AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

DAIRY FARM BUSINESS SUMMARY

AUGUST 2009 *E.B. 2009-11*

INTENSIVE GRAZING FARMS NEW YORK 2008

George Conneman
Jason Karszes
James Grace
Rodger Beck
A. Edward Staehr
A. Fay Benson
Peggy Murray
Nancy Glazier
Virginia Carlberg
Jessica Anderson
Linda Putnam

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

It is the Policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

The Dairy Farm Business Summary and Analysis Project is funded in part by:

For additional copies, please contact:

Linda Putnam
Cornell University
Dept of Applied Economics & Management
305 Warren Hall
Ithaca, NY 14853-7801

E-mail: ldp2@cornell.edu
Fax: 607-255-1589
Voice: 607-255-8429
Or visit:
http://aem.cornell.edu/order/pub_order_form.pdf

© Copyright 2009 by Cornell University. All rights reserved.

2008 DAIRY FARM BUSINESS SUMMARY
Intensive Grazing Farms
Table of Contents

Page

INTRODUCTION 1
- Program Objectives 1
- Format Features 1

PROGRESS OF THE FARM BUSINESS 2
- Profitability Measures 2

INTENSIVE GRAZING SURVEY SUMMARY 5
- Breeds 6
- Supplemental Feeding 6
- Grazing Season Ration Details 6
- Frequency of Rotation 7
- Water Source 7
- Milking System 7
- Commercial Fertilizer 7
- Intensive Grazing Satisfaction Comments 8
- Grazing Trends 8
- Percent Forage from Pasture 8
- Intensive Grazing Farms vs. Non-grazing Farms 10

CASE STUDIES 11
- The Hill Farm, Stanley and Kathleen Tenpas 11
- Grazing at Carey Farm 12

SUMMARY OF GRAZING FARMS BY HERD SIZE 14

SUMMARY AND ANALYSIS OF THE FARM BUSINESS 16
- Business Characteristics 16
- Income Statement 16
- Profitability Analysis 18
- Farm and Family Financial Status 22
- Cash Flow Statement 26
- Repayment Analysis 27
- Cropping Analysis 29
- Dairy Analysis 32
- Capital and Labor Efficiency Analysis 34

COMPARATIVE ANALYSIS OF THE FARM BUSINESS 36
- Progress of the Farm Business 36
- Grazing Farm Business Chart 39

INCOME AND EXPENSE PROFILES 40

SUPPLEMENTARY INFORMATION 42

IDENTIFY AND SET GOALS 44

GLOSSARY AND LOCATION OF COMMON TERMS 46

INDEX 49

ACKNOWLEDGEMENT

This report was written by the Intensive Grazing Committee consisting of George Conneman, Professor Emeritus, Farm Management; Jason Karszes, Senior Extension Associate, PRO-DAIRY; James Grace, Extension Educator, Steuben, Chemung and Schuyler Counties; Rodger Beck, Area Specialist, South Central New York Dairy Team; Ed Staehr, Extension Associate, Applied Economics and Management; Fay Benson, Small Farms Educator, South Central New York Dairy Team; Peggy Murray, Extension Educator, Lewis County; Nancy Glazier, Extension Support Specialist, Northwest New York Team; Virginia Carlberg, Extension Educator, Chautauqua County; Jessica Anderson, Cornell University Work-Study Student; and Linda Putnam, Extension Support Specialist, Applied Economics and Management. The committee appreciates the assistance from all the Cornell Cooperative Extension Educators that collected the Dairy Farm Business Summary data, as well as the following Extension Educators that collected the grazing practices survey data: Mariane Kiraly, Anita Deming, and Molly Ames.

2008 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). Forty-two New York farms indicated that they grazed dairy cows at least three months, moving to a fresh paddock at least every three days and more than 30% of the forage consumed during the growing season was from grazing. Operators of these 42 farms were asked to complete a grazing practices survey. Twenty-two of the farms did complete it. T**he study centered on 31 New York farms which were not organic farms and were not first year grazers. The "Non-Grazers" are 104 farms with similar herd size to the grazing farms and are compared to the average of the 31 grazing 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 (DFBS) Project in 2007 and 2008. 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 two 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 2008 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 performance[1] 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 30 farms that were grazing in both 2007 and 2008 and participated in the DFBS project for both years.

These 30 farms increased in herd size from 121 cows in 2007 to 129 cows in 2008. Along with the increase in cow numbers, the average number of heifers increased from 95 to 98 head. The average number of cows increased and so did the total pounds of milk sold; therefore, the milk sold per cow remained essentially unchanged.

There was a 1.7 percent increase in worker equivalents, to 2.94, but with the increase in cow numbers, cows per worker equivalent increased from 42 to 44. Milk sold per worker equivalent increased only 3.5 percent, due to the decrease in production per cow. The increase in milk sold per worker equivalent was offset by an increase of 16.9 percent in average cost per worker (from $28,324 in 2007 to $33,118 in 2008), resulting in a 14.6 percent increase in the hired labor cost per hundredweight of milk produced.

The 2008 growing season was relatively normal across New York State. For these grazing farms, corn yields decreased from 17.6 to 16.9 tons per acre, while hay yields increased from 1.9 to 2.3 tons per acre.

The major factor impacting farm profitability in 2008 was the increase in the cost of grain, which rose 30.4 percent, from $4.86 to $5.99 per hundredweight in 2008. The cost of fertilizer also increased leading to a dairy feed and crop expense increase of 23.7 percent. These increases, coupled with other price increases, led to operating costs per hundredweight increasing 12.6 percent from $16.43 to $18.50. At the same time the price received per hundredweight of milk decreased 5.9 percent from $21.21 to $19.96. The lower milk price and stable production per cow resulted in gross milk sales per cow decreasing from $3,532 to $3,303 or 6.5 percent. The value of dairy cattle increased this year and the beef market recovered from last year's low prices with dairy sales per cow increasing 38.8 percent.

With farm revenue decreasing from the prior year and operating costs increasing the total costs of producing a hundredweight of milk increased 8.7 percent from $19.24 to $20.91 in 2008.

The amount of investment per cow continued its upward trend, increasing from $7,846 to $8,169 or 4.1 percent. This resulted from the value of machinery and equipment increasing 7.8 percent and cattle and land worth more than in 2007. Debt per cow increased 7.6 percent to $2,418 for 2008. Farm net worth increased 3.2 percent to $779,684.

The above factors combined to result in lower profitability in 2008 than in 2007.

Profitability Measures

- Net farm income without appreciation decreased 41.7 percent to $74,300.
- Net farm income per cow without appreciation decreased 45.4 percent, from $1,053 to $575.
- Net farm income with appreciation decreased 57.4 percent to $73,776.
- Labor and management income per operator decreased from $63,865 to $20,578.
- Rate of return on equity capital without appreciation decreased from 10.7 percent to 2.4 percent.
- Rate of return on all capital without appreciation decreased from 9.5 percent to 3.0 percent.

While 2008 was a profitable year, it had a large decrease in profitability from last year; however, 2007, with its high milk price and average operating costs, was a high profit year.

---

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

PROGRESS OF THE FARM BUSINESS

Same 30 Grazing Dairy Farms, 2007 & 2008

Selected Factors	Average of 30 Farms 2007	Average of 30 Farms 2008	Percent Change
Size of Business			
Average number of cows	121	129	6.6
Average number of heifers	95	98	3.2
Milk sold, lbs.	2,021,861	2,128,002	5.3
Worker equivalent	2.89	2.94	1.7
Total nontillable and tillable pasture & hay acres	301	313	4.0
Total nontillable pasture & tillable acres	360	380	5.6
Rates of Production			
Milk sold per cow, lbs.	16,650	16,547	-0.6
Hay DM per acre, tons	1.9	2.3	21.1
Corn silage per acre, tons	17.6	16.9	-4.0
Stocking rate	2.94	2.91	-1.0
Labor Efficiency & Costs			
Cows per worker	42	44	4.8
Milk sold per worker, lbs.	699,606	723,810	3.5
Hired labor cost per cwt.	$1.64	$1.88	14.6
Hired labor cost per worker	$28,324	$33,118	16.9
Hired labor cost as % of milk sales	7.7%	9.4%	22.1
Cost Control			
Grain & concentrate purchased as % of milk sales	23%	30%	30.4
Grain & concentrate per cwt. milk	$4.86	$5.99	23.3
Dairy feed & crop expense per cwt. milk	$6.62	$8.19	23.7
Labor & machinery costs per cow	$1,351	$1,454	7.6
Total farm operating costs per cwt. sold	$16.43	$18.50	12.6
Interest costs per cwt. milk	$0.79	$0.61	-22.8
Milk marketing costs per cwt. milk sold	$0.95	$1.06	11.6
Operating cost of producing cwt. of milk	$13.43	$14.74	9.8
Total costs of producing cwt. of milk	$19.24	$20.91	8.7
Capital Efficiency (average for the year)			
Farm capital per cow	$7,846	$8,169	4.1
Machinery & equipment per cow	$1,391	$1,499	7.8
Asset turnover ratio	0.56	0.48	-14.3
Income Generation			
Gross milk sales per cow	$3,532	$3,303	-6.5
Gross milk sales per cwt.	$21.21	$19.96	-5.9
Net milk sales per cwt.	$20.26	$18.91	-6.7
Dairy cattle sales per cow	$237	$329	38.8
Dairy calf sales per cow	$60	$26	-56.7
Government receipts per cwt.	$0.47	$0.23	-51.1
Profitability			
Net farm income without appreciation	$127,469	$74,300	-41.7
Net farm income with appreciation	$173,058	$73,776	-57.4
Labor & mgt. income per operator/manager	$63,865	$20,578	-67.8
Labor & mgt. income per oper./manager per cow	$528	$160	-69.7
Rate of return on equity capital without apprec.	10.7%	2.4%	-77.6
Rate of return on all capital without appreciation	9.5%	3.0%	-68.4
Financial Summary			
Farm net worth, end year	$755,559	$779,684	3.2
Debt to asset ratio	0.26	0.28	7.7
Farm debt per cow	$2,248	$2,418	7.6

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Intensive Grazing Dairy Farms, 1999 to 2008

Item	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of farms	65	65	54	30	27	30	42	42	36	31
Cropping Program										
Total tillable acres	227	271	288	243	270	267	264	254	273	317
Tillable acres rented	105	133	142	125	126	96	110	145	132	159
Hay crop acres	120	139	152	119	149	133	143	145	162	176
Corn silage acres	42	44	37	22	28	38	34	41	39	47
Hay crop, tons DM/acre	2.1	2.7	2.2	2.2	3.7	2.9	1.9	2.2	2.0	2.3
Corn silage, tons/acre	13.9	12.0	15.5	12.4	15.3	15.3	14.9	15.5	17.6	16.9
Fertilizer & lime exp./tillable acre	$25	$20	$22	$30	$21	$31	$31	$29	$45	$52
Machinery cost/cow	$545	$501	$528	$439	$447	$598	$586	$590	$688	$739
Dairy Analysis										
Number of cows	79	93	94	94	100	104	95	101	110	127
Number of heifers	60	67	70	68	72	74	76	83	87	97
Milk sold, cwt.	14,477	15,860	15,396	15,687	15,637	17,744	15,868	17,168	18,243	21,111
Milk sold/cow, lbs.	18,346	17,107	16,295	16,618	15,684	17,144	16,783	17,054	16,627	16,593
Purchased dairy feed/cwt. milk	$3.65	$3.88	$4.19	$4.21	$4.45	$4.76	$4.48	$4.41	$5.46	$6.77
Purchased grain & concentrate as % of milk receipts	23%	27%	23%	28%	29%	25%	26%	30%	23%	31%
Purchased feed & crop exp/cwt.milk	$4.39	$4.56	$4.94	$4.99	$5.06	$5.55	$5.34	$5.30	$6.59	$8.14
Operating cost producing milk/cwt.	$10.53	$10.17	$11.71	$9.76	$9.53	$11.83	$11.35	$10.58	$13.56	$14.84
Veterinary & medicine exp./cow	$68	$66	$67	$57	$59	$74	$67	$83	$85	$88
Capital Efficiency										
Farm capital/cow	$6,236	$6,445	$6,841	$5,870	$6,286	$7,300	$7,526	$7,667	$8,158	$8,244
Real estate/cow	$2,508	$2,791	$2,951	$2,389	$2,738	$3,475	$3,369	$3,249	$3,445	$3,382
Machinery investment/cow	$1,291	$1,316	$1,319	$1,109	$1,191	$1,287	$1,337	$1,289	$1,474	$1,504
Asset turnover ratio	0.51	0.46	0.51	0.46	0.46	0.50	0.48	0.42	0.54	0.48
Labor Efficiency										
Worker equivalent	2.63	2.76	2.78	2.59	2.71	2.90	2.70	2.80	2.70	2.91
Operator/manager equivalent	1.41	1.35	1.40	1.24	1.36	1.50	1.32	1.39	1.28	1.35
Milk sold/worker, lbs.	550,437	574,630	553,819	605,677	577,020	611,862	587,165	614,066	675,657	726,309
Cows/worker	30	34	34	36	37	36	35	36	41	44
Labor cost/cow	$715	$644	$717	$683	$681	$732	$746	$744	$705	$711
Hired labor exp./hired worker equiv.	$21,189	$20,024	$24,430	$24,009	$22,912	$25,966	$25,645	$26,504	$28,417	$32,729
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$13,203	$1,693	$15,205	$2,482	$9,638	$22,397	$17,801	$1,606	$54,684	$19,786
Labor &mgmt income/operator/cow	$167	$18	$162	$26	$96	$215	$187	$16	$498	$156
Net farm income/cow w/o apprec.	$543	$310	$555	$322	$449	$652	$572	$383	$1,019	$568
Farm net worth, end year	$364,069	$410,672	$477,037	$369,123	$454,465	$578,704	$535,182	$584,266	$706,999	$765,083
Percent equity	73%	67%	71%	66%	69%	73%	72%	74%	73%	71%

INTENSIVE GRAZING SURVEY SUMMARY

From the survey data of the 21 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, 2008

	Average (21 farms)	Average of the Top 50% (10 farms)	Average of the Lower 50% (11 farms)
Labor and management income per operator per cow	$203	$453	$7
Average number of cows	139	142	137
Milk sold per cow, pounds	16,043	14,513	17,488
Operating cost of producing milk per cwt.	$14.42	$12.36	$16.04
Total cost of producing milk per cwt.	$20.63	$19.06	$21.86

