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DAIRY FARM BUSINESS SUMMARY

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INTENSIVE GRAZING FARMS NEW YORK 2007



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Intensive Grazing Farms
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2007 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.

The farms included in the study are a subset of New York State farms participating in the Dairy Farm Business Summary and Analysis Program (DFBS). Fifty New York farms indicated that they grazed dairy cows at least three months, moving to a fresh paddock at least every three days and more than 30% of the forage consumed during the growing season was from grazing. Operators of these 50 farms were asked to complete a grazing practices survey. Thirty 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 36 New York farms which were not organic farms, were not first year grazers and on which at least 30 percent of forage consumed during the grazing season was grazed. The "Average Top 50% Farms" are 18 farms with the highest labor and management incomes per operator per cow and are compared to the average of the 36 farms.**

Program Objective

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

Format Features

The first section compares intensive grazing farms that participated in the Dairy Farm Business Summary project in 2006 and 2007. A ten-year comparison is also included this year. 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 10. 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 2007 DFBS individual farm report received by all participating dairy farmers. It may be used by any dairy farm manager who wants to compare his or her business with the average data of intensive grazing farms. Non-DFBS participants can download a DFBS Data Check-In Form at <http://dfbs.cornell.edu>. After collecting data on the form, it can be entered in the U.S. Top Dairies business summary program at the same website to obtain a summary of their business.

The summary and analysis portion of the report features:

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

PROGRESS OF THE FARM BUSINESS

Comparing your business with average financial data from Dairy Farm Business Summary (DFBS) grazing farms that participated for the last two years can be helpful in analyzing 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 34 farms that were grazing in both 2006 and 2007 and participated in the DFBS project for both years.

These 34 farms increased in herd size from 105 cows in 2006 to 110 cows in 2007. Along with the increase in cow numbers, the average number of heifers increased from 87 to 89 head. The average number of cows increased and so did the total milk sold, however, the milk sold per cow remained steady, decreasing only 16 pounds per cow.

There was a 1.5 percent decrease in worker equivalents, to 2.71, which resulted in an increase of 7.9 percent in cows per worker equivalent. Milk sold per worker equivalent increased 5.9 percent, with the increase in cows per worker restrained by the steady milk production per cow. The increase in milk sold per worker equivalent coupled with a decrease of 3.1 percent in average cost per worker (from \$29,670 in 2006 to \$28,737 in 2007), resulted in a 9.4 percent decrease in the hired labor cost per hundredweight of milk produced.

The 2007 growing season was variable across New York State with near record yields in some areas, while other areas experienced dry conditions and loss of yield and quality in both corn and hay. For these grazing farms, corn yields increased 17.3 percent, while hay yields held constant and grazing pastures grew throughout the year. This minimized the amount of forage supplementation needed during the grazing season.

The major factor impacting farm profitability in 2007 was the milk price, which rose 50.3 percent, from \$14.16 per hundredweight in 2006 to \$21.28 per hundredweight in 2007. With this large increase in milk price, coupled with the steady milk sold per cow, gross milk sales per cow increased 50.1 percent to \$3,557. While milk sales rose, the beef market experienced a downturn, and dairy cattle sales per cow decreased 29.8 percent to \$236 per cow.

With farm revenue increasing from the prior year, costs to operate also mirrored this trend. Total farm operating costs per hundredweight increased 21.6 percent to \$13.47 per hundredweight. Purchased grain and concentrates increased 18.6 percent to \$4.85 per hundredweight. This increase was coupled with the 14.5 percent increase in interest costs per hundredweight.

The amount of investment per cow continued its upward trend, increasing from \$7,691 to \$8,240 or 7.1 percent. This increase continued even though the average farm size had also increased. This resulted from the value of machinery and equipment increasing and cattle and land being worth more than in 2006. Debt per cow increased 15.9 percent to \$2,385 for 2007.

Despite the large increase in the cost of operations, the average farm remained profitable due to the sharp increase in milk price. Even with a bearish dairy cattle market the price of milk rose so greatly that farms were able to handle the rise in costs.

Profitability Measures

- Net farm income without appreciation increased 265.7 percent to \$116,785.
- Net farm income per cow without appreciation increased from \$304 to \$1061.
- Net farm income with appreciation increased 233.9 percent to \$160,062.
- Labor and management income per operator increased from \$-5,378 to \$58,594.
- Rate of return on equity capital without appreciation increased from -3.1 percent to 9.9 percent.
- Rate of return on all capital without appreciation increased from -0.8 percent to 8.8 percent.

The year 2007 was lucrative for many grazing dairy farms. The increase in costs were not enough to limit the earnings of farms that were able to increase herd size and therefore sell more milk. The sharp contrast to 2006 allowed farms to repay debt or to expand. Farm net worth increased as well as farm debt per cow, a sign that grazing dairies were either expanding farm size or improving the land and buildings on their farms.

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 Cornell Cooperative Extension office and become involved in a financial management education program.

PROGRESS OF THE FARM BUSINESS
Same 34 Grazing Dairy Farms, 2006 & 2007

Selected Factors	Average of 34 Farms		Percent Change
	2006	2007	
<u>Size of Business</u>			
Average number of cows	105	110	4.8
Average number of heifers	87	89	2.3
Milk sold, lbs.	1,764,730	1,842,156	4.4
Worker equivalent	2.75	2.71	-1.5
Total nontillable and tillable pasture & hay acres	247	273	10.5
Total nontillable pasture & tillable acres	313	325	3.8
<u>Rates of Production</u>			
Milk sold per cow, lbs.	16,732	16,716	-0.1
Hay DM per acre, tons	2.1	2.1	0.0
Corn silage per acre, tons	15.0	17.6	17.3
<u>Labor Efficiency & Costs</u>			
Cows per worker	38	41	7.9
Milk sold per worker, lbs.	641,720	679,762	5.9
Hired labor cost per cwt.	\$1.70	\$1.54	-9.4
Hired labor cost per worker	\$29,670	\$28,737	-3.1
Hired labor cost as % of milk sales	12.0%	7.2%	-40.0
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	29%	23%	-20.7
Grain & concentrate per cwt. milk	\$4.09	\$4.85	18.6
Dairy feed & crop expense per cwt. milk	\$5.35	\$6.57	22.8
Labor & machinery costs per cow	\$1,341	\$1,385	3.3
Total farm operating costs per cwt. Sold	\$14.79	\$16.50	11.6
Interest costs per cwt. milk	\$0.69	\$0.79	14.5
Milk marketing costs per cwt. milk sold	\$1.01	\$0.95	-5.9
Operating cost of producing cwt. of milk	\$11.08	\$13.47	21.6
Total costs of producing cwt. of milk	\$16.90	\$19.52	15.5
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$7,691	\$8,240	7.1
Mach. & equipment per cow	\$1,334	\$1,421	6.5
Asset turnover ratio	0.41	0.54	31.7
<u>Income Generation</u>			
Gross milk sales per cow	\$2,370	\$3,557	50.1
Gross milk sales per cwt.	\$14.16	\$21.28	50.3
Net milk sales per cwt.	\$13.15	\$20.33	54.6
Dairy cattle sales per cow	\$336	\$236	-29.8
Dairy calf sales per cow	\$49	\$61	24.5
Government receipts per cwt.	\$0.91	\$0.47	-48.4
<u>Profitability</u>			
Net farm income without appreciation	\$31,932	\$116,785	265.7
Net farm income with appreciation	\$47,933	\$160,062	233.9
Labor & mgt. income per operator/manager	\$-5,378	\$58,594	1,189.5
Labor & mgt. income per oper./manager per cow	\$-51	\$533	1,145.1
Rate of return on equity capital without apprec.	-3.1%	9.9%	419.4
Rate of return on all capital without appreciation	-0.8%	8.8%	1,200.0
<u>Financial Summary</u>			
Farm net worth, end year	\$612,436	\$723,290	18.1
Debt to asset ratio	0.26	0.26	0.0
Farm debt per cow	\$2,058	\$2,385	15.9

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Intensive Grazing Dairy Farms, 1998 to 2007

Item	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of farms	59	65	65	54	30	27	30	42	42	36
<u>Cropping Program</u>										
Total tillable acres	247	227	271	288	243	270	267	264	254	273
Tillable acres rented	90	105	133	142	125	126	96	110	145	132
Hay crop acres	126	120	139	152	119	149	133	143	145	162
Corn silage acres	45	42	44	37	22	28	38	34	41	39
Hay crop, tons DM/acre	2.4	2.1	2.7	2.2	2.2	3.7	2.9	1.9	2.2	2.0
Corn silage, tons/acre	14.8	13.9	12.0	15.5	12.4	15.3	15.3	14.9	15.5	17.6
Fertilizer & lime exp./tillable acre	\$25	\$25	\$20	\$22	\$30	\$21	\$31	\$31	\$29	\$45
Machinery cost/cow	\$448	\$545	\$501	\$528	\$439	\$447	\$598	\$586	\$590	\$688
<u>Dairy Analysis</u>										
Number of cows	83	79	93	94	94	100	104	95	101	110
Number of heifers	62	60	67	70	68	72	74	76	83	87
Milk sold, cwt.	14,652	14,477	15,860	15,396	15,687	15,637	17,744	15,868	17,168	18,243
Milk sold/cow, lbs.	17,653	18,346	17,107	16,295	16,618	15,684	17,144	16,783	17,054	16,627
Purchased dairy feed/cwt. milk	\$3.98	\$3.65	\$3.88	\$4.19	\$4.21	\$4.45	\$4.76	\$4.48	\$4.41	\$5.46
Purchased grain & concentrate as % of milk receipts	24%	23%	27%	23%	28%	29%	25%	26%	30%	23%
Purchased feed & crop exp/cwt.milk	\$4.81	\$4.39	\$4.56	\$4.94	\$4.99	\$5.06	\$5.55	\$5.34	\$5.30	\$6.59
Operating cost producing milk/cwt.	\$10.53	\$10.53	\$10.17	\$11.71	\$9.76	\$9.53	\$11.83	\$11.35	\$10.58	\$13.56
Veterinary & medicine exp./cow	\$55	\$68	\$66	\$67	\$57	\$59	\$74	\$67	\$83	\$85
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,438	\$6,236	\$6,445	\$6,841	\$5,870	\$6,286	\$7,300	\$7,526	\$7,667	\$8,158
Real estate/cow	\$3,025	\$2,508	\$2,791	\$2,951	\$2,389	\$2,738	\$3,475	\$3,369	\$3,249	\$3,445
Machinery investment/cow	\$1,137	\$1,291	\$1,316	\$1,319	\$1,109	\$1,191	\$1,287	\$1,337	\$1,289	\$1,474
Asset turnover ratio	0.51	0.51	0.46	0.51	0.46	0.46	0.50	0.48	0.42	0.54
<u>Labor Efficiency</u>										
Worker equivalent	2.75	2.63	2.76	2.78	2.59	2.71	2.90	2.70	2.80	2.70
Operator/manager equivalent	1.30	1.41	1.35	1.40	1.24	1.36	1.50	1.32	1.39	1.28
Milk sold/worker, lbs.	532,809	550,437	574,630	553,819	605,677	577,020	611,862	587,165	614,066	675,657
Cows/worker	30	30	34	34	36	37	36	35	36	41
Labor cost/cow	\$642	\$715	\$644	\$717	\$683	\$681	\$732	\$746	\$744	\$705
Hired labor exp./hired worker equiv.	\$19,706	\$21,189	\$20,024	\$24,430	\$24,009	\$22,912	\$25,966	\$25,645	\$26,504	\$28,417
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$26,364	\$13,203	\$1,693	\$15,205	\$2,482	\$9,638	\$22,397	\$17,801	\$1,606	\$54,684
Labor & mgmt income/operator/cow	\$318	\$167	\$18	\$162	\$26	\$96	\$215	\$187	\$16	\$498
Net farm income/cow w/o apprec.	\$703	\$543	\$310	\$555	\$322	\$449	\$652	\$572	\$383	\$1,019
Farm net worth, end year	\$376,720	\$364,069	\$410,672	\$477,037	\$369,123	\$454,465	\$578,704	\$535,182	\$584,266	\$706,999
Percent equity	68%	73%	67%	71%	66%	69%	73%	72%	74%	73%

INTENSIVE GRAZING SURVEY SUMMARY

From the survey data of the 26 selected grazing farms that completed the grazing practices survey, analysis of average production levels and profitability measures are shown below. Labor and management income per operator per cow without appreciation was used to evaluate whether certain practices contributed favorably to improved profitability. Labor and management income per operator per cow is a measure of the net annual return after the operators' unpaid family labor and an equity charge for capital used in the business has been applied. This is the best way to compare diverse businesses that have high debt to those with no debt and those that may rely heavily on unpaid labor with those that have all paid labor. The farms were divided into two groups comprised of the top 50 percent and the lower 50 percent scaled from the highest to lowest labor and management income per operator per cow.

SELECTED PRODUCTION AND PROFITABILITY MEASURES

Intensive Grazing Dairy Farms, 2007

	Average (26 farms)	Average of the Top 50% (13 farms)	Average of the Lower 50% (13 farms)
Labor and management income per cow	\$544	\$727	\$360
Average number of cows	127	157	96
Milk sold per cow, pounds	16,739	17,367	16,112
Operating cost of producing milk per cwt.	\$12.45	\$11.97	\$12.93
Total cost of producing milk per cwt.	\$20.15	\$17.83	\$22.47

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, 2007

	Number of Farms Responding	Average of All Farms Answering Question	Average of the Top 50%	Average of the Lower 50%
<u>Experience</u>				
Average years of farming experience	24	28	26	30
Average years of grazing experience	24	14	14	13
<u>Farm Characteristics</u>				
Percent of farms with seasonal or semi-seasonal calving	25	40%	60%	40%
Percent of farms with a parlor milking system	23	57%	54%	46%
<u>Pasture in the Ration</u>				
Average percent forage from pasture	24	59%	60%	58%
Average length (days) of grazing season	26	182	164	199
Average pounds of grain fed while grazing	22	13.7	15.7	11.6
Average pounds of grain fed in winter	22	17.4	19.4	15.4
Average pounds of forage dry matter fed while grazing	22	10.2	10.3	10.0
Average pounds of forage dry matter from grazing	22	14.8	13.7	15.8
Average pounds of forage dry matter fed in winter	22	24.9	24.1	25.8
<u>Pasture Management</u>				
Percent rotated after each milking	26	50%	38%	62%
Percent rotated daily	26	35%	38%	31%
Percent rotated every other day	26	4%	8%	0%
Percent other rotation	26	12%	13%	8%
Percent applied commercial fertilizer to pasture	26	50%	93%	15%
Percent applied manure to pasture	26	33%	57%	46%
Percent applied lime to pasture	26	31%	46%	15%
Percent that clipped pasture	25	88%	83%	92%
Percent with a weed problem	24	67%	64%	69%
Percent with water in every paddock	25	44%	46%	42%
Percent with pasture re-seeded in past 10 years	24	71%	67%	75%
Percent that mechanically harvested pastures	24	75%	75%	75%
Most common pasture species				
First		Orchardgrass	Orchardgrass	Orchardgrass
Second		Native White Clover	Native White Clover	Native White Clover
Third		Bluegrass	Bluegrass	Timothy

Practices to increase pasture quality tended to indicate higher profitability. Those practices included having more grazing experience, rotating pastures more often, use of fertilizer, clipping weeds, re-seeding pasture, and mechanically harvesting pasture before it becomes overgrown.

