



# DAIRY GRAZING FARMS FINANCIAL SUMMARY:

**Regional/Multi-State  
Interpretation of Small Farm Data**

Third Year Report

Funded by USDA Integrated Food and  
Agricultural Systems Grant  
#00-52501-9708

**April 2004**

## Acknowledgements

This project and publication were funded by the USDA Integrated Food and Agricultural Systems Grant (#00-52501-9708) titled "Regional Multi-State Interpretation of Small Farm Financial Data". This material is also based upon work supported by Smith Lever funds from the Cooperative State Research, Education and Extension Service and the U.S. Department of Agriculture. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the U.S. Department of Agriculture.

Data collection and analysis was performed by the authors of this report. The authors of this report include researchers and/or educators affiliated with the land grant universities and extension services in their respective states. In the case of Ontario, they are affiliated with the Ontario Ministry of Agriculture and Food. The following researchers are leading the project in their respective states: Jim Endress (Illinois), Robert Tigner and Larry Tranel (Iowa), Ralph Booker (Indiana), Bill Bivens, Phil Taylor, and Chris Wolf (Michigan), Margot Rudstrom (Minnesota), Tony Rickard (Missouri), Jim Grace (New York), Thomas Noyes and Clif Little (Ohio), Jack Kyle and John Molenhuis (Ontario, Canada), J. Craig Williams (Pennsylvania), Tom Kriegl and Gary Frank (Wisconsin).

Tom Kriegl, from the University of Wisconsin Center for Dairy Profitability, is the lead author of this report. You may contact him at (608) 263-2685, via e-mail at [tskriegl@wisc.edu](mailto:tskriegl@wisc.edu) or by mail at UW Center for Dairy Profitability, 277 Animal Science Building, 1675 Observatory Drive, Madison, WI 53706. The Center for Dairy Profitability can be found on the internet at <http://cdp.wisc.edu>.

The idea for this project came from discussions among the Great Lakes Grazing Network (GLGN). The GLGN is a coalition of farmers, researchers/extension, Natural Resources Conservation Service Agency staff, environmentalists and others (including several of the authors) organized locally in the Great Lakes region states and provinces to support and promote managed grazing systems for livestock production. The focus is on systems that are practical and profitable for farmers and improve and protect the environment. The long-term benefit of management intensive grazing (MIRG) will be to reduce livestock agriculture's negative impacts on water quality in the Great Lakes Basin and on other watersheds in the Great Lakes Region.

Organized by the Wisconsin Rural Development Center (WRDC) and coordinated by River Country Resource and Development Council, the network is a collaborative effort of working groups from Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Ontario, Pennsylvania and Wisconsin. Representatives of each group coordinate a variety of grazing-based activities. They share research, education, training, policy and outreach efforts, as well as develop policies supportive of grazing-based farming systems within the Great Lakes Region.

Two states not touching a Great Lake (Iowa and Missouri) are also cooperating in this financial summary project as well. Data from additional states with similar climates has also been used.

The authors thank the farm families who have shared their data with this project. The authors also thank co-workers and others who have helped in promoting the project and, in some cases, collecting data.

**II. Index**  
**Regional Multi-State Interpretation of Small Farm Financial Data**  
Third Year Report on 2002 Great Lakes Grazing Network Grazing Dairy Data  
April, 2004

	Page
I. Acknowledgements	1
II. Index	2, 3
III. Executive Summary	4
IV. Introduction	5
A. Farm Financial Standards Guidelines (FFSG)	
B. Agricultural Financial Advisor© (AgFA©)	
C. Data Issues	
V. Case Farm Reports from Michigan and New York	6-10
VI. State-to-State Differences in Financial Performance	11, 12
VII. Impact of Valuation of Assets on the Interpretation of the Balance Sheet and on Many Financial Measures	12, 13
VIII. Contingent Liabilities (CMV Only)	13
IX. Some Categories of Costs	13, 14
A. Total Costs	
B. Total Allocated Costs	
C. Total Basic Costs	
D. Total Non-Basic Costs	
X. Cost per Hundredweight Equivalent (CWT EQ) vs. CWT Sold	14, 15
XI. Comparing the Average Cost of Production of Multi-State Graziers with Your Cost of Production	15
XII. The Average Performance of 103 Grazing Farms in 2002, 126 in 2001 and 92 in 2000	15-22
XIII. Comparing the Top Half to the Bottom Half of Graziers Sorted by NFIFO/CWT EQ Sold	23-35
XIV. Comparing Herds by Size: Less than 100 Cows vs. 100 Cows or More	36-48
XV. Why the Changes in the Seasonal Calving Comparison from 2000 to 2002?	49, 50
XVI. Comparing Seasonal Calving/Milking with Non-Seasonal Calving/Milking Herds	50-64
XVII. Comparing Grazing Herds to Confinement Herds	65-67
XVIII. Preview of Financial Performance of Graziers by Breed of Cattle	67-69
XIX. Preview of Organic Dairy Farm Financial Performance	70
Appendix 1 – Agricultural Financial Advisor AgFA©	71
Appendix 2 – Cost of Production Worksheet	72, 73
Appendix 3 – Author Contacts	74, 75
Appendix 4 – Selected Acronyms, Definitions and Terms	76, 77

	<b>Tables</b>	<b>Page</b>
<b>Table 1-1</b>	<b>The Average Performance of Grazing Dairy Farms</b> (103 in 2002, 126 in 2001, and 92 in 2000) Most Performance Measures Selected from Tables 1-2 to 1-5)	16
Table 1-2	The Farm Earnings Report with the Per Farm, Per Head and Per CWT EQ Format	17, 18
Table 1-3	The Cost of Production Report with the Per Farm, Per CWT Sold and CWT EQ Formats	19, 20
Table 1-4	The Financial Measures Report	21
Table 1-5	The Balance Sheet Report	22
<b>Table 2-1</b>	<b>Comparing the Top Half with the Bottom Half of Graziers Sorted by NFIFO/CWT EQ</b> (Most Performance Measures Selected from Tables 2-2 to 2-9)	23
<b>Top Half Herds</b>		
Table 2-2	The Farm Earnings Report with the Per Farm, Per Head and per CWT EQ Format	24, 25
Table 2-3	The Cost of Production Report with the Per Farm, Per CWT Sold and CWT EQ Formats	26, 27
Table 2-4	The Financial Measures Report	28
Table 2-5	The Balance Sheet Report	29
<b>Bottom Half Herds</b>		
Table 2-6	The Farm Earnings Report with the Per Farm, Per Head and Per CWT EQ Format	30, 31
Table 2-7	The Cost of Production Report with the Per Farm, Per CWT Sold and CWT EQ Formats	32, 33
Table 2-8	The Financial Measures Report	34
Table 2-9	The Balance Sheet Report	35
<b>Table 3-1</b>	<b>Comparing Herds by Size: Less Than 100 Cows vs. 100 Cows or More</b> (Most Performance Measures Selected from Tables 3-2 to 3-9)	36
<b>Herds with Less than 100 Cows</b>		
Table 3-2	The Farm Earnings Report with the Per Farm, Per Head and Per CWT EQ Format	37, 38
Table 3-3	The Cost of Production Report with the Per farm, Per CWT Sold and CWT EQ Formats	39, 40
Table 3-4	The Financial Measures Report	41
Table 3-5	The Balance Sheet Report	42
<b>Herds with More than 100 Cows</b>		
Table 3-6	The Farm Earnings Report with the Per Farm, Per Head and Per CWT EQ Format	43, 44
Table 3-7	The Cost of Production Report with the Per Farm, Per CWT Sold and CWT EQ Formats	45, 46
Table 3-8	The Financial Measures Report	47
Table 3-9	The Balance Sheet Report	48
<b>Table 4-1</b>	<b>Comparing Seasonal with Non-Seasonal Herds 2002, 2001, and 2000 Summary</b> (Most Performance Measures Selected from Tables 4-2 to 4-9)	52
<b>Seasonal Calving/Milking Herds</b>		
Table 4-2	The Farm Earnings Report with the Per Farm, Per Head and Per CWT EQ Format	53, 54
Table 4-3	The Cost of Production Report with the Per Farm, Per CWT Sold and CWT EQ Formats	55, 56
Table 4-4	The Financial Measures Report	57
Table 4-5	The Balance Sheet Report	58
<b>Seasonal Calving/Milking Herds</b>		
Table 4-6	The Farm Earnings Report with the Per Farm, Per Head and Per CWT EQ Format	59, 60
Table 4-7	The Cost of Production Report with the Per Farm, Per CWT Sold and CWT EQ Formats	61, 62
Table 4-8	The Financial Measures Report	63
Table 4-9	The Balance Sheet Report	64
<b>Comparing Grazing Herds vs. Confinement Herds</b>		
Table 5-1	2002 Comparison	65
Table 5-2	2001 Comparison	66
Table 5-3	2000 Comparison	67
<b>Comparing Breeds</b>		
Table 6-1	2002 and 2001 Summarized	69