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, 2008

	Number of Farms Responding	Average of All Farms Answering Question	Average of the Top 50%	Average of the Lower 50%
Experience				
Average years of farming experience	20	26	29	23
Average years of grazing experience	21	15	16	15
Farm Characteristics				
Percent of farms with seasonal or semi-seasonal calving	20	15%	11%	18%
Percent of farms with a parlor milking system	21	43%	20%	64%
Pasture in the Ration				
Average percent forage from pasture	16	60%	60%	60%
Average length (days) of grazing season	21	183	184	182
Average pounds of grain fed while grazing	14	12.9	13.0	12.9
Average pounds of grain fed in winter	13	16.4	15.8	16.7
Average pounds of forage dry matter fed while grazing	13	18.8	13.8	21.6
Average pounds of forage dry matter from grazing	14	18.4	19.5	17.9
Average pounds of forage dry matter fed in winter	14	35.1	33.3	36.1
Pasture Management				
Percent rotated after each milking	21	48%	50%	45%
Percent rotated daily	21	43%	40%	45%
Percent rotated every other day	21	9%	10%	9%
Percent other rotation	21	0%	0%	0%
Percent applied commercial fertilizer to pasture	20	60%	56%	64%
Percent applied manure to pasture	18	50%	44%	56%
Percent applied lime to pasture	20	25%	33%	18%
Percent that clipped pasture	21	95%	100%	91%
Percent with a weed problem	17	47%	50%	45%
Percent with water in every paddock	21	67%	70%	64%
Percent with pasture re-seeded in past 10 years	17	59%	75%	56%
Percent that mechanically harvested pastures	14	57%	80%	44%
Most common pasture species				
First		Orchardgrass	Orchardgrass	Orchardgrass
Second		Ladino Clover	Ladino Clover	Ladino Clover
Third		Native White Clover	Native White Clover	Ryegrass

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 9 of the farms having 95 percent or greater Holstein animals. The second most common were Jersey which were on eight 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, 2008

	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	9	20,206	$235	$0.56	27.7%
Farms that are less than 95% Holstein	12	16,138	$194	$1.57	22.2%

Supplemental Feeding

Twenty-one farms gave detailed ration data and the table below compares the 9 farms that fed corn silage to the 12 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, 2008

	Top 50% (10 farms)		Lower 50% (11 farms)	
	Corn Silage (4)	No Corn Silage (6)	Corn Silage (5)	No Corn Silage (6)
Labor & management income per oper. per cow	$647	$535	$-42	$-191
Milk sold per cow, pounds	18,536	18,475	18,461	16,370
Grain fed in summer, pounds dry matter	14.8	5.6	13.5	12.2
Corn silage fed in summer, pounds dry matter	7.7	-	9.3	-
Other forage fed in summer, pounds dry matter	1.5	2.3	3.2	5.5
Percent forage from pasture	45%	58%	44%	56%

Grazing Season Ration Details

The 10 farms in the top 50 percent of profitability fed an average of 13 pounds dry matter of grain during the grazing season. Four farms fed corn silage at an average of 14.8 pounds dry matter.

The 11 farms in the lower 50 percent of profitability fed an average of 12.9 pounds dry matter of grain during the grazing season. Five of the farms fed corn silage at an average of 9.3 pounds dry matter.

Frequency of Rotation

Ten of the farms rotated their pastures for milk cows after each milking, 9 of the farms rotated pasture every day, and 2 farms rotated pasture every other day. The table below compares the rotation frequency to milk production and labor and management income per operator per cow.

ROTATION FREQUENCY
Intensive Grazing Farms, 2008

	Top 50% (10 farms)		Lower 50% (11 farms)	
	Rotate After Each Milking (5)	Other Rotation Schedule (5)	Rotate After Each Milking (5)	Other Rotation Schedule (6)
Milk sold per cow, pounds	19,933	17,066	16,273	18,193
Labor and management income per operator per cow	$534	$625	$141	$-344

Water Source

Ten farms provided the majority of water from a well while the remaining eleven provided water from a natural source (pond-4, spring-3, stream-1, and other-3).

WATER SOURCE
Intensive Grazing Farms, 2008

	Upper 50% (10 farms)		Lower 50% (11 farms)	
	Well (5)	Other (5)	Well (5)	Other (6)
Milk sold per cow, pounds	18,420	18,579	15,574	18,776
Labor and management income per operator per cow	$546	$613	$21	$-243

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 9 pit parlor systems (no flat parlors) and the remaining 12 farms used pipeline systems.

MILKING SYSTEM
Intensive Grazing Farms, 2008

	Top 50% (10 farms)		Lower 50% (11 farms)	
	Pipeline (8)	Parlor (2)	Pipeline (4)	Parlor (7)
Milk sold per cow, pounds	18,944	16,720	18,214	16,810
Labor and management income per operator per cow	$614	$443	$-488	$86
Average number of cows	47	119	53	291

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, 2008

	Top 50% (10 farms)		Lower 50% (11 farms)	
	Applied Fertilizer (5)	Did Not Apply Fertilizer (4)	Applied Fertilizer (7)	Did Not Apply Fertilizer (4)
Milk sold per cow, pounds	20,769	14,524	16,969	17,934
Labor and management income per operator per cow	$589	$583	$17	$-367
Stocking rate, cows per acre	1.0	1.0	1.6	1.6
Percent forage from pasture	53%	52%	49%	54%
Most common product applied	Urea		Urea	

Intensive Grazing Satisfaction Comments

On a scale of 1 to 5, with 5 being the highest, 17 farms responded with the average rating of grazing satisfaction as 4.2 with 7 farms responding 5 (very satisfied), 7 responding 4 (satisfied), 2 responding 3 (equally satisfied), and 1 responding 2 (unsatisfied). When asked whether their lifestyle has improved with the adoption of rotational grazing, 19 farms responded with 17 saying "yes" and 2 saying "no".

Grazing Trends

The table below compares key figures from 1996 (the first year of the intensive grazing summary), 2008, and a 13-year average (not the same farms all 13 years). Cow numbers have increased but milk sold per cow has remained basically the same. [3] Operating cost of producing milk in 2008 averaged $3.55 above the 13-year average as well as $3.55 above 1996. Net farm income per cow without appreciation was $51 higher in 2008 than the 13-year average.

2008 GRAZING INFORMATION COMPARED TO 1996 AND 1996 – 2008 AVERAGE
Intensive Grazing Farms, 1996 – 2008

	59 Grazing Dairy Farms, 1996 Average	31 Grazing Dairy Farms, 2008 Average	Grazing Dairy Farms, 1996 – 2008 Average
Number of cows	78	127	95
Milk sold per cow, pounds[2]	17,270	16,593	16,958
Operating cost of producing milk per cwt.	$11.29	$14.84	$11.29
Net farm income per cow without apprec.	$409	$568	$517
Grain and concentrate as % of milk receipts	30%	31%	27%
Grain and concentrate expense per cwt. milk	$4.41	$5.99	$4.12
Price of milk per cwt.	$14.78	$19.99	$15.72

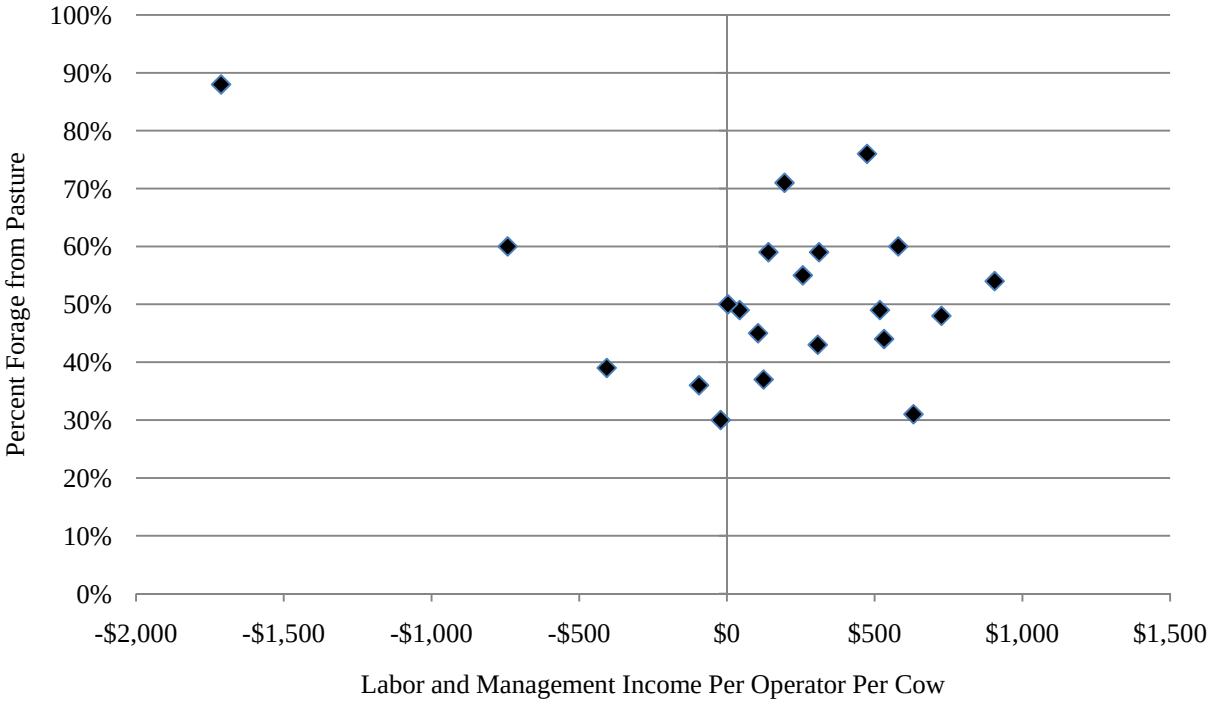
[2] In 1996, similar size non-grazers sold 17,547 pounds of milk per cow and in 2008 similar size non-grazers sold 21,134 pounds per cow.

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.

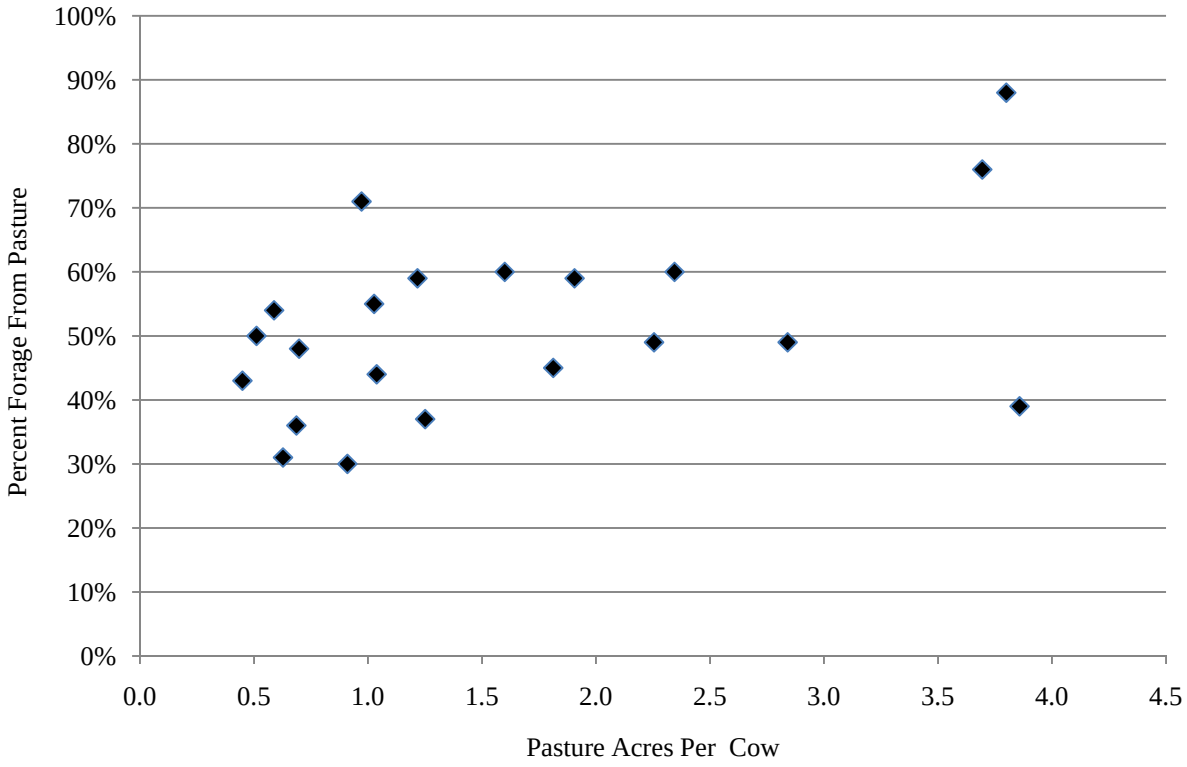
PERCENT FORAGE FROM PASTURE VERSUS LABOR AND MANAGEMENT INCOMES PER OPERATOR PER COW

Intensive Grazing Farms, 2008



PASTURE ACRES PER COW VERSUS PERCENT FORAGE FROM PASTURE

Intensive Grazing Farms, 2008



INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2008

Item	All Intensive Grazing Farms[3]	Non-Grazing Farms[4]
Number of farms	31	104
Business Size & Production		
Number of cows	127	128
Number of heifers	97	105
Milk sold, pounds	2,111,138	2,707,218
Milk sold per cow, pounds	16,593	21,134
Milk plant test, % butterfat[5]	3.9%	3.8%
Cull rate	22%	32%
Tillable acres, total	317	349
Hay crop, tons DM per acre	2.3	2.7
Corn silage, tons per acre	16.9	18.3
Forage dry matter per cow, tons[6]	5.4	9.0
Labor & Capital Efficiency		
Worker equivalent	2.91	3.88
Milk sold per worker, pounds	726,309	697,287
Cows per worker	44	33
Farm capital per worker	$360,429	$331,372
Farm capital per cow	$8,244	$10,037
Farm capital per cwt. milk	$50	$47
Machinery and equipment per cow	$1,504	$1,875
Milk Production Costs & Returns		
Selected costs per cwt.:		
Hired labor	$1.84	$2.05
Grain & concentrate	$5.99	$5.98
Purchased roughage	$0.78	$0.42
Replacements purchased	$0.05	$0.10
Vet & medicine	$0.53	$0.59
Milk marketing	$1.09	$0.98
Other dairy expenses	$1.06	$1.70
Operating cost of producing milk per cwt.	$14.84	$15.74
Total labor cost per cwt.	$4.28	$4.19
Owner and operator resources per cwt.	$4.03	$3.69
Total cost of producing milk per cwt.	$20.97	$21.03
Average farm price per cwt.	$19.99	$19.28
Related Cost Factors		
Hired labor/cow	$306	$434
Total labor/cow	$711	$886
Purchased dairy feed/cow	$1,123	$1,355
Purchased grain & concentrate as % of milk receipts	31%	32%
Veterinary & medicine/cow	$88	$124
Machinery costs/cow	$739	$844
Feed & crop expenses/cwt.	$8.14	$7.71
Profitability Analysis		
Net farm income (with appreciation)	$72,137	$68,748
Net farm income (without appreciation)	$72,236	$59,064
Net farm income per cow (without appreciation)	$568	$461
Net farm income per cwt. (without appreciation)	$3.42	$2.18
Labor & management income per operator	$19,786	$3,147
Labor & management income per operator per cow	$156	$25
Rates of return on:		
Equity capital with appreciation	2.2%	1.1%
All capital with appreciation	2.9%	2.0%

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

[4]Farms with similar herd size as the 31 rotational grazing farms.