Breeds

Holstein was the most common breed with 11 of the farms having 95 percent or greater Holstein animals. The second most common were crossbreeds which were on seven farms. Farms with Holstein animals tended to have higher milk production and higher profitability both per cow and per hundredweight.

FARMS SCALED BY BREED OF HERD Intensive Grazing Farms, 2007

	Number	Milk Production	Labor & Mgmt. Income per Operator Per Cow	Labor & Mgmt. Income per Operator Per Cwt.	Cull Rate (Sold for Beef or Died)
Farms that are 95+% Holstein	11	20,392	\$743	\$3.43	27.6%
Farms that are less than 95% Holstein	15	14,061	\$397	\$2.95	21.9%

Supplemental Feeding

Twenty-two farms gave detailed ration data and the table below compares the 11 farms that fed corn silage to the 11 that did not. Farms that incorporated corn silage into their grazing forages tend to have higher milk production. These farms did not always have higher profitability. In past years, the feeding of corn silage has shown to be profitable some years and unprofitable others, while supplementation of pasture in general has always shown to be a profitable practice. For a more specific look at what was being fed to these grazing herds, see the following section "Grazing Season Ration Details".

SUPPLEMENTAL FEEDING Intensive Grazing Farms, 2007

	Top 50% (11 farms)		Lower 50% (11 farms)	
	Corn Silage (6)	No Corn Silage (5)	Corn Silage (7)	No Corn Silage (4)
Labor & management income per oper. per cow	\$995	\$790	\$129	\$ 42
Milk sold per cow, pounds	19,534	17,034	16,793	13,995
Grain fed in summer, pounds dry matter	14.9	16.6	11.5	4.5
Corn silage fed in summer, pounds dry matter	8.1	-	8.0	-
Other forage fed in summer, pounds dry matter	5.2	6.8	4.4	5.9
Percent forage from pasture	49%	70%	56%	76%

Grazing Season Ration Details

The 11 farms in the top 50 percent of profitability fed an average of 16 pounds dry matter of grain during the grazing season. Six farms fed corn silage at an average of 14.9 pounds dry matter.

The 11 farms in the lower 50 percent of profitability fed an average of 9 pounds dry matter of grain during the grazing season. Seven of the farms fed corn silage at an average of 11.5 pounds dry matter. Three fed haylage at an average of 6.3 pounds dry matter. Nine farms fed dry hay at an average of 3.7 pounds dry matter.

Frequency of Rotation

Thirteen of the farms rotated their pastures for milk cows after each milking, 9 of the farms rotated pasture every day, 1 farm rotated pasture every other day, and 3 farms rotated based on field conditions. The table below compares the rotation frequency to milk production and labor and management income per operator per cow.

ROTATION FREQUENCY Intensive Grazing Farms, 2007

	Top 50% (13 farms)		Lower 50% (13 farms)	
	Rotate After Each Milking (7)	Other Rotation Schedule (6)	Rotate After Each Milking (6)	Other Rotation Schedule (7)
Milk sold per cow, pounds	19,826	15,861	14,870	16,008
Labor and management income per operator per cow	\$831	\$1,126	\$81	\$154

Water Source

Thirteen farms provided the majority of water from a well while the remaining ten provided water from a natural source (pond-4, spring-5, and stream-1).

WATER SOURCE Intensive Grazing Farms, 2007

	Upper 50% (12 farms)		Lower 50% (11 farms)	
	Well (6)	Other (6)	Well (7)	Other (4)
Milk sold per cow, pounds	17,162	18,711	13,274	18,060
Labor and management income per operator per cow	\$908	\$1,018	\$218	\$6

Milking System

Farms utilizing some sort of a parlor (herringbone, parallel, rotary, flat barn or other) were separated from those utilizing a pipeline. The type of milking system may impact the degree of control the manager has over the supplemental feeding system and the capital investment level of the farm. In total there were 13 parlor systems (11 pit parlors, 2 flat parlors) and the remaining 10 farms used pipeline systems.

MILKING SYSTEM Intensive Grazing Farms, 2007

	Top 50% (11 farms)		Lower 50% (12 farms)	
	Pipeline (4)	Parlor (7)	Pipeline (6)	Parlor (6)
Milk sold per cow, pounds	19,120	17,092	14,741	16,911
Labor and management income per operator per cow	\$1,135	\$784	\$52	\$201
Average number of cows	59	205	82	160

Commercial Fertilizer

Fifteen farms applied fertilizer to the paddocks during the growing season. The majority of farms applied urea and others applied a blended fertilizer. It is not possible to compare pasture yields in the different systems because quantities were not measured from farms that mechanically harvested hay from pasture.

COMMERCIAL FERTILIZER

Intensive Grazing Farms, 2007

	Top 50% (13 farms)		Lower 50% (13 farms)	
	Applied Fertilizer (8)	Did Not Apply Fertilizer (5)	Applied Fertilizer (7)	Did Not Apply Fertilizer (6)
Milk sold per cow, pounds	17,548	18,713	16,793	13,954
Labor and management income per operator per cow	\$1,025	\$875	\$129	\$110
Stocking rate, cows per acre	0.9	1.2	1.5	0.9
Percent forage from pasture	61%	49%	56%	68%
Most common product applied	Urea		Urea	

Intensive Grazing Satisfaction Comments

On a scale of 1 to 5, with 5 being the highest, 26 farms responded with the average rating of grazing satisfaction as 4.6 with 16 farms responding 5 (very satisfied), 7 responding 4 (satisfied), and 3 responding 3 (equally satisfied). When asked whether their lifestyle has improved with the adoption of rotational grazing, 22 farms responded with 21 saying “yes” and 1 saying “no”.

Grazing Trends

The table below compares key figures from 1996 (the first year of the intensive grazing summary), 2007, and a 12-year average (not the same farms all 12 years). Cow numbers have increased but milk sold per cow has remained basically the same.³ Operating cost of producing milk in 2007 averaged \$2.57 above the 12-year average and \$2.27 above 1996. Net farm income per cow without appreciation was \$506 higher in 2007 than the 12-year average. Due to the higher milk price in 2007, the grain cost was lower as a percent of milk receipts.

2007 GRAZING INFORMATION COMPARED TO 1996 AND 1996 – 2007 AVERAGE

Intensive Grazing Farms, 1996 – 2007

	59 Grazing Dairy Farms, 1996 Average	36 Grazing Dairy Farms, 2007 Average	46 Grazing Dairy Farms, 1996 – 2007 Average
Number of cows	78	110	93
Milk sold per cow, pounds ²	17,270	16,627	16,988
Operating cost of producing milk per cwt.	\$11.29	\$13.56	\$10.99
Net farm income per cow without apprec.	\$409	\$1,019	\$513
Grain and concentrate as % of milk receipts	30%	23%	27%
Grain and concentrate expense per cwt. milk	\$4.41	\$4.82	\$3.96
Price of milk per cwt.	\$14.78	\$21.21	\$15.37

² In 1996, similar size non-grazers sold 17,547 pounds of milk per cow and in 2007 similar size non-grazers sold 19,811 pounds per cow.

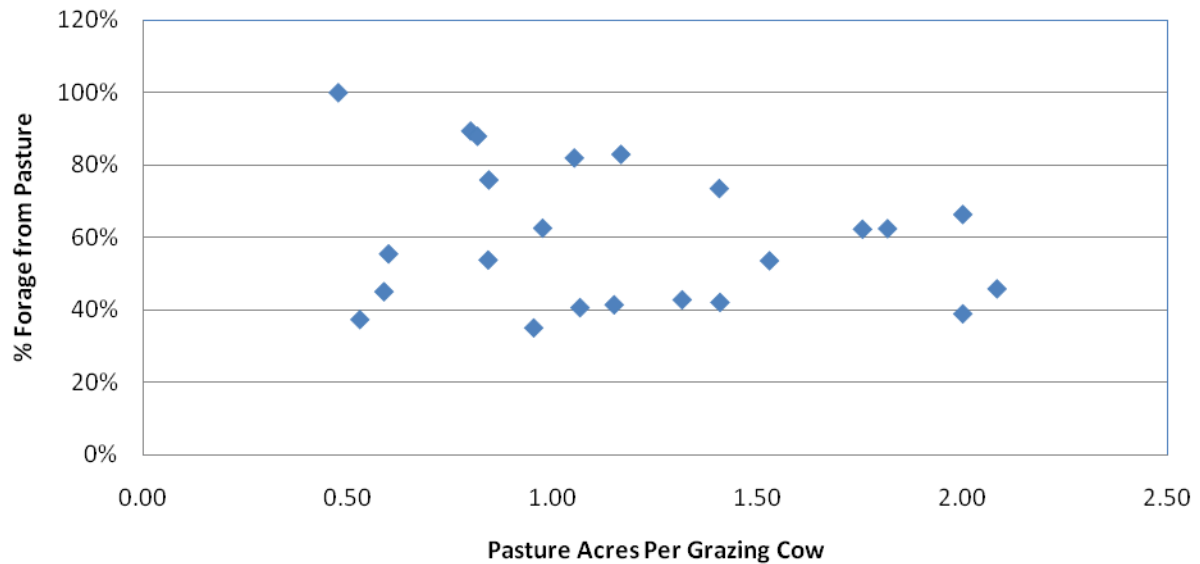
Percent Forage from Pasture

The following graphs compare the percent forage from pasture to labor and management incomes per operator per cow and pasture acres per cow.

PERCENT FORAGE FROM PASTURE VERSUS LABOR AND MANAGEMENT INCOME PER OPERATOR PER COW
Intensive Grazing Farms, 2007



ACRES PER COW VERSUS PERCENT FORAGE FROM PASTURE
Intensive Grazing Farms, 2007



INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2007

Item	All Intensive Grazing Farms ⁶⁵	Non-Grazing Farms ⁶⁶	Profitable Graz- ing Farms ⁶⁷	Profitable Non- Grazing Farms ⁶⁸
Number of farms	36	131	18	47
<u>Business Size & Production</u>				
Number of cows	110	114	107	103
Number of heifers	87	92	87	86
Milk sold, lbs.	1,824,273	2,261,969	1,784,418	2,188,578
Milk sold/cow, lbs.	16,627	19,811	16,625	21,195
Milk plant test, % butterfat	3.4%	3.5%	4.0%	3.6%
Cull rate	24.0%	29.0%	25.0%	28.0%
Tillable acres, total	273	322	223	275
Hay crop, tons DM/acre	2.0	2.5	2.3	2.7
Corn silage, tons/acre	17.6	17.8	19.4	17.3
Forage DM/cow, tons	5.1	8.8	4.3	9.2
<u>Labor & Capital Efficiency</u>				
Worker equivalent	2.70	3.35	2.59	3.00
Milk sold/worker, lbs.	675,657	675,551	688,300	729,323
Cows/worker	41	34	41	34
Farm capital/worker	\$331,528	\$327,292	\$320,473	\$300,325
Farm capital/cow	\$8,158	\$9,603	\$7,733	\$8,725
Farm capital/cwt. milk	\$49	\$48	\$47	\$41
Machinery & equipment per cow	\$1,474	\$1,897	\$1,355	\$1,668
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.54	\$1.80	\$1.54	\$1.51
Grain & concentrate	\$4.82	\$4.94	\$4.67	\$4.73
Purchased roughage	\$0.64	\$0.26	\$0.57	\$0.34
Replacements purchased	\$0.09	\$0.09	\$0.07	\$0.08
Vet & medicine	\$0.51	\$0.56	\$0.42	\$0.60
Milk marketing	\$0.95	\$0.97	\$0.93	\$0.97
Other dairy expenses	\$1.15	\$1.51	\$0.99	\$1.42
Operating cost of producing milk/cwt.	\$13.56	\$14.01	\$12.04	\$12.85
Total labor cost/cwt.	\$4.24	\$4.26	\$4.03	\$3.81
Owner/operator resources/cwt.	\$4.07	\$3.97	\$3.89	\$3.54
Total cost of producing milk/cwt.	\$19.64	\$19.62	\$17.71	\$17.86
Average farm price/cwt.	\$21.21	\$20.43	\$21.28	\$20.53
<u>Related Cost Factors</u>				
Hired labor/cow	\$256	\$357	\$256	\$321
Total labor/cow	\$705	\$844	\$671	\$808
Purchased dairy feed/cow	\$907	\$1,030	\$872	\$1,073
Purchased grain & concentrate as % of milk receipts	23%	25%	23%	23%
Vet & medicine/cow	\$85	\$111	\$71	\$127
Machinery costs/cow	\$688	\$793	\$599	\$799
Feed & crop exp./cwt.	\$6.59	\$6.24	\$6.49	\$6.07
<u>Profitability Analysis</u>				
Net farm income (with appreciation)	\$154,327	\$149,932	\$172,820	\$178,621
Net farm income (without apprec.)	\$111,783	\$114,705	\$140,063	\$142,082
Net farm income per cow (w/o apprec.)	\$1,019	\$1,005	\$1,305	\$1,376
Net farm income per cwt. (w/o apprec.)	\$6.13	\$5.07	\$7.85	\$6.49
Labor & management income/operator	\$54,684	\$46,592	\$86,364	\$80,635
Labor & mgmt. income/operator/cow	\$497	\$409	\$807	\$781
Rates of return on:				
Equity capital with appreciation	15.9%	11.7%	20.1%	19.9%
All capital with appreciation	13.3%	10.2%	16.9%	15.8%

⁶⁵Farms 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.

