | 2 | |
| Ave. number of acres | 195 | 32 | | | 148 | | 48 | 98 |
| Fert. & lime | \$ 22.19 | \$ 19.11 | \$ 3.47 | \$ 0.16 | \$ 11.79 | \$ 6.04 | \$ 46.58 | \$ 32.02 |
| Seeds & plants | 9.72 | 26.60 | 4.82 | 0.23 | 3.50 | 1.35 | 7.43 | 7.43 |
| Spray & other | <u>7.47</u> | <u>16.81</u> | <u>3.05</u> | <u>0.14</u> | <u>10.36</u> | <u>3.74</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL | \$ 39.38 | \$ 62.52 | \$ 11.34 | \$ 0.53 | \$ 25.65 | \$ 11.13 | \$ 54.01 | \$ 39.45 |
| Below Average Grazing Farms | | | | | | | | |
| No. of farms Reporting | 10 | 0 | | | 0 | | 0 | |
| Ave. number of acres | 376 | 0 | | | 0 | | 0 | 0 |
| Fert. & lime | \$ 23.91 | \$ 0.00 | \$ 0.00 | \$ 0.00 | \$ 0.00 | \$ 0.00 | \$ 0.00 | \$ 0.00 |
| Seeds & plants | 6.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Spray & other | <u>3.86</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL | \$ 33.94 | \$ 0.00 | \$ 0.00 | 0.00 | \$ 0.00 | \$ 0.00 | \$ 0.00 | \$ 0.00 |

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, 2003

| Machinery Expense | 27 Grazing Dairy ²⁶ | | 10 Above Average Farms ²⁶ | | 10 Below Average Farms ²⁶ | |
|-----------------------------|--------------------------------|----------------|--------------------------------------|----------------|--------------------------------------|----------------|
| | Total Expenses | Per Till. Acre | Total Expenses | Per Till. Acre | Total Expenses | Per Till. Acre |
| Fuel, oil & grease | \$ 6,170 | \$ 22.85 | \$ 4,766 | \$ 24.44 | \$ 7,967 | \$ 21.19 |
| Mach. repair & vehicle exp. | 13,262 | 49.12 | 10,795 | 55.36 | 16,051 | 42.69 |
| Machine hire, rent & lease | 4,741 | 17.56 | 1,954 | 10.02 | 7,868 | 20.93 |
| Interest (5%) | 5,957 | 22.06 | 5,026 | 25.77 | 6,841 | 18.19 |
| Depreciation | <u>14,584</u> | <u>54.01</u> | <u>10,149</u> | <u>52.05</u> | <u>19,833</u> | <u>52.75</u> |
| Total | \$ 44,714 | \$ 165.60 | \$ 32,690 | \$ 167.64 | \$ 58,560 | \$ 155.75 |

²⁶ 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 19 through 22.

DAIRY HERD INVENTORY Intensive Grazing Dairy Farms, 2003

| Item | Dairy Cows | | Bred Heifers | | Open Heifers | | Calves | |
|--|------------|--------------|--------------|------------------|--------------|------------|--------|------------|
| | No. | Value | No. | Value | No. | Value | No. | Value |
| 27 Grazing Dairy Farms²⁷ | | | | | | | | |
| Beg. year (owned) | 97 | \$ 106,628 | 26 | \$ 27,040 | 32 | \$ 20,710 | 13 | \$ 4,802 |
| + Change w/o apprec. | | 604 | | -295 | | -111 | | 4,379 |
| + Appreciation | | <u>2,298</u> | | <u>596</u> | | <u>589</u> | | <u>204</u> |
| End year (owned) | 98 | \$ 109,530 | 26 | \$ 27,340 | 29 | \$ 21,188 | 21 | \$ 9,385 |
| End including leased | 100 | | | | | | | |
| Average number | 100 | | 72 | (all age groups) | | | | |
| 10 Above Average Dairy Farms²⁷ | | | | | | | | |
| Beg. year (owned) | 63 | \$ 71,020 | 20 | \$ 19,531 | 15 | \$ 8,963 | 13 | \$ 5,392 |
| + Change w/o apprec. | | 3,320 | | 1,683 | | -95 | | -577 |
| + Appreciation | | <u>3,260</u> | | <u>548</u> | | <u>310</u> | | <u>270</u> |
| End year (owned) | 67 | \$ 77,600 | 22 | \$ 21,762 | 15 | \$ 9,178 | 12 | \$ 5,084 |
| End including leased | 67 | | | | | | | |
| Average number | 66 | | 47 | (all age groups) | | | | |
| 10 Below Average Dairy Farms²⁷ | | | | | | | | |
| Beg. year (owned) | 139 | \$ 151,805 | 39 | \$ 42,157 | 47 | \$ 29,010 | 16 | \$ 4,785 |
| + Change w/o apprec. | | 350 | | -5,971 | | 3,470 | | 11,035 |
| + Appreciation | | <u>-330</u> | | <u>0</u> | | <u>60</u> | | <u>0</u> |
| End year (owned) | 142 | \$ 151,825 | 34 | \$ 36,186 | 43 | \$ 32,540 | 34 | \$ 15,820 |
| End including leased | 147 | | | | | | | |
| Average number | 145 | | 103 | (all age groups) | | | | |

²⁷ 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, 2003

| Item | 27 Grazing Dairy Farms ²⁸ | 10 Above Average Dairy Farms ²⁸ | 10 Below Average Dairy Farms ²⁸ |
|--|--------------------------------------|--|--|
| Total milk sold, lbs. | 1,563,724 | 1,234,196 | 2,000,432 |
| Milk sold per cow, lbs. | 15,684 | 18,728 | 13,768 |
| Average milk plant test, percent butterfat | 3.78% | 3.75% | 3.81% |

²⁸ See page 1 for a description of these groups of farms.