[5]Average of farms reporting this data.

[6]Average of farms that grow forages.

CASE STUDIES

The Hill Farm, Stanley and Kathleen Tenpas

History

Stan and Kathleen Tenpas began farming at their North Clymer, NY farm in 1972. They started with 132 acres of land and 20 Holstein cows. The first twenty years Stan and Kathleen rented the farm, but immediately began to put investment into improving the soil, which showed a 4.2 pH at first test. Now the Tenpas' are able to run twice the number of animals on the same amount of land by improving soil health and crop quality.

They also put investment into facilities by putting up an additional silo, building on to the barn, and tiling the fields. An early adopter of intensive grazing, they began to break up the original pasture paddocks when Stan read an article on Intensive Grazing in the Hoard's Dairyman in 1982. Although they had grazed from the first day on the farm, that summer they began to intensively graze and have done it ever since.

Current Operation

Stan and Kathleen now operate 240 acres and milk a herd of 50 with about 30 youngstock. They have raised two daughters on the farm and have four grandchildren. They have a grandson and a son-in-law that helps on the farm, but otherwise hire very little labor.

The cows graze from the first of May through first snow. Stan and Kathleen have set up twelve permanent paddocks, which they split up with poly wire. The cows are on an 18 to 20 day rotation and are moved every day. Stan believes that moving the cows every day is necessary to make a grazing system work. They feed only grass and prefer reed canary and orchard grass mixtures, but have experimented with alternative crops such as millet and teff in order to extend the grazing season. They do not feed any corn silage and do not plant alfalfa because of the elevation and soil type.

Stan and Kathleen are conservation-minded, and have completed a Conservation Plan with the local Soil and Water Conservation District, and a Nutrient Management Plan. Routine practices such as soil testing and the use of filter and buffer strips have allowed the Tenpas' to receive recognition with the Environmental Quality Incentives Program and the Conservation Security Program.

Overall Methodology

The Tenpas' plan is to continue to focus on producing milk cheaply and efficiently. They consider each investment very carefully, analyzing whether the investment will save time, money, or both. Investment in machinery that results in better quality forages has been one area in which the Tenpas' have focused their attention.

Stan often says there is too much emphasis on "more cows, more production, more money, and not enough emphasis on cost of production." The cows produce 21,000 pounds of milk per cow, but production is not the focus on the Hill Farm. Stan uses the Dairy Farm Business Summary to help him better understand where his costs are distributed and where he can improve profitability.

Grazing At Carey Farm

"The greatest agricultural resource of New York is its exceptional adaptation for the growth of grass. Yet the hay crop has received little attention and pastures have rarely received any care . . . It would certainly seem good policy to consider means of increasing the efficiency of our pastures." (Dr. G.F. Warren, Cornell University Agr. Exp. Station Bulletin 280, 1910)

Dan and Ann Carey farm 450 acres including 100 acres of pasture near Groton, Tompkins County, New York. They are currently milking 178 Holsteins and raise 165 heifers. Cows are milked in a rapid exit herringbone parlor and housed in a freestall set-up. Annual production per cow averages about 19,500 pounds.

The Careys started their grazing program in earnest in 1997-98. Prior to this, grazing was confined mainly to dry cows and heifers and consisted of small pastures with a few wet areas. After some thought Dan identified 50 acres, seeded to orchard grass and ladino clover, that could be used for pasture. Strips of corn were also part of that original parcel. They decided to try grazing for a year. If it didn't work out, they could revert to the original cropping plan.

They talked with several smaller graziers and went to several grazing meetings. After investing in a water system and receiving a grant from Tompkins County Soil and Water for fencing, the Careys were officially a grazing dairy. Dan reminisces, "Our aim was to make things simpler, use less labor, and have more time for ourselves."

The grazing season at Carey Farm begins about April 25th. To get cows accustomed to grazing in the spring Carey uses a two-week window in early spring to transition cows from haylage and corn silage to fresh grass.

TMR is fed year around, but protein (in the form of canola) is removed in the spring leaving a ration of dry hay, corn silage, corn meal and a mineral pack. In general, Dan relies on his feed dealer for feeding recommendations.

Grazing Scheme

Carey employs a two-stage rotational grazing scheme. He uses 50 acres of pasture on a continuous basis and grazes this intensively until July. This stage consists of eight paddocks ranging in size from two to six acres. He also has 50 acres of what he calls supplemental pasture. He takes two hay crops off this stage and then begins grazing six paddocks for two weeks. He can also go back to the original 50 acres as needed. With both stages he uses a break-wire system to limit access by the cows to only a portion of a paddock at a time. The break wire is used to extend access so cows can get to fresh grass after each milking. He will usually top dress the "supplemental" pasture with urea in early spring before the first crop comes off.

Improvements, Upgrades, and Maintenance

Dan is constantly improving fencing, water systems, and laneways. Most of these he has funded himself. Paddocks fan out and begin about 500 feet from the barn. When making laneways he will follow this procedure: First, the top layer of soil is bulldozed. Gravel-to-grade is then laid down. A textile fabric is applied on top of the gravel with another layer of gravel over that. It is then rolled and topped off with a layer of stone dust. He believes that the fabric promotes better drainage and prevents wet spots.

Virtually all paddocks are seeded to orchard grass and ladino clover. He overseeds clover in the early spring when the ground is still damp and then rolls it to get better germination. Paddocks are soil tested every three years and lime is applied as needed.

Grazing For Heifers

In 2000 Dan built an eight-paddock system on 15 acres for 50 heifers, three to 12 months of age. This required a $15,000 investment for fencing and water. The reason for going to heifer grazing was, based on experience, there would be a significant reduction in labor since feeding could take place in the field and he would also be able to raise additional heifers for sale. This all happened as planned. Even though the milking herd is on a heat synchronization program, Carey believes that grazing for heifers helps them to show stronger heats. His goal for heifer grazing is to increase the amount of pasture to 60 acres in the near to mid-term.

Grazing Benefits

The Careys reckon there are a number of benefits to be enjoyed because of their decision to make grazing a cornerstone of their dairy operation. There is obviously less manure to haul. Dan estimates a 75% saving in labor and fuel for this function during the grazing season. He also believes there is a significant saving in purchased grain costs -- as much as a factor of two. For instance, if a cow is being fed $2-$3 per day of concentrates, that cost could be reduced, on average, to $1.50 per day.

There is also savings related to machinery owned and used to produce forages. "Grazing hasn't really reduced the amount of equipment we use in making forage, but it has made that machinery last longer."

The reduced cost associated with grazing for heifers makes it financially attractive to raise more heifers than needed as replacements. The surplus can be sold and the proceeds used to bolster cash flow, to increase savings, or for discretionary spending. "Last year we sold about 40 heifers. That really made a big difference in our profitability for the year," says Carey. This is corroborated by the results of his 2008 Dairy Farm Business Summary.

Grazing also has the benefit of increasing longevity of better producing cows. Since the amount of time that cows are standing on concrete, in water, or in manure is significantly reduced, feet and legs are usually healthier and stronger. While increased longevity does have a tendency to decrease cull rates, an ample supply of heifers provides more opportunity to replace lower producers thereby increasing total herd production and net farm income per cow.

In general, Carey believes that grazing provides the means for giving cows higher quality forages at less cost during the grazing season.

On the human side, Dan believes grazing has helped his children become more involved in the farm operation. For example, he says, "They can make decisions on their own when they feel it's time to move cows or heifers to a new paddock.

Future Business Plans

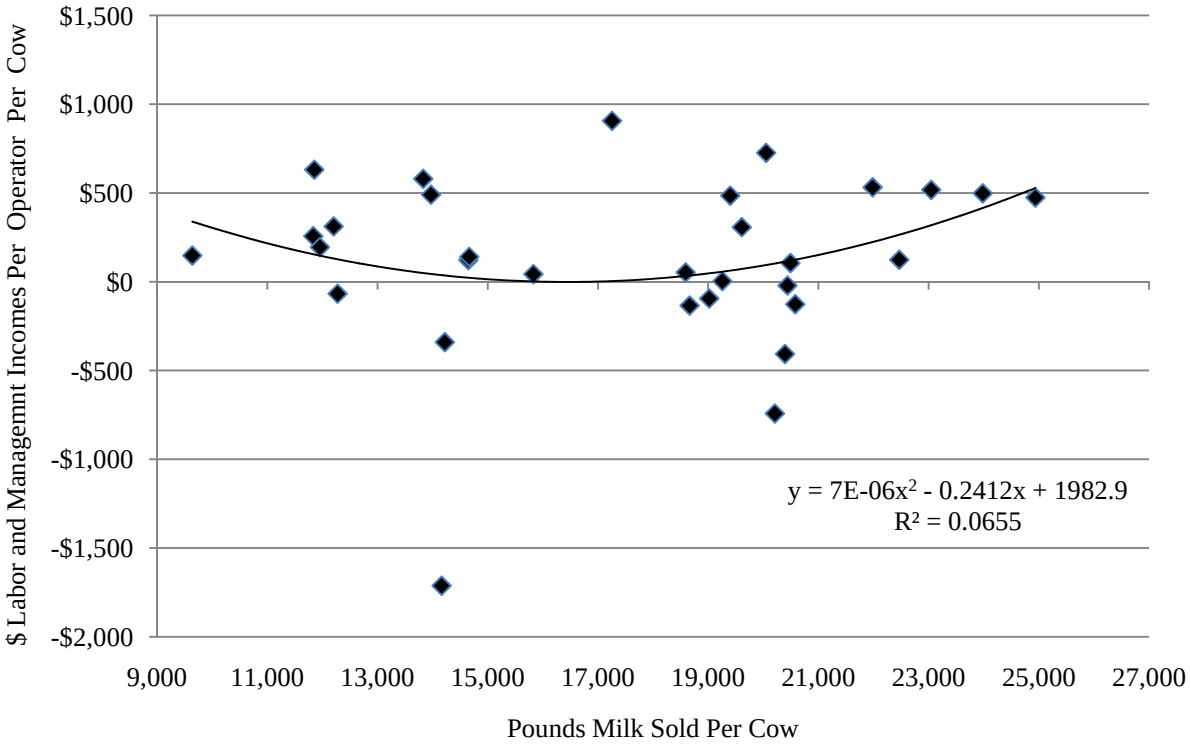
Dan believes he has reached an optimal size, but will continually look for opportunities to become more efficient and increase productivity. In general, he is very pleased with how grazing has worked out for him financially and personally. "I think the cows and heifers also have a better quality of life when they can spend it outside eating grass in the fresh air and sunshine." He also notes passersby will tell him how clean and contented his cows look.

SUMMARY OF GRAZING FARMS BY HERD SIZE

There were 11 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 per cow 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

31 Intensive Grazing Farms, 2008



INTENSIVE GRAZING FARMS BY HERD SIZE GROUP

31 Intensive Grazing Dairy Farms, 2008

Item	50 Cows Or Less	51 to 89 Cows	90 Cows Or More
Number of farms	10	10	11
Business Size & Production			
Number of cows	41	60	267
Number of heifers	33	45	203
Milk sold, lbs.	715,898	1,011,344	4,379,351
Milk sold/cow, lbs.	17,292	16,940	16,424
Milk plant test, % butterfat (ave. of farms reporting)	3.8%	N/A	3.9%
Cull rate	21%	29%	21%
Tillable acres, total	157	156	608
Hay crop, tons DM/acre	2.0	2.1	2.5
Corn silage, tons/acre	13.8	14.4	17.6
Forage tons DM/cow (ave. of farms that grow forage)	6.7	5.3	5.2
Labor & Capital Efficiency			
Worker equivalent	1.78	1.67	5.05
Milk sold/worker, lbs.	401,438	604,389	867,055
Cows/worker	23	36	53
Farm capital/worker	$287,079	$308,392	$400,615
Farm capital/cow	$12,343	$8,627	$7,587
Farm capital/cwt. milk	$71	$51	$46
Milk Production Costs & Returns			
Selected costs/cwt.:			
Hired labor	$0.69	$0.80	$2.23
Grain & concentrate	6.31	5.36	6.07
Purchased roughage	0.08	0.57	0.93
Replacements purchased	0.03	0.09	0.04
Veterinary & medicine	0.65	0.41	0.54
Milk marketing	1.33	1.28	1.01
Other dairy expenses	1.35	1.45	0.94
Operating cost of producing milk/cwt.	13.24	14.37	15.17
Owner/operator resources/cwt.	7.26	5.10	3.33
Total labor cost/cwt.	7.13	4.76	3.76
Total cost of producing milk/cwt.	23.80	21.11	20.52
Average farm price/cwt.	19.27	19.59	20.17
Related Cost Factors			
Hired labor/cow	$118	$136	$367
Total labor/cow	1,233	807	618
Purchased dairy feed/cow	1,105	1,005	1,150
Purchased grain & concentrate as % of milk receipts	33%	27%	33%
Veterinary & medicine/cow	$112	$70	$88
Machinery costs/cow	$794	$663	$746
Feed & crop expense/cwt.	$7.18	$6.73	$8.57
Profitability Analysis			
Net farm income (without appreciation)	$29,418	$38,793	$141,564
Net farm income/cow (without appreciation)	$711	$650	$531
Net farm income/cwt. (without appreciation)	$4.11	$3.84	$3.23
Labor & management income/operator	$-2,533	$14,739	$36,114
Labor & management income/operator/cow	$-62	$246	$135
Rates of return on:			
Equity capital with appreciation	-1.7%	0.6%	3.8%
All capital with appreciation	-0.8%	1.7%	4.0%

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
31 Intensive Grazing Dairy Farms, 2008

Type of Farm	Number
Dairy	31
Part-time dairy	0
Dairy cash-crop	0

Type of Ownership	Number
Owner	30
Renter	1

Type of Business	Number
Sole Proprietorship	20
Partnership	5
Limited Liability Corporation	5
Subchapter S Corporation	1
Subchapter C Corporation	0

Type of Barn	Number
Stanchion or Tie-Stall	16
Freestall	11
Combination	4

Milking Frequency	Number
2 times per day	30
3 times per day	0
Other	1

Breed	Percent
Holstein	68
Jersey	12
Other	20

Milking System	Number
Bucket & carry	0
Dumping station	0
Pipeline	16
Herringbone-conventional exit	6
Herringbone-rapid exit	2
Parallel	1
Parabone	2
Rotary	0
Other	4

Production Records	Number
Testing Service	24
On-Farm System	2
Other	0
None	5

bST Usage (Optional)	Number
Used consistently	2
Used inconsistently	0
Started using in 2008	0
Stopped using in 2008	0
Not used in 2008	9
Average percent usage, if used	65%

Business Record System	Number
Account Book	8
Accounting Service	3
On-farm computer software	19
Other	1

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 2008.