**Regional Multi-State Interpretation of Small Farm Financial Data  
Second Year Report on 2002 Great Lakes Grazing Network Grazing Dairy Data.<sup>1</sup>**

### **III. Executive Summary**

Management Intensive Rotational Grazing (MIRG) has become a more common dairy system in the Northern U.S. This analysis of actual farm financial data from graziers (103 in 2002, 126 in 2001, and 92 in 2000) in the Great Lakes region provides some insight into the economics of grazing as a dairy system in the northern U.S.

Insights include:

- A comparison between the most profitable half and the least profitable half shows a large range in financial performance. The difference between the higher and lower profit farms was greater in the years with lower milk prices.
- The average grazing herd with less than 100 cows had a higher Net Farm Income from Operations (NFIFO) per cow and per Hundred Weight Equivalent (CWT EQ) than the average grazing herd with 100 cows or more.
- Non-seasonal herds had a higher NFIFO/cow and per CWT EQ than seasonal (stops milking at least one day each calendar year) herds in two out of three years. Careful examination of the data suggests that achieving a given level of NFIFO/ cow or per CWT EQ is more difficult in a seasonal system. The seasonal group had a smaller range of financial performance within a year but experienced more variability of financial performance from year to year.
- The average grazer had a higher NFIFO per Cow and NFIFO per CWT EQ than their confinement counterparts in all three years in New York and Wisconsin – the only two states with the necessary data for this comparison. (see Chapters VI and XVII for more explanation)

The study confirms that accounting methodology and financial standards are important, both in the accuracy and the standardization of comparison values across large geographic areas involving different combinations of production assets and management skills.

This third year report of the project expands the scope of previous reports. Most of the comparison groupings in this report have several pages of tables to show:

- The Farm Earnings report with the Whole farm, per Cow and per CWT EQ (see Chapter X).
- The Cost of Production report with the Whole farm, per CWT Sold, and per CWT EQ.
- The Financial Measures report.
- The Balance Sheet report.

To more accurately compare your cost of production, it is recommended that you also calculate your cost of production using the per hundredweight equivalent of milk sold (CWT EQ) method.<sup>2</sup>

Calculating your cost of production using the per CWT EQ method can be done by inputting farm data into AgFA©. See Appendix One for more information about using AgFA©. Appendix Two is a worksheet that also can be used to calculate your Cost of Production using the Per Hundredweight Equivalent of Milk sold method.

---

<sup>1</sup> Tom Kriegl from the U.W. Center for Dairy Profitability is the lead author of this report. You may contact him at (608) 263-2685, via e-mail at [tskriegl@wisc.edu](mailto:tskriegl@wisc.edu), by writing the UW Center for Dairy Profitability, 277 Animal Science Building., 1675 Observatory Drive, Madison, WI 53706 or by visiting <http://cdp.wisc.edu>. This report is the second year report of the Regional Multi-State Interpretation of Small Farm Financial Data USDA IFAS grant project. See Appendix Three for coauthor contact information.

<sup>2</sup> CWT EQ sold is an indexing procedure which focuses on the primary product that is sold and standardizes farms in terms of milk price and other variables for analysis purposes. For more information about the CWT EQ method, see chapter X and consult *Cost of Production Versus Cost of Production*, Dr. Gary Frank, UW Center for Dairy Profitability, 1997.

## IV. Introduction

Aided by a USDA Integrated Food and Agricultural Systems grant, ten states and one province have standardized data handling and analysis procedures in order to combine actual farm financial and a limited amount of production data to provide financial benchmarks to help farm families and their communities be successful and sustainable. A small amount of data has been gathered from additional states.

The first enterprise analyzed in this project is dairy grazing. To be considered a dairy farm for the study, 85% or more of gross income must be from milk sales or 90% of gross income must be from dairy livestock sales plus milk sales. To be considered a grazer for the study, one must harvest over 30 % of grazing season forage needs by grazing and must provide fresh pasture at least once every three days.

Standardization of data handling and analysis procedures relied heavily on the Farm Financial Standards Guidelines (revised December, 1997). The guidelines were developed to serve multiple needs to include: (1) promoting uniformity in financial reporting for agricultural producers by presenting methods for financial reporting which are theoretically correct and technically sound (2) presenting standardized definitions and methods for calculating financial measures which may be used in the measurement of financial performance of agricultural producers and (3) identifying alternatives for development of a national agricultural financial database.<sup>3, 4</sup>

A relatively new computer program called Agricultural Financial Advisor (AgFA©) is used to analyze the data. See Appendix 1 for more information about using AgFA©.

The 2002 data was collected from a total of 117 grazing dairy farms. All have been analyzed; however, 14 of them were incomplete, so data from 103 farms was summarized. One of the valuable lessons reinforced by this project is that accounting methodology is important both in standardization and in the accuracy of financial comparisons of businesses. The 2001 and 2000 reports summarized data from 126 and 92 graziers respectively.

Readers of this report may notice that when the 103 graziers are sorted into groups for comparison purposes, the number in one comparison group adds up to less than 103. The “top half” group has 50 farms while the bottom half group has 50 farms. Fifty plus fifty is less than 103. What happened to the other three? Most data sets have a range in values. AgFA© “looks at” the specific distribution of values in a comparison and sometimes omits a small number of the most extreme observations. That is, some farms have numbers that are outside of an expected range and those farms are omitted from that summary.

This third year report of the project expands the scope of previous reports. Most of the comparison groupings in this report have several pages of tables to show:

- The Farm Earnings report with the Whole farm, per Cow and per CWT EQ (see Chapter X).
- The Cost of Production report with the Whole farm, per CWT Sold, and per CWT EQ.
- The Financial Measures report.
- The Balance Sheet report.

There is an intention to more closely relate these financial results with additional specific production practices in later reports. The Regional Multi-State Interpretation of Small Farm Financial Data Project is also actively seeking actual farm financial data from other dairy graziers and other enterprises, such as organic dairy, custom heifer growers and graziers of other livestock.<sup>5</sup>

---

<sup>3</sup> *Financial Guidelines for Agricultural Producers: Recommendations of the Farm Financial Standards Council (FFSC)*, Revised December, 1997.

<sup>4</sup> Since FFSC allows some latitude on some details, anyone wishing to exactly duplicate the project data handling procedures should contact the authors.

<sup>5</sup> If you would like to participate in the study, refer to Appendix 3 for contact information for your state or provincial representative.