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

ANIMALS LEAVING THE HERD Intensive Grazing Dairy Farms, 2003

| Item | 27 Grazing Dairy Farms | | 10 Above Average Dairy Farms | | 10 Below Average Dairy Farms | |
|----------------------------|------------------------|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|
| | Number | Percent ²⁹ | Number | Percent ²⁹ | Number | Percent ²⁹ |
| Cows sold for beef | 21 | 21.0 | 16 | 24.2 | 31 | 21.4 |
| Cows sold for dairy | 1 | 1.0 | 1 | 1.5 | 2 | 1.4 |
| Cows died | 5 | 5.0 | 2 | 3.0 | 10 | 6.9 |
| Culling rate ³⁰ | | 26.0 | | 27.3 | | 28.3 |

²⁹Percent of average number of cows in the herd. ³⁰Cows 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, 2003

| Item | 27 Grazing Dairy Farms ³¹ | | 10 Above Average Dairy Farms ³¹ | | 10 Below Average Dairy Farms ³¹ | |
|---------------------------------------|--------------------------------------|----------|--|----------|--|----------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| <u>Accrual Cost of Producing Milk</u> | | | | | | |
| Operating costs | \$ 1,490 | \$ 9.53 | \$ 1,571 | \$ 8.40 | \$ 1,452 | \$ 10.53 |
| Purchased inputs costs | \$ 1,698 | \$ 10.86 | \$ 1,775 | \$ 9.49 | \$ 1,658 | \$ 12.02 |
| Total Costs | \$ 2,352 | \$ 15.04 | \$ 2,707 | \$ 14.48 | \$ 2,139 | \$ 15.50 |
| <u>Accrual Receipts From Milk</u> | | | | | | |
| Net milk receipts | \$ 2,147 | \$ 13.73 | \$ 2,534 | \$ 13.55 | \$ 1,938 | \$ 14.05 |
| Net Farm Income without Appreciation | \$ 449 | \$ 2.87 | \$ 759 | \$ 4.06 | \$ 280 | \$ 2.03 |
| Net Farm Income with Appreciation | \$ 627 | \$ 4.01 | \$ 964 | \$ 5.16 | \$ 403 | \$ 2.92 |

³¹ 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, 2003

| Item | 27 Grazing Dairy Farms | | 10 Above Average Dairy Farms | | 10 Below Average Dairy Farms | |
|--|------------------------|----------|------------------------------|----------|------------------------------|----------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Purchased dairy grain & concentrate | \$ 614 | \$ 3.93 | \$ 682 | \$ 3.65 | \$ 559 | \$ 4.05 |
| Purchased dairy roughage | 81 | 0.52 | 75 | 0.40 | 72 | 0.52 |
| Total Purchased Dairy Feed | \$ 695 | \$ 4.45 | \$ 757 | \$ 4.05 | \$ 631 | \$ 4.57 |
| Purchased grain & conc. as % of milk receipts | | 29% | | 27% | | 29% |
| Purchased feed & crop exp. | \$ 791 | \$ 5.06 | \$ 861 | \$ 4.61 | \$ 718 | \$ 5.21 |
| Purchased feed & crop exp. as % of milk receipts | | 36% | | 34% | | 37% |
| Breeding | \$ 33 | \$ 0.21 | \$ 47 | \$ 0.25 | \$ 27 | \$ 0.20 |
| Veterinary & medicine | 59 | 0.38 | 60 | 0.32 | 53 | 0.39 |
| Milk marketing | 144 | 0.92 | 197 | 1.05 | 135 | 0.98 |
| Bedding | 12 | 0.08 | 17 | 0.09 | 9 | 0.06 |
| Milking supplies | 49 | 0.31 | 52 | 0.28 | 49 | 0.36 |
| Cattle lease | 6 | 0.04 | 3 | 0.02 | 9 | 0.07 |
| Custom boarding | 13 | 0.08 | 10 | 0.05 | 7 | 0.05 |
| bST expense | 11 | 0.07 | 7 | 0.04 | 13 | 0.09 |
| Livestock professional fees | 8 | 0.05 | 16 | 0.09 | 2 | 0.01 |
| Other livestock expense | 33 | 0.21 | 49 | 0.26 | 25 | 0.18 |