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

31 Intensive Grazing Dairy Farms, 2008

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
Hired Labor	$ 39,312		$ 184	<<	$ -207		$ 38,920
Feed							
Dairy grain & concentrate	115,554		-7,660		3,174		126,388
Dairy roughage	16,267		1,019		1,279		16,527
Nondairy	316		20		0		296
Professional nutritional services	60		0	<<	0		60
Machinery							
Machinery hire, rent & lease	18,113		-968	<<	1,517		20,598
Machinery repairs & farm vehicle exp.	19,211		67		268		19,411
Fuel, oil & grease	20,413		-143		198		20,754
Livestock							
Replacement livestock	1,015		0	<<	0		1,015
Breeding	4,782		106		-2		4,674
Veterinary & medicine	11,206		133		109		11,182
Milk marketing	23,026		0	<<	-90		22,937
Bedding	3,316		-58		227		3,602
Milking supplies	7,737		28		247		7,955
Cattle lease & rent	0		0	<<	0		0
Custom boarding	946		0	<<	-1		945
bST expense	456		28		1		428
Livestock professional fees	1,492		-100	<<	0		1,592
Other livestock expense	3,146		-16		51		3,213
Crops							
Fertilizer & lime	13,170		-6,491		1,304		20,965
Seeds & plants	5,529		959		0		4,571
Spray, other crop expense	2,935		23		0		2,912
Crop professional fees	425		0	<<	-1		424
Real Estate							
Land, building & fence repair	8,999		28		203		9,174
Taxes	7,705		0	<<	180		7,885
Rent & lease	5,952		0	<<	0		5,952
Other							
Insurance	6,375		0	<<	6		6,381
Utilities (farm share)	11,527		-26	<<	-10		11,543
Interest paid	12,911		0	<<	258		13,169
Other professional fees	1,613		0	<<	0		1,613
Miscellaneous	4,127		-7		-129		4,005
Total Operating	$ 367,636		$ -12,873		$ 8,583		$ 389,091
Expansion livestock	3,264		60	<<	0		3,204
Extraordinary expense	372		0	<<	0		372
Machinery depreciation							23,644
Building depreciation							12,452
TOTAL ACCRUAL EXPENSES							$ 428,763

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 2008 but not paid for. A decrease is subtracted because it represents payment for resources used before 2008.

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

31 Intensive Grazing Dairy Farms, 2008

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	$ 427,025				$ -5,106		$ 421,919
Dairy cattle	26,878		$ 12,768		-45		39,601
Dairy calves	2,793		434		0		3,226
Other livestock	1,554		5,528		0		7,081
Crops	728		16,743		26		17,497
Government receipts	4,782		0		183		4,965
Custom machine work	2,137				0		2,137
Gas tax refund	310				0		310
Other	4,172				90		4,262
Less nonfarm noncash capital[8]		(-)	0			(-)	0
Total Receipts	$ 470,378		$ 35,472		$ -4,852		$ 500,999

[7]Change in advanced government receipts.

[8]Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received from the sale of farm products, services, and government programs. Nonfarm income is not included in calculating farm profitability.

Changes in inventory of assets produced by the business are calculated by subtracting beginning of year values from end of year values excluding appreciation. Increases in livestock inventory caused by herd growth and/or quality are added, and decreases caused by herd reduction and/or quality are subtracted. Changes in inventories of crops grown are also included. An increase in advanced government receipts is subtracted from cash income because it represents income received in 2008 for the 2009 crop year in excess of funds earned for 2008. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2008 but received in 2007.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January for milk produced in December 2008 compared to January 2008 payments for milk produced in 2007 are included as a change in accounts receivable.

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

Profitability Analysis

Farm operators[9] 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.

[9]Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who are the owner of a sole proprietorship or are formally a member of the partnership or corporation.

Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, and financing the farm business. This is not a measure of cash available from the year's business operation. Cash flow is evaluated later in this report.

Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

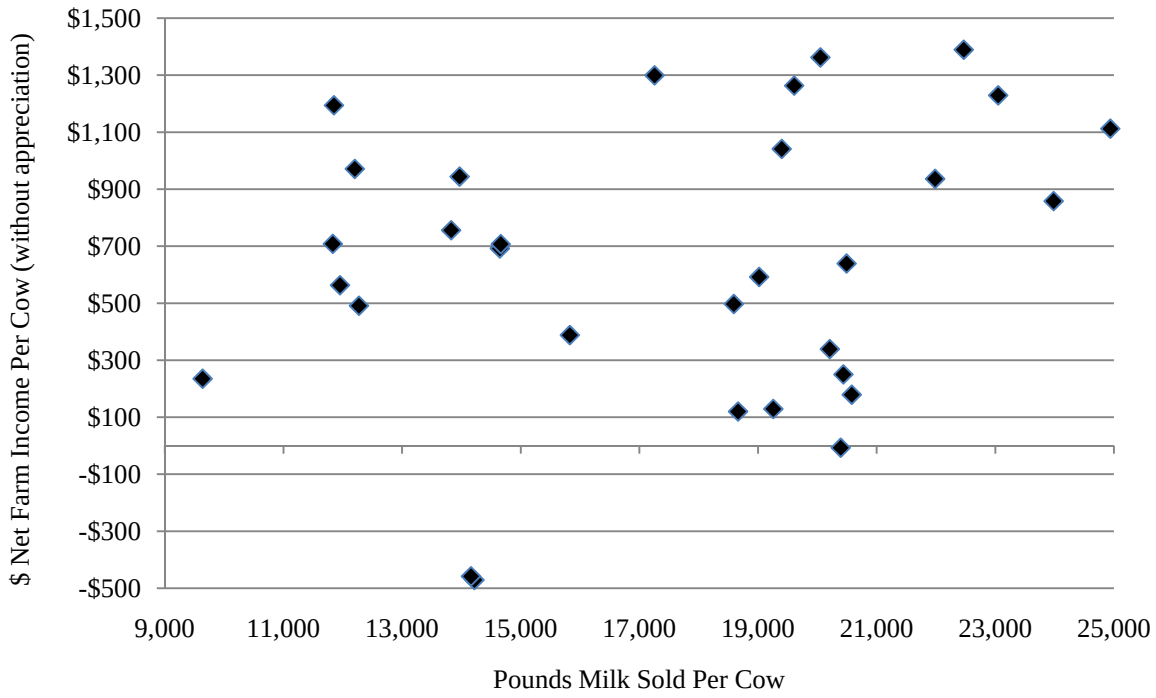
NET FARM INCOME
Intensive Grazing and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[10]	Average Non-Grazing Farms[10]
Total accrual receipts	$ 500,999	$ 598,753
Appreciation: Livestock	-13,763	-7,005
Machinery	8,337	7,549
Real Estate	10,976	8,068
Other Stock & Certificates	-5,647	1,072
Total Including Appreciation	$ 500,900	$ 608,437
Total accrual expenses	- 428,763	- 539,689
Net Farm Income (with appreciation)	$ 72,137	$ 68,748
Net Farm Income Per Cow (with appreciation)	$ 567	$ 537
Net Farm Income (without appreciation)	$ 72,236	$ 59,064
Net Farm Income Per Cow (without appreciation)	$ 568	$ 461

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

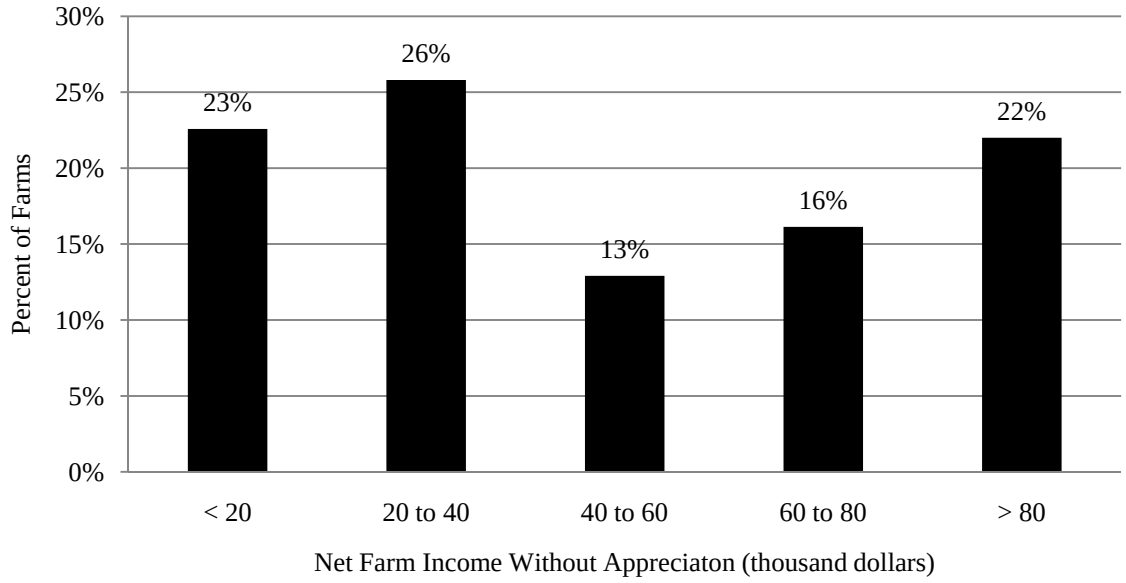
The chart below shows the relationship between net farm income per cow (without appreciation) and pounds of milk sold per cow. Higher new farm incomes can be achieved across a range of production levels as a result of different management systems, such as grazing, being utilized by the participating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

NET FARM INCOME PER COW AND MILK PER COW
31 Intensive Grazing Dairy Farms, 2008



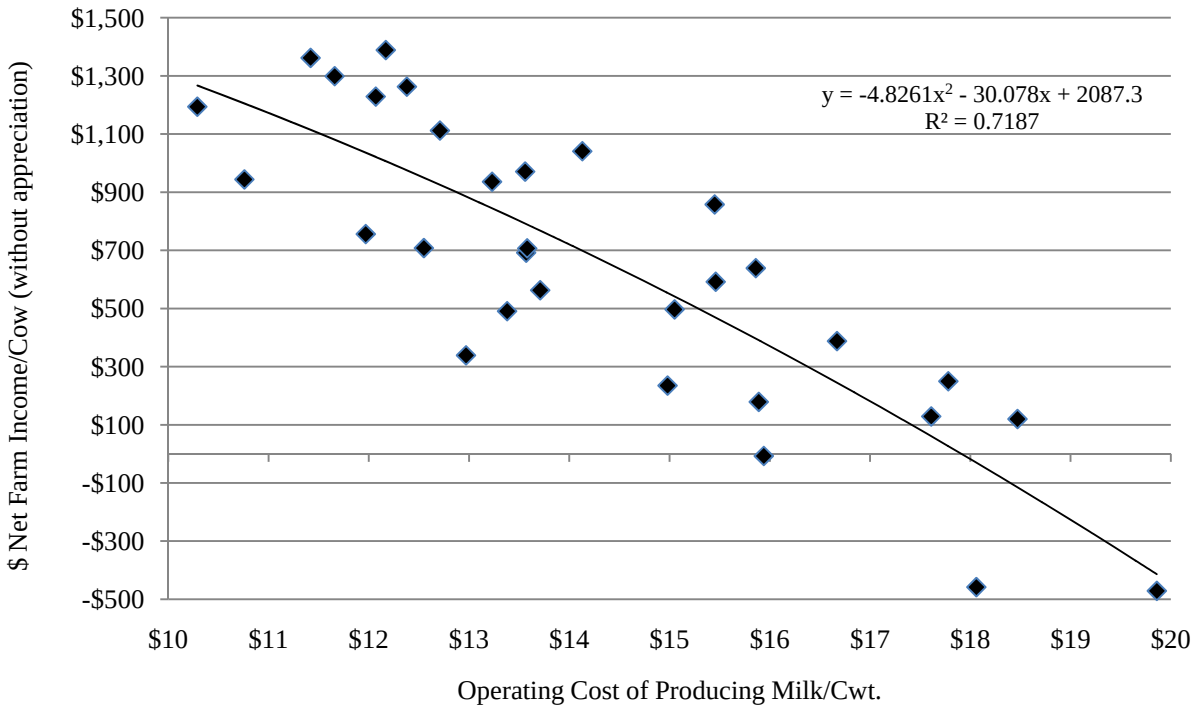
Net farm income without appreciation averaged $72,236 on these 31 farms in 2008. The range in net farm income without appreciation was from less than $-70,000 to more than $601,000. Net farm income was less than $40,000 on 49 percent of the farms, between $40,000 and $80,000 on 29 percent of the farms, while 22 percent had net farm incomes of $80,000 or more.

DISTRIBUTION OF NET FARM INCOME WITHOUT APPRECIATION
31 Intensive Grazing Dairy Farms, 2008



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.
31 Intensive Grazing Dairy Farms, 2008



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.

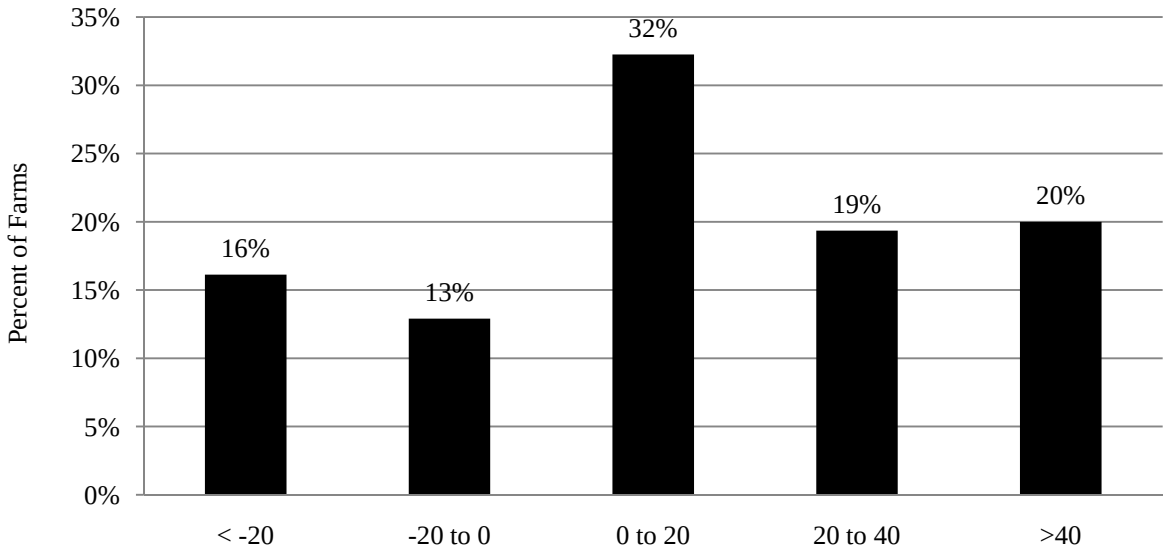
LABOR AND MANAGEMENT INCOME
Intensive Grazing and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[11]	Average Non-Grazing Farms[11]
Net farm income without appreciation	$ 72,236	$ 59,064
Family labor unpaid @ $2,500 per month	- 7,911	- 6,491
Interest on average equity capital @ 5% real rate	- 37,613	- 47,947
Labor & Management Income per Farm	$ 26,711	$ 4,626
Labor & Management Income per Operator/Manager	$ 19,786	$ 3,147
Labor & Management Income per Operator per Cow	$ 156	$ 25

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

Labor and management income per operator averaged $72,236 on these 31 farms in 2008. The range in labor and management income per operator was from less than $-85,600 to more than $218,000. Returns to labor and management were less than $0 on 29 percent of the farms. Labor and management incomes per operator were between $0 and $20,000 on 32 percent of the farms while 39 percent showed labor and management incomes of $20,000 or more per operator.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
31 Intensive Grazing Dairy Farms, 2008



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, 71 percent of the farms had returns that were over zero, while for 206 farms across the State, 61 percent had returns greater than zero in 2008.