⁶⁶Farms with similar herd size as the 36 rotational grazing farms.

⁶⁷Top 50 percent of grazing farms by labor and management incomes per operator per cow.

⁶⁸Farms with similar herd size as the "Top 50%" grazing farms and labor and management incomes per operator per cow greater than \$500.

CASE STUDIES

Sheffer's Grassland Dairy

For the Sheffer family of Hoosick Falls, New York, farming has been a way of life for over two centuries. The current farm dates back to 1774. The newest generation (Eric Sheffer and family) is shaking up tradition and milking cows under a managed grazing system. Wally and Kathy (Eric's parents), bought the current farm from Wally's parents in 1983. The farm came with 160 acres and older facilities that were taken down or converted to crop storage. Wally decided to custom raise heifers for eleven years (1987-1998) peaking at 225 heifers. In the late 1990's Wally went back to cropping and turned the farm into a hay-making operation from 1998 to 2007. During these years, Wally became interested in grazing and employed self-education as a way to satisfy his intrigue. Beginning about 2000, Wally attended various conferences and took part in many farm tours taking Eric along with him.

Eric attended Cornell University in the fall of 2004 and over the course of his undergraduate career made several key decisions that positioned him to begin farming immediately following his graduation in December of 2007. He had made the concrete decision that he was going to return to the farm in the winter of 2005. This decision may have been the most crucial because this would lay the foundation for some of Eric's collegiate experiences. He spent a semester abroad in Canterbury, New Zealand. In this grazing intensive area of the world Eric took advantage of both the academic and practical education that was offered. In 2007, he set the stage for the grazing dairy by purchasing 100 open yearlings with financial backing from his parents. The heifers were bought open intentionally so that a seasonal herd could be developed from the start. The facility construction and renovation was mostly done in-house, being planned and engineered mainly by Wally and took place over the course of three years. A cost-shared fence was installed in the winter of 2005, the double 20-swing parlor was built over the fall of 2007 and into the beginning part of March 2008, and the housing facilities were renovated in the summer of 2007.

Today the dairy is fully operational. The herd consists of 102 two-year-olds, grazing 115 acres of fenced pasture, and peaking at 52 pounds of milk per day. There are currently 40 replacements. However, due to the seasonal nature of the dairy the replacements are all calves. The total acreage owned is still 160 acres with another 150 acres that are rented to make baleage for the winter months. Eric's parents own the land, facilities, and machinery while Eric owns all of the animals. The herd is rotated every twelve hours to a new pasture. This year the herd started grazing around the middle of April. Eric and Wally are the chief sources of labor with a helping hand from a part-time relief employee. Water is provided in all pastures via a water wagon but there are plans to implement a hose and trough system for next spring. Financing for this was received through a NRCS grant from the federal government.

Sheffer's Grassland Dairy has bought into genetics through the use of New Zealand bulls. They feel that this gives them an advantage in this tight margined dairy industry. The herd currently consists mostly of Crossbred Jerseys and Holsteins with a few Jerseys and Ayrshires. The genetics being used are all out of New Zealand and the calves on the ground today are the first generation of New Zealand Friesian (New Zealand Jersey, Kiwi Cross, and New Zealand Ayrshire). The service semen used depends on the breed of the cow. The Sheffers feel that because they are using genetics from a country that has been successfully grazing for decades, they are positioning themselves well for the future. High components, fertility and the genetic predisposition to graze allows for an effective grazing dairy. The herd is 100 percent seasonal and currently no sexed semen is being used. The seasonal herd has its challenges but through an extremely high heat detection rate and a young and well-managed herd, the pregnancy rate on this dairy is also extremely high. Heats are recorded through visual detection and tail painting and all cows are given a lutylase shot by 20 days in milk to ensure the cycling pattern has started.

Looking back over the course of the last year Eric and Wally faced many challenges that tested their tempers and built their confidence and skill. When asked to reflect on getting started in dairying, Eric felt that the key was to make decisions and investments that allow one to widen that margin. They kept their investment low by only purchasing assets that were productive and would give them a return that is constant. The cost-shared fence was another decision that made the starting process more bearable and cost effective. Eric also feels that through the challenging month of March, when the majority of the herd freshened, he persevered and learned from mistakes. He is confident that he and the family can make smart decisions and weather through future challenging times.

The future plan for the dairy is to grow and grow quickly. Sheffer's Grassland Dairy would like to double the herd size in less than four years. This will require the farm to improve soil fertility and utilize more adjacent land to incorporate into the grazing system. The purchase of extra replacements is also on the list of investments to make. This was Eric and Wally's mindset even before they started milking in March. The double 20-swing parlor's efficiency currently makes the size of the dairy unrestricted. It is clear that Eric, with the help of his parents, has positioned Sheffer's Grassland Dairy well for future growth.

Cloverpatch Dairy

Located in eastern central Ohio, Cloverpatch Dairy is a grazing operation centered around Jersey cows. Located at the present facility since 1997 the farm is operated by Alan and Sharon Kozak, with help from their two young children, Courtney and Brandon.

History

After graduating from Penn State University in 1984, Alan returned to the home farm in Southwestern PA. After six months, he realized that it was not going to work out, and that he needed to do something else. After working in extension for 2 years and for breed associations for 4 years, it was time to try dairy farming again. While working on budgets and planning on where to go to get back into dairy farming, grazing was the only way that he figured that he would be successful. In 1991, a farm was rented and 156 cows with youngstock were purchased, and the grazing dairy was started. The rented facility was quite rough and after a year, he determined that another facility was needed if he was going to stay in business. A second facility in eastern Ohio was located and rented for 5 years. Over the next five years, the herd grew to 150 cows, but there was not sufficient land for grazing. The facilities were also quite rough and labor inefficient.

However, the facility was going to be sold at the end of the lease period, (a blessing in disguise) and it was time to again look for a place to farm. Despite the difficulty in the first six years, Alan was still quite interested in being in the dairy business. At the time of the next move, if he sold out, the business was technically insolvent. Time was spent looking in 5 or 6 different states at facilities and land bases, as well as what was available to rent. Buying an existing farm was not an option due to his highly leveraged position. An operation was located, found through the milk hauler, and the herd was moved in 1997 to the current facility. The dairy at that time was a conventional farm, so wire was strung around hay fields and new pastures were established. When deciding on where to move, the landlord's goals, location, milk market, land base, and facilities were all evaluated.

Current Operation

By controlling Johnes' disease, involuntary culling, and achieving low death losses in the replacement program, the herd has grown to 400 cows, 300 heifers, and 500 workable acres. Pasture consists of 405 acres, with 95 utilized to grow corn silage and cereal grain.

The main barn has 220 sand bedded stalls with the milking parlor in one corner. The new bedded pack barn, built in 2007, is a drive-through measuring 120 x 156 feet. It is used to house 150 cows during the winter months and for feeding TMR during the grazing season. Over the years, they have used three different management rails and now have 390 headlocks and would hate to be without them.

The milking parlor was originally a swing 12, which was used up until the spring of 2008. In 2008, the parlor was retrofitted and expanded into a swing 20, with all new equipment to improve labor efficiency and the ability to milk more cows.

Key Operating Characteristics

The first key ingredient for the success of the operation is the herd, focusing on registered Jerseys. Jerseys are better adapted to grazing and fit well in stalls that would be too short for anything but a Jersey. This focus, they feel, has increased the productive life of their cows within their herd, allowed them to produce higher pounds of components shipped off the farm, take advantage of the local milk market that rewards higher protein, and have the ability to merchandise excess animals for a premium. The combination of reproduction efficiency and productive life advantages of the Jersey has allowed tremendous internal herd growth, with both the farm expanding in size and having the ability to sell excess animals.

The second key area has been a focus on making high levels of milk production while utilizing grazing methods. In 2007, over 19,900 pounds were shipped per cow, with grazing being a key component of the ration. For the 2007 grazing season, the ration consisted of 42 pounds of dry matter intake, with the average from pasture equaling 15 pounds of dry matter, or 36 percent. The remainder of the ration, on an as-fed basis, was comprised of 20 pounds of grain, 15 pounds of corn silage, 3.5 pounds of hay, 2 pounds of liquid molasses, and a mineral pack. Currently in 2008, the grain supplementation is at 18 pounds of grain, due to higher quality forages. The grazing pastures are comprised of both new seedings and old hay fields. The old hay fields are a mixture of orchardgrass, bluegrass, quackgrass, clover and other miscellaneous things. The new seedings are an orchard/clover mix. Orchardgrass is utilized for palatability, durability, dry tolerance, space for diversity, ease of mechanical harvest, and use a year-round ration. The pastures are maintained with a pH greater than 6.5, and 100 pounds of urea per acre is spread four times a year, for a total of 400 for the year. Chicken manure and compost are also utilized when available.

With the spring flush of grass, Alan mechanically harvests paddocks not needed for grazing to encourage tillering, expression of volunteer crabgrass and to maintain quality of pasture for latter cycles and winter feed production. Pastures are clipped 2-4 times a year. Dry cows follow milk cows in rotation in August and September. With the semi-seasonal herd, these are the fall calving cows that will calve in October and November. During the rest of the grazing season, there are no dry cows. A key management approach for the pasture and the dry matter intake of the cows is the following: if the pasture gets ahead of the cows; mechanically harvest as baleage. If the cows get ahead of the pasture, increase amounts of baleage or dry hay are fed in the TMR.

The third key area is the location of the farm. The environment allows for a good grass growing season without too long or cold of a winter. Also the farm is located in a milk market that rewards higher percent components, due to the fact that the milk goes for cheese.

The fourth key ingredient, or business approach, is renting the complete dairy and focusing ownership efforts on cattle. By renting the facility, total investment levels have been lower, and when extra capital has been available, it could be focused on cattle. This was also the only way they could be in the dairy business initially. While the facility is rented, significant capital has been used to improve the operations, with the investment in the new milking center and compost bedded pack barn coming from Alan and the family, and not the landlords. The dairy farm business summary is utilized heavily in this approach to budget the impact changes may have, track performance, and to work with the lender to finance facility improvements and new construction on land not owned.

The agreement is for 12 more years at this point, with the landlords very excited to have a grazing operation utilizing their resources. Part of their focus for doing certain things, such as replacing the roof on the main barn, is to help Alan be successful as a renter.

Breeding Program

With the focus on purebred animals, and generating the ability to grow the herd internally and/or sell excess animals, special focus is placed on the breeding program. Sexed semen is used on 100 percent of the heifers for up to 3 breedings, at which point bulls are utilized. Heat detection is through observation only, with no aids utilized. Bulls utilized for clean-up are raised on the farm, with the farm being a closed herd over the last 5 years. Over the last year, over 90 percent of the animals have been bred and confirmed pregnant from an artificial insemination service.

Sexed semen is also used on one-half of the cows for the first service. The milking herd is 100 percent AI, with no bulls being utilized. Breedings are done utilizing head locks and tail chalking. AI bulls are selected based on udder depth and production level. Ultra sound is also utilized every week, primarily to detect open cows and get them back into the breeding cycle.

Replacements

Newborn calves are fed colostrum from their dam or a first-calve heifer within the first 2 hours of their life. No colostrum is pooled in order to control Johnes. They are kept in individual pens for one week, at which point they are moved into group pens of 10-14 animals on a barrel mob feeder. They are weaned at eight weeks old. Sanitation is a key focus for the wet calves, with ammonia utilized for cleaning to control cyrpto. An aggressive vaccination program is also utilized with the dry cows to improve the passive immunity of the newborn calves.

Heifers receive 2 to 5 pounds of grain daily, balanced to supplement the forages being fed. Pasture is the forage of choice with baleage and hay utilized when pasture is not available. Except for fall calves, which have a bedded shelter for their first winter, replacements are housed outdoors until 21 days prior to calving, when they move back into the barn.

Looking to the Future

Alan and family are excited about the future in the grazing dairy business. They are looking forward to capturing the value associated with the additional barn space and milking parlor capacity. With 12 years left on the rental agreement, they are not currently looking to buy a farm. As the children get older, and if they express an interest in dairy farming, purchasing a farm is something that would be considered if they are in a financial position to do so. Alan uses the Dairy Farm Business Summary (DFBS) to track the progress of the business as different decisions are made. With DFBS, they have better information for making decisions and preparing budgets. DFBS is a tool used with the lender for tracking the overall performance of the business and comparing it to other farms, grazing and non-grazing, in the summary.

Willow Creek Farm: Thinking Outside The Fence
Grazing Dairy Looks to Robotic Milker to Increase Family Time

Willow Creek Farm of Belmont New York, looks similar to other grazing dairies in the Northeast: cows grazing or resting in sloping pastures waiting for milking time. The big difference is that these cows don't wait for milking time. They can walk back to the barn to be milked at any time they choose. At present the herd is choosing to being milked 2.8 times daily by two Lely robotic milkers. Chuck Diechman, owner operator of Willow Creek, programs the number of milkings for each of the 75 cows into the robotic milker. The number of milkings is based on the stage of lactation and the cow's production, any where from 2 to 4 milkings per day. He has been very happy with his decision to go to robotic milkers, he estimates that they have increased his cow's production 6-7 lbs per cow and they have cut his daily chore time in half. These two benefits alone will pay back his \$210,000 investment in less than 7 years. Even though he is happy now, making the decision to purchase the robots was not an easy one, due in part to the amount of capital required for the purchase but also the unknowns such as: how would the cows react to being milked by the robots; since Willow Creek is certified organic, how would his certifier and milk purchaser react; and one of the biggest unknowns, was that robotic milkers have traditionally been used in confinement operations, would the cows come back from his pastures to be milked? His system is one of the first in the United States to be on a grazing dairy.

History of Willow Creek Farm

Chuck and his wife Julia, a teacher, purchased the farm from Chuck's father in 1995. The barn was modified to hold 36 cows in tie stalls. In 2001 he added a coverall building with 80 stalls. He milked the cows in shifts in the tie stalls for 5 years. By 2006 cow numbers were up to 60 and Chuck felt his knees were giving out and chores were taking 6-7 hours per day for him and a full time employee. His strongest motivation for a change was family time -- -- there wasn't enough of it. At that time he had four children aged 3, 6, 8, and 10. Something needed to change so that he could increase his family time.