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, 2003

| Item | Per Worker | Per Cow | Per Tillable Acre | Per Tillable Acre Owned |
|---|-------------------|------------------|----------------------|----------------------------|
| <u>27 Grazing Dairy Farms</u> ³² | | | | |
| Farm capital | \$ 231,957 | \$ 6,286 | \$ 2,328 | \$ 4,365 |
| Real estate | | 2,738 | | 1,902 |
| Machinery & equipment | 43,960 | 1,191 | 441 | |
| <u>Ratios:</u> | | | | |
| Asset Turnover Ratio | Operating Expense | Interest Expense | Depreciation Expense | |
| 0.46 | 0.72 | 0.03 | 0.07 | |
| <u>10 Above Average Dairy Farms</u> ³² | | | | |
| Farm capital | \$ 199,922 | \$ 7,694 | \$ 2,604 | \$ 3,967 |
| Real estate | | 3,633 | | 1,873 |
| Machinery & equipment | 39,574 | 1,523 | 515 | |
| <u>Ratios:</u> | | | | |
| Asset Turnover Ratio | Operating Expense | Interest Expense | Depreciation Expense | |
| 0.44 | 0.66 | 0.02 | 0.07 | |
| <u>10 Below Average Dairy Farms</u> ³² | | | | |
| Farm capital | \$ 274,946 | \$ 5,613 | \$ 2,164 | \$ 4,759 |
| Real estate | | 2,500 | | 2,120 |
| Machinery & equipment | 46,223 | 944 | 364 | |
| <u>Ratios:</u> | | | | |
| Asset Turnover Ratio | Operating Expense | Interest Expense | Depreciation Expense | |
| 0.33 | 0.76 | 0.04 | 0.09 | |

³² 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, 2003

| Labor Force | Months | Age | Years of Educ. | Value of Labor & Mgmt. |
|-------------------------------------|------------|---|-------------------|---------------------------|
| <u>27 Grazing Dairy Farms</u> | | | | |
| Operator number 1 | 13.1 | 48 | 15 | \$ 28,333 |
| Operator number 2 | 3.2 | 48 | 14 | 5,259 |
| Family paid | 3.8 | | | |
| Family unpaid | 4.7 | | | |
| Hired | <u>7.7</u> | | | |
| Total | 32.5 | / 12 = 2.71 Worker Equivalent 1.36 Operator/Manager Equivalent | | |
| <u>10 Above Average Dairy Farms</u> | | | | |
| Total Labor Force | 30.4 | / 12 = 2.54 Worker Equivalent | | |
| Operator's Labor | | 1.35 Operator/Manager Equivalent | | |
| <u>10 Below Average Dairy Farms</u> | | | | |
| Total Labor Force | 35.5 | / 12 = 2.96 Worker Equivalent | | |
| Operator's Labor | | 1.28 Operator/Manager Equivalent | | |

| Labor Efficiency | 27 Grazing Dairy Farms | | 10 Above Average Dairy Farms | | 10 Below Average Dairy Farms | |
|----------------------|---------------------------|------------|---------------------------------|------------|---------------------------------|------------|
| | Total | Per Worker | Total | Per Worker | Total | Per Worker |
| Cows, average number | 100 | 37 | 66 | 26 | 145 | 49 |
| Milk sold, pounds | 1,563,724 | 577,020 | 1,234,196 | 485,904 | 2,000,432 | 675,822 |
| Tillable acres | 270 | 100 | 195 | 77 | 376 | 127 |

| Labor Costs | 27 Grazing Dairy Farms | | 10 Above Average Dairy Farms | | 10 Below Average Dairy Farms | |
|--|---------------------------|----------------|---------------------------------|----------------|---------------------------------|----------------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Value of operator(s) labor (\$2,200/mo.) | \$ 359 | \$ 2.29 | \$ 540 | \$ 2.89 | \$ 232 | \$ 1.68 |
| Family unpaid (\$2,200/mo.) | 102 | 0.65 | 112 | 0.60 | 68 | 0.49 |
| Hired | <u>220</u> | <u>1.40</u> | <u>249</u> | <u>1.33</u> | <u>220</u> | <u>1.60</u> |
| Total Labor | \$ 681 | \$ 4.34 | \$ 901 | \$ 4.82 | \$ 520 | \$ 3.77 |
| Machinery Cost | <u>\$ 447</u> | <u>\$ 2.86</u> | <u>\$ 495</u> | <u>\$ 2.65</u> | <u>\$ 404</u> | <u>\$ 2.93</u> |
| Total Labor & Mach. | \$ 1,128 | \$ 7.20 | \$ 1,396 | \$ 7.47 | \$ 924 | \$ 6.70 |
| Hired labor expense per hired worker equivalent | \$ 22,912 | | \$ 18,043 | | \$ 24,413 | |
| Hired labor expense as % of milk sales | | 10.2% | | 9.8% | | 11.4% |