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 and Non-Grazing Dairy Farms, 2008

Item		31 Grazing Dairy Farms[12]		Average Non-Grazing Farms[12]
Net farm income with appreciation	$	72,137	$	68,748
Family labor unpaid @ $2,500 per month	-	7,911	-	6,491
Value of operators' labor & management	-	47,495	-	51,991
Return on equity capital with appreciation	$	16,731	$	10,266
Interest paid	+	13,169	+	15,293
Return on total capital with appreciation	$	29,900	$	25,559
Return on equity capital without appreciation	$	16,830	$	582
Return on total capital without appreciation	$	29,999	$	15,875
Rate of return on average equity capital:				
with appreciation		2.2%		1.1%
without appreciation		2.2%		0.1%
Rate of return on average total capital:				
with appreciation		2.9%		2.0%
without appreciation		2.9%		1.2%
Net farm income from operations ratio		0.14		0.10

[12]See page 1 for a description of these groups of farms.

Farm and Family Financial Status

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

Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business. For 2008, lease payments were discounted by 8.15 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2008 that are for participation in the 2009 program are the end year balance and payments received in 2007 for participation in the 2008 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.

2008 FARM BUSINESS & NONFARM BALANCE SHEET

31 Intensive Grazing Dairy Farms, 2008

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current			Current		
Farm cash, checking & savings	$ 12,352	$ 9,020	Accounts payable	$ 11,827	$ 20,410
Accounts receivable	34,809	29,957	Operating debt	24,750	15,668
Prepaid expenses	1,348	499	Short Term	606	847
Feed & supplies	79,338	84,118	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	10,949	28,447
			Long Term	5,393	8,104
Total Current	$ 127,847	$ 123,594	Total Current	$ 53,526	$ 73,477
Intermediate			Intermediate		
Dairy cows:			Structured debt		
owned	$ 174,006	$ 172,921	1-10 years	$ 79,120	$ 90,610
leased	0	0	Financial lease		
Heifers	102,866	103,503	(cattle/machinery)	547	385
Bulls & other livestock	4,494	9,908	Farm Credit stock	892	812
Mach. & equip. owned	179,994	201,680	Total Intermediate	$ 80,560	$ 91,807
Mach. & equip. leased	547	385			
Farm Credit stock	892	812			
Other stock/certificate	19,564	14,214			
Total Intermediate	$ 482,365	$ 503,422			
			Long Term		
Long Term			Structured debt		
Land & buildings:			>10 years	$ 148,079	$ 145,717
owned	$ 411,404	$ 449,067	Financial lease		
leased	0	0	(structures)	0	0
Total Long Term	$ 411,404	$ 449,067	Total Long Term	$ 148,079	$ 145,717
			Total Farm Liab.	$ 282,165	$ 311,001
Total Farm Assets	$1,021,616	$1,076,083	FARM NET WORTH	$ 739,451	$ 765,083

Nonfarm Assets, Liabilities & Net Worth (Average of 11 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	$ 31,850	$ 21,707	Nonfarm Liabilities	$ 323	$ 2,045
Cash value life insurance	12,864	16,311			
Nonfarm real estate	17,727	17,727			
Auto (personal share)	9,382	10,836			
Stocks & bonds	63,845	44,459			
Household furnishings	14,091	13,636			
All other nonfarm assets	1,273	545			
Total Nonfarm Assets	$ 151,031	$ 125,222	NONFARM NET WORTH	$ 150,709	$ 123,177

Farm & Nonfarm Assets, Liabilities, and Net Worth[13]	Jan. 1	Dec. 31
Total Assets	$1,172,647	$1,201,305
Total Liabilities	282,488	313,046
TOTAL FARM & NONFARM NET WORTH	$ 890,159	$ 888,259

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

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

BALANCE SHEET ANALYSIS

Intensive Grazing and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[14]	Average Non-Grazing Farms[14]
Financial Ratios - Farm:		
Percent equity	71%	74%
Debt/asset ratio: total	0.29	0.26
long-term	0.32	0.25
intermediate/current	0.26	0.28
Leverage Ratio	0.41	0.36
Current Ratio	1.68	1.98
Working Capital: $50,117; As % of Expenses	12%	($87,213) 16%
Farm Debt Analysis:		
Accounts payable as % of total debt	7%	7%
Long-term liabilities as a % of total debt	47%	40%
Current & inter. liabilities as a % of total debt	53%	60%
Cost of term debt (weighted average)	4.6%	5.9%

	31 Grazing Dairy Farms[14]		Average Non-Grazing Farms[14]	
Farm Debt Levels:	Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt	$ 2,531	$ 1,980	$ 2,679	$ 2,189
Long-term debt	1,186	928	1,058	865
Intermediate & long term	1,933	1,512	1,996	1,631
Intermediate & current debt	1,345	1,052	1,620	1,324

[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

31 Intensive Grazing Dairy Farms, 2008

Item	Real Estate	Machinery & Equipment
Value beginning of year	$ 411,404	$ 179,994
Purchases	$ 51,383[15]	$ 37,507
Gift & inheritance	+ 0	+ 0
Lost capital	- 12,243	
Sales	- 0	- 515
Depreciation	- 12,452	- 23,644
Net investment	= 26,688	= 13,349
Appreciation	+ 10,976	+ 8,337
Value end of year	$ 449,067	$ 201,680

[15] $22,195 land and $29,187 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 and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[16]		Average Non-Grazing Farms[16]	
Beginning of year farm net worth		$ 739,451		$ 950,917
Net farm income w/o appreciation	$ 72,236		$ 59,064	
+Nonfarm cash income	+ 4,934		+ 6,814	
-Personal withdrawals & family expenditures excluding nonfarm borrowings	- 45,935		- 53,909	
RETAINED EARNINGS		+$ 31,234		+$ 11,968
Nonfarm noncash transfers to farm	$ 0		$ 0	
+Cash used in business from nonfarm capital	+ 5,850		+ 7,427	
-Note or mortgage from farm real estate sold (nonfarm)	- 0		- 0	
CONTRIBUTED/ WITHDRAWN CAPITAL		+$ 5,850		+$ 7,427
Appreciation	$ -99		$ 9,684	
-Lost capital	- 12,243		- 14,761	
CHANGE IN VALUATION EQUITY		+$ -12,342		+$ -5,077
IMBALANCE/ERROR		- -889		- -1,742
End of year net worth[17]		=$765,083		=$ 966,978
Change in Net Worth				
Without appreciation	$ 25,730		$ 6,377	
With appreciation	$ 25,632		$ 16,061	

[16]See page 1 for a description of these groups of farms.
[17]May not add due to rounding.

Cash Flow Statement

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities and from reserves. All cash inflows and outflows, including beginning and end balances, are included. Therefore, the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows. You should be aware that all profitability measures may be affected by this error.

ANNUAL CASH FLOW STATEMENT
31 Intensive Grazing Dairy Farms, 2008

Item			Average	
Cash Flow from Operating Activities				
Cash farm receipts		$ 470,378		
- Cash farm expenses		367,636		
- Extraordinary expense		372		
= Net cash farm income			$ 102,370	
Personal withdrawals & family expenses				
including nonfarm debt payments		$ 47,773		
- Nonfarm income		4,934		
- Net cash withdrawals from the farm			$ 42,839	
= Net Provided by Operating Activities				$ 59,531
Cash Flow From Investing Activities				
Sale of assets:	machinery	$ 515		
	+ real estate	0		
	+ other stock & cert.	971		
= Total asset sales			$ 1,485	
Capital purchases:	expansion livestock	$ 3,264		
	+ machinery	37,507		
	+ real estate	51,383		
	+ other stock& cert.	1,267		
- Total invested in farm assets			$ 93,421	
= Net Provided by Investment Activities				$ -91,936
Cash Flow From Financing Activities				
Money borrowed (intermediate & long term)		$ 60,478		
+ Money borrowed (short term)		1,485		
+ Increase in operating debt		0		
+ Cash from nonfarm capital used in business		5,850		
+ Money borrowed - nonfarm		1,838		
= Cash inflow from financing			$ 69,651	
Principal payments (intermediate & long term)		$ 31,141		
+ Principal payments (short term)		1,244		
+ Decrease in operating debt		9,082		
- Cash outflow for financing			$ 41,467	
= Net Provided by Financing Activities				$ 28,184
Cash Flow From Reserves				
Beginning farm cash, checking & savings			$ 12,352	
- Ending farm cash, checking & savings			9,020	
= Net Provided from Reserves				$ 3,332
Imbalance (error)				$ -889

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 2009. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2009 debt payments shown below.

FARM DEBT PAYMENTS PLANNED

Same Intensive Grazing and Non-Grazing Dairy Farms, 2007 & 2008

	Same 30 Grazing Dairy Farms			Same 88 Non-Grazing Dairy Farms		
	2008 Payments		Planned	2008 Payments		Planned
Debt Payments	Planned	Made	2009	Planned	Made	2009
Long term	$ 17,736	$ 16,026	$ 15,066	$ 19,102	$ 17,862	$ 20,578
Intermediate term	22,177	25,651	33,577	33,900	42,460	38,104
Short term	377	1,357	330	2,043	4,840	3,400
Operating (net reduction)	5,933	14,351	167	2,682	3,682	595
Accounts payable (net reduction)	110	480	111	188	256	0
Total	$ 46,333	$ 57,864	$ 49,251	$ 57,916	$ 69,100	$ 62,677
Per cow	$ 360	$ 450		$ 440	$ 525	
Per cwt. 2008 milk	$ 2.18	$ 2.72		$ 2.08	$ 2.49	
Percent of total 2008 farm receipts	10%	11%		10%	11%	
Percent of 2008 milk receipts	11%	14%		11%	13%	

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 2008 (as of December 31, 2007) that could have been made with the amount available for debt service in 2008. Farmers who did not participate in DFBS in 2007 have their 2008 coverage ratios based on planned debt payments for 2009.

COVERAGE RATIOS

Same Intensive Grazing and Non-Grazing Dairy Farms, 2007 & 2008

Item	Average	Item	Average
Same 30 Grazing Dairy Farms, 2007 & 2008			
(A)=Amount Available for Debt Service	$ 75,314	(A')=Repayment Capacity	$ 83,336
(B)=Debt Payments Planned for 2008	$ 46,333	(B)=Debt Payments Planned for 2008	$ 46,333
(A/B)=Cash Flow Coverage Ratio for 2008	1.63	(A'/B)=Debt Coverage Ratio for 2008	1.80
Same 88 Farms Non-Grazing Dairy Farms, 2007 & 2008			
(A)=Amount Available for Debt Service	$ 68,071	(A')=Repayment Capacity	$ 63,434
(B)=Debt Payments Planned for 2008	$ 57,916	(B)=Debt Payments Planned for 2008	$ 57,916
(A/B)=Cash Flow Coverage Ratio for 2008	1.18	(A'/B)=Debt Coverage Ratio for 2008	1.10

ANNUAL CASH FLOW WORKSHEET

Intensive Grazing and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms Per Cow	31 Grazing Dairy Farms Per Cwt.	Average Non-Grazing Farms Per Cow	Average Non-Grazing Farms Per Cwt.
Average no. of cows	127		128	
Total cwt. of milk sold		21,111		27,072
Accrual Operating Receipts				
Milk	$3,316	$19.99	$4,074	$19.28
Dairy cattle	311	1.88	225	1.06
Dairy calves	25	0.15	31	0.15
Other livestock	56	0.34	14	0.07
Crops	138	0.83	206	0.98
Misc. Receipts	92	0.55	125	0.59
Total	$3,938	$23.73	$4,674	$22.12
Accrual Operating Expenses				
Hired labor	$ 306	$ 1.84	$ 434	$ 2.05
Dairy grain & concentrate	993	5.99	1,265	5.98
Dairy roughage	130	0.78	90	0.42
Nondairy feed	2	0.01	0	0.00
Professional nutritional services	0	0.00	1	0.01
Mach. hire, rent & lease	162	0.98	119	0.56
Mach. repair & vehicle expense	153	0.92	225	1.06
Fuel, oil & grease	163	0.98	218	1.03
Replacement livestock	8	0.05	22	0.10
Breeding	37	0.22	58	0.27
Vet & medicine	88	0.53	124	0.59
Milk marketing	180	1.09	208	0.98
Bedding	28	0.17	68	0.32
Milking supplies	63	0.38	89	0.42
Cattle lease	0	0.00	3	0.02
Custom boarding	7	0.04	53	0.25
bST expense	3	0.02	34	0.16
Livestock professional fees	13	0.08	12	0.06
Other livestock expense	25	0.15	43	0.20
Fertilizer & lime	165	0.99	144	0.68
Seeds & plants	36	0.22	69	0.33
Spray & other crop expense	23	0.14	55	0.26
Crop professional fees	3	0.02	6	0.03
Land, bldg., fence repair	72	0.43	65	0.31
Taxes	62	0.37	66	0.31
Real estate rent & lease	47	0.28	66	0.31
Insurance	50	0.30	48	0.23
Utilities	91	0.55	120	0.57
Miscellaneous	44	0.27	50	0.24
Total Less Interest Paid	$2,955	$17.81	$3,756	$17.77
Net Accrual Operating Income	Total		Total	
(without interest paid)	$125,077		$117,593	
- Change in livestock & crop invent.[18]	35,472		30,346	
- Change in accounts receivable	-4,852		-10,429	
- Change in feed & supply inventory[19]	-12,873		-3,995	
+ Change in accounts payable[20]	8,325		13,113	
NET CASH FLOW	$115,654		$114,784	
- Net family withdrawals	40,253		45,722	
Available for Farm	$ 75,400		$ 69,061	
- Farm debt payments	58,446		67,886	
Available for Farm Investment	$ 16,954		$ 1,175	
- Capital purchases	93,421		100,430	
Additional Capital Needed	$ 76,467		$ 99,255	

[18]Includes change in advance government receipts. [19]Includes change in prepaid expenses. [20]Excludes change in interest account payable.