When he looked at cost of a parlor it was around \$90,000. The parlor would shorten his chore time by 1-2 hours and relieve the stress on his knees. Chuck had read about dairies using robots and decided to price one for his dairy. The amount of time saving was much better with the robot. The cost was \$165,000. When he went to his banker with his comparisons the banker remarked, that for the extra money that a robot cost, it was still "cheap labor". Typically one unit handles up to 55 cows milking. Chuck had the first unit installed in June of 2007. His cow numbers were at the maximum for the single unit so he ordered another unit that was installed in July of this year. Horizon Organic purchases Chuck's milk and he was concerned there might be negative response to robotics in organic. The company encouraged him to proceed and has been interested in his progress.

Robots vs. Hands On

Chuck was asked by an organic farmer at a recent field day at Willow Creek, "doesn't he find that the elimination of the constant touching of the animals at milking time eliminate his abilities to identify a cow who may have a health issue beginning?" Chuck replied that with the daily reports the robot prepares, he has even better tools for diagnosing herd and individual cow health. Some of the measurements that Chuck can check at the monitor in the barn office next to the robots or at another screen in his house:

- Conductivity of each quarter to measure SCC.
- Body Temperature.
- Whether milk contains blood, if it does it is automatically diverted to a container.
- All teats have the first ounce of milk discarded.
- Milk production.
- Number of times and when each cow enters the machine.
- Body weight, (useful when tracking ration changes).
- The gates where the cows go after milking can also be changed from either of the monitors.

Each cow wears a transponder on her collar. The units tracks and stores all information on a computer. With this information Chuck can tell if a cow is beginning a stressful time if her production drops, or her temperature changes, or her times visiting the unit varies.

The robots are set to call Chuck's cell phone and alert him if there are any major deviances from set parameters. He will get a call if the wash system is out of soap, the vacuum is incorrect, or a cow hasn't gone through the units in 14 hours. At present he has 4 cows that refuse to use the units, all are older cows. He makes it part of his chores to go out to the pastures to bring them in. Heifers have no problem learning the robotic system. At present he has one new heifer that enters the units up to 20 times a day hoping for some more grain. The units will only dispense grain depending on whether the animal is due to be milked again. When the cows come back to the barn they are prevented from going back to the pastures by one-way gates. The only way out is

through the robots. When leaving the units, depending on how Chuck has set the automatic gates, the cows will either be directed to the feed alley or out to the pastures where there is another set of one-way gates. From here Chuck uses manual gates to direct them to one of five different grazing systems on his farm. The furthest pasture is about a half mile away.

Forage Management

Willow Creek is located in a high valley of western New York. They have tried to grow corn 7 years in the past 30. Five times the corn was frosted before it ripened. For that reason Chuck doesn't grow any grain crops, he instead has put a lot of management into his grass production, harvesting, and feeding. They do most of their first cutting as baleage. This is sampled and stacked in specific areas where it can be retrieved as Chuck feels that it would fit his feeding plan best. He feeds some baleage all the time in the barn. His mixer can process two bales at once. He will decide what level of quality he needs to compliment his pastures. In early spring he will place two of his lower quality bales in the mixer. As the quality of the pasture goes down he will use one of higher quality bales to go along with the lower quality bale. When pasture is gone he uses two of his higher quality bales. This year Chuck tried a pea and oat mix as a nurse crop. He has enough of this mix to use one a day during the winter months. His grain that is dispensed by the robots is an 18 percent pellet. He programs the units to feed 1 pound of grain to 6 pounds of milk during the pasture months and then he reprograms them to give 1 pound to 4 pounds in the winter months.

Quality of Life

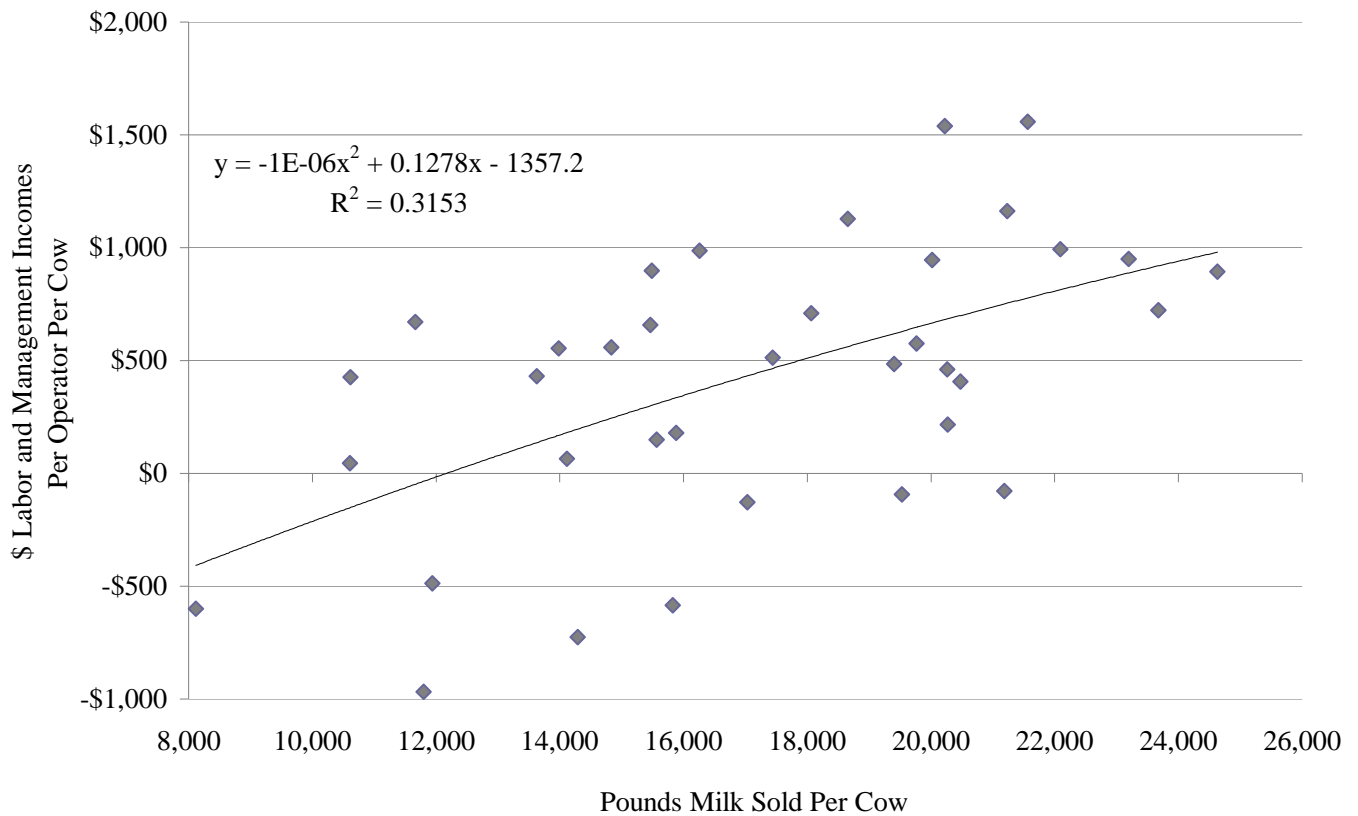
Chuck can now attend his children's soccer games, attend events and meetings further from home. Chuck tells the story that last year he attended a high school reunion. He had a call on his cell phone. When he told his friends that his robot was calling, no one believed him. The message said that the unit was out of soap. Chuck was able to reset the unit from his phone, it continued milking and he refilled the soap when he got home. He figures chores take only half the time they used to and he can do them quicker but enjoys the opportunity to do a better job with the calves. Not being confined to a parlor during milking time also allows Chuck to work with his children around the farm. They are now ages 12, 10, 8, and 5. He appreciates this time which allows the children to feel more a part to the family operation. Chuck's decision seems an easy one now. When there were the unknowns -- the weeks of holding the cows in the robot unit, and then having to milk in the tie stalls too, he wasn't so sure he had made the right one.

SUMMARY OF GRAZING FARMS BY HERD SIZE

There were 12 New York grazing farms with more than 90 cows. Herd size does not guarantee profitability, however, as small farms that are able to produce higher levels of milk per cow also show higher levels of profitability. The chart below shows the variation in labor and management income per operator by pounds of milk sold per cow. The table on the following page compares grazing farms by herd size group.

LABOR AND MANAGEMENT INCOMES PER OPERATOR PER COW AND MILK PER COW

36 Intensive Grazing Farms, 2007



INTENSIVE GRAZING FARMS BY HERD SIZE GROUP

36 Intensive Grazing Dairy Farms, 2007

Item	Less Than 48 Cows	48 to 90 Cows	90 Cows Or More
Number of farms	12	12	12
<u>Business Size & Production</u>			
Number of cows	39	59	231
Number of heifers	30	44	186
Milk sold, lbs.	656,215	985,914	3,830,691
Milk sold/cow, lbs.	16,900	16,592	16,589
Milk plant test, % butterfat	3.7%	4.3%	3.3%
Cull rate	25%	28%	23%
Tillable acres, total	157	151	512
Hay crop, tons DM/acre	1.5	2.0	2.3
Corn silage, tons/acre	17.4	16.0	17.9
Forage DM/cow, tons	5.4	5.2	5.0
<u>Labor & Capital Efficiency</u>			
Worker equivalent	1.75	1.95	4.40
Milk sold/worker, lbs.	376,055	504,734	870,612
Cows/worker	22	30	52
Farm capital/worker	\$239,252	\$270,244	\$395,389
Farm capital/cow	\$10,783	\$8,869	\$7,534
Farm capital/cwt. milk	\$64	\$53	\$45
<u>Milk Production Costs & Returns</u>			
Selected costs/cwt.:			
Hired labor	\$0.73	\$0.90	\$1.84
Grain & concentrate	5.28	4.61	4.79
Purchased roughage	0.89	0.61	0.60
Replacements purchased	0.10	0.16	0.07
Veterinary & medicine	0.49	0.40	0.54
Milk marketing	1.01	0.94	0.94
Other dairy expenses	1.68	1.62	0.95
Operating cost of producing milk/cwt.	13.45	12.90	13.75
Owner/operator resources/cwt.	7.06	5.63	3.15
Total labor cost/cwt.	7.44	5.28	3.43
Total cost of producing milk/cwt.	24.05	20.23	18.74
Average farm price/cwt.	20.94	20.59	21.41
<u>Related Cost Factors</u>			
Hired labor/cow	\$124	\$149	\$305
Total labor/cow	1,257	876	568
Purchased dairy feed/cow	1,043	866	895
Purchased grain & concentrate as % of milk receipts	25%	22%	22%
Veterinary & medicine/cow	\$83	\$67	\$89
Machinery costs/cow	\$805	\$607	\$690
Feed & crop expense/cwt.	\$7.03	\$6.19	\$6.62
<u>Profitability Analysis</u>			
Net farm income (without appreciation)	\$34,774	\$64,306	\$236,308
Net farm income/cow (without appreciation)	\$895	\$1,082	\$1,023
Net farm income/cwt. (without appreciation)	\$5.29	\$6.52	\$6.17
Labor & management income/operator	\$7,842	\$31,096	\$107,568
Labor & management income/operator/cow	\$201	\$527	\$466
Rates of return on:			
Equity capital with appreciation	1.9%	8.0%	22.8%
All capital with appreciation	2.7%	7.7%	17.5%

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 36 Intensive Grazing Dairy Farms, 2007

Type of Farm	Number	Milking System	Number
Dairy	36	Bucket & carry	0
Part-time dairy	0	Dumping station	0
Dairy cash-crop	0	Pipeline	18
		Herringbone-conventional exit	7
		Herringbone-rapid exit	2
		Parallel	1
		Parabone	3
		Rotary	0
		Other	5
Type of Ownership	Number	Production Records	Number
Owner	32	Testing Service	26
Renter	4	On-Farm System	3
		Other	0
		None	7
Type of Business	Number	bST Usage	Number
Sole Proprietorship	24	Used consistently	4
Partnership	6	Used inconsistently	0
Limited Liability Corporation	5	Started using in 2007	0
Subchapter S Corporation	1	Stopped using in 2007	0
Subchapter C Corporation	0	Not used in 2007	32
		Average percent usage, if used	90%
Type of Barn	Number	Business Record System	Number
Stanchion or Tie-Stall	18	Account Book	11
Freestall	13	Accounting Service	3
Combination	5	On-farm computer software	22
		Other	0
Milking Frequency	Number		
2 times per day	35		
3 times per day	0		
Other	1		
Breed	Percent		
Holstein	69		
Jersey	17		
Other	14		

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 2007.

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

36 Intensive Grazing Dairy Farms, 2007

Expense Item	Cash Paid	Change in Inventory - or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 27,981	\$ -52	<<	\$ 5		\$ 28,038
<u>Feed</u>						
Dairy grain & concentrate	99,703	9,232		-2,624		87,847
Dairy roughage	11,724	75		26		11,675
Nondairy	26	0		0		26
Professional nutritional services	171	0		0		171
<u>Machinery</u>						
Machinery hire, rent & lease	17,693	833	<<	1,276		18,135
Machinery repairs & farm vehicle exp.	17,984	31		-731		17,222
Fuel, oil & grease	12,902	421		-222		12,259
<u>Livestock</u>						
Replacement livestock	1,607	0	<<	0		1,607
Breeding	4,451	73		44		4,422
Veterinary & medicine	9,231	-139		-98		9,272
Milk marketing	17,241	0	<<	71		17,313
Bedding	3,988	280		-643		3,066
Milking supplies	8,261	20		-401		7,840
Cattle lease & rent	0	0	<<	0		0
Custom boarding	517	0	<<	4		522
bST expense	552	0		0		552
Livestock professional fees	1,474	167		0		1,307
Other livestock expense	3,342	12		0		3,330
<u>Crops</u>						
Fertilizer & lime	18,943	5,054		561		14,449
Seeds & plants	4,687	636		0		4,051
Spray, other crop expense	1,974	4		-39		1,930
Crop professional fees	165	0		123		288
<u>Real Estate</u>						
Land, building & fence repair	7,208	47		2		7,163
Taxes	8,081	0	<<	76		8,158
Rent & lease	6,025	0	<<	0		6,025
<u>Other</u>						
Insurance	5,669	94	<<	-51		5,524
Utilities (farm share)	9,439	17	<<	-198		9,224
Interest paid	15,007	0	<<	-43		14,964
Other professional fees	2,041	0		0		2,041
Miscellaneous	3,514	14		61		3,560
Total Operating	\$ 321,599	\$ 16,820		\$-2,801		\$ 301,978
Expansion livestock	60	0	<<	0		60
Extraordinary expense	456	0		0		456
Machinery depreciation						19,830
Building depreciation						7,333
TOTAL ACCRUAL EXPENSES						\$ 329,657

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 2007 but not paid for. A decrease is subtracted because it represents payment for resources used before 2007.