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, 2002 & 2003³³

| Selected Factors | Same 23 Grazing Dairy Farms | | Same 7 Above Average Dairy Farms | | Same 9 Below Average Dairy Farms | |
|--|-----------------------------|------------|----------------------------------|------------|----------------------------------|------------|
| | 2002 | 2003 | 2002 | 2003 | 2002 | 2003 |
| <u>Size of Business</u> | | | | | | |
| Average number of cows | 102 | 106 | 65 | 67 | 148 | 153 |
| Average number of heifers | 75 | 76 | 50 | 48 | 106 | 108 |
| Milk sold, lbs. | 1,646,581 | 1,635,642 | 1,244,591 | 1,273,405 | 2,113,159 | 2,092,407 |
| Worker equivalent | 2.75 | 2.74 | 2.50 | 2.48 | 2.98 | 3.05 |
| Total tillable acres | 265 | 275 | 175 | 179 | 366 | 388 |
| <u>Rates of Production</u> | | | | | | |
| Milk sold per cow, lbs. | 16,205 | 15,469 | 19,148 | 18,885 | 14,310 | 13,646 |
| Hay DM per acre, tons | 2.4 | 2.3 | 2.2 | 2.2 | 2.9 | 2.7 |
| Corn silage per acre, tons | 12.1 | 9.9 | 10.8 | 9.9 | 12.9 | 9.7 |
| <u>Labor Efficiency</u> | | | | | | |
| Cows per worker | 37 | 39 | 26 | 27 | 50 | 50 |
| Milk sold/worker, lbs. | 598,757 | 596,950 | 497,836 | 513,470 | 709,114 | 686,035 |
| <u>Cost Control</u> | | | | | | |
| Grain & conc. purchased as % of milk sales | 28% | 29% | 26% | 28% | 28% | 29% |
| Dairy feed & crop exp. per cwt. milk | \$ 4.95 | \$ 5.13 | \$ 4.46 | \$ 4.79 | \$ 5.22 | \$ 5.20 |
| Labor & mach. costs/cow | \$ 1,083 | \$ 1,100 | \$ 1,445 | \$ 1,370 | \$ 878 | \$ 913 |
| Operating cost of producing cwt. of milk | \$ 9.29 | \$ 9.55 | \$ 9.07 | \$ 8.25 | \$ 9.51 | \$ 10.51 |
| <u>Capital Efficiency³⁴</u> | | | | | | |
| Farm capital per cow | \$ 5,669 | \$ 6,794 | \$ 6,790 | \$ 6,871 | \$ 5,203 | \$ 5,385 |
| Mach. & equip. per cow | \$ 1,106 | \$ 1,423 | \$ 1,456 | \$ 1,398 | \$ 846 | \$ 884 |
| Asset turnover ratio | 0.47 | 0.48 | 0.47 | 0.49 | 0.47 | 0.47 |
| <u>Profitability</u> | | | | | | |
| Net farm income w/o apprec. | \$ 38,414 | \$ 46,554 | \$ 32,156 | \$ 53,395 | \$ 46,512 | \$ 43,393 |
| Net farm income w/apprec. | \$ 45,541 | \$ 63,579 | \$ 46,451 | \$ 61,135 | \$ 56,327 | \$ 62,463 |
| Labor & mgt. income per operator/manager | \$ 6,906 | \$ 10,826 | \$ 5,750 | \$ 21,475 | \$ 10,358 | \$ 5,269 |
| Rate of return on equity capital w/appreciation | 1.0% | 5.1% | 3.2% | 7.6% | 2.3% | 3.4% |
| Rate of return on all capital w/appreciation | 2.6% | 5.0% | 3.8% | 7.1% | 3.9% | 4.0% |
| <u>Financial Summary</u> | | | | | | |
| Farm net worth, end year | \$ 392,994 | \$ 401,328 | \$ 346,462 | \$ 380,141 | \$ 476,422 | \$ 542,740 |
| Debt to asset ratio | 0.33 | 0.29 | 0.22 | 0.20 | 0.39 | 0.36 |
| Farm debt per cow | \$ 1,898 | \$ 1,913 | \$ 1,520 | \$ 1,373 | \$ 2,059 | \$ 1,978 |

³³Farms participating both years.

³⁴Average for the year.

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 23 Intensive Grazing Dairy Farms, 2002 & 2003