Cropping Analysis

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

LAND RESOURCES AND CROP PRODUCTION
Intensive Grazing and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[22]			Average Non-Grazing Farms[22]		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	157	159	316	159	190	349
Nontillable	40	22	62	39	20	59
Other nontill.	113	8	121	78	10	88
Total	310	189	499	276	220	496
Crop Yields	Farms	Acres[21]	Prod/Acre	Farms	Acres[21]	Prod/Acre
Hay crop	31	176	2.3 tn DM	96	210	2.7 tn DM
Corn silage	22	67	16.9 tn	91	99	18.3 tn
			5.7 tn DM			6.2 tn DM
Other forage	0	0	0.0 tn DM	9	26	1.6 tn DM
Total forage	31	224	3.0 tn DM	96	307	3.8 tn DM
Corn grain	4	51	117 bu	41	93	140 bu
Oats	3	14	68 bu	7	28	58 bu
Wheat	0	0	0 bu	5	43	71 bu
Other crops	6	52		22	63	
Tillable pasture	18	127		9	25	
Idle	4	32		11	102	
Total Tillable Acres	31	316		104	349	

[21]This column represents the average acreage for the farms producing that crop. For the 31 intensive grazing dairy farms, average acreages including those farms not producing were hay crop 176, corn silage 47, corn grain 7, oats 1, wheat 0, tillable pasture 74, and idle 4.

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 and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[22]	Average Non-Grazing Farms[22]
Total tillable acres per cow	2.49	2.87
Total forage acres per cow	1.76	2.37
Harvested forage dry matter, tons per cow	5.35	9.04

[22]See page 1 for a description of these groups of farms.

Cropping Analysis (continued)

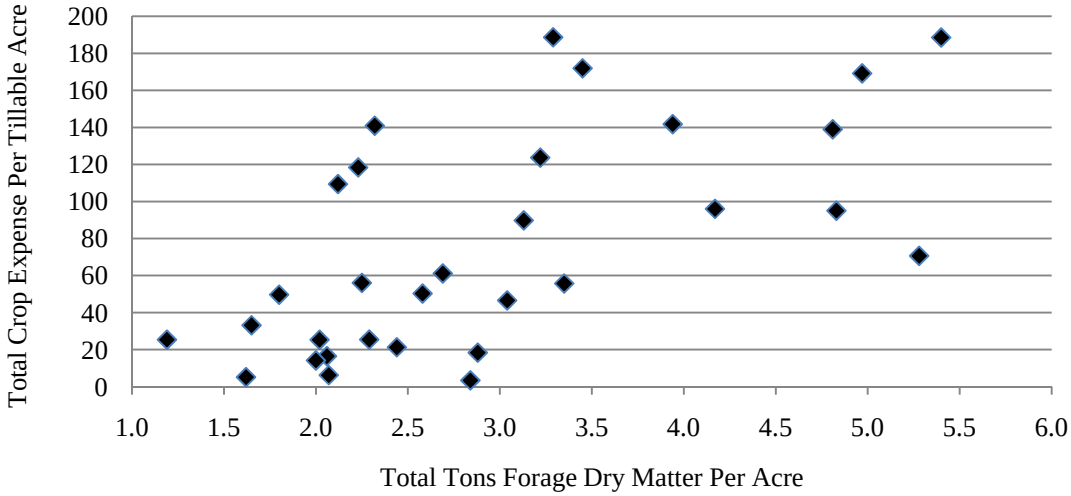
Crop input costs per tillable acre are reported in the table below. The chart below shows the relationship between total forage dry matter per acre and total crop input costs.

CROP RELATED ACCRUAL EXPENSES
Intensive Grazing and Non-Grazing Dairy Farms That Grow Forages, 2008

Item	31 Grazing Dairy Farms[23]	Average Non-Grazing Farms[23]
	Total Per Tillable Acre	
Number of farms reporting	31	96
Average number of acres	317	373
Fertilizer & lime expense	$ 51.65	$ 45.89
Seeds & plants	15.16	22.47
Spray & other crop expenses	9.22	19.84
TOTAL	$ 76.03	$ 88.20

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

CROP EXPENSE PER ACRE AND TOTAL FORAGE PRODUCTION PER ACRE
31 Intensive Grazing Dairy Farms, 2008



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 and Non-Grazing Dairy Farms That Grow Forages, 2008

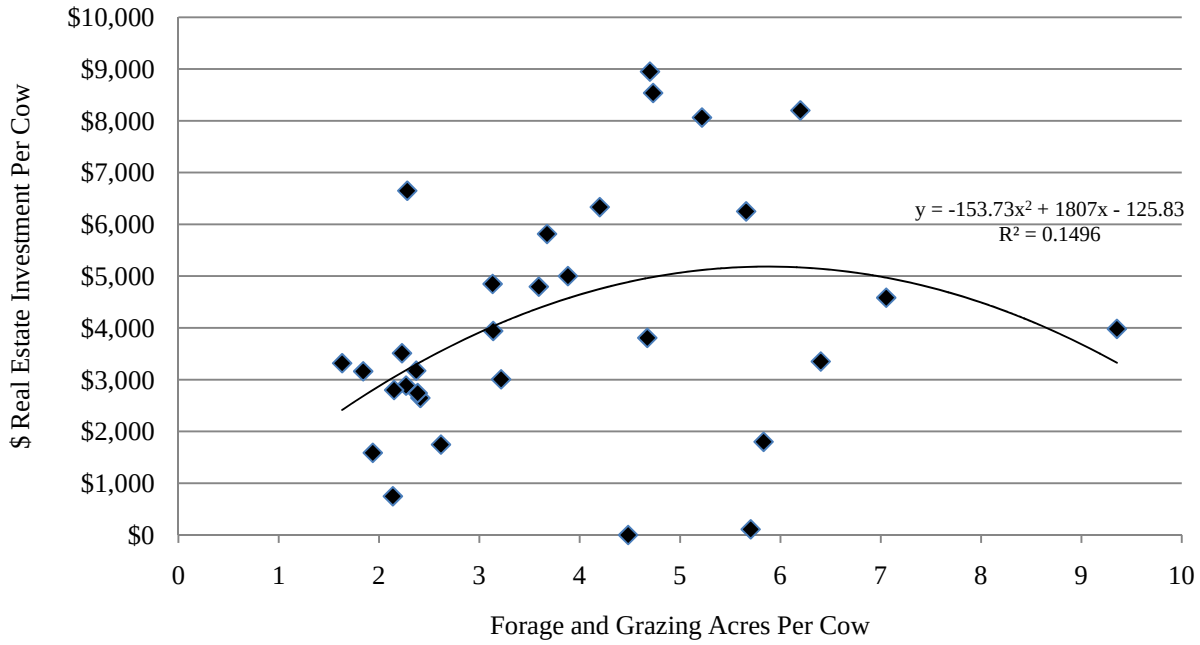
Machinery Expense	31 Grazing Dairy Farms[24] Total Expenses	31 Grazing Dairy Farms[24] Per Tillable Acre	Average Non-Grazing Farms[24] Total Expenses	Average Non-Grazing Farms[24] Per Tillable Acre
Fuel, oil & grease	$ 20,754	$ 65.56	$ 29,291	$ 78.50
Mach. repair & vehicle exp.	19,411	61.32	30,133	80.76
Machine hire, rent & lease	20,598	65.07	15,415	41.31
Interest (5%)	9,565	30.22	12,707	34.06
Depreciation	23,644	74.69	25,401	68.08
Total	$ 93,972	$296.86	$112,947	$302.71

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

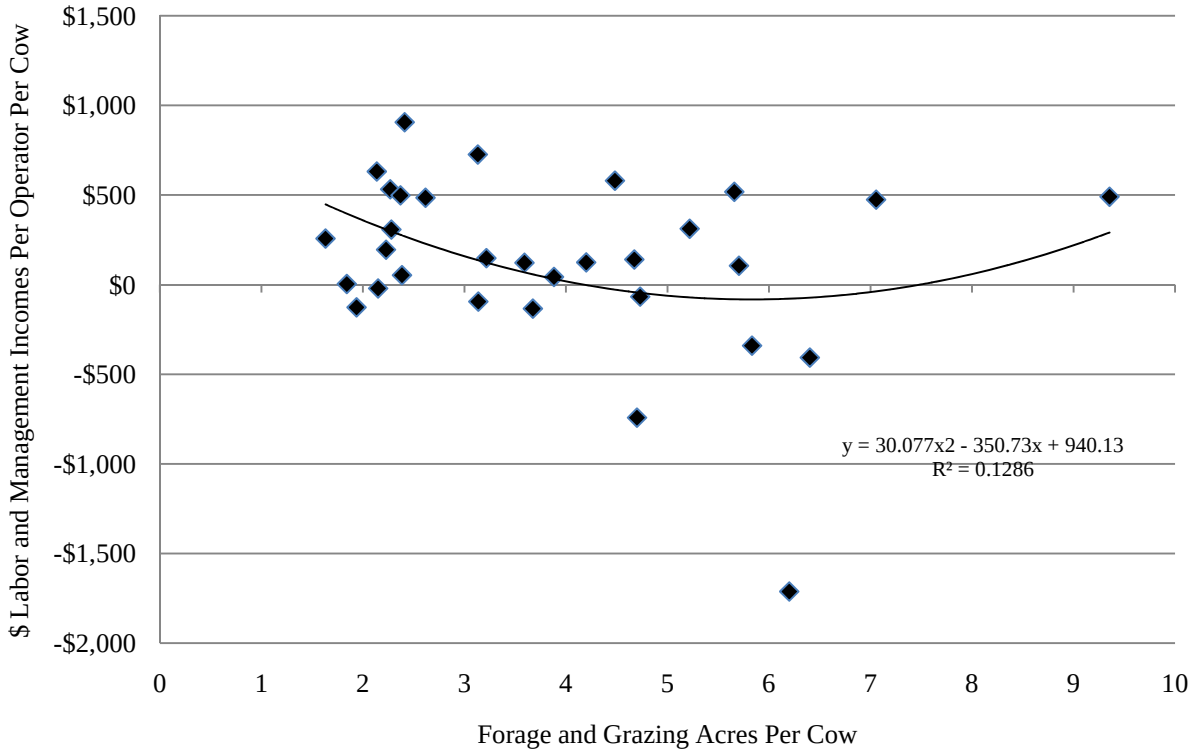
Cropping Analysis (continued)

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
31 Intensive Grazing Farms, 2008



LABOR AND MANAGEMENT INCOMES/OPERATOR/COW & FORAGE AND GRAZING ACRES/COW
31 Intensive Grazing Dairy Farms, 2008



Dairy Analysis

Analysis of the dairy enterprise can reveal strengths and weaknesses of the dairy farm business. Information on this page should be used in conjunction with DHI and other dairy production information. Changes in dairy herd size and market values that occur during the year are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. Any change in inventory is included as an accrual farm receipt when calculating all of the profitability measures on pages 19 through 22.

DAIRY HERD INVENTORY

Intensive Grazing and Non-Grazing Dairy Farms, 2008

	Dairy Cows		Bred Heifers		Open Heifers		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
31 Grazing Dairy Farms[25]								
Beg. year (owned)	118	$ 174,006	37	$ 53,798	33	$ 29,142	26	$ 19,926
+ Change w/o apprec.		7,947		2,660		2,161		434
+ Appreciation		-9,032		-2,211		-1,464		-942
End year (owned)	123	$ 172,921	39	$ 54,247	36	$ 29,839	27	$ 19,418
End including leased	123							
Average number	127		97	(all age groups)				
Average Non-Grazing Farms[25]								
Beg. year (owned)	125	$ 193,727	35	$ 54,504	37	$ 37,538	30	$ 18,477
+ Change w/o apprec.		4,581		1,939		2,059		1,060
+ Appreciation		-3,438		-1,084		-1,420		-1,054
End year (owned)	129	$ 194,871	37	$ 55,359	40	$ 38,177	32	$ 18,484
End including leased	130							
Average number	128		105	(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 and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[26]	Average Non-Grazing Farms[26]
Total milk sold, pounds	2,111,138	2,707,218
Milk sold per cow, pounds	16,593	21,134
Average milk plant test, percent butterfat	3.93%	3.76%

[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 and Non-Grazing Dairy Farms, 2008

	31 Grazing Dairy Farms		Average Non-Grazing Farms	
Item	Number	Percent[27]	Number	Percent[27]
Cows sold for beef	22	17.4	32	25.2
Cows sold for dairy	9	6.9	2	1.2
Cows died	6	4.9	8	6.5
Culling rate[28]		22.0		32.0

[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 and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[29]		Average Non-Grazing Farms[29]	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Accrual Cost of Producing Milk				
Operating costs	$ 2,462	$ 14.84	$ 3,327	$ 15.74
Purchased inputs costs	$ 2,748	$ 16.56	$ 3,613	$ 17.09
Total Costs	$ 3,480	$ 20.97	$ 4,443	$ 21.03
Accrual Receipts From Milk	$ 3,316	$ 19.99	$ 4,074	$ 19.28
Net milk receipts	$ 3,213	$ 18.90	$ 3,697	$ 18.29
Net Farm Income without Appreciation	$ 568	$ 3.42	$ 461	$ 2.18
Net Farm Income with Appreciation	$ 567	$ 3.42	$ 537	$ 2.54

[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 and Non-Grazing Dairy Farms, 2008

Item	31 Grazing Dairy Farms[29]		Average Non-Grazing Farms[29]	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	$ 993	$ 5.99	$ 1,265	$ 5.98
Purchased dairy roughage	130	0.78	90	0.42
Total Purchased Dairy Feed	$ 1,123	$ 6.77	$ 1,355	$ 6.41
Purchased grain & concentrate as % of milk receipts	31%		32%	
Purchased feed & crop expense	$ 1,350	$ 8.14	$ 1,629	$ 7.71
Purchased feed & crop expense as % of milk receipts	39%		41%	
Breeding	$ 37	$ 0.22	$ 58	$ 0.27
Veterinary & medicine	88	0.53	124	0.59
Milk marketing	180	1.09	208	0.98
Bedding	28	0.17	68	0.32
Milking supplies	63	0.38	89	0.42
Cattle lease	0	0.00	3	0.02
Custom boarding	7	0.04	53	0.25
bST expense	3	0.02	35	0.16
Livestock professional fees	13	0.08	12	0.06
Other livestock expense	25	0.15	43	0.20