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

36 Intensive Grazing Dairy Farms, 2007

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 374,148				\$ 12,692		\$ 386,840
Dairy cattle	22,952		\$ 1,736		-17		24,671
Dairy calves	4,509		2,211		0		6,720
Other livestock	1,411		687		5		2,102
Crops	1,254		5,231		-75		6,411
Government receipts	8,993		0		-183		8,810
Custom machine work	757				0		757
Gas tax refund	511				0		511
Other	<u>4,612</u>				<u>6</u>		4,618
Less nonfarm noncash capital ⁸		(-)	<u>0</u>			(-)	<u>0</u>
Total Receipts	\$ 419,146		\$ 9,865		\$ 12,428		\$ 441,439

⁷Change in advanced government receipts.

⁸Gifts 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 2007 for the 2008 crop year in excess of funds earned for 2007. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2007 but received in 2006.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January for milk produced in December 2007 compared to January 2007 payments for milk produced in 2006 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 operators⁹ 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.

⁹Operators 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.

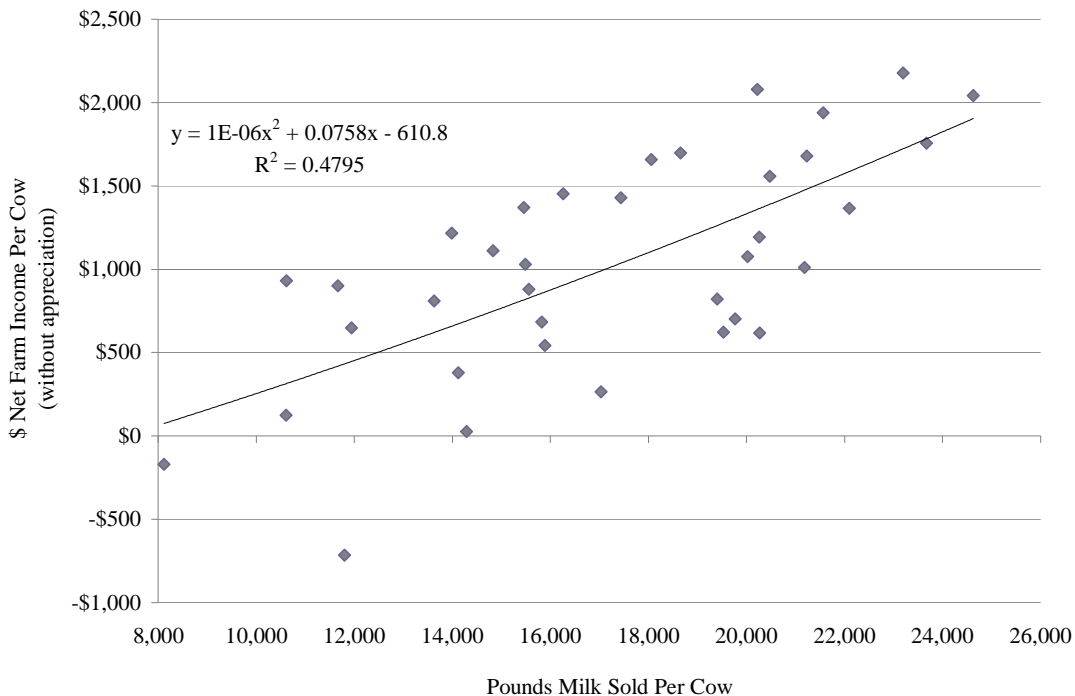
NET FARM INCOME
Intensive Grazing Dairy Farms, 2007

Item	36 Grazing Dairy Farms ¹⁰	Average Top 50% Farms ¹⁰
Total accrual receipts	\$ 441,439	\$ 442,471
Appreciation: Livestock	23,357	27,211
Machinery	3,696	-3,116
Real Estate	14,919	7,783
Other Stock & Certificates	<u>573</u>	<u>879</u>
Total Including Appreciation	\$ 483,984	\$ 475,228
Total accrual expenses	<u>- 329,657</u>	<u>- 302,408</u>
Net Farm Income (with appreciation)	\$ 154,327	\$ 172,820
Net Farm Income Per Cow (with appreciation)	\$ 1,407	\$ 1,610
Net Farm Income (without appreciation)	\$ 111,783	\$ 140,063
Net Farm Income Per Cow (without appreciation)	\$ 1,019	\$ 1,305

¹⁰See page 1 for a description of these groups of farms.

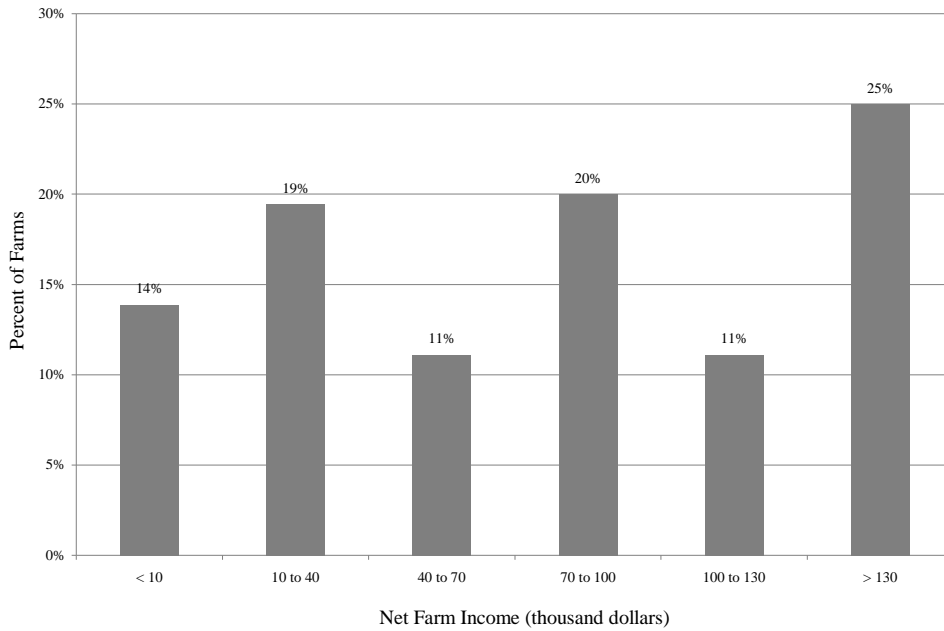
The chart below shows the relationship between net farm income per cow (without appreciation) and pounds of milk sold per cow. Higher net farm incomes can be achieved across a range of production levels as a result of different management systems, such as grazing, being utilized by the participating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

NET FARM INCOME PER COW AND MILK PER COW
36 Intensive Grazing Farms, 2007



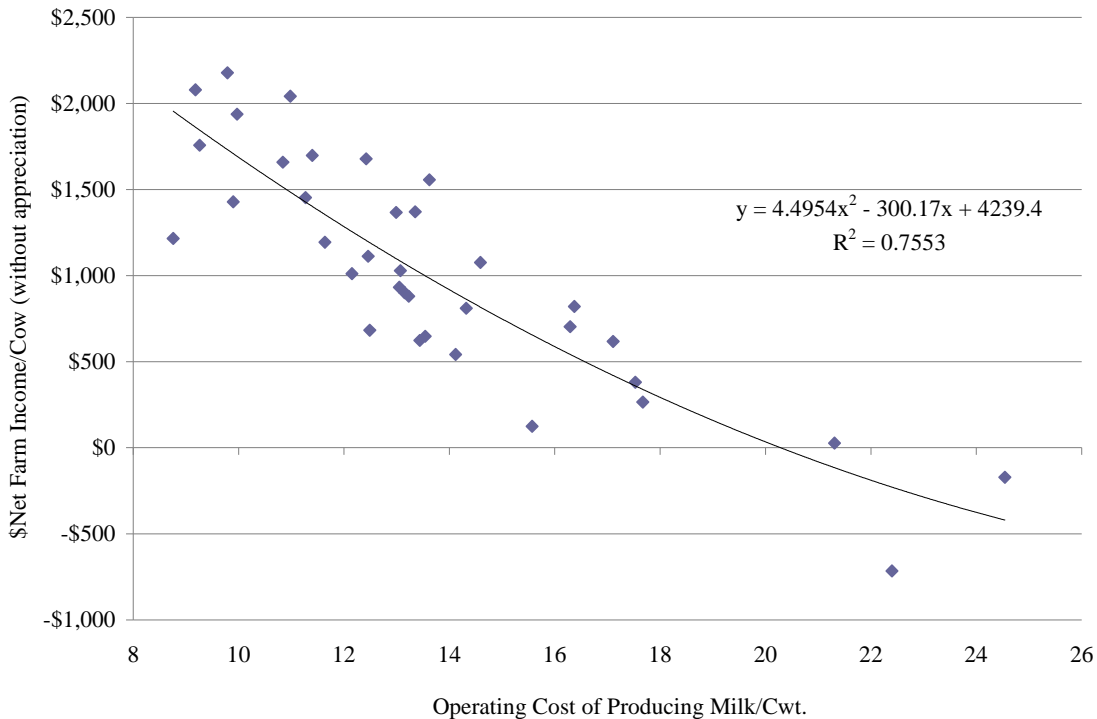
Net farm income without appreciation averaged \$111,783 on these 36 farms in 2007. The range in net farm income without appreciation was from less than \$-32,000 to more than \$660,000. Net farm income was less than \$40,000 on 33 percent of the farms, between \$40,000 and \$100,000 on 31 percent of the farms, while 36 percent showed net farm incomes of \$100,000 or more.

DISTRIBUTION OF NET FARM INCOME WITHOUT APPRECIATION
36 Intensive Grazing Farms, 2007



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.
36 Intensive Grazing Farms, 2007



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.

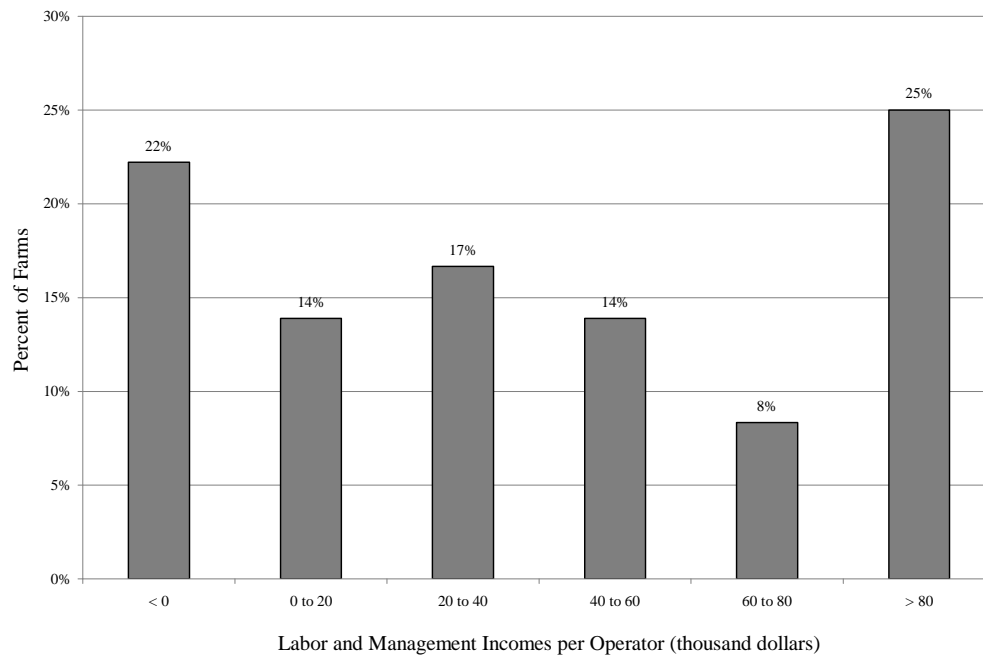
LABOR AND MANAGEMENT INCOME
Intensive Grazing Dairy Farms, 2007

Item	36 Grazing Dairy Farms ¹¹	Average Top 50% Farms ¹¹
Net farm income without appreciation	\$ 111,783	\$ 140,063
Family labor unpaid @ \$2,400 per month	- 9,107	- 6,947
Interest on average equity capital @ 5% real rate	<u>- 32,680</u>	<u>- 30,343</u>
Labor & Management Income per Farm	\$ 69,996	\$ 102,774
Labor & Management Income per Operator/Manager	\$ 54,684	\$ 86,364
Labor & Management Income per Operator per Cow	\$ 498	\$ 805

¹¹See page 1 for a description of these groups of farms.

Labor and management income per operator averaged \$54,684 on these 36 farms in 2007. The range in labor and management income per operator was from less than \$-44,000 to more than \$497,000. Returns to labor and management were less than \$0 on 22 percent of the farms. Labor and management incomes per operator were between \$0 and \$40,000 on 31 percent of the farms while 47 percent showed labor and management incomes of \$40,000 or more per operator.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
36 Intensive Grazing Farms, 2007



The distribution of labor and management incomes per operator on grazing farms is somewhat similar to the distribution for all farms across the state that participate in the DFBS project. A considerable percentage of farms have labor and management incomes per operator less than zero. One comparison to make to the state distribution is the percentage of farms that were above zero labor and management income per operator. For the intensive grazing farms, 78 percent of the farms had returns that were over zero, while for 250 farms across the state, 86 percent had returns greater than zero in 2007.

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, 2007

Item	36 Grazing Dairy Farms ¹²	Average Top 50% Farms ¹²
Net farm income with appreciation	\$ 154,327	\$ 172,820
Family labor unpaid @\$2,400 per month	- 9,107	- 6,947
Value of operators' labor & management	- 41,499	- 39,074
Return on equity capital with appreciation	\$ 103,721	\$ 126,800
Interest paid	+ 14,964	+ 13,069
Return on total capital with appreciation	\$ 118,685	\$ 139,869
Return on equity capital without appreciation	\$ 61,177	\$ 94,042
Return on total capital without appreciation	\$ 76,141	\$ 107,112
Rate of return on average equity capital:		
with appreciation	15.9%	20.9%
without appreciation	9.4%	15.5%
Rate of return on average total capital:		
with appreciation	13.3%	16.9%
without appreciation	8.5%	12.9%
Net farm income from operations ratio	0.25	0.32

¹²See 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 2007, lease payments were discounted by 9.05 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2007 that are for participation in the 2008 program are the end year balance and payments received in 2006 for participation in the 2007 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.