## **V. Case Farm Reports from Michigan and New York**

Not all graziers are created equal; consequently, there may not be a typical grazer. However, it may still be instructive to have a more personal glimpse of a couple of grazing farms that are participating in this study. The two farms are similar in some ways and different in others. One difference is their calving strategy: the Michigan farm is fully seasonal, while the New York farm practices continuous calving. Both switched to grazing after years of operating as a traditional confinement dairy farm. An interesting feature of the Michigan case farm is that it has spawned the next generation of graziers from the family on more than one farm. Among the most important characteristics that both farms share is their success and satisfaction from their decision to operate a grazing dairy farm. They are commended for sharing their stories with others.

### **CASE STUDIES**

#### **The Straub Case Farm from Michigan <sup>6</sup>**

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

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

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

Seven miles away, twenty-three year-old daughter Terri Hawbaker, and her husband, Rick, last year started milking 60 cows on 120 acres of pasture they purchased from Howard and Mary Jo with a bank loan. With a sparkling new, \$100,000 New Zealand-style swing parlor as the centerpiece, Terri and Rick are aiming to be milking at least 100 cows in the near future.

Closer to home, Patti Warnke, 31, and her husband, John, also borrowed money last year to buy 40 acres and build an attractive, six-unit swing parlor with a walk-in pit. They have a cow-boarding program that allows participants to obtain fresh milk, and their goal is to pursue a value-added marketing enterprise that can produce a family living from 20 cows.

And this month, son Howie, 29, is getting married and leaving for northern Ohio with a string of cattle to start a five-year lease agreement on a farm that already has 170 acres in managed grass pasture. With a three-year old, 10-unit NZ swing parlor (expandable to 20 units) ready and waiting, Howie intends to start right off with close to 100 cows. (Daughter Amanda is a certified public accountant in Florida.)

While it is too early to assume success for any of these enterprises, Howard and Mary Jo are optimistic that their children are heading in promising directions. Howard says that by no means is this trend due solely to anything that he or Mary Jo did over the years. "They're fairly bright kids," he notes.

---

<sup>6</sup> Reprinted with slight modifications with permission from the February 2004 issue of *Graze* magazine.

But an outside observer who knows the Straubs just a little can find more than a few influences that pointed the next generation toward running their own grazing enterprises. What follows are a few of them.

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

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

The change was obvious to the kids. Patti was already off on her own, but nevertheless saw the difference. "(Howard's attitude) just turned when he started grazing."

"Their moods changed," Terri says of her parents. "It was much more positive. They were happy and making money, and still got the chance to get away from the farm. My dad never wasted a chance to pop in and say that if you did it this way, you could have time off."

"Yes, attitude has a lot to do with it," Howard offers. "You can't be whiney for very long and not have the kids pick up on that."

Adds Mary Jo: "You have to make them think they have an advantage being a farm kid." That attitude seems to have rubbed off. In comparing herself to her non-farming peers, "I don't envy them at all," Terri asserts. She describes a recent dairy cooperative meeting where the attitude was definitely negative toward the future of smaller family farms.

"It frustrates me that more people don't encourage people our age to farm," Terri says. "Those people are really missing out. We have the ability to do as well or better than the people in town."

*Help from home* One reason for this lack of encouragement is that many older dairy farmers are so deeply in debt that they can provide very little financial assistance to the next generation. But in the Straub family, both Terri and Howie received direct help from their parents.

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

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

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

Within a dozen years the mortgage was gone. Some of that was due to Howard and Mary Jo selling 120 acres to Terri and Rick, although Howard notes that capital gains taxes took a substantial bite from that payment.

Howard and Mary Jo say that Terri and Rick could not have started with their own land if they had not sold the property at a below-market price (one local farm parcel recently sold for \$2,700/acre). Yet Howard says the 25 cattle that Terri and Rick purchased from him were priced at full market value. What's more, Howard and Mary Jo were in a position — and Terri and Howie were patient enough — to trade farm labor for heifer calves. Under a two-year program established by the family, Terri worked full-time on the home farm for wages and every second heifer calf. (She did not pay expenses, but the senior Straubs did retain milk check income from any of Terri's heifers that freshened on the home farm.) Howie, who had a custom baling business and thus worked fewer hours on the farm, received every third heifer. He completed only one year out of the two-year deal before the Ohio lease opportunity came up. Terri was able to take 26 cow, 22 first-calf heifers and a few calves to her own farm — a situation that certainly



helped convince her lender. Howie is heading to Ohio with 17 heifers from the home farm, plus 16 other cows he'd previously owned, along with a handful of calves, which are an important part of his grubstake for buying the cows to be running at close to 100 milking this summer.

While Terri says that she and Rick were determined to be farming one way or another — and would have rented or bought somewhere else if they'd had to — certainly these transactions were more beneficial than those available to young people without solid family backing. Perhaps more interesting is the fact that the older Straubs were able leverage low culling rates and minimal investment in depreciable assets to put themselves into position to be able to offer such benefits in return for a little financial farsightedness from their children.

*Developing a financial mindset* The Straubs began doing detailed financial analyses of their operation about four years ago. It didn't take very long for the kids to start noticing their results.

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

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

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

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

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

Terri spent a year putting together a financial plan that was part of an inch-and-a-half thick book that included articles about — and the financial results of — other grazing farms. After an initial turndown, she and Rick got the money they needed. They plan to be milking close to 100 cows next year, which will allow Rick to quit his off-farm job.

With John being 43, and with four children and another on the way, Patti felt they needed to launch into full ownership right away. They started putting two business plans together: one for an 80-cow commercial dairy, the other for a cow-share program at much smaller numbers. With no cows and little other equity, the smaller enterprise soon proved itself to offer far more promise. They own no equipment, and trade maintenance payments in return for the use of their neighbors' machinery. Meanwhile, the top of the line at Rick and Terri's farm is an older model, 80-horsepower gas tractor.

Interestingly, both new farms started out with very nice milking facilities. Part of that was due to neither having easily workable facilities on hand. Patti and John have their swing-six parlor (with used equipment) that was built as a walk-in facility to appeal to their fresh-milk clients and other visitors.

Despite doing a lot of the construction work themselves, and delaying installation of in-parlor feed-augering equipment (they fill the mangers by hand), Rick and Terri's \$100,000 price tag for a swing-12 (expandable to 18 units) is more than most dairy graziers in their early 20s are willing (or able) to spend. For instance, Howard says he suggested to Terri that she and Rick build a flat parlor to get started. "She wouldn't hear of it," Howard reports.

Terri had worked at other grass farms, including doing an internship with the American Farmland Trust's Cove Mountain Farm and its big swing parlor. Terri says that they would have had to stick money into a facility in any event, and that spending money to update an initial, low-cost effort seemed pointless. "Why spend the money twice? Our feeling is that we have to spend 30 years in this thing, so it has to be

functional to support the number of cows we're going to milk." And Terri says it sure is nice to easily milk 60 cows in an hour, not counting cleanup.

Howard believes that at today's prices, immediate land ownership is not the best route for most young graziers. "If I were starting today, I'd do what Howie is doing: lease a farm, and buy cattle from another farmer." Howard acknowledges that such ready-to-go grazing farms aren't always readily available for renting.

*Independent attitudes* While it doesn't seem that the Straubs have problems getting along beyond those of any other family, the view here is pretty much summed up by Terri: "We had no intention of staying with my parents. We don't want to be 40-year olds still working for dad." If nothing else, Terri's herd was starting to overwhelm the capacity of her parents' 140 pasture acres.

The parents didn't encourage a long-term relationship, either. Howard says that they tried to teach their children to be independent thinkers. Adds Mary Jo, "We thought a partnership wasn't really the way to go. There's something about being out on your own, making the decisions and taking the punches." And it's not as if everyone's operation is completely separate (except perhaps for Howie's), Patti notes: "We can all work independently, yet we can all work together."

Howard and Mary Jo say they are welcoming the opportunity to catch their breath and milk only 60 to 70 cows for a year or two. But there are some tentative plans for a new milking facility at the home farm. The older Straubs won't be here forever. Perhaps Howie will return or, maybe, someone from outside the family will have the chance to prove his/her mettle, and get a start in grass dairying.