| Item | 2002 | | 2003 | |
|--------------------------------------|------------------|------------------|----------|----------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Average Number of Cows | 102 | | 106 | |
| Cwt. Of Milk Sold | | 16,466 | | 16,356 |
| <u>ACCRUAL OPERATING RECEIPTS</u> | | | | |
| Milk | \$ 2,087 | \$ 12.93 | \$ 2,116 | \$ 13.71 |
| Dairy cattle | 188 | 1.16 | 121 | 0.78 |
| Dairy calves | 40 | 0.25 | 69 | 0.45 |
| Other livestock | 15 | 0.09 | 11 | 0.07 |
| Crops | -19 | -0.12 | 82 | 0.53 |
| Miscellaneous receipts | 287 | 1.78 | 257 | 1.66 |
| Total Receipts | \$ 2,597 | \$ 16.09 | \$ 2,656 | \$ 17.20 |
| <u>ACCRUAL OPERATING EXPENSES</u> | | | | |
| Hired labor | \$ 208 | \$ 1.29 | \$ 220 | \$ 1.43 |
| Dairy grain & concentrate | 578 | 3.58 | 610 | 3.96 |
| Dairy roughage | 89 | 0.55 | 89 | 0.58 |
| Nondairy feed | 2 | 0.01 | 1 | 0.01 |
| Professional nutritional services | NA ³⁵ | NA ³⁵ | 1 | 0.01 |
| Machine hire/rent/lease | 52 | 0.32 | 50 | 0.32 |
| Mach. repair & vehicle exp. | 138 | 0.85 | 130 | 0.84 |
| Fuel, oil & grease | 50 | 0.31 | 61 | 0.39 |
| Replacement livestock | 1 | 0.01 | 33 | 0.22 |
| Breeding | 29 | 0.18 | 32 | 0.21 |
| Veterinary & medicine | 50 | 0.31 | 57 | 0.37 |
| Milk marketing | 127 | 0.79 | 136 | 0.88 |
| Bedding | 13 | 0.08 | 11 | 0.07 |
| Milking supplies | 53 | 0.33 | 47 | 0.31 |
| Cattle lease | 2 | 0.01 | 6 | 0.04 |
| Custom boarding | 30 | 0.19 | 13 | 0.09 |
| bST expense | 12 | 0.07 | 12 | 0.08 |
| Livestock professional fees | NA ³⁵ | NA ³⁵ | 7 | 0.05 |
| Other livestock expense | 41 | 0.26 | 27 | 0.18 |
| Fertilizer & lime | 80 | 0.49 | 57 | 0.37 |
| Seeds & plants | 29 | 0.18 | 22 | 0.14 |
| Spray/other crop expense | 23 | 0.14 | 12 | 0.08 |
| Crop professional fees | NA ³⁵ | NA ³⁵ | 0 | 0.00 |
| Land, building, fence repair | 41 | 0.26 | 31 | 0.20 |
| Taxes | 49 | 0.30 | 52 | 0.34 |
| Real estate rent/lease | 54 | 0.33 | 53 | 0.34 |
| Insurance | 40 | 0.25 | 38 | 0.25 |
| Utilities | 58 | 0.36 | 64 | 0.41 |
| Interest paid | 111 | 0.68 | 91 | 0.59 |
| Other professional fees | NA ³⁵ | NA ³⁵ | 6 | 0.04 |
| Miscellaneous | 37 | 0.23 | 19 | 0.12 |
| Total Operating Expenses | \$ 1,997 | \$ 12.37 | \$ 1,991 | \$ 12.90 |
| Expansion Livestock | 13 | 0.08 | 22 | 0.15 |
| Extraordinary Expense | NA ³⁵ | NA ³⁵ | 0 | 0.00 |
| Machinery Depreciation | 131 | 0.81 | 141 | 0.91 |
| Real Estate Depreciation | 79 | 0.49 | 62 | 0.40 |
| Total Expenses | \$ 2,220 | \$ 13.75 | \$ 2,216 | \$ 14.36 |
| Net Farm Income Without Appreciation | \$ 377 | \$ 2.33 | \$ 440 | \$ 2.84 |

³⁵NA = Not available in 2002 data. Expense was included in other categories.

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 7 Above Average Intensive Grazing Dairy Farms, 2002 & 2003

| Item | 2002 | | 2003 | |
|--|------------------|------------------|----------|----------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Average Number of Cows | 65 | | 67 | |
| Cwt. Of Milk Sold | | 12,446 | | 12,734 |
| <u>ACCRUAL OPERATING RECEIPTS</u> | | | | |
| Milk | \$ 2,465 | \$ 12.87 | \$ 2,548 | \$ 13.41 |
| Dairy cattle | 131 | 0.69 | 224 | 1.18 |
| Dairy calves | 55 | 0.29 | 24 | 0.13 |
| Other livestock | 0 | 0.00 | 10 | 0.05 |
| Crops | -23 | -0.12 | 75 | 0.39 |
| Miscellaneous receipts | 336 | 1.76 | 356 | 1.87 |
| Total Receipts | \$ 2,965 | \$ 15.49 | \$ 3,237 | \$ 17.03 |
| <u>ACCRUAL OPERATING EXPENSES</u> | | | | |
| Hired labor | \$ 276 | \$ 1.44 | \$ 268 | \$ 1.41 |
| Dairy grain & concentrate | 644 | 3.36 | 705 | 3.71 |
| Dairy roughage | 95 | 0.50 | 101 | 0.53 |
| Nondairy feed | 0 | 0.00 | 0 | 0.00 |
| Professional nutritional services | NA ³⁶ | NA ³⁶ | 0 | 0.00 |
| Machine hire/rent/lease | 26 | 0.14 | 29 | 0.15 |
| Mach. repair & vehicle exp. | 201 | 1.05 | 170 | 0.89 |
| Fuel, oil & grease | 56 | 0.29 | 69 | 0.36 |
| Replacement livestock | 0 | 0.00 | 30 | 0.16 |
| Breeding | 44 | 0.23 | 54 | 0.28 |
| Veterinary & medicine | 66 | 0.35 | 60 | 0.31 |
| Milk marketing | 173 | 0.91 | 175 | 0.92 |
| Bedding | 7 | 0.04 | 9 | 0.05 |
| Milking supplies | 41 | 0.21 | 47 | 0.25 |
| Cattle lease | 0 | 0.00 | 4 | 0.02 |
| Custom boarding | 7 | 0.04 | 7 | 0.04 |
| bST expense | 7 | 0.04 | 10 | 0.05 |
| Livestock professional fees | NA ³⁶ | NA ³⁶ | 17 | 0.09 |
| Other livestock expense | 54 | 0.28 | 36 | 0.19 |
| Fertilizer & lime | 55 | 0.29 | 56 | 0.30 |
| Seeds & plants | 31 | 0.16 | 25 | 0.13 |
| Spray/other crop expense | 29 | 0.15 | 23 | 0.12 |
| Crop professional fees | NA ³⁶ | NA ³⁶ | 0 | 0.00 |
| Land, building, fence repair | 71 | 0.37 | 37 | 0.19 |
| Taxes | 65 | 0.34 | 65 | 0.34 |
| Real estate rent/lease | 32 | 0.17 | 20 | 0.10 |
| Insurance | 46 | 0.24 | 55 | 0.29 |
| Utilities | 65 | 0.34 | 70 | 0.37 |
| Interest paid | 96 | 0.50 | 73 | 0.38 |
| Other professional fees | NA ³⁶ | NA ³⁶ | 13 | 0.07 |
| Miscellaneous | 45 | 0.24 | 27 | 0.14 |
| Total Operating Expenses | \$ 2,235 | \$ 11.67 | \$ 2,258 | \$ 11.88 |
| Expansion Livestock | 2 | 0.01 | 0 | 0.00 |
| Extraordinary Expense | NA ³⁶ | NA ³⁶ | 0 | 0.00 |
| Machinery Depreciation | 154 | 0.80 | 140 | 0.74 |
| Real Estate Depreciation | 80 | 0.42 | 42 | 0.22 |
| Total Expenses | \$ 2,471 | \$ 12.90 | \$ 2,440 | \$ 12.84 |
| Net Farm Income Without Appreciation | \$ 495 | \$ 2.58 | \$ 797 | \$ 4.19 |