2007 FARM BUSINESS & NONFARM BALANCE SHEET

36 Intensive Grazing Dairy Farms, 2007

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 5,307	\$ 10,592	Accounts payable	\$ 15,442	\$ 12,641
Accounts receivable	19,468	31,896	Operating debt	14,786	21,046
Prepaid expenses	141	1,202	Short Term	57	314
Feed & supplies	<u>47,889</u>	<u>68,880</u>	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	15,559	16,745
			Long Term	<u>6,843</u>	<u>7,520</u>
Total Current	\$ 72,806	\$ 112,570	Total Current	\$ 52,687	\$ 58,265
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 141,828	\$ 159,839	1-10 years	\$ 77,924	\$ 75,000
leased	0	0	Financial lease		
Heifers	86,190	95,396	(cattle/machinery)	455	196
Bulls & other livestock	3,305	4,080	Farm Credit stock	<u>825</u>	<u>741</u>
Mach. & equip. owned	149,984	172,753	Total Intermediate	\$ 79,204	\$ 75,937
Mach. & equip. leased	455	196			
Farm Credit stock	825	741			
Other stock/certificate	<u>15,567</u>	<u>17,664</u>			
Total Intermediate	\$ 398,155	\$ 450,668			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 354,003	\$ 402,053	>10 years	\$ 92,877	\$ 124,089
leased	<u>0</u>	<u>0</u>	Financial lease		
Total Long Term	\$ 354,003	\$ 402,053	(structures)	<u>0</u>	<u>0</u>
			Total Long Term	\$ 92,877	\$ 124,089
Total Farm Assets	\$ 824,964	\$ 965,290	Total Farm Liab.	\$224,769	\$ 258,292
			FARM NET WORTH	\$600,195	\$ 706,999

Nonfarm Assets, Liabilities & Net Worth (Average of 18 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 12,819	\$ 19,653	Nonfarm Liabilities	\$ 1,160	\$ 684
Cash value life insurance	11,542	11,989			
Nonfarm real estate	10,833	10,833			
Auto (personal share)	9,421	10,498			
Stocks & bonds	54,208	59,610			
Household furnishings	12,556	12,389			
All other nonfarm assets	<u>11,025</u>	<u>10,088</u>			
Total Nonfarm Assets	\$ 122,405	\$ 135,060	NONFARM NET WORTH	\$ 121,245	\$ 134,376

Farm & Nonfarm Assets, Liabilities, and Net Worth ¹³	Jan. 1	Dec. 31
Total Assets	\$ 947,369	\$1,100,350
Total Liabilities	<u>225,929</u>	<u>258,976</u>
TOTAL FARM & NONFARM NET WORTH	\$ 721,440	\$ 841,374

¹³Assumes 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, 2007

Item	36 Grazing Dairy Farms ¹⁴		Average Top 50% Farms ¹⁴	
<u>Financial Ratios - Farm:</u>				
Percent equity	73%		72%	
Debt/asset ratio: total	0.27		0.28	
long-term	0.31		0.42	
intermediate/current	0.24		0.20	
Leverage Ratio	0.37		0.40	
Current Ratio	1.93		1.88	
Working Capital:	\$54,305, As % of Expenses	16%	(\$56,739)	19%
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	5%		3%	
Long-term liabilities as a % of total debt	48%		58%	
Current & inter. liabilities as a % of total debt	52%		42%	
Cost of term debt (weighted average)	5.8%		4.4%	
	36 Grazing Dairy Farms ¹⁴		Average Top 50% Farms ¹⁴	
	Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
<u>Farm Debt Levels:</u>				
Total farm debt	\$ 2,396	\$ 1,829	\$ 2,473	\$ 1,833
Long-term debt	1,151	879	1,423	1,055
Intermediate & long term	1,855	1,417	1,872	1,388
Intermediate & current debt	1,245	951	1,050	779

¹⁴ 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
36 Intensive Grazing Dairy Farms, 2007

Item	Real Estate		Machinery & Equipment	
Value beginning of year		\$ 354,003		\$ 149,984
Purchases	\$ 57,479 ¹⁵		\$ 39,627	
Gift & inheritance	+ 5,694		+ 53	
Lost capital	- 21,736			
Sales	- 972		- 777	
Depreciation	- 7,333		- 19,830	
Net investment		= 33,131		= 19,073
Appreciation		+ 14,919		+ 3,696
Value end of year		\$ 402,053		\$ 172,753

¹⁵\$14,133 land and \$43,346 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, 2007

Item	36 Grazing Dairy Farms ¹⁶	Average Top 50% Farms ¹⁶
Beginning of year farm net worth	\$ 600,195	\$ 550,714
Net farm income w/o appreciation	\$ 111,783	\$ 140,063
+Nonfarm cash income	+ 7,254	+ 4,726
-Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>- 42,890</u>	<u>- 41,428</u>
RETAINED EARNINGS	+\$ 76,147	+\$103,361
Nonfarm noncash transfers to farm	\$ 5,747	\$ 11,389
+Cash used in business from nonfarm capital	+ 5,215	+ 5,008
-Note or mortgage from farm real estate sold (nonfarm)	<u>- 0</u>	<u>- 0</u>
CONTRIBUTED/ WITHDRAWN CAPITAL	+\$ 10,962	+\$ 16,397
Appreciation	\$ 42,544	\$ 32,757
-Lost capital	<u>- 21,736</u>	<u>- 37,989</u>
CHANGE IN VALUATION EQUITY	+\$ 20,808	+\$ -5,232
IMBALANCE/ERROR	<u>- 1,113</u>	<u>- 2,243</u>
End of year net worth ¹⁷	=\$706,999	=\$662,998
<hr/>		
<u>Change in Net Worth</u>		
Without appreciation	\$ 64,259	\$ 79,527
With appreciation	\$ 106,804	\$ 112,284

¹⁶See page 1 for a description of these groups of farms.

¹⁷May 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
36 Intensive Grazing Dairy Farms, 2007

Item	Average	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 419,146	
- Cash farm expenses	321,599	
- Extraordinary expense	456	
= Net cash farm income		\$ 97,092
Personal withdrawals & family expenses including nonfarm debt payments	\$ 43,195	
- Nonfarm income	7,254	
- Net cash withdrawals from the farm		\$ 35,941
= Net Provided by Operating Activities		\$ 61,151
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 777	
+ real estate	972	
+ other stock & cert.	131	
= Total asset sales		\$ 1,880
Capital purchases: expansion livestock	\$ 60	
+ machinery	39,627	
+ real estate	57,479	
+ other stock & cert.	1,654	
- Total invested in farm assets		\$ 98,820
= Net Provided by Investment Activities		\$ -96,941
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 57,051	
+ Money borrowed (short term)	436	
+ Increase in operating debt	6,259	
+ Cash from nonfarm capital used in business	5,215	
+ Money borrowed - nonfarm	305	
= Cash inflow from financing		\$ 69,267
Principal payments (intermediate & long term)	\$ 26,900	
+ Principal payments (short term)	179	
+ Decrease in operating debt	0	
- Cash outflow for financing		\$ 27,080
= Net Provided by Financing Activities		\$ 42,187
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings	\$ 5,307	
- Ending farm cash, checking & savings	10,592	
= Net Provided from Reserves		\$ -5,285
Imbalance (error)		\$ 1,112

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 2008. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2008 debt payments shown below.

FARM DEBT PAYMENTS PLANNED

Same Intensive Grazing Dairy Farms, 2006 & 2007

Debt Payments	Same 34 Grazing Dairy Farms			Same 18 Farms in Top 50% Farms		
	2007 Payments		Planned 2008	2007 Payments		Planned 2008
	Planned	Made		Planned	Made	
Long term	\$ 12,243	\$ 13,309	\$ 16,696	\$ 10,638	\$ 14,402	\$ 17,984
Intermediate term	20,266	25,082	22,224	15,761	19,188	16,199
Short term	61	191	332	0	268	0
Operating (net reduction)	775	3,641	5,103	872	945	9,444
Accounts payable (net reduction)	294	4,218.44	126	556	4,125	0
Total	\$ 33,638	\$ 46,441	\$ 44,481	\$ 27,826	\$ 38,927	\$ 43,538
Per cow	\$ 305	\$ 421		\$ 259	\$ 363	
Per cwt. 2006 milk	\$ 1.83	\$ 2.52		\$ 1.56	\$ 2.18	
Percent of total 2006 farm receipts	8%	10%		7%	9%	
Percent of 2006 milk receipts	9%	12%		8%	10%	

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 2007 (as of December 31, 2006) that could have been made with the amount available for debt service in 2007. Farmers who did not participate in DFBS in 2006 have their 2007 coverage ratios based on planned debt payments for 2008.

COVERAGE RATIOS

Same Intensive Grazing Dairy Farms, 2006 & 2007

Item	Average	Item	Average
Same 34 Grazing Dairy Farms, 2006 & 2007			
(A)=Amount Available for Debt Service	\$ 76,706	(A')=Repayment Capacity	\$ 122,493
(B)=Debt Payments Planned for 2007	\$ 33,638	(B)=Debt Payments Planned for 2007	\$ 33,638
(A/B)=Cash Flow Coverage Ratio for 2007	2.28	(A'/B)=Debt Coverage Ratio for 2007	3.64

Same 18 Farms in Top 50% Farms, 2006 & 2007			
(A)=Amount Available for Debt Service	\$ 82,794	(A')=Repayment Capacity	\$ 141,436
(B)=Debt Payments Planned for 2007	\$ 27,826	(B)=Debt Payments Planned for 2007	\$ 27,826
(A/B)=Cash Flow Coverage Ratio for 2007	2.98	(A'/B)=Debt Coverage Ratio for 2007	5.08

ANNUAL CASH FLOW WORKSHEET

Intensive Grazing Dairy Farms, 2007

Item	36 Grazing Dairy Farms		Average Top 50% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average no. of cows	110		107	
Total cwt. of milk sold		18,243		17,844
<u>Accrual Operating Receipts</u>				
Milk	\$3,526	\$21.21	\$3,539	\$21.28
Dairy cattle	225	1.35	324	1.95
Dairy calves	61	0.37	70	0.42
Other livestock	19	0.12	15	0.09
Crops	58	0.35	53	0.32
Misc. Receipts	134	0.81	122	.74
Total	\$4,023	\$24.20	\$4,123	\$24.80
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 256	\$ 1.54	\$ 256	\$ 1.54
Dairy grain & concentrate	801	4.82	777	4.67
Dairy roughage	106	0.64	95	0.57
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	2	0.01	0	0.00
Mach. hire, rent & lease	165	0.99	141	0.85
Mach. repair & vehicle expense	157	0.94	153	0.92
Fuel, oil & grease	112	0.67	79	0.47
Replacement livestock	15	0.09	11	0.07
Breeding	40	0.24	38	0.23
Vet & medicine	85	0.51	71	0.42
Milk marketing	158	0.95	155	0.93
Bedding	28	0.17	14	0.08
Milking supplies	71	0.43	65	0.39
Cattle lease	0	0.00	0	0.00
Custom boarding	5	0.03	5	0.03
bST expense	5	0.03	5	0.03
Livestock professional fees	12	0.07	7	0.04
Other livestock expense	30	0.18	31	0.19
Fertilizer & lime	132	0.79	164	0.98
Seeds & plants	37	0.22	27	0.16
Spray & other crop expense	18	0.11	12	0.07
Crop professional fees	3	0.02	5	0.03
Land, bldg., fence repair	65	0.39	38	0.23
Taxes	74	0.45	83	0.50
Real estate rent & lease	55	0.33	62	0.37
Insurance	50	0.30	49	0.30
Utilities	84	0.51	79	0.48
Miscellaneous	51	0.31	43	0.26
Total Less Interest Paid	\$2,616	\$15.73	\$2,464	\$14.82
<u>Net Accrual Operating Income</u>		<u>Total</u>		<u>Total</u>
(without interest paid)		154,426		\$178,034
- Change in livestock & crop invent. ¹⁸		\$ 9,865		\$17,240
- Change in accounts receivable		12,428		13,443
- Change in feed & supply inventory ¹⁹		16,820		23,559
+ Change in accounts payable ²⁰		<u>-2,758</u>		<u>-4,400</u>
NET CASH FLOW		\$ 112,555		\$119,392
- Net family withdrawals		<u>34,906</u>		<u>36,598</u>
Available for Farm		\$ 77,649		\$ 82,794
- Farm debt payments		<u>48,142</u>		<u>38,927</u>
Available for Farm Investment		\$ 29,507		\$ 43,868
- Capital purchases		<u>98,820</u>		<u>152,308</u>
Additional Capital Needed		\$ 69,314		\$ 108,441

¹⁸Includes change in advance government receipts. ¹⁹Includes change in prepaid expenses. ²⁰Excludes 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, 2007

Item	36 Grazing Dairy Farms ²²			Average Top 50% Farms ²²		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
<u>Land</u>						
Tillable	141	132	273	144	79	223
Nontillable	37	23	60	43	17	60
Other nontill.	<u>104</u>	<u>9</u>	<u>113</u>	<u>101</u>	<u>14</u>	<u>115</u>
Total	282	164	446	288	110	398
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres²¹</u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres²¹</u>	<u>Prod/Acre</u>
Hay crop	36	162	2.0 tn DM	18	117	2.3 tn DM
Corn silage	19	73	17.6 tn 5.9 tn DM	12	45	19.4 tn 6.3 tn DM
Other forage	5	18	1.6 tn DM	0	0	0 tn DM
Total forage	36	203	2.8 tn DM	18	147	3.1 tn DM
Corn grain	3	26	105 bu	2	20	98 bu
Oats	2	11	26 bu	0	0	0 bu
Wheat	0	0	0 bu	0	0	0 bu
Other crops	3	72		0	0	
Tillable pasture	17	130		6	207	
Idle	5	29		2	9	
Total Tillable Acres	36	273		18	223	

²¹This column represents the average acreage for the farms producing that crop. For the 36 New York dairy farms, average acreages including those farms not producing were hay crop 162, corn silage 39, corn grain 2, oats 1, wheat 0, tillable pasture 62, and idle 5.