At least Howard and Mary Jo would likely be in a position to offer that opportunity.

### **The Howland Case Farm From New York<sup>7</sup>**

Rob and Darlene Howland began farming together 27 years ago in the hills outside Candor, New York. The soils are typical of the Southern Tier, somewhat poorly drained, Mardin and Valusia soils. In the early years Robe was dedicated to a corn-alfalfa rotation. It wasn't until the early 90's that he became discouraged with the battle to maintain productive alfalfa stands and receive only break even corn yields. Rob decided to learn how to manage grass and grow corn and alfalfa only on the best soils. Pasture became an important piece of a grass based forage production system.

Their five daughters have been an integral part of the farm and farm chores but currently only one daughter is still at home, so their labor force has changed over time. They currently have one full-time employee and a college student intern this summer that wanted to work on a grazing farm. Rob and Darlene have clear, defined goals that guide their farming style. Rob describes his operation as 'production driven'. He and Darlene have set specific targeted production goals to guide their production. Rob explains that they 'backed into' these goals after thinking about the income needed to support their desired standard of living, level of equipment and farm maintenance, and retirement savings. Their production goals are outlined as:

- Keep each of their 80 stalls filled with a milking cow
- Average 80 pounds of milk/cow/day
- Keep the herd from 150-180 days in milk (The herd calves year round)
- Receive the top quality premium by maintaining Somatic cell count less than 150,000

Rob admits that there has been much to learn with managed grazing. He figures he has six months to graze and during that time there are periods that are too hot, too cold, too wet, or too dry to support good intakes and production, leaving only four to five months to graze. As a result the cows can be off pasture as much or more than they are on during the grazing season. Rob does not subordinate his production goals to pasture management. Pasture is used to support their goals.

---

<sup>7</sup>This case farm report has been excerpted from Dairy Farms Business Summary: Intensive Grazing Farms New York 2002 (Ithaca: Department of Applied Economics and Management, College of Agricultural and Life Sciences, Cornell University, 2003)

When the Howlands began intensive grazing management 11 years ago they put 100 acres of native pasture that had never been reseeded into the system. Although the pasture was native grasses, bluegrass and similar species, and had never been limed or fertilized, Rob describes the grass as reasonable. He began to soil sample and began a regular pattern of fertilization. Fifty acres of the poorer crop ground was converted to the pasture system and was seeded with orchard grass and ladino clover. Since Howlands have excess pasture acres for their herd size, the lower production from the native grasses is not a problem for their rotation scheme.

Rob and Darlene describe the largest gain from intensive grazing as a savings of time. The chore time saved is used to harvest high quality forages to support milk production. Another savings is that the soils are kept in sod which reduces compaction and run-off.

When it's too hot or other conditions cause intakes to drop, the cows are brought into a tunnel ventilated tie-stall barn with well-bedded stalls. Since stall upgrades would require extensive renovation in the barn, the stalls are heavily bedded to ensure comfort. Rob claims that tunnel ventilation is the best improvement he has made. On a hot summer day the barn is said to be the most comfortable place on the farm.

**Water System** A well was drilled on the top of the hill to provide water to each paddock via black plastic and portable tubs. After burning out several water pumps when the cows tipped over tubs, a safety system using a timer that automatically shuts the pump off after it runs a set length of time was put in place. When the water system was originally installed  $\frac{3}{4}$ " black plastic pipe was used. This has proven to have too low a capacity to supply the herd, thus the tipping over. He found by having two tubs in each paddock the tipping problem is reduced. His recommendation is that anyone installing a new system use 1 to 1- $\frac{1}{2}$ " line, depending on the distance water needs to travel.

**Feeding Program** Feed cost savings are not captured on the Howland farm, nor do they see any significant changes in health during the pasture season. The winter feeding program consists of 2/3 hay crop to 1/3 corn silage plus 15 pounds of high quality second cutting baleage per cow per day. They have a monorail concentrate feeder with four bays that feeds around the barn 6 times per day in the winter and five times per day during the pasture season.

When the cows are grazing, the haylage is removed from the forage fed, and the corn silage stays in at about 30 pounds per cow. The concentrates are only slightly adjusted. A first cutting of all grass baleage is fed at about seven to eight pounds per cow per day and is increased or decreased to maintain dry matter intake. The summer-fed baleage is higher in fiber than the winter-fed baleage. They do struggle with lower butterfat levels during the grazing season.

**Pasture Management** Pasture management is fairly intensive and scheduled. Before the start of first cutting hay harvest, a pasture paddock is mowed and round baled. Then a silo is filled with first cutting. About every five to seven days after the first paddock is harvested another paddock is cut and baled. The harvest moves back and forth between hay ground and pasture ground. Rob has a rule of thumb that it takes a day to mow and a day to bale.

The staggered harvest is intended to help manage the pasture growth at the right height for capturing high quality grazing. By mid-June the cows have been through the first four paddocks four or five times and refusals are significant. At that time, the first mowed paddocks are ready for grazing and the early paddocks are rested for re-growth and then mowed and baled. When the weather does not cooperate the schedule is upset. In wet years it can get backed up to the point that there is no pasture at the right stage of growth ready for the cows. The cows are moved back to the barn since the paddocks are either too mature or already grazed down. This pattern is their style of intensive clipping. Rob admits that he is working long, hard hours. He and Darlene are thinking about alternatives to this system such as clipping at an earlier growth stage with a rotary mower.

## VI. State-to-State Differences in Financial Performance

A farm is a sufficiently complex business for which no single management factor will guarantee financial success. No single financial measure or benchmark tells the whole story. **The factor that is most influential in achieving profitability is management ability; a factor, which is difficult to recognize, judge, measure, or even see.**

Differences in financial performance between states have appeared in dairy farm financial data in all three years.

The average financial performance (NFIFO/Cow and NFIFO/CWT EQ) was lowest in New York followed by Michigan in 2000. The two states traded positions for 2001 and 2002. Ontario and Wisconsin have dominated the top positions for three years. Ohio was near the top in the first two years but dropped to last in 2002. When the project states (other than Michigan, Ohio, Ontario, New York, and Wisconsin) were summarized, their average financial performance was closer to the top than the bottom. The gap between the lowest group and the highest group was easily noticed in all three years.

**It is impossible to explain every factor causing state-to-state differences but these occurrences are monitored and considered in the interpretation of the data.** The difficulty in explaining these differences is increased by the fact that there is a wide range in the amount of data submitted from each state.

Most of the data in all three years have come from Michigan, New York, Ontario, and Wisconsin. Minnesota grazing dairy herds tend to have other significant enterprises that disqualify many of them for the study. Most of the other cooperating states don't have as large of a dairy industry as those states supplying more data.

The following factors likely contribute to the regional differences.

- Milk price variations occur from one state to another. Ontario has a quota system that typically results in higher milk prices than occur in the states. The Eastern states in the project tend to receive higher prices than the more Western states in the project—yet they tend to be less profitable. Ohio had the biggest decline in milk price from 2001 to 2002, which may explain in large part the drop in Ohio profitability in 2002.
- Weather can also cause state-to-state differences in profitability. The general climate is fairly similar across the states and province participating in the project. Despite that fact, weather can be variable from one end to another in a given year. Some of the states could be “drowning” in the same year that other states might experience drought. Ohio graziers experienced very adverse weather conditions in 2002.
- Feed (purchased or raised) represents a major cost on livestock operations. As such, it is an important factor in influencing profitability. Still, its impact on profits must be analyzed carefully to avoid inaccurate conclusions. For example, a farm which buys all of its feed tends to have higher purchased feed costs than a farm that raises most or all of its feed. Yet, the total feed cost per CWT EQ of milk sold could be higher for a farm that raises most of its feed. All of the costs of raising feed should be considered. The cost of raising feed should include the cost of land, equipment, and labor along with the more obvious cost such as fertilizer, fuel, pesticides, etc. It is not clear how the average grazer in one state, compares to the average grazer in another state in terms of the proportion of total feed needs that are purchased instead of raised.
- Still, purchased (forage and grain) feed costs may also partially explain the state-to-state differences. In 2002, Ohio had the highest purchased feed cost/CWT EQ followed by New York and Michigan, in that order. Purchased feed cost/CWT EQ ranged from a high of \$3.57 to a low of \$1.59 in 2002 among the states with enough data to do a state summary. In 2001 and 2000 New York had the highest purchased feed cost/CWT EQ followed by Michigan and Ohio. Purchased feed cost/CWT EQ ranged from a high of \$3.50 to a low of \$1.77 in 2001. Purchased feed cost/CWT EQ ranged from a high of \$2.82 to a low of \$1.28 in 2000. When a farm attempts to raise most of its feed but fails to do so because of drought or other reasons, it is in a situation

that might be described as buying feed twice. Obviously in such a case, high purchased feed cost strongly implies reduced profits.