³⁶NA = Not available in 2002 data. Expense was included in other categories.

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 9 Below Average Intensive Grazing Dairy Farms, 2002 & 2003

| Item | 2002 | | 2003 | |
|--|------------------|------------------|----------|----------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Average Number of Cows | 148 | | 153 | |
| Cwt. Of Milk Sold | | 21,132 | | 20,924 |
| <u>ACCRUAL OPERATING RECEIPTS</u> | | | | |
| Milk | \$ 1,864 | \$ 13.06 | \$ 1,923 | \$ 14.06 |
| Dairy cattle | 186 | 1.30 | 110 | 0.80 |
| Dairy calves | 42 | 0.29 | 97 | 0.71 |
| Other livestock | 29 | 0.20 | 6 | 0.04 |
| Crops | 9 | 0.07 | 50 | 0.36 |
| Miscellaneous receipts | 263 | 1.84 | 202 | 1.48 |
| Total Receipts | \$ 2,394 | \$ 16.77 | \$ 2,388 | \$ 17.45 |
| <u>ACCRUAL OPERATING EXPENSES</u> | | | | |
| Hired labor | \$ 208 | \$ 1.45 | \$ 219 | \$ 1.60 |
| Dairy grain & concentrate | 525 | 3.68 | 552 | 4.03 |
| Dairy roughage | 77 | 0.54 | 75 | 0.55 |
| Nondairy feed | 2 | 0.02 | 1 | 0.01 |
| Professional nutritional services | NA ³⁷ | NA ³⁷ | 0 | 0.00 |
| Machine hire/rent/lease | 55 | 0.38 | 58 | 0.42 |
| Mach. repair & vehicle exp. | 107 | 0.75 | 108 | 0.79 |
| Fuel, oil & grease | 43 | 0.30 | 55 | 0.40 |
| Replacement livestock | 2 | 0.01 | 44 | 0.32 |
| Breeding | 22 | 0.16 | 25 | 0.19 |
| Veterinary & medicine | 37 | 0.26 | 49 | 0.36 |
| Milk marketing | 115 | 0.81 | 135 | 0.99 |
| Bedding | 15 | 0.10 | 9 | 0.06 |
| Milking supplies | 61 | 0.43 | 48 | 0.35 |
| Cattle lease | 3 | 0.02 | 10 | 0.07 |
| Custom boarding | 38 | 0.26 | 8 | 0.05 |
| bST expense | 13 | 0.09 | 13 | 0.10 |
| Livestock professional fees | NA ³⁷ | NA ³⁷ | 2 | 0.02 |
| Other livestock expense | 30 | 0.21 | 21 | 0.15 |
| Fertilizer & lime | 103 | 0.72 | 62 | 0.45 |
| Seeds & plants | 25 | 0.17 | 15 | 0.11 |
| Spray/other crop expense | 15 | 0.11 | 7 | 0.05 |
| Crop professional fees | NA ³⁷ | NA ³⁷ | 0 | 0.00 |
| Land, building, fence repair | 26 | 0.18 | 26 | 0.19 |
| Taxes | 40 | 0.28 | 49 | 0.36 |
| Real estate rent/lease | 57 | 0.40 | 63 | 0.46 |
| Insurance | 36 | 0.25 | 29 | 0.21 |
| Utilities | 51 | 0.36 | 59 | 0.43 |
| Interest paid | 131 | 0.92 | 101 | 0.74 |
| Other professional fees | NA ³⁷ | NA ³⁷ | 5 | 0.03 |
| Miscellaneous | 36 | 0.25 | 15 | 0.11 |
| Total Operating Expenses | \$ 1,876 | \$ 13.14 | \$ 1,862 | \$ 13.62 |
| Expansion Livestock | 12 | 0.09 | 40 | 0.29 |
| Extraordinary Expense | NA ³⁷ | NA ³⁷ | 0 | 0.00 |
| Machinery Depreciation | 114 | 0.80 | 134 | 0.98 |
| Real Estate Depreciation | 78 | 0.54 | 68 | 0.50 |
| Total Expenses | \$ 2,080 | \$ 14.57 | \$ 2,104 | \$ 15.39 |
| Net Farm Income Without Appreciation | \$ 314 | \$ 2.20 | \$ 284 | \$ 2.06 |

³⁷NA = Not available in 2002 data. Expense was included in other categories.