Average crop acres and yields compiled for the grazing farms 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, 2007

Item	36 Grazing Dairy Farms ²²	Average Top 50% Farms ²²
Total tillable acres per cow	2.49	2.08
Total forage acres per cow	1.85	1.37
Harvested forage dry matter, tons per cow	5.09	4.28

²²See 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, 2007

Item	Total	All	Corn	Corn	Hay Crop	
	Per	Corn	Silage	Grain	Per	Per
	Till.	Per	Per	Per Dry	Acre	Ton DM
	Acre	Acre	Ton DM	Sh. Bu.		
All Grazing Farms						
No. of farms reporting	36 ²³	6			7	
Ave. number of acres	273	87			275	
Fert. & lime	\$ 44.90	\$ 16.81	\$ 23.16	\$ 0.22	\$ 42.89	\$ 17.27
Seeds & plants	13.86	1.83	12.24	0.13	4.71	1.80
Spray & other	<u>7.35</u>	<u>0.19</u>	<u>7.23</u>	<u>0.13</u>	<u>0.87</u>	<u>0.53</u>
TOTAL	\$ 66.11	\$ 18.83	\$ 42.63	\$ 0.48	\$ 48.47	\$ 19.60
Average Top 50% Farms						
No. of farms reporting	18 ²³	4			4	
Ave. number of acres	223	60			145	
Fert. & lime	\$ 61.40	\$ 23.16	\$ 19.48	\$ 0.33	\$ 63.48	\$ 23.16
Seeds & plants	12.10	1.28	11.46	0.19	4.50	1.29
Spray & other	<u>7.42</u>	<u>.28</u>	<u>5.03</u>	<u>0.20</u>	<u>0.48</u>	<u>0.28</u>
TOTAL	\$ 80.92	\$ 24.72	\$ 35.97	\$ 0.72	\$ 68.46	\$ 24.73

²³See page 1 for a description of these groups of farms.

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, 2007

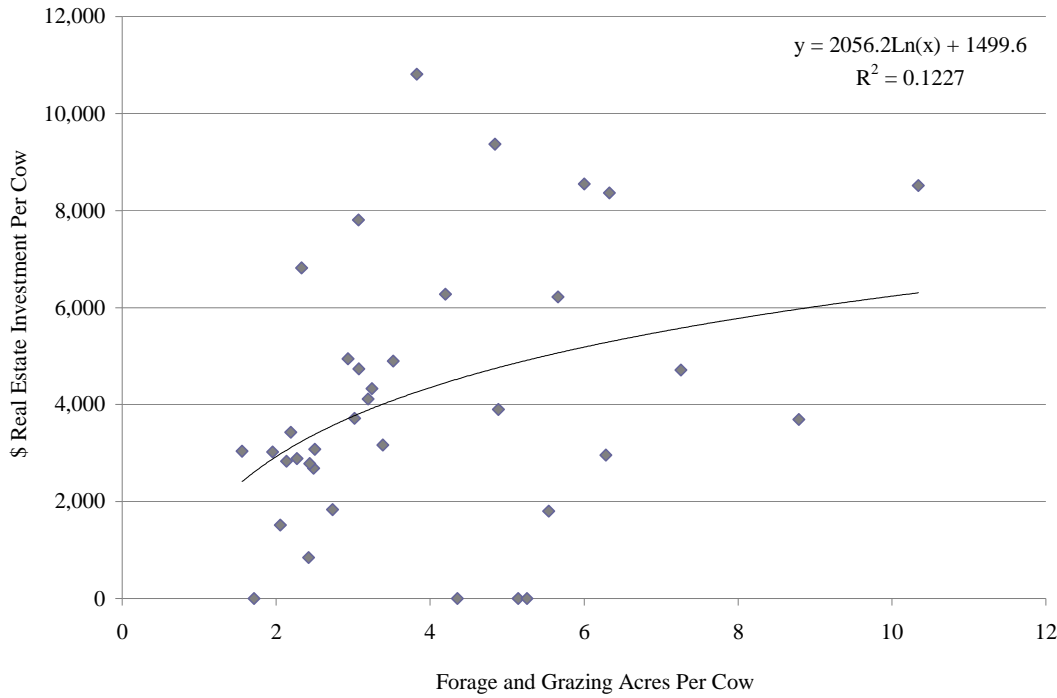
Machinery Expense	36 Grazing Dairy Farms ²⁴		Average Top 50% Farms ²⁴	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$ 12,259	\$ 44.86	\$ 8,442	\$ 37.87
Mach. repair & vehicle exp.	17,222	63.02	16,472	73.88
Machine hire, rent & lease	18,135	66.36	15,095	67.71
Interest (5%)	8,085	29.58	7,274	32.63
Depreciation	<u>19,830</u>	<u>72.56</u>	<u>17,039</u>	<u>76.43</u>
Total	\$ 75,530	\$ 276.38	\$ 64,321	\$ 288.52

²⁴See page 1 for a description of these groups of farms.

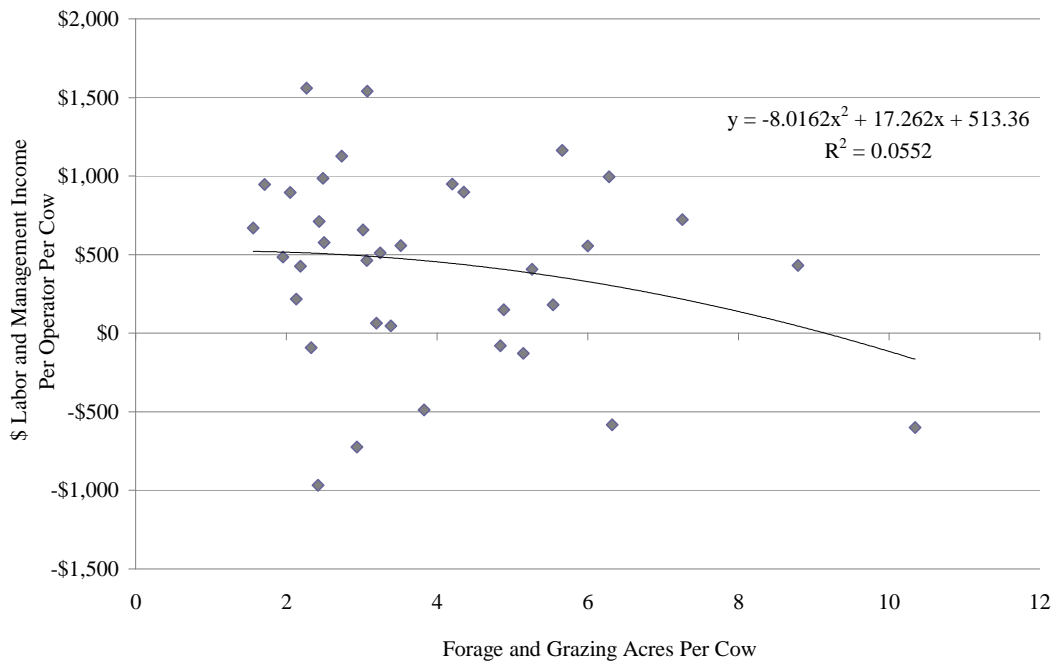
Cropping Analysis (continued)

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

REAL ESTATE INVESTMENT/COW & FORAGE AND GRAZING ACRES/COW
36 Intensive Grazing Farms, 2007



LABOR AND MANAGEMENT INCOMES/OPERATOR/COW & FORAGE AND GRAZING ACRES/COW
36 Intensive Grazing Farms, 2007



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 21 through 24.

DAIRY HERD INVENTORY
Intensive Grazing Dairy Farms, 2007

Item	Dairy Cows		Bred Heifers		Open Heifers		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
36 Grazing Dairy Farms²⁵								
Beg. year (owned)	105	\$ 141,828	33	\$ 43,936	33	\$ 27,797	22	\$ 14,457
+ Change w/o apprec.		3,158		860		-2,282		2,211
+ Appreciation		<u>14,853</u>		<u>4,747</u>		<u>1,839</u>		<u>1,831</u>
End year (owned)	108	\$ 159,839	34	\$ 49,543	30	\$ 27,354	25	\$ 18,499
End including leased	108							
Average number	110		87	(all age groups)				
Average Top 50% Farms²⁵								
Beg. year (owned)	101	\$ 140,681	33	\$ 45,839	22	\$ 18,303	30	\$ 21,883
+ Change w/o apprec.		7,344		3,683		-1,178		3,025
+ Appreciation		<u>17,819</u>		<u>5,289</u>		<u>1,272</u>		<u>2,322</u>
End year (owned)	107	\$ 165,844	35	\$ 54,811	20	\$ 18,397	34	\$ 27,230
End including leased	107							
Average number	107		87	(all age groups)				

²⁵ 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, 2007

Item	36 Grazing Dairy Farms ²⁶	Average Top 50% Farms ²⁶
Total milk sold, pounds	1,824,273	1,784,418
Milk sold per cow, pounds	16,627	16,626
Average milk plant test, percent butterfat	3.4%	3.95%

²⁶ 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, 2007

Item	36 Grazing Dairy Farms		Average Top 50% Farms	
	Number	Percent ²⁷	Number	Percent ²⁷
Cows sold for beef	22	19.7	22	20.9
Cows sold for dairy	6	5.1	5	5.0
Cows died	5	4.3	4	3.9
Culling rate ²⁸		24.0		24.8

²⁷ Percent of average number of cows in the herd. ²⁸ Cows sold for beef plus cows died.

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

**ACCRUAL RECEIPTS FROM DAIRY, COSTS OF PRODUCING MILK,
AND PROFITABILITY**
Intensive Grazing Dairy Farms, 2007

Item	36 Grazing Dairy Farms ²⁹		Average Top 50% Farms ²⁹	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Accrual Cost of Producing Milk				
Operating costs	\$ 2,255	\$ 13.56	\$ 2,002	\$ 12.04
Purchased inputs costs	\$ 2,507	\$ 15.08	\$ 2,234	\$ 13.44
Total Costs	\$ 3,266	\$ 19.64	\$ 2,945	\$ 17.71
Accrual Receipts From Milk				
Net milk receipts	\$ 3,526	\$ 21.21	\$ 3,539	\$ 21.28
Net Farm Income	\$ 3,414	\$ 20.26	\$ 3,713	\$ 20.35
without Appreciation	\$ 1,019	\$ 6.13	\$ 1,305	\$ 7.85
with Appreciation	\$ 1,407	\$ 8.46	\$ 1,610	\$ 9.68

²⁹ 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, 2007

Item	36 Grazing Dairy Farms ²⁹		Average Top 50% Farms ²⁹	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 801	\$ 4.82	\$ 777	\$ 4.67
Purchased dairy roughage	106	0.64	95	0.57
Total Purchased Dairy Feed	\$ 907	\$ 5.46	\$ 872	\$ 5.24
Purchased grain & concentrate as % of milk receipts		23%		23%
Purchased feed & crop expense	\$ 1,096	\$ 6.59	\$ 1,079	\$ 6.49
Purchased feed & crop expense as % of milk receipts		31%		29%
Breeding	\$ 40	\$ 0.24	\$ 38	\$ 0.23
Veterinary & medicine	85	0.51	71	0.42
Milk marketing	158	0.95	155	0.93
Bedding	28	0.17	14	0.08
Milking supplies	71	0.43	65	0.39
Cattle lease	0	0.00	0	0.00
Custom boarding	5	0.03	5	0.03
bST expense	5	0.03	5	0.03
Livestock professional fees	12	0.07	7	0.04
Other livestock expense	30	0.18	31	0.19

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, 2007

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>36 Grazing Dairy Farms</u> ³⁰				
Farm capital	\$ 331,528	\$ 8,158	\$ 3,275	\$ 6,340
Real estate		3,445		2,677
Machinery & equipment	59,887	1,474	592	

Ratios:

Asset Turnover Ratio	Operating Expense	Interest Expense	Depreciation Expense
0.54	0.65	0.03	0.06

Average Top 50% Farms³⁰

Farm capital	\$ 320,473	\$ 7,733	\$ 3,723	\$ 5,762
Real estate		3,066		2,284
Machinery & equipment	56,167	1,355	653	

Ratios:

Asset Turnover Ratio	Operating Expense	Interest Expense	Depreciation Expense
0.57	0.60	0.03	0.06

³⁰ 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, 2007

Labor Force	Months	Age	Years of Education	Value of Labor & Management
<u>42 Grazing Dairy Farms</u>				
Operator number 1	13.2	44	14	\$ 31,846
Operator number 2	3.6	42	12	9,653
Family paid	2.6			
Family unpaid	3.8			
Hired	<u>9.2</u>			
Total	32.4	/ 12 = 2.70 Worker Equivalent 1.28 Operator/Manager Equivalent		
<u>Average Top 30% Farms</u>				
Total Labor Force	31.1	/ 12 = 2.59 Worker Equivalent		
Operator's Labor		1.19 Operator/Manager Equivalent		

Labor Efficiency	36 Grazing Dairy Farms		Average Top 50% Farms	
	Total	Per Worker	Total	Per Worker
Cows, average number	110	41	107	41
Milk sold, pounds	1,824,273	675,657	1,784,418	688,300
Tillable acres	273	101	223	86

Labor Costs	36 Grazing Dairy Farms		Average Top 50% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,400/month)	\$ 367	\$ 2.21	\$ 350	\$ 2.11
Family unpaid (\$2,400/month)	83	0.50	65	0.39
Hired	<u>256</u>	<u>1.54</u>	<u>256</u>	<u>1.54</u>
Total Labor	\$ 706	\$ 4.24	\$ 671	\$ 4.04
Machinery Cost	<u>\$ 688</u>	<u>\$ 4.14</u>	<u>\$ 599</u>	<u>\$ 3.60</u>
Total Labor & Machinery	\$ 1,394	\$ 8.38	\$ 1,270	\$ 7.64
Hired labor expense per hired worker equivalent		\$28,417		\$26,224
Hired labor expense as % of milk sales		7.3%		7.2%