- Several years of New York and Wisconsin confinement dairy farm data indicate that larger herds have lower levels of NFIFO/Cow and NFIFO/CWT EQ than smaller herds. Larger herds hire a larger percent of their total labor requirements. This is why NFIFO without labor compensation is used along with NFIFO in this project. This pattern where larger herds have lower levels of NFIFO/cow and NFIFO/CWT EQ than smaller herds also appears in this grazing data (see Table 3-1 in this report).
- The average Michigan and New York grazing herds in this project are larger than the average herds from the other states. However, the smaller herds in these two states perform (in terms of NFIFO/cow and NFIFO/CWT EQ) at levels fairly similar to the larger herds in these two states. Consequently, size appears to be only a minor factor in the state-to-state differences that are observed.

Further analysis of grazing financial performance, milk prices and management practices is needed to help interpret state-to-state differences.

## **VII. Impact of Valuation of Assets on the Interpretation of the Balance Sheet and on Many Financial Measures**

Judgment must be exercised in determining the value of assets on any balance sheet. There is more than one appropriate way to value assets depending on one's objective. No single method is appropriate for all purposes. In fact, some purposes such as estate planning require two methods. Therefore, a balance sheet that makes provision for two or more valuation methods is needed to serve all purposes adequately. All purposes require an accurate inventory.

Parallel balance sheets are being used for this project. One track uses the historic cost (HC) value of assets—often called adjusted tax basis; the other track uses current market value (CMV). Each method has positives and negatives. A big advantage of the HC method is that measures of operating profit are not distorted by changes in asset unit values. Consequently, measures calculated by the HC method are the ones emphasized in this report. The CMV is more useful for such tasks as making decisions about insurance coverage and for estimating the size of your estate. The CMV will often enable you to persuade your lender to loan more money. Both methods (CMV and HC) are needed for estate planning, planning a farm business transfer or arrangement, and estimating the tax consequences of many major business decisions. Unfortunately, relying too heavily on CMV balance sheets convinced many farm families and their lenders into overestimating the financial health of many family farms in the 1960s, 70s and 80s. Overestimating the financial health contributed to many uninformed decisions. The HC asset values are usually lower than the CMV.

The Rate of Return on Assets (ROROA) calculated with HC values will often be higher than the ROROA calculated with CMV. The HC based NFIFO values are usually lower than the NFIFO values based on CMV.

ROROA is one of the most comprehensive, useful and important measures of financial performance. However, because of its comprehensiveness it is not always calculated accurately or in the same way. When ROROA values from different sources are compared, it is important to verify how they were calculated. The HC asset valuation method is the standard method used to report profits of most businesses including Fortune 500 companies. The CMV asset valuation method is used to calculate the ROROA of mutual funds.

The AgFA© report titled 'Financial Measures' is designed to calculate NFIFO and ROROA both ways (HC with tax depreciation and CMV of assets and economic depreciation). Again, the analysis focuses on the financial measures using the HC approach because it prevents asset unit value changes from influencing the operational profits. The HC based NFIFO values from the Financial Measures report match the NFIFO values found on the farm earnings and cost of production reports.

On the AgFA© balance sheet, the HC values for non-current assets are on the right-hand side. The CMV is in the middle and the net worth (or total equities) is calculated using market values. Notice the calculated cost of liquidation (contingent liabilities). Near the bottom of the balance sheet, the change in CMV net worth is divided into three sources:

- Retained earnings: generated by operating the business
- Contributed capital: owners contributions to the business
- Valuation adjustment: asset value appreciation or depreciation

From a business operational profit analysis point of view, it is preferred that much of the net worth increase comes from the retained earnings category.

## VIII. Contingent Liabilities (CMV only)

Due to the fact many farm assets are not liquid (meaning they are not readily available to pay bills, settle estates, etc) there is often a cost connected to converting an asset to a more liquid form. These liquidation costs are often called contingent liabilities. AgFA© automatically makes the following calculations to estimate how much of your CMV track assets would be used for liquidation. All assets but cash and prepaid expenses are charged 7% for sales expenses. The remaining value (or basis in the use of resale items) of all the other current assets are charged 28% for federal income tax. For non-current assets, the 7% sales expense is charged, then any basis is subtracted and the calculated taxable gain is reduced by the 20% capital gains tax rate. AgFA© then reports all contingent liabilities as a one lump sum non-current liability. It does this instead of subtracting the cost of liquidation from asset values. Contingent liabilities are calculated only on current market values. Contingent liabilities do not influence the AgFA© farm earnings statement. The AgFA© calculation for contingent liabilities assumes the full consequences of a total liquidation in one tax year.

## IX. Some Categories of Costs

**Total costs** include all cash and non-cash costs including the opportunity cost of unpaid labor, management and equity capital. The total cost concept is needed to determine the minimum revenue required to meet long-run financial obligations of the business. All long-run financial obligations include a satisfactory reward for the owners' unpaid labor, management and equity capital (opportunity costs). Traditionally, total cost is divided into fixed and variable costs; these traditional cost breakdowns are still valid. However, there are some difficulties associated with comparing the financial performance of farms of greatly differing size and type that are not adequately handled by these traditional measures. Therefore, other measures can also be useful.

Since many business owners are willing to work for less than the opportunity cost of labor, management and equity, and because the inclusion of opportunity cost requires some assumptions, the allocated cost group becomes useful also.

**Total allocated cost** equals total cost minus the opportunity cost of unpaid labor, management and capital supplied by the owning family. Allocated cost also equals total income minus NFIFO. NFIFO can be smaller, larger or equal to the combined opportunity cost of unpaid labor, management and capital supplied by the owning family. Since opportunity cost is not consciously calculated by everyone, allocated cost is often used by non-economists as a default proxy for total cost.

**Total basic cost** is another useful measure. Basic costs are all the cash and non-cash costs except the opportunity costs, interest, non-livestock depreciation, paid labor, and paid management. Livestock depreciation is included as a basic cost to reflect the depreciation costs associated with differing cull rates between systems. It is included with basic costs, because like all other basic cost items, it is greatly influenced by management decisions.

Some farms have only unpaid labor while others pay family members or non-family hired help. Basic cost is a useful measure for comparing one farm to another that differs by:

- the amount of paid versus unpaid labor
- the amount of paid versus unpaid management
- the amount of debt
- the investment level

- the capital consumption claimed (depreciation)

Basic cost is very similar to the cost of goods concept that is commonly used by many non-farm businesses.

Since basic cost primarily includes variable expenses (those most affected by short-run decisions), it comes close to determining the minimum amount of income needed per unit of production to continue producing in the short run.

**Non-basic costs** are the four costs added to basic cost to become allocated costs. The four non-basic costs are interest, non-livestock depreciation, paid labor and paid management.