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

27 Intensive Grazing Dairy Farms, 2003

| 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 |
| (14) ³⁸ | (12) | (12) | (12) | (11) | (11) | (14) | (14) |
| 4.37 | 231 | 3,233,530 | 21,726 | 3.3 | 20 | 57 | 861,699 |
| 3.03 | 88 | 1,566,925 | 18,524 | 2.8 | 18 | 33 | 595,992 |
| 2.20 | 65 | 1,123,220 | 16,382 | 2.3 | 15 | 29 | 509,665 |
| 1.97 | 49 | 966,491 | 14,919 | 2.0 | 13 | 25 | 424,533 |
| 1.56 | 41 | 593,853 | 12,386 | 1.6 | 8 | 19 | 286,202 |

| Cost Control | | | | | | |
|----------------------|-----------------------------|-------------------------|---------------------------------|------------------------------|------------------------------------|--|
| Grain Bought Per Cow | % Grain is of Milk Receipts | Machinery Costs Per Cow | Labor & Machinery Costs per Cow | Feed & Crop Expenses Per Cow | Feed & Crop Expenses Per Cwt. Milk | |
| (12) | (12) | (14) | (14) | (12) | (12) | |
| \$485 | 24% | \$292 | \$805 | \$593 | \$3.78 | |
| 568 | 25 | 423 | 1,200 | 728 | 4.27 | |
| 634 | 27 | 483 | 1,308 | 853 | 4.74 | |
| 775 | 30 | 537 | 1,528 | 959 | 5.52 | |
| 922 | 44 | 751 | 1,954 | 1,123 | 7.18 | |

| 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. |
| (12) | (12) | (12) | (4) | (4) | (4) | (8) |
| \$2,890 | \$7.17 | \$12.72 | \$135,336 | \$91,558 | \$50,856 | \$140,438 |
| 2,493 | 8.10 | 13.58 | 71,657 | 50,877 | 18,576 | 57,231 |
| 2,223 | 8.77 | 14.47 | 47,525 | 38,069 | 6,685 | 27,795 |
| 2,001 | 9.75 | 16.38 | 36,795 | 28,804 | -3,835 | 7,696 |
| 1,701 | 11.80 | 21.22 | 5,884 | 4,738 | -20,824 | -15,000 |

³⁸Page number of the participant's DFBS where the factor is located.

SUPPLEMENTARY INFORMATION

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

SOURCE OF DAIRY REPLACEMENTS 48 New York Dairy Farms, 2003

| <u>Animals Entering Herd</u> | <u>Average</u> |
|---|----------------|
| Number calving in 2003 for first time | 185 |
| Animals purchased, percent ³⁹ | 6% |
| Animals raised by farm, percent ⁴⁰ | 94% |
| <u>Current Heifer Inventory</u> | |
| Raised on dairy, percent | 79% |
| Raised by a custom grower, percent | 21% |

³⁹Animals purchased are animals purchased from a different farm and were not the farm's genetics.

⁴⁰Animals 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, 185 animals calved for the first time in 2003. The breakdown of these animals for source was 6 percent purchased and 94 percent raised by the farm. Of the current heifer inventory, 79 percent were raised on the dairy and 21 percent were being raised by a custom grower. There is increased interest in evaluating the dairy replacement enterprise.

Milk Income and Marketing Expense Breakdown

Starting January 1st, 2000, the Northeast switched to multiple components pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 21 intensive grazing farms filled out a detailed form for all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in the following two tables. The tables are divided into six different areas, each representing a different area of income or expenses.

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

The table on page 41 reports the averages for these different areas. The table on page 42 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.

AVERAGE⁴¹ MILK INCOME AND MARKETING REPORT
21 Intensive Grazing Dairy Farms, 2003

| | Pounds | Percent | Price/Pound | Total | \$/Cwt of Milk |
|--|--------------|---------|-------------|--------------|-----------------|
| BASE FARM PRICE | | | | | |
| Butterfat | 61,369.05 | 3.77% | \$ 1.216 | \$ 74,630.30 | \$ 4.58 |
| Protein | 51,156.38 | 3.14% | \$ 2.403 | \$122,913.00 | \$ 7.55 |
| Solids | 91,590.57 | 5.63% | \$ 0.013 | \$ 1,147.67 | \$ 0.07 |
| Total Component Contribution | | | | | \$12.20 |
| PPD | 1,628,008.00 | | | \$ 15,292.86 | \$ 0.94 |
| Base Farm Price | | | | | \$ 13.14 |
| Premiums | | | | | |
| Quality | | | | \$ 2,711.43 | \$ 0.17 |
| Volume | | | | \$ 1,447.29 | \$ 0.09 |
| Market Premiums | | | | \$ 5,614.24 | \$ 0.34 |
| Total Premiums | | | | | \$ 0.60 |
| BASE FARM PRICE + PREMIUM | | | | | \$ 13.74 |
| <hr style="border-top: 1px dashed black;"/> | | | | | |
| Deductions | | | | | |
| Promo | | | | \$ 2,554.00 | \$ 0.16 |
| Hauling + Stop Charges | | | | \$ 11,891.67 | \$ 0.73 |
| Market Fees & Coop Dues | | | | \$ 1,135.14 | \$ 0.07 |
| Total Deductions | | | | | \$ 0.96 |
| BASE FARM PRICE + PREMIUMS - DEDUCTIONS | | | | | \$ 12.78 |
| Marketing Programs | | | | | |
| Futures Contracts, Forward Contracting, Etc. | | | | \$ 526.24 | \$ 0.03 |
| Total Marketing Income | | | | | \$ 0.03 |
| Patronage Dividends | | | | | \$ 0.05 |
| NET PRICE RECEIVED ON FARM, ALL SOURCES | | | | | \$ 12.86 |
| PPD - Hauling, per cwt. | | | | | \$ 0.21 |
| PPD - Hauling + Market Premiums, per cwt. | | | | | \$ 0.55 |