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, 2006 & 2007³¹

Selected Factors	Same 34 Grazing Dairy Farms		Same 18 Farms in Top 50% Farms	
	2006	2007	2006	2007
<u>Size of Business</u>				
Average number of cows	105	110	103	107
Average number of heifers	87	89	84	87
Milk sold, pounds	1,764,730	1,842,156	1,717,698	1,784,418
Worker equivalent	2.75	2.71	2.6	2.59
Total tillable acres	249	261	206	223
<u>Rates of Production</u>				
Milk sold per cow, pounds	16,732	16,716	16,758	16,625
Hay DM per acre, tons	2.1	2.10	2.1	2.30
Corn silage per acre, tons	15	17.60	17.8	19.40
<u>Labor Efficiency</u>				
Cows per worker	38	41	39	41
Milk sold/worker, pounds	641,720	679,762	660,653	688,964
<u>Cost Control and Milk Price</u>				
Grain & concentrate purchased as % of milk sales	29%	23.00%	27%	22.00%
Dairy feed & crop expense per cwt. milk	\$ 5.35	\$ 6.57	\$ 5.33	\$ 6.49
Labor & machinery costs/cow	\$ 1,341	\$ 1,385	\$ 1,180	\$ 1,270
Operating cost of producing cwt. of milk	\$ 11.08	\$ 13.47	\$ 9.6	\$ 12.04
Milk receipts per cwt.	\$ 14.16	\$ 21.28	\$ 14.11	\$ 21.28
<u>Capital Efficiency</u> ³²				
Farm capital per cow	\$ 7,691	\$ 8,240	\$ 6,895	\$ 7,733
Machinery & equipment per cow	\$ 1,334	\$ 1,421	\$ 1,224	\$ 1,355
Asset turnover ratio	0.41	0.54	0.45	0.57
<u>Profitability</u>				
Net farm income without appreciation	\$ 31,932	\$ 116,785	\$ 57,960	\$ 140,063
Net farm income with appreciation	\$ 47,933	\$ 160,062	\$ 64,777	\$ 172,820
Labor & management income per operator/manager	\$ -5,378	\$ 58,594	\$ 19,935	\$ 86,364
Rate of return on equity capital with appreciation	-0.4%	16.30%	3.7%	20.90%
Rate of return on all capital with appreciation	1.2%	13.60%	4%	16.90%
<u>Financial Summary</u>				
Farm net worth, end year	\$ 612,436	\$ 723,290	\$ 556,627	\$ 662,998
Debt to asset ratio	0.26	0.26	0.24	0.28
Farm debt per cow	\$ 2,058	\$ 2,385	\$ 1,734	\$ 2,473

³¹Farms participating both years.

³²Average for the year.

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 34 Intensive Grazing Dairy Farms, 2006 & 2007

Item	2006		2007	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	105		110	
Cwt. Of Milk Sold		17,647		18,422
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$2,370	\$14.16	\$3,557	\$21.28
Dairy cattle	336	2.01	236	1.41
Dairy calves	49	0.29	61	0.36
Other livestock	13	0.07	20	0.12
Crops	17	0.10	59	0.35
Miscellaneous receipts	<u>223</u>	<u>1.33</u>	<u>131</u>	<u>0.79</u>
Total Receipts	\$3,007	\$17.97	\$4,064	\$24.32
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 284	\$ 1.70	\$ 257	\$ 1.54
Dairy grain & concentrate	685	4.09	811	4.85
Dairy roughage	72	0.43	96	0.57
Nondairy feed	1	0.00	0	0.00
Professional nutritional services	5	0.03	2	0.01
Machine hire/rent/lease	124	0.74	169	1.01
Machinery repair & vehicle expense	158	0.95	155	0.93
Fuel, oil & grease	102	0.61	109	0.65
Replacement livestock	20	0.12	15	0.09
Breeding	31	0.18	42	0.25
Veterinary & medicine	82	0.49	85	0.51
Milk marketing	169	1.01	159	0.95
Bedding	35	0.21	28	0.17
Milking supplies	56	0.34	71	0.42
Cattle lease	0	0.00	0	0.00
Custom boarding	7	0.04	4	0.03
bST expense	5	0.03	5	0.03
Livestock professional fees	15	0.09	13	0.08
Other livestock expense	29	0.18	30	0.18
Fertilizer & lime	85	0.51	132	0.79
Seeds & plants	31	0.19	38	0.23
Spray/other crop expense	20	0.12	18	0.11
Crop professional fees	3	0.02	3	0.02
Land, building, fence repair	49	0.30	66	0.40
Taxes	61	0.37	77	0.46
Real estate rent/lease	62	0.37	54	0.32
Insurance	50	0.30	50	0.30
Utilities	80	0.48	84	0.50
Interest paid	115	0.69	132	0.79
Other professional fees	6	0.04	18	0.11
Miscellaneous	<u>33</u>	<u>0.20</u>	<u>34</u>	<u>0.20</u>
Total Operating Expenses	\$2,475	\$14.79	\$2,757	\$16.50
Expansion Livestock	16	0.10	1	0.00
Extraordinary Expense	5	0.03	4	0.03
Machinery Depreciation	150	0.90	173	1.04
Real Estate Depreciation	<u>58</u>	<u>0.35</u>	<u>69</u>	<u>0.41</u>
Total Expenses	\$2,704	\$16.17	\$3,004	\$17.98
Net Farm Income Without Appreciation	\$ 303	\$ 1.81	\$1,060	\$ 6.34

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 18 Farms in Top 50% Intensive Grazing Dairy Farms, 2006 & 2007

Item	2006		2007	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	103		107	
Cwt. Of Milk Sold		17177		17844
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$2,364	\$14.11	\$3,539	\$21.28
Dairy cattle	306	1.83	324	1.95
Dairy calves	74	0.44	70	0.42
Other livestock	13	0.08	15	0.09
Crops	49	0.29	53	0.32
Miscellaneous receipts	<u>198</u>	<u>1.18</u>	<u>122</u>	<u>0.74</u>
Total Receipts	\$3,005	\$17.93	\$4,123	\$24.80
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 247	\$ 1.47	\$ 256	\$ 1.54
Dairy grain & concentrate	638	3.81	777	4.67
Dairy roughage	101	0.60	95	0.57
Nondairy feed	1	0.00	0	0.00
Professional nutritional services	1	0.01	0	0.00
Machine hire/rent/lease	96	0.58	141	0.85
Machinery repair & vehicle expense	153	0.91	153	0.92
Fuel, oil & grease	76	0.46	79	0.47
Replacement livestock	12	0.07	11	0.07
Breeding	31	0.18	38	0.23
Veterinary & medicine	62	0.37	71	0.42
Milk marketing	168	1.00	155	0.93
Bedding	22	0.13	14	0.08
Milking supplies	44	0.26	65	0.39
Cattle lease	0	0.00	0	0.00
Custom boarding	5	0.03	5	0.03
bST expense	6	0.03	5	0.03
Livestock professional fees	14	0.09	7	0.04
Other livestock expense	23	0.13	31	0.19
Fertilizer & lime	108	0.65	164	0.98
Seeds & plants	26	0.15	27	0.16
Spray/other crop expense	14	0.09	12	0.07
Crop professional fees	5	0.03	5	0.03
Land, building, fence repair	35	0.21	38	0.23
Taxes	58	0.35	83	0.50
Real estate rent/lease	67	0.40	62	0.37
Insurance	45	0.27	49	0.30
Utilities	75	0.45	79	0.48
Interest paid	85	0.51	122	0.73
Other professional fees	5	0.03	11	0.07
Miscellaneous	<u>26</u>	<u>0.15</u>	<u>32</u>	<u>0.19</u>
Total Operating Expenses	\$2,250	\$13.43	\$2,586	\$15.55
Expansion Livestock	0	0.00	0	0.00
Extraordinary Expense	1	0.00	0	0.00
Machinery Depreciation	124	0.74	159	0.95
Real Estate Depreciation	<u>65</u>	<u>0.39</u>	<u>73</u>	<u>0.44</u>
Total Expenses	\$2,440	\$14.56	\$2,818	\$16.94
Net Farm Income Without Appreciation	\$ 565	\$ 3.37	\$1,305	\$ 7.85

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

36 Intensive Grazing Dairy Farms, 2007

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) ³³	(12)	(12)	(12)	(11)	(11)	(14)	(14)
5.49	311	5,013,134	22,510	3.3	24	61	960,014
2.91	106	1,969,684	20,077	2.4	20	41	741,523
2.22	59	1,015,827	17,533	2.0	18	32	619,051
1.74	47	796,608	15,082	1.7	16	26	411,890
1.34	36	513,383	11,546	1.0	12	19	282,950

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)	
\$526	18%	\$442	\$1,084	\$737	\$4.90	
723	21	555	1,389	925	5.76	
844	23	684	1,677	1,122	6.29	
978	25	892	1,870	1,320	7.13	
1,182	30	1,204	2,439	1,526	9.33	

Value and Cost of Milk Production			Profitability			
Milk Receipts Per Cow	Operating Cost Milk Prod. Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income with Appreciation	Net Farm Income w/o Appreciation	Labor & Mgmt. Income Per Operator	Change in Net Worth with Appreciation
(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,590	\$9.84	\$16.41	\$482,797	\$325,878	\$172,366	\$350,392
4,138	11.98	18.76	152,035	117,100	67,881	116,603
3,635	13.18	20.38	90,112	79,895	40,742	49,067
3,160	14.58	22.97	50,778	43,277	13,732	26,071
2,545	19.56	31.13	15,715	7,640	-22,876	6,251

³³Page 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 39 New York Dairy Farms, 2007

<u>Animals Entering Herd</u>	<u>Average</u>
Number calving in 2007 for first time	127.4
Animals purchased, percent ³⁴	5.9%
Animals raised by farm, percent ³⁵	94.1%
 <u>Current Heifer Inventory</u>	
Raised on dairy, percent	89.7%
Raised by a custom grower, percent	10.3%

³⁴Animals purchased are animals purchased from a different farm and were not the farm's genetics.

³⁵Animals 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, 127.4 animals calved for the first time in 2007. The breakdown of these animals for source was 5.9 percent purchased and 94.1 percent raised by the farm. Of the current heifer inventory, 89.7 percent were raised on the dairy and 10.3 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, 12 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 table. The table is divided into five 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. The 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 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 five 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 43 reports the averages for these 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.

AVERAGE³⁶ MILK INCOME AND MARKETING REPORT
12 Intensive Grazing Dairy Farms, 2007

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	82,378.08	3.37	\$ 1.75	\$144,017.50	\$ 5.88
Protein	67,261.42	2.75	\$ 4.37	\$293,850.00	\$ 12.01
Solids	118,857.75	4.86	\$ 0.48	\$ 57,370.25	\$ 2.34
Total Component Contribution					\$20.23
PPD	2,447,535.58			\$ 27,051.33	\$ 1.11
Base Farm Price					\$ 21.34
Premiums					
Quality				\$ 2,134.42	\$ 0.09
Volume				\$ 8,725.33	\$ 0.36
Market Premiums				\$ 2,492.42	\$ 0.10
Total Premiums					\$ 0.55
BASE FARM PRICE + PREMIUM					\$ 21.88
Deductions					
Promo				\$ 3,725.25	\$ 0.15
Hauling + Stop Charges				\$16,352.00	\$ 0.67
Market Fees & Coop Dues				\$ 3,650.42	\$ 0.15
Total Deductions					\$ 0.97
BASE FARM PRICE + PREMIUMS - DEDUCTIONS					\$ 20.92
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$ 0.00	\$ 0.00
Total Marketing Income					\$ 0.00
Patronage Dividends				\$ 2,798.00	\$ 0.11
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$ 21.03
PPD - Hauling, \$ per cwt.					\$ 0.44
PPD - Hauling + Market Premiums, \$ per cwt.					\$ 0.54
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.					\$ 0.68

³⁶Each 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.

IDENTIFY AND SET GOALS

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

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

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

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

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

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

Worksheet for Setting Goals

I. Mission and Objectives

Worksheet for Setting Goals (Continued)

II. Goals

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

Summarize Your Business Performance

The Farm Business Chart on page 41 can be used to help identify strengths and weaknesses of your farm business. Identify three major strengths and three areas of your farm business that need improvement.

Strengths: _____

Needs improvement: _____

GLOSSARY AND LOCATION OF COMMON TERMS

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

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

Accrual Expenses - (defined on page 19)

Accrual Receipts - (defined on page 20)

Annual Cash Flow Statement - (defined on page 28)

Appreciation - (defined on page 21)

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 29)

Cash Paid - (defined on page 18)

Cash Receipts - (defined on page 20)

Change in Accounts Payable - (defined on page 19)

Change in Accounts Receivable - (defined on page 20)

Change in Inventory - (defined on page 20)

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 34)

Current Portion - (defined on page 24)

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 29)

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

Debt to Asset Ratios - (defined on page 26)

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 29.

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 23)

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 26)

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

Net Farm Income - (defined on page 21)

Net Farm Income from Operations Ratio – (defined on page 24)

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 35)

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

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.

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

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

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 35)

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 24)

Return on Total Capital - (defined on page 24)

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

Stocking Rate – (defined on page 33)

Total Costs of Producing Milk - (defined on page 35)

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 \$2,400 per month plus the value of operator(s) labor at \$2,400 per month plus total hired labor expense divided by the number of cwt. produced.

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

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

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OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2008-21	2008 Federal Reference Manual for Regional Schools, Income Tax Management and Reporting for Small Businesses and Farms	(\$25.00)	Buchard, G. and J. Bennett
2008-20	2008 New York State Reference Manual for Regional Schools, Income Tax Management and Reporting for Small Businesses and Farms	(\$25.00)	Bennett, J. and K. Bennett
2008-19	Fruit Farm Business Summary: Lake Ontario Region New York 2007		White, G., DeMarree, A., and J. Neyhard
2008-18	Dairy Farm Business Summary, Northern New York Region, 2007	(\$12.00)	Koblauch, W., Putnam, L., Karszes, J., Murray, P., Vokey, F., Ames, M., Deming, A., Prosper, J. and R. Moag
2008-17	Dairy Farm Business Summary, Central Valleys Region, 2007	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Murray, D., Radick, C., Wickswat, C., Manning, J., Collins, B., Balbian, D., Allhusen, G., Buxton, S. and R. Moag
2008-16	Dairy Replacement Programs: Costs & Analysis December 2007		Karszes, J., Wickswat, C. and F. Vokey
2008-15	Implications of Growing Biofuels Demands on Northeast Livestock Feed Costs – Understanding the Technical Relationships between Ingredient Prices and Feed Costs		Schmit, T., Verteramo, L. and W. Tomek
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