A comprehensive evaluation of the cost of production of any business will examine several levels of cost including basic, allocated and total costs. All three of these cost categories are calculated on the AgFA© cost of production report. Appendix two also has a worksheet that can be used to calculate all three cost categories.

## **X. Cost per Hundredweight Equivalent (CWT EQ) vs. CWT Sold**

CWT EQ is an indexing procedure which focuses on the primary product that is sold and standardizes farms in terms of milk price and other variables for analysis purposes.

Dairy farms have numerous sources of income: milk, cull cows, calves, Commodity Credit Corporation (CCC) milk assessment refund, cooperative dividends, property tax credit on income taxes, crop-related government payments, etc. This large number of income sources makes using an equivalent unit essential. In addition, on most dairy farms the cost of producing crops sold for cash cannot be separated from the cost of producing the crops fed to the dairy herd. The farm's total income (including cash sales of crops and changes in the value of feed and cattle inventories) must be included when calculating equivalent units.

The use of an equivalent unit is the most meaningful measure when calculating the cost of producing milk, because dairy farm businesses have multiple sources of income. The measure is calculated by summing the income from the sale of all products produced on the dairy farm and dividing by the price of milk.

For most analyses, the equivalent unit is Hundredweight of Milk Sales Equivalent (CWT EQ). The output measure for an individual farm is calculated with the following formula:

$$\frac{\text{Total Farm Income from all Sources}}{\text{Average Price Received per Hundredweight of Milk Sold by that Farm}}$$

However, when studying a group of farms or comparing farms that may be receiving different milk prices, all producers should use the same price. Therefore the formula should be:

$$\frac{\text{Total Farm Income from all Sources}}{\text{U.S. All Milk Price per Hundredweight (for the year in question)}}$$

The U.S. All Milk Price per Hundredweight for 2002 is \$12.15.

Note: If the income from non-dairy enterprises exceed 30 percent of total income, additional calculations to separate out the non-dairy enterprises' costs are required.

**The U.S. All Milk Price** is calculated by the USDA by summing all the gross income from milk sales from all of the farms in the country and dividing that sum by the sum of the total hundredweights of milk sold by all the farms in the country. This price is used for the Hundredweight of Milk Sales Equivalent (CWT EQ) calculation.

In contrast, the number at the top of the CWT **sold** column on the cost of production reports is the **INCOME per 100 pounds of milk sold** by the business. **It is not the milk price.** The income per 100 pounds of milk sold is calculated by dividing total farm income by the hundredweight of milk sold. This is

*necessary because each expense item is divided by the hundredweight of milk sold. Therefore these expense amounts must be compared to the INCOME per hundredweight of milk sold and not to the price of milk.*

## **XI. Comparing the Average Cost of Production of Multi-State Graziers with Your Cost of Production**

Table 1-1 summarizes selected numbers (mainly from Tables 1-2 to 1-5) for 103 graziers in 2002 and repeats comparable numbers from 126 graziers in 2001, and 92 graziers in 2000.

The farm earnings statement (Table 1-2) presents values on a whole farm, per Cow and per CWT EQ basis. Table 1-3 shows the average cost of production values from all the graziers in 2002, presenting values on a whole farm, per CWT sold, and per CWT EQ basis. Use the per CWT EQ columns to compare costs for each cost category. If your costs are greatly different, try to figure out why they are so different and then decide if it is something that could or should be changed.

Some differences could be caused by variations in data categorization. For example, an expense that might have been called “marketing” by you might have been included as “other farm expense” by the group. While much more interpretation remains, the data in this report may confirm some beliefs and may contradict others.

Benjamin Franklin said, “A penny saved is a penny earned.” This is as true today as it was in Franklin’s day, but how much difference does a penny make? If multiplied by a large enough number, a penny can amount to a lot. For example, a penny amounts to \$10,000 if multiplied by a million. **A penny saved per 100 pounds of milk sold per average grazer in this analysis would add about \$115 of profit per year** (assuming that no income was lost in the action taken to save the penny of cost). A penny added to the price per 100 pounds of milk sold would have the same effect (assuming that no expense increased in the action taken to earn an extra penny of income).

Not to dismiss Benjamin Franklin, it is obvious that to the average grazer in this analysis, it takes more than a few pennies per 100 pounds of milk sold to make a big difference in profitability. Still, enough pennies in enough places can add up to important differences.

## **XII. The Average Performance of 103 Grazing Farms in 2002, 126 in 2001 and 92 in 2000**

The HC asset valuation method is used to calculate measures of profitability in the detailed cost of production and farm earnings reports in the tables, to provide a better measure of profit levels generated by operating the farm business. Any comparison between the measures in this report and data based on the CMV of assets will be misleading. The grazing dairy farm families that provided usable data display an average financial performance level that many farm families would be satisfied with. This level of financial performance along with some other characteristics of grazing systems suggests grazing may be a viable alternative for farm families who want to be financially successful, especially on a dairy farm that relies primarily on family labor.

The number of summarized herds increased from 92 in 2000 to 126 in 2001, and decreased to 103 in 2002. Some herds have been new to the study each year. Some year to year differences come from this change in participating farms. Primarily because the sharing of farm financial data is a voluntary act, data is not collected via a random selection procedure. In general, the larger the group, the more likely that the group is a representative sample. Also in general, most groups of less than 20 may not be representative of the larger population they come from.

The financial performance of graziers was respectable in 2002 and 2000 and was considerably higher in 2001. Some of the year-to-year differences are explained by an average multi-state grazer mailbox milk price change from \$13.16 in 2000 to \$16.31 in 2001 to \$13.73 in 2002. ***The average mailbox milk price in this report is calculated by summing all the gross income from milk sales from all of the farms in the group and dividing that sum by the sum of the total hundredweights of milk sold by all the farms in the group. The U.S. All Milk Price is calculated by the USDA by summing all the gross income from milk sales from all of the farms in the country and dividing that sum by the sum of the total hundredweights of milk sold by all the farms in the country. This price is used for the Hundredweight of Milk Sales Equivalent (CWT EQ) calculation (see Chapter X).***



The US All Milk Price was \$12.15 in 2002, \$14.94 in 2001, and \$12.33 in 2000. The financial performance in 2002 was very similar to 2000, both being less desirable than 2001. Basic, allocated and allocated minus basic costs were higher in 2001. It is fairly common for the cost per unit to increase in years of higher prices. This is at least partly explained by patterns of behavior. Farm managers often decrease discretionary purchases in lower milk price years and increase discretionary purchases in higher milk price years. This is influenced by the desire to balance cash flows and tax liabilities from one year to another.

NFIFO per cow, NFIFO per CWT EQ and total NFIFO was considerably higher in 2001 than in 2002 and 2000.

The pounds of milk sold per cow appears to be on a downward trend. The decline was substantial from 2000 to 2001 and much smaller from 2001 to 2002. Many factors influence the change in the average pounds of milk sold per cow including weather and the fact that about only 70% of the herds in the data are the same from one year to another. Therefore it's difficult to make meaningful conclusions about this appearance of a trend.

If all labor and management compensation were omitted, NFIFO/CWT EQ would increase substantially in all years. Paid labor and management compensation averaged \$1.10/CWT EQ in 2002, \$1.13/CWT EQ in 2001, and \$0.94/CWT EQ in 2000.

Because of rounding, some small mathematical differences might be found in the summary tables below.