⁴¹Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the “\$/Cwt of Milk” column will result in the totals.

MILK PRICE INFORMATION BY QUINTILE^{42, 43}
 (Each Category Sorted Independently)
 21 Intensive Grazing Dairy Farms, 2003

| | Lowest Quintile | ←————→ | Highest Quintile | | |
|---|--------------------|----------------|---------------------|----------------|----------------|
| Butterfat, % | 3.47 | 3.67 | 3.72 | 3.79 | 4.08 |
| Protein, % | 2.93 | 2.98 | 3.03 | 3.11 | 3.37 |
| Other Solids, % | 5.09 | 5.61 | 5.65 | 5.67 | 5.88 |
| Butterfat, \$ per Cwt. | 4.17 | 4.46 | 4.55 | 4.64 | 4.84 |
| Protein, \$ per Cwt. | 6.69 | 6.96 | 7.10 | 7.39 | 8.09 |
| Other solids, \$ per Cwt. | 0.03 | 0.05 | 0.07 | 0.08 | 0.18 |
| Total Component Value per Cwt. | \$11.06 | \$11.46 | \$11.72 | \$12.04 | \$12.95 |
| PPD, \$ per Cwt. | 0.59 | 0.75 | 0.91 | 1.09 | 1.64 |
| Base Farm Price per Cwt. | \$12.10 | \$12.44 | \$12.77 | \$13.24 | \$13.83 |
| Quality, \$ per Cwt. | .00 | .03 | .16 | .27 | .48 |
| Volume, \$ per Cwt. | -.01 | .00 | .00 | .07 | .24 |
| Market premium, \$ per Cwt. | -.02 | .03 | .13 | .24 | .76 |
| Total Premium, \$ per Cwt. | .19 | .35 | .46 | .53 | .97 |
| Base Farm Price + Premiums per Cwt. | \$12.41 | \$12.78 | \$13.37 | \$13.86 | \$14.53 |
| Promotion, \$ per Cwt. | .12 | .15 | .15 | .15 | .20 |
| Hauling, \$ per Cwt. | .29 | .54 | .66 | .89 | 1.33 |
| Market fees & coop dues per Cwt. | .00 | .05 | .07 | .09 | .12 |
| Total Marketing Expenses per Cwt. | \$.51 | \$.77 | \$.88 | \$1.13 | \$1.54 |
| Base + Premiums – Deductions per Cwt. | \$11.43 | \$11.97 | \$12.29 | \$12.78 | \$13.52 |
| Futures contract, forward contracting, \$ per Cwt. | .00 | .00 | .00 | .00 | .06 |
| Total Marketing Income, \$ per Cwt. | \$.00 | \$.00 | \$.00 | \$.00 | \$.06 |
| Patronage Dividends, \$ per Cwt. | \$.00 | \$.00 | \$.00 | \$.00 | \$.30 |
| Net Price Received From All Sources, \$ per Cwt. | \$11.42 | \$12.11 | \$12.46 | \$12.85 | \$13.58 |
| PPD - hauling, \$ per Cwt. | -0.04 | 0.16 | 0.27 | 0.32 | 0.51 |
| PPD - hauling + mkt premiums, \$ per Cwt. | 0.12 | 0.28 | 0.40 | 0.54 | 1.06 |

⁴²Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals.

⁴³Holstein and Jersey herds are included.

IDENTIFY AND SET GOALS

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

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

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

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

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

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

Worksheet for Setting Goals

I. Mission and Objectives

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 17)

Accrual Receipts - (defined on page 18)

Annual Cash Flow Statement - (defined on page 26)

Appreciation - (defined on page 19)

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 27)

Cash Paid - (defined on page 16)

Cash Receipts - (defined on page 18)

Change in Accounts Payable - (defined on page 17)

Change in Accounts Receivable - (defined on page 18)

Change in Inventory - (defined on page 18)

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 31)

Current Portion - (defined on page 22)

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 27)

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

Debt to Asset Ratios - (defined on page 24)

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 27.

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 21)

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 24)

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

Net Farm Income - (defined on page 19)

Net Farm Income from Operations Ratio – (defined on page 22)

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 32)

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

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

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

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

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

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

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

Purchased Inputs Cost of Producing Milk - (defined on page 32)

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 22)

Return on Total Capital - (defined on page 22)

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 32)

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

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

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

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