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 and Non-Grazing Dairy Farms, 2008

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
31 Grazing Dairy Farms[30]				
Farm capital	$ 360,429	$ 8,244	$ 3,313	$ 6,676
Real estate		3,382		2,739
Machinery & equipment	65,740	1,504	604	
Ratios:				
Asset Turnover Ratio	Operating Expense	Interest Expense		Depreciation Expense
0.48	0.76	0.03		0.07
Average Non-Grazing Farms[30]				
Farm capital	$ 331,372	$ 10,037	$ 3,683	$ 8,077
Real estate		4,209		3,387
Machinery & equipment	61,897	1,875	688	
Ratios:				
Asset Turnover Ratio	Operating Expense	Interest Expense		Depreciation Expense
0.47	0.81	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 and Non-Grazing Dairy Farms, 2008

Labor Force	Months	Age	Years of Education	Value of Labor & Management
31 Grazing Dairy Farms				
Operator number 1	12.9	49	14	$ 33,301
Operator number 2	4.6	51	13	14,194
Family paid	1.5			
Family unpaid	3.2			
Hired	12.7			
Total	34.9	/ 12 = 2.91 Worker Equivalent		
		1.35 Operator/Manager Equivalent		
Average Non-Grazing Farms				
Total Labor Force	46.6	/ 12 = 3.88 Worker Equivalent		
Operator's Labor		1.47 Operator/Manager Equivalent		

Labor Efficiency	31 Grazing Dairy Farms Total	31 Grazing Dairy Farms Per Worker	Average Non-Grazing Farms Total	Average Non-Grazing Farms Per Worker
Cows, average number	127	44	128	33
Milk sold, pounds	2,111,138	726,309	2,707,218	697,287
Tillable acres	317	109	349	90

Labor Costs	31 Grazing Dairy Farms Per Cow	31 Grazing Dairy Farms Per Cwt.	Average Non-Grazing Farms Per Cow	Average Non-Grazing Farms Per Cwt.
Value of operator(s) labor ($2,500/month)	$ 343	$ 2.07	$ 401	$ 1.90
Family unpaid ($2,500/month)	62	0.37	51	0.24
Hired	306	1.84	434	2.05
Total Labor	$ 711	$ 4.28	$ 886	$ 4.19
Machinery Cost	$ 739	$ 4.45	$ 844	$ 4.00
Total Labor & Machinery	$ 1,449	$ 8.74	$ 1,730	$ 8.19
Hired labor expense per hired worker equivalent	$32,729		$28,504	
Hired labor expense as % of milk sales	9.2%		10.7%	

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

Intensive Grazing and Non-Grazing Dairy Farms, 2007 & 2008[31]

	Same 30 Grazing Dairy Farms		Same 88 Non-Grazing Dairy Farms	
Selected Factors	2007	2008	2007	2008
Size of Business				
Average number of cows	121	129	127	132
Average number of heifers	95	98	103	107
Milk sold, pounds	2,021,861	2,128,002	2,605,085	2,779,065
Worker equivalent	2.89	2.94	3.73	3.94
Total tillable acres	299	318	345	356
Rates of Production				
Milk sold per cow, pounds	16,650	16,547	20,476	21,106
Hay DM per acre, tons	1.9	2.3	2.6	2.8
Corn silage per acre, tons	17.6	16.9	18.0	18.7
Labor Efficiency				
Cows per worker	42	44	34	33
Milk sold/worker, pounds	699,606	723,810	698,414	705,347
Cost Control and Milk Price				
Grain & concentrate purchased as % of milk sales	23%	30%	25%	31%
Dairy feed & crop expense per cwt. milk	$ 6.62	$ 8.19	$ 6.38	$ 7.74
Labor & machinery costs/cow	$ 1,351	$ 1,454	$ 1,615	$ 1,726
Operating cost of producing cwt. of milk	$ 13.43	$ 14.74	$ 14.15	$ 15.82
Milk receipts per cwt.	$ 21.21	$ 19.96	$ 20.39	$ 19.33
Capital Efficiency[32]				
Farm capital per cow	$ 7,846	$ 8,169	$ 9,358	$ 9,824
Machinery & equipment per cow	$ 1,391	$ 1,499	$ 1,752	$ 1,841
Asset turnover ratio	0.56	0.48	0.54	0.49
Profitability				
Net farm income without appreciation	$ 127,469	$ 74,300	$ 128,518	$ 60,555
Net farm income with appreciation	$ 173,058	$ 73,776	$ 171,650	$ 70,255
Labor & management income per operator/manager	$ 63,865	$ 20,578	$ 54,085	$ 4,193
Rate of return on equity capital with appreciation	17.2%	2.3%	13.2%	1.3%
Rate of return on all capital with appreciation	14.3%	2.9%	11.3%	2.1%
Financial Summary				
Farm net worth, end year	$ 755,559	$ 779,684	$ 943,568	$ 963,139
Debt to asset ratio	0.26	0.28	0.25	0.27
Farm debt per cow	$ 2,248	$ 2,418	$ 2,385	$ 2,713

[31]Farms participating both years.
[32]Average for the year.

RECEIPTS AND EXPENSES PER COW AND PER CWT.

Same 30 Intensive Grazing Dairy Farms, 2007 & 2008

	2007		2008	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	121		129	
Cwt. Of Milk Sold		20,219		21,280
ACCRUAL OPERATING RECEIPTS				
Milk	$3,532	$21.21	$3,303	$19.96
Dairy cattle	237	1.42	329	1.99
Dairy calves	60	0.36	26	0.16
Other livestock	19	0.11	55	0.33
Crops	52	0.31	145	0.88
Miscellaneous receipts	133	0.80	91	0.55
Total Receipts	$4,032	$24.22	$3,951	$23.87
ACCRUAL OPERATING EXPENSES				
Hired labor	$ 273	$ 1.64	$ 311	$ 1.88
Dairy grain & concentrate	809	4.86	991	5.99
Dairy roughage	98	0.59	133	0.80
Nondairy feed	0	0.00	2	0.01
Professional nutritional services	2	0.01	0	0.00
Machine hire/rent/lease	151	0.91	164	0.99
Machinery repair & vehicle expense	158	0.95	151	0.91
Fuel, oil & grease	118	0.71	164	0.99
Replacement livestock	10	0.06	7	0.04
Breeding	40	0.24	37	0.22
Veterinary & medicine	83	0.50	89	0.54
Milk marketing	158	0.95	175	1.06
Bedding	26	0.15	29	0.17
Milking supplies	71	0.42	62	0.38
Cattle lease	0	0.00	0	0.00
Custom boarding	5	0.03	8	0.05
bST expense	4	0.02	3	0.02
Livestock professional fees	13	0.08	13	0.08
Other livestock expense	26	0.16	24	0.14
Fertilizer & lime	139	0.83	168	1.02
Seeds & plants	36	0.22	36	0.22
Spray/other crop expense	19	0.11	23	0.14
Crop professional fees	1	0.01	3	0.02
Land, building, fence repair	69	0.41	73	0.44
Taxes	69	0.41	63	0.38
Real estate rent/lease	55	0.33	48	0.29
Insurance	46	0.28	49	0.30
Utilities	76	0.46	90	0.54
Interest paid	132	0.79	100	0.61
Other professional fees	17	0.10	13	0.08
Miscellaneous	32	0.19	32	0.19
Total Operating Expenses	$2,735	$16.43	$3,061	$18.50
Expansion Livestock	1	0.00	26	0.16
Extraordinary Expense	5	0.03	3	0.02
Machinery Depreciation	173	1.04	186	1.12
Real Estate Depreciation	69	0.42	97	0.59
Total Expenses	$2,983	$17.92	$3,373	$20.39
Net Farm Income Without Appreciation	$1,050	$ 6.30	$ 578	$ 3.49

RECEIPTS AND EXPENSES PER COW AND PER CWT.

Same 88 Non-Grazing Dairy Farms, 2007 & 2008

	2007		2008	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	127		132	
Cwt. Of Milk Sold		26,051		27,791
ACCRUAL OPERATING RECEIPTS				
Milk	$4,175	$20.39	$4,080	$19.33
Dairy cattle	201	0.98	232	1.10
Dairy calves	35	0.17	32	0.15
Other livestock	11	0.06	11	0.05
Crops	123	0.60	218	1.03
Miscellaneous receipts	210	1.03	133	0.63
Total Receipts	$4,755	$23.22	$4,705	$22.29
ACCRUAL OPERATING EXPENSES				
Hired labor	$ 399	$ 1.95	$ 450	$ 2.13
Dairy grain & concentrate	1,026	5.01	1,263	5.99
Dairy roughage	57	0.28	93	0.44
Nondairy feed	2	0.01	0	0.00
Professional nutritional services	1	0.01	1	0.01
Machine hire/rent/lease	112	0.55	118	0.56
Machinery repair & vehicle expense	244	1.19	224	1.06
Fuel, oil & grease	166	0.81	219	1.04
Replacement livestock	15	0.08	23	0.11
Breeding	50	0.25	57	0.27
Veterinary & medicine	120	0.59	125	0.59
Milk marketing	185	0.90	207	0.98
Bedding	55	0.27	67	0.32
Milking supplies	82	0.40	89	0.42
Cattle lease	2	0.01	4	0.02
Custom boarding	42	0.21	60	0.29
bST expense	38	0.18	34	0.16
Livestock professional fees	17	0.08	11	0.05
Other livestock expense	32	0.16	42	0.20
Fertilizer & lime	107	0.52	145	0.69
Seeds & plants	59	0.29	69	0.33
Spray/other crop expense	52	0.25	57	0.27
Crop professional fees	5	0.02	7	0.03
Land, building, fence repair	61	0.30	65	0.31
Taxes	70	0.34	68	0.32
Real estate rent/lease	72	0.35	68	0.32
Insurance	55	0.27	50	0.24
Utilities	120	0.59	123	0.58
Interest paid	150	0.73	118	0.56
Other professional fees	19	0.09	20	0.10
Miscellaneous	24	0.12	31	0.15
Total Operating Expenses	$3,440	$16.80	$3,910	$18.52
Expansion Livestock	37	0.18	54	0.26
Extraordinary Expense	5	0.02	1	0.00
Machinery Depreciation	175	0.85	184	0.87
Real Estate Depreciation	88	0.43	97	0.46
Total Expenses	$3,745	$18.28	$4,246	$20.11
Net Farm Income Without Appreciation	$1,010	$ 4.93	$ 460	$ 2.18

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

31 Intensive Grazing Dairy Farms, 2008

Size of Business								Rates of Production		
Worker Equiv-alent	No. of Cows	No. of Heifers	Pounds Milk Sold	Hay Acres	All Pas-ture & Hay Acres	Nontillable Pasture & Tillable Acres	Stock-ing Rate	Pounds Milk Sold Per Cow	Tons Hay DM/ Acre	Tons Corn Silage Per Acre
(14)[33]	(12)	(12)	(12)	(11)	(11)	(11)	(11)	(12)	(11)	(11)
6.35	369	287	5,721,649	427	714	855	6.6	22,835	4.1	22
3.43	134	101	2,574,698	174	272	368	4.7	20,201	2.6	19
2.21	60	48	1,128,550	130	218	252	3.4	18,699	2.1	16
1.57	50	34	833,907	104	170	190	2.4	14,583	1.9	14
1.26	38	27	556,067	67	119	147	2.0	11,941	1.7	11

Labor Efficiency and Costs				Cost Control				
Cows Per Worker	Pounds Milk Sold Per Worker	Hired Labor Cost Per Worker	Hired Labor Cost as % of Milk Sales	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt.
(14)	(14)	(14)	(14)	(12)	(14)	(14)	(12)	(12)
65	1,042,812	$0	0%	22%	$471	$1,082	$783	$5.67
43	778,717	12,245	2	28	614	1,466	1,109	6.59
34	631,962	22,936	4	32	780	1,740	1,366	7.55
28	475,373	30,894	9	33	929	1,902	1,625	8.51
21	327,115	51,917	14	42	1,111	2,320	1,847	10.07

Value and Cost of Milk Production				Profitability			
Net Milk Receipts Per Cwt.	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	Labor & Mgmt. Income Per Oper. Per Cow
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(4)
$19.95	$4,489	$11.48	$18.31	$245,583	$235,847	$89,607	$627
18.89	3,951	12.87	20.43	61,761	70,998	29,349	388
18.43	3,624	13.92	21.50	39,445	42,962	10,775	139
18.03	2,806	15.61	23.40	26,610	29,443	1,170	-14
17.20	2,417	18.08	26.85	-592	-5,169	-33,991	-577

Profitability, continued			Capital Efficiency			Financial Summary		
Rate Return on Equity Capital Without Ap-preciation	Rate Return on All Capital Without Ap-preciation	Govern-ment Re-ceipts Per Cwt.	Farm Capital Per Cow	Machinery & Equip-ment Per Cow	Asset Turn-over Ratio	Debt to Asset Ratio	Farm Debt Per Cow	Change in Net Worth with Appreciation
(4)	(4)	(4)	(14)	(14)	(14)	(7)	(7)	(8)
11%	9%	$0.88	$6,258	$855	0.63	0.00	$26	$171,593
4	4	0.34	7,352	1,555	0.55	0.09	875	29,560
0	1	0.19	8,664	1,984	0.45	0.18	1,961	15,368
-3	0	0.13	11,376	2,605	0.39	0.31	2,717	-1,832
-11	-5	0.04	14,347	3,605	0.28	0.59	4,775	-70,507

[33]Page number of the participant's DFBS where the factor is located.

INCOME AND EXPENSE PROFILES

Use the following two tables to make an income and expense profile for your dairy farm business. The figures in the quintile columns represent the average of the top 20 percent to the bottom 20 percent for each receipt and expenditure category. Each line is computed independently. The farms that comprise the top 20 percent in milk sales do not necessarily make up the top 20 percent of any other category. On each line circle the income and cost measures closest to the one for your farm. Then draw a vertical line connecting your circles on each table. The strongest profile will be a relatively straight line on the left side of the table.