Table 1-1 Performance Measures Selected from Tables 1-2 to 1-5 Summarizing the Average Performance of Grazing Dairy Farms From Many States			
	2000	2001	2002
Number of Herds	92	126	103
Number of Cows per Herd	90	84	86
Average Lbs. Milk per Cow	16,836	15,426	15,332
Average Lbs. Milk per Herd	1,511,264	1,303,333	1,318,507
Group Average Mailbox Milk Price	\$13.16	\$16.31	\$13.73
U.S. All Milk Price (used to calculate CWT EQ)*	\$12.33	\$14.94	\$12.15
Average Basic Cost per CWT EQ	\$7.83	\$8.60	\$7.74
Allocated Cost per CWT EQ	\$10.67	\$11.68	\$10.45
Allocated Minus Basic Cost per CWT EQ (Non Basic Costs)	\$2.84	\$3.08	\$2.71
NFIFO per Cow (without deducting any labor compensation)	577	866	620
NFIFO per CWT EQ (without deducting any labor compensation)	\$2.60	\$4.39	\$2.80
NFIFO per Farm	\$33,098	\$54,283	\$32,354
<b>NFIFO per Cow</b>	<b>\$395</b>	<b>\$643</b>	<b>\$376</b>
<b>NFIFO per CWT EQ</b>	<b>\$1.66</b>	<b>\$3.26</b>	<b>\$1.70</b>

\*See Chapters IX and X for more information about CWT EQ and cost categories.

NFIFO (without deducting any labor compensation) is not a common measure. It is used in this project because some comparisons are made between farms that rely mainly on hired labor and farms that rely entirely on unpaid labor. In such cases, this uncommon measure provides additional insight to the comparisons.

**See the following tables (1-2 to 1-5) for more details about the average performance of the 103 graziers in 2002.**



Table 1-2, p. 1

The Average AgFA© Farm Earnings Report for 103 Great Lakes Graziers

Income	<u>2002</u> Per Farm	<u>2002</u> per Cow	<u>2002</u> per CWT EQ
<b>Cash Income - Basis Adjustments</b>			
Sales of Livestock and Other Items Bought for Resale	107.55	1.25	0.01
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	181,237.76	2,107.51	9.52
Raised Non-Breeding Livestock Sales	7,604.66	88.43	0.40
Crop Sales	3,157.91	36.72	0.17
Distributions Received from Cooperatives	843.60	9.81	0.04
Agricultural Program Payments	16,198.28	188.36	0.85
Commodity Credit Corporation (CCC) Loans	0.00	0.00	0.00
Crop Insurance Proceeds and Certain Disaster Payments	0.00	0.00	0.00
Custom Hire (Machine Work) Income	499.58	5.81	0.03
Other Income, Incl. Tax Credits, Refunds	3,422.10	39.79	0.18
Sale of Purchased Breeding Livestock	28.41	0.33	0.00
Basis in Breeding Livestock Sold	(973.15)	(11.32)	(0.05)
Sale of Raised Breeding Livestock	10,202.59	118.64	0.54
<b>Total Cash Income - Basis Adjustments</b>	<b>222,329.29</b>	<b>2,585.34</b>	<b>11.68</b>
<b>Non-Cash Income</b>			
Change in Raised Crop Inventories	142.65	1.66	0.01
Change in Remaining Current Assets	321.11	3.73	0.02
Change in Raised Breeding Livestock	8,411.26	97.81	0.44
<b>Total Non-Cash Income</b>	<b>8,875.02</b>	<b>103.20</b>	<b>0.47</b>
<b>Total Income</b>	<b>231,204.31</b>	<b>2,688.54</b>	<b>12.15</b>



Table 1-2, p. 2

The Average AgFA© Farm Earnings Report for 103 Great Lakes Graziers

Expenses

Cash Expense

	2002 per Farm	2002 per Cow	2002 per CWT EQ
Cost of Items for Resale	37.11	0.43	0.00
Breeding Fees	2,589.99	30.12	0.14
Car and Truck Expenses	419.77	4.88	0.02
Chemicals	1,399.03	16.27	0.07
Conservation Expenses	0.00	0.00	0.00
Custom Heifer Raising Expenses	92.31	1.07	0.00
Custom Hire (Machine Work)	6,118.02	71.14	0.32
Employee Benefits - Dependents	299.22	3.48	0.02
Employee Benefits - Non-Dependents	285.34	3.32	0.01
Feed Purchase	53,015.20	616.48	2.79
Fertilizer and Lime	4,456.69	51.82	0.23
Freight and Trucking	1,599.23	18.60	0.08
Gasoline, Fuel, and Oil	4,252.88	49.45	0.22
Farm Insurance	3,289.81	38.26	0.17
Mortgage Interest	8,366.33	97.29	0.44
Other Interest	2,841.09	33.04	0.15
Labor Hired - Dependents	466.09	5.42	0.02
Labor Hired - Non-Dependents	19,904.28	231.46	1.05
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Rent/Lease Equipment	933.27	10.85	0.05
Rent/Lease Other	4,240.66	49.31	0.22
Repairs and Maintenance	14,261.53	165.84	0.75
Building and Fence Repairs	858.64	9.98	0.05
Machinery Repairs	238.61	2.77	0.01
Seeds and Plants Purchased	2,506.76	29.15	0.13
Storage and Warehousing	22.28	0.26	0.00
Supplies Purchased	5,426.50	63.10	0.29
Taxes - Other	3,428.50	39.87	0.18
Taxes - Payroll	20.71	0.24	0.00
Utilities	5,660.69	65.82	0.30
Veterinary Fees and Medicine	5,719.10	66.50	0.30
Other Farm Expenses	5,287.65	61.49	0.28
Marketing & Hedging	7,544.99	87.74	0.40
Other Crop Expenses	467.93	5.44	0.02
Other Livestock Expenses	6,659.33	77.44	0.35
<b>Total Cash Expense</b>	<b>172,709.54</b>	<b>2,008.34</b>	<b>9.08</b>
Non-Cash Expenses			
- Change in Prepaid Expenses	1,554.90	18.08	0.08
Change in Accounts Payable	2,843.77	33.07	0.15
Machinery, Equipment and Building Depreciation	19,357.09	225.09	1.02
Livestock Depreciation	2,384.55	27.73	0.13
<b>Total Non-Cash Expenses</b>	<b>26,140.31</b>	<b>303.97</b>	<b>1.37</b>
<b>Total Expenses</b>	<b>198,849.85</b>	<b>2,312.31</b>	<b>10.45</b>
Net Farm Income From Operations (NFIFO)	32,354.47	376.23	1.70
Gain (Loss) on Sale of All Farm Capital Assets	4,312.68	50.15	0.23
<b>Net Farm Income (NFI)</b>	<b>36,667.15</b>	<b>426.38</b>	<b>1.93</b>



Table 1-3, p. 1

The Average Cost of Production Report for 103 Great Lakes Graziers. This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details.

Income		<u>2002</u> per Farm	<u>2002</u> per CWT	<u>2002</u> per CWT EQ
	Total Income	231,204.31	17.54	12.15
Expenses		<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
<b>Basic Cost</b>				
	Cost of Items for Resale	37.11	0.00	0.00
	Breeding Fees	2,589.99	0.20	0.14
	Car and Truck Expenses	419.77	0.03	0.02
	Chemicals	1,399.03	0.11	0.07
	Conservation Expenses	0.00	0.00	0.00
	Custom Heifer Raising Expenses	92.31	0.01	0.00
	Custom Hire (Machine Work)	6,118.02	0.46	0.32
	Feed Purchase	53,015.20	4.02	2.79
	Fertilizer and Lime	4,456.69	0.34	0.23
	Freight and Trucking	1,599.23	0.12	0.08
	Gasoline, Fuel, and Oil	4,252.88	0.32	0.22
	Farm Insurance	3,289.81	0.25	0.17
	Rent/Lease Equipment	933.27	0.07	0.05
	Rent/Lease Other	4,240.66	0.32	0.22
	Repairs and Maintenance	14,261.53	1.08	0.75
	Building and Fence Repairs	858.64	0.07	0.05
	Machinery Repairs	238.61	0.02	0.01
	Seeds and Plants Purchased	2,506.76	0.19	0.13
	Storage and Warehousing	22.28	0.00	0.00
	Supplies Purchased	5,426.50	0.41	0.29
	Taxes - Other	3,428.50	0.26	0.18
	Taxes - Payroll	20.71	0.00	0.00
	Utilities	5,660.69	0.43	0.30
	Veterinary Fees and Medicine	5,719.10	0.43	0.30
	Other Farm Expenses	5,287.65	0.40	0.28
	Marketing & Hedging	7,544.99	0.57	0.40
	Other Crop Expenses	467.93	0.04	0.02
	Other Livestock Expenses	6,659.33	0.51	0.35
	- Change in Prepaid Expenses	1,554.90	0.12	0.08
	Change in Accounts Payable	2,843.77	0.22	0.15
	Depreciation on Purchased Breeding Livestock	2,384.55	0.18	0.13
	<b>Total Basic Cost</b>	<b>147,330.41</b>	<b>11.17</b>	<b>7.74</b>



Table 1-3, p. 2

The Average Cost of Production Report for 103 Great Lakes Graziers. This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details.