RECEIPTS AND EXPENSES PER COW

31 Intensive Grazing Dairy Farms, 2008

	QUINTILE				
Item	1	2	3	4	5
Accrual Operating Receipts					
Milk	$4,489	$3,951	$3,624	$2,806	$2,417
Dairy cattle	629	378	262	156	-19
Dairy calves	116	46	29	13	-41
Other livestock	99	21	3	0	-5
Crops	372	196	102	1	-152
Miscellaneous receipts	323	148	109	62	33
Total Operating Receipts	$5,126	$4,578	$3,963	$3,417	$2,960
Accrual Operating Expenses					
Hired labor	$10	$87	$148	$252	$540
Dairy grain & concentrate	565	905	1,130	1,315	1,507
Dairy roughage	0	1	21	124	247
Nondairy feed	0	0	0	0	18
Professional nutritional services	0	0	0	0	3
Machinery hire/rent/lease	6	20	44	108	318
Mach. repair & farm vehicle exp.	93	145	181	224	323
Fuel, oil & grease	88	144	167	212	299
Replacement livestock	0	0	0	1	40
Breeding	9	29	49	67	109
Veterinary & medicine	33	51	67	104	201
Milk marketing	121	165	193	231	359
Bedding	0	3	18	42	82
Milking supplies	24	48	65	86	128
Cattle lease	0	0	0	0	0
Custom boarding	0	0	0	0	76
bST expense	0	0	0	0	39
Livestock professional fees	0	0	11	25	39
Other livestock expense	1	12	33	55	101
Fertilizer & lime	4	52	105	179	265
Seeds & plants	3	18	28	50	85
Spray/other crop expenses	0	5	18	34	88
Crop professional fees	0	0	0	2	13
Land, building, fence repair	22	52	74	109	186
Taxes	12	57	79	102	142
Real estate rent/lease	1	7	21	50	133
Insurance	22	31	45	72	124
Utilities	54	81	102	125	184
Interest	1	40	85	147	210
Other professional fees	0	1	13	23	46
Miscellaneous	4	14	22	34	57
Total Operating Expenses	$2,040	$2,545	$3,240	$3,483	$4,019
Expansion livestock	0	0	0	0	117
Extraordinary expense	0	0	0	0	45
Machinery depreciation	55	137	190	240	414
Building depreciation	0	20	61	95	162
Net Farm Income w/o Appreciation	$1,289	$977	$682	$421	$-39

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

31 Intensive Grazing Dairy Farms, 2008

Item	QUINTILE 1	2	3	4	5
Accrual Operating Receipts					
Milk	$21.12	$20.20	$19.63	$19.13	$18.42
Dairy cattle	4.47	2.26	1.36	0.87	-0.09
Dairy calves	0.62	0.30	0.18	0.07	-0.33
Other livestock	0.72	0.16	0.01	0.00	-0.03
Crops	2.26	1.31	0.65	-0.01	-0.86
Miscellaneous receipts	1.90	0.95	0.58	0.39	0.19
Total Operating Receipts	$27.64	$23.70	$22.88	$21.70	$20.05
Accrual Operating Expenses					
Hired labor	$0.06	$0.46	$0.84	$1.72	$2.79
Dairy grain & concentrate	4.39	5.41	6.00	6.55	8.34
Dairy roughage	0.00	0.00	0.11	0.71	1.74
Nondairy feed	0.00	0.00	0.00	0.00	0.15
Professional nutritional services	0.00	0.00	0.00	0.00	0.02
Machinery hire/rent/lease	0.03	0.13	0.22	0.67	1.78
Mach. repair & farm vehicle exp.	0.62	0.79	0.96	1.22	2.04
Fuel, oil & grease	0.55	0.79	0.98	1.21	1.74
Replacement livestock	0.00	0.00	0.00	0.01	0.25
Breeding	0.06	0.18	0.28	0.40	0.52
Veterinary & medicine	0.21	0.30	0.41	0.61	1.10
Milk marketing	0.79	0.99	1.18	1.37	1.75
Bedding	0.00	0.02	0.11	0.21	0.48
Milking supplies	0.15	0.30	0.41	0.47	0.65
Cattle lease	0.00	0.00	0.00	0.00	0.00
Custom boarding	0.00	0.00	0.00	0.00	0.47
bST expense	0.00	0.00	0.00	0.00	0.18
Livestock professional fees	0.00	0.00	0.06	0.14	0.21
Other livestock expense	0.00	0.06	0.20	0.31	0.61
Fertilizer & lime	0.02	0.36	0.58	0.90	1.51
Seeds & plants	0.02	0.10	0.19	0.27	0.46
Spray/other crop expenses	0.00	0.02	0.09	0.19	0.56
Crop professional fees	0.00	0.00	0.00	0.01	0.07
Land, building, fence repair	0.12	0.26	0.50	0.66	1.12
Taxes	0.06	0.38	0.46	0.55	0.85
Real estate rent/lease	0.00	0.04	0.12	0.33	0.74
Insurance	0.12	0.21	0.25	0.42	0.74
Utilities	0.33	0.46	0.58	0.73	1.05
Interest	0.00	0.23	0.50	0.92	1.52
Other professional fees	0.00	0.01	0.08	0.13	0.28
Miscellaneous	0.02	0.08	0.13	0.20	0.34
Total Operating Expenses	$14.11	$16.04	$17.20	$19.27	$21.59
Expansion livestock	0.00	0.00	0.00	0.00	1.05
Extraordinary expense	0.00	0.00	0.00	0.00	0.22
Machinery depreciation	0.32	0.81	1.10	1.53	2.24
Building depreciation	0.00	0.11	0.32	0.57	0.97
Net Farm Income w/o Appreciation	$7.59	$5.52	$4.29	$2.58	$-0.45

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

36 New York Dairy Farms, 2008

Animals Entering Herd	Average
Number calving in 2008 for first time	221.0
Animals purchased, percent[34]	4.5%
Animals raised by farm, percent[35]	95.5%
Current Heifer Inventory	
Raised on dairy, percent	78.6%
Raised by a custom grower, percent	21.4%

[34]Animals purchased are animals purchased from a different farm and were not the farm's genetics.
[35]Animals raised by farm are animals that were born on the farm and entered the herd, which includes animals raised by the farm or custom grower.

On the average farm, 221 animals calved for the first time in 2008. The breakdown of these animals for source was 4.5 percent purchased and 95.5 percent raised by the farm. Of the current heifer inventory, 78.6 percent were raised on the dairy and 21.4 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, 9 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 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.

AVERAGE[36] MILK INCOME AND MARKETING REPORT
9 Intensive Grazing Dairy Farms, 2008

	Pounds	Percent	Price/Pound	Total	$/Cwt of Milk
BASE FARM PRICE					
Butterfat	146,128	3.93	$ 1.60	$234,338	$ 6.31
Protein	118,183	3.18	$ 3.92	$463,422	$ 12.47
Solids	207,745	5.59	$ 0.06	$ 11,878	$ 0.32
Total Component Contribution					$19.10
PPD	3,716,304			$ 14,322	$ 0.39
Base Farm Price					$19.48
Premiums					
Quality				$ 5,202	$ 0.14
Volume				$ 9,423	$ 0.25
Market Premiums				$ 15,649	$ 0.42
Total Premiums					$ 0.81
BASE FARM PRICE + PREMIUM					$20.30
Deductions					
Promo				$ 6,182	$ 0.17
Hauling + Stop Charges				$25,865	$ 0.70
Market Fees & Coop Dues				$ 3,465	$ 0.09
Total Deductions					$ 0.96
BASE FARM PRICE + PREMIUMS - DEDUCTIONS					$19.34
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				$ 0.00	$ 0.00
Total Marketing Income					$ 0.00
Patronage Dividends				$ 4,679	$ 0.13
NET PRICE RECEIVED ON FARM, ALL SOURCES					**$19.47**
PPD - Hauling, $ per cwt.					$-0.31
PPD - Hauling + Market Premiums, $ per cwt.					$ 0.11
Net Marketing Value (PPD + Total Premiums – Total Deductions), $ per cwt.					$ 0.24

[36]Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the "$/Cwt of Milk" column will result in the totals.

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 **S**pecific.

2. Goals should be **M**easurable.

3. Goals should be **A**chievable but challenging.

4. Goals should be **R**ewarding.

5. Goals should be **T**imed 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

Summarize Your Business Performance

The Farm Business Chart on page 39 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 17)

Accrual Receipts - (defined on page 18)

Annual Cash Flow Statement - (defined on page 26)

Appreciation - (defined on page 19)

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

Balance Sheet - A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth.

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

Capital Efficiency - The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital.

Cash From Nonfarm Capital Used in the Business - Transfers of money from nonfarm savings or investments to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

Cash Flow Coverage Ratio - (defined on page 27)

Cash Paid - (defined on page 16)

Cash Receipts - (defined on page 18)

Change in Accounts Payable - (defined on page 17)

Change in Accounts Receivable - (defined on page 18)

Change in Inventory - (defined on page 18)

Cost of Term Debt – A weighted average of the cost of borrowed capital to the farm. Calculate by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Do not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

Culling Rate – (defined on page 32)

Current Portion - (defined on page 22)

Current Ratio – Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at end year divided by current farm liabilities at end year.

Dairy (farm) - A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Dairy Cash-Crop (farm) - Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed 10 percent of accrual milk receipts.

Debt Coverage Ratio – (defined on page 27)

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

Debt to Asset Ratios - (defined on page 24)

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

Dry Matter - The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital - The farm operator/manager's owned capital or farm net worth.

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

Farm Debt Payments as Percent of Milk Sales - Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see page 27.

Farm Debt Payments Per Cow - Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year.

Financial Lease - A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hired Labor Expense per Hired Worker Equivalent – The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense by number of hired plus family paid worker equivalents.

Hired Labor Expense as % of Milk Sales – The percentage of the gross milk receipts that is used for labor expense. Divide accrual hired labor expense by accrual milk sales.

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

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

Labor and Management Income - (defined on page 21)

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

Labor Efficiency - Production capacity and output per worker.

Leverage Ratio – (defined on page 24)

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

Net Farm Income - (defined on page 19)

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

Net Milk Receipts – Accrual milk receipts less milk marking expense.

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

Operating Costs of Producing Milk - (defined on page 33)

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 33)

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

Repayment Analysis - An evaluation of the business' ability to make planned debt payments.

Replacement Livestock - Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

Return on Equity Capital - (defined on page 22)

Return on Total Capital - (defined on page 22)

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

Stocking Rate – (defined on page 31)

Total Costs of Producing Milk - (defined on page 33)

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 $2,500 per month plus the value of operator(s) labor at $2,500 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.

INDEX

	Page(s)
Accounts Payable	17,23
Accounts Receivable	18,23
Accrual Expenses	17,19
Accrual Receipts	18,19
Acreage	29
Advanced Government Receipts	22,23
Age	35
Amount Available for Debt Service	27
Annual Cash Flow Statement	26
Appreciation	19,25,33
Asset Turnover Ratio	34
Balance Sheet	23
Barn Type	16
bST Usage	16
Business Type	16
Capital Efficiency	34
Cash From Nonfarm Capital Used in the Business	26
Cash Flow Coverage Ratio	27
Cash Paid	16
Cash Receipts	18,26
Change in Accounts Payable	17
Change in Accounts Receivable	18
Change in Inventory	16,17
Change in Net Worth	25
Cost of Term Debt	24
Crop Expenses	17,30
Crop/Dairy Ratios	29
Culling Rate	32
Current Portion	22,23
Dairy (farm)	16
Dairy Cash-Crop (farm)	16
Debt Coverage Ratio	27
Debt per Cow	24
Debt to Asset Ratios	24
Depreciation	17,24
Depreciation Expense Ratio	34
Dry Matter	29
Education	35
Equity Capital	22
Expansion Livestock	17,26
Expenses	17
Farm Business Chart	39
Farm Debt Payments as Percent of Milk Sales	27
Farm Debt Payments Per Cow	27
Financial Lease	23
Income Statement	16
Inflows	26
Interest Expense Ratio	34
Labor & Mgmt. Income	21
Labor & Mgmt. Income Per Oper.	21
Labor Efficiency	35
Land Resources	29
Leverage Ratio	24
Liquidity	24
Lost Capital	24
Machinery Expenses	17,30
Milking Frequency	16
Milk Production	32
Milking System	16
Money Borrowed	26
Net Farm Income	19
Net Farm Income From Operations Ratio	22
Net Investment	24
Net Worth	23
Number of Cows	32
Operating Costs of Producing Milk	33
Operating Expense Ratio	34
Opportunity Cost	22
Other Livestock Expenses	17
Outflows	26
Part-Time Dairy (farm)	16
Percent Equity	24
Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments	26
Principal Payments	26
Profitability	18
Purchased Inputs Cost	33
Receipts	18
Record System	16
Repayment Analysis	27
Replacement Livestock	17
Retained Earnings	25
Return on Equity Capital	22
Return on Total Capital	22
Solvency	24
Stocking Rate	31
Total Costs of Producing Milk	33
Whole Farm Method	33
Worker Equivalent	34
Working Capital	24
Yields Per Acre	29

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2009-10	Dairy Farm Business Summary, Western and Central Plain Region, 2008	($12.00)	Knoblauch, W., Putnam, L., Karszes, J., Hanchar, J. and K. Getty
2009-09	Census of Agriculture Highlights, New York State, 2007		Bills, N. and B.F. Stanton
2009-08	Assessing the Success of Farmers' Markets in Northern New York: A Survey of Vendors, Customers, and Market Managers		Logozar, B. and T. Schmit
2009-07	Dairy Farm Business Summary, Western and Central Plateau Region, 2008	($12.00)	Knoblauch, W., Putnam, L., Karszes, J., Grace, J., Beck, R., Carlberg, V., Bliven, L. and T. Parmenter
2009-06	Dairy Farm Business Summary, New York Small Herd Farms, 80 Cows or Fewer, 2008	($16.00)	Knoblauch, W., Putnam, L., Kiraly, M. and J. Karszes
2009-05	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2008	($16.00)	Karszes, J., Knoblauch, W. and L. Putnam
2009-04	Putting Market Information to Work: A Guide to Market Planning		Gloy, A.
2009-03	Evaluating Marketing Channel Options for Small-Scale Fruit and Vegetable Producers: Case Study Evidence from Central New York		LeRoux, M.N., Schmit, T.M., Roth, M. and D.H. Streeter
2009-02	Case Studies on the Use of Crop Insurance in Managing Risk		Gloy, B.A. and A.E. Staehr
2009-01	Do I Need Crop Insurance? Self Evaluating Crop Insurance as a Risk Management Tool in New York State		Richards, S., Staehr. A. and B. Gloy
2008-26	Immigration Issues: Perceptions of Golf Course Superintendents		Maloney, R. and R. Bills
2008-25	New York Economic Handbook	($10.00)	Extension Staff
2008-24	Directions for Using the Crop Insurance Decision Making Tool		Gloy, B. and A.E. Staehr
2008-23	Dairy Farm Business Summary, New York Dairy Farm Renters, 2007	($16.00)	Knoblauch, W. and L. Putnam

Paper copies are being replaced by electronic Portable Document Files (PDFs). To request PDFs of AEM publications, write to (be sure to include your e-mail address): Publications, Department of Applied Economics and Management, Warren Hall, Cornell University, Ithaca, NY 14853-7801. If a fee is indicated, please include a check or money order made payable to Cornell University for the amount of your purchase. Visit our Web site *(http://aem.cornell.edu/outreach/materials.htm)* for a more complete list of recent bulletins.