	<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
<b>Interest Cost</b>			
Mortgage Interest	8,366.33	0.63	0.44
Other Interest	2,841.09	0.22	0.15
<b>Total Interest Cost</b>	<b>11,207.42</b>	<b>0.85</b>	<b>0.59</b>
<b>Labor Cost</b>			
Employee Benefits - Dependents	299.22	0.02	0.02
Employee Benefits - Non-Dependents	285.34	0.02	0.01
Labor Hired - Dependents	466.09	0.04	0.02
Labor Hired - Non-Dependents	19,904.28	1.51	1.05
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Value of Unpaid Labor & Management	36,143.04	2.74	1.90
<b>Total Labor Cost</b>	<b>57,097.97</b>	<b>4.33</b>	<b>3.00</b>
<b>Depreciation &amp; Equity Cost</b>			
Machinery, Equipment, Building Depreciation	19,357.09	1.47	1.02
Interest on Equity Capital	25,874.13	1.96	1.36
<b>Total Depreciation &amp; Equity Cost</b>	<b>45,231.21</b>	<b>3.43</b>	<b>2.38</b>
<b>Total Expenses</b>	<b>260,867.01</b>	<b>19.79</b>	<b>13.71</b>
<b>Total Income - Total Expenses</b>	<b>(29,662.70)</b>	<b>(2.25)</b>	<b>(1.56)</b>
<b>Net Farm Income from Operations (NFIFO) Summary</b>			
Total Allocated Costs	198,849.85	15.08	10.45
<b>Net Farm Income From Operations (NFIFO)</b>	<b>32,354.47</b>	<b>2.45</b>	<b>1.70</b>
Gain (Loss) on Sale of All Farm Capital Assets	4,312.68	0.33	0.23
<b>Net Farm Income (NFI)</b>	<b>36,667.15</b>	<b>2.78</b>	<b>1.93</b>



**Table 1-4**

**The Average AgFA© Financial Measures Report Showing Selected Measures of Financial Performance for 103 Great Lakes Graziers**

<b>Profitability (Assets at Cost and Cost (Tax) Depreciation)</b>	<b>2002</b>	<b>2002</b>	<b>2002</b>
	Per Farm	Per Cow	Per CWT EQ
Net Farm Income From Operations	\$32,354.47	\$376.23	\$1.70
Net Farm Income	\$36,667.15	\$426.38	\$1.93
Rate of Return on Assets (ROROA)	6.43%	6.43%	6.43%
Cost (Tax) Depreciation Claimed	21,741.64	252.82	1.14
Rate of Return on Equity	N/A	N/A	N/A
Net Profit Margin	5.09 %	5.09 %	5.09 %
<b>Profitability (Assets at Market Value and Economic Depreciation)</b>			
Net Farm Income From Operations	\$45,146.61	\$524.98	\$2.37
Net Farm Income	\$49,459.29	\$575.13	\$2.60
Rate of Return on Assets (ROROA)	3.42 %	3.42 %	3.42 %
Economic Depreciation Claimed	8,986.60	104.50	0.47
Rate of Return on Equity	2.57 %	2.57 %	2.57 %
Net Profit Margin	10.61 %	10.61 %	10.61 %
<b>Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)</b>			
Asset Turnover (Cost and Tax)	1.241	1.241	1.241
Basic Cost (Cost and Tax)	0.637	0.637	0.637
Asset Turnover (Market Value and Economic)	0.322	0.322	0.322
Basic Cost (Market Value and Economic)	0.636	0.636	0.636
Wages Paid (both)	0.091	0.091	0.091
Interest Paid (both)	0.048	0.048	0.048
Economic Depreciation	0.029	0.029	0.029
Net Farm Income from Operations (Market Value and Economic)	0.195	0.195	0.195
Cost (Tax) Depreciation	0.084	0.084	0.084
Net Farm Income from Operations (Cost and Tax)	0.140	0.140	0.140
<b>Repayment Capacity</b>			
Capital Replacement & Debt Repayment Capacity	\$38,067.61	\$442.67	\$2.00
Coverage Margin	\$7,487.89	\$87.07	\$0.39
Term Debt Coverage Ratio	1.67	1.67	1.67
<b>Liquidity</b>			
Net Cash Income	\$50,630.01	\$588.75	\$2.66
Working Capital	\$13,223.28	\$153.77	\$0.69
Current Ratio		1.35	1.35
<b>Solvency (Assets at Market Value)</b>			
Beginning Total Farm Assets	\$700,116.17	\$8,141.25	\$36.79
Beginning Total Farm Liabilities	\$194,730.38	\$2,264.41	\$10.23
Ending Total Farm Assets	\$734,896.06	\$8,545.69	\$38.62
Ending Total Farm Liabilities	\$205,316.81	\$2,387.51	\$10.79
Ending Farm Net Worth	\$529,579.25	\$6,158.18	\$27.83
Change in Farm Net Worth	\$24,193.45	\$281.33	\$1.27
Year Ending Farm Debt to Asset Ratio	0.279	0.279	0.279



**Table 1-5**

**The Average AgFA© Balance Sheet of 103 Great Lakes Graziers in 2002 Showing the Current Market Values and Historic Cost Values of Assets**

	<u>Beg. Dollars</u>	<u>End Dollars</u>	<u>Cost Basis</u>	
<b>Current Assets</b>				
Cash Accounts	6,783	6,495		
Prepaid Expenses & Purchased Inventories	8,022	6,467		
Raised Feed Inventories	26,608	26,751		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	8,992	9,174		
Market Livestock & Etc.	2,098	2,236		
<b>Total Current Assets</b>	<b>52,502</b>	<b>51,124</b>		
<b>Non-Current Assets</b>				
			<u>Beg. Dollars</u>	<u>End Dollars</u>
Raised Breeding Livestock	143,352	151,764		
Purchased Breeding Livestock	1,125	1,021	1,376	1,085
Machinery & Equipment	108,487	111,493	26,000	25,820
Buildings	47,229	45,845	23,634	22,758
Land & House	256,530	270,396	56,151	56,618
Other Non-Current Assets	90,891	103,254	26,166	29,526
<b>Total Non-Current Assets</b>	<b>647,614</b>	<b>683,772</b>	<b>133,327</b>	<b>135,807</b>
<b>Total Farm Assets</b>	<b>700,116</b>	<b>734,896</b>		
<b>Current Liabilities</b>				
Accounts Payable	4,760	7,604		
Current Portion of Non-Current Liabilities	18,266	19,074		
Other Current Liabilities	6,581	11,223		
<b>Total Current Liabilities</b>	<b>29,607</b>	<b>37,900</b>		
<b>Non-Current Liabilities</b>				
Intermediate Liabilities	25,144	26,218		
Long-Term Liabilities	139,980	141,199		
Contingent Liabilities	146,763	155,024		
<b>Total Non-Current Liabilities</b>	<b>311,887</b>	<b>322,441</b>		
<b>Total Farm Liabilities</b>	<b>341,494</b>	<b>360,341</b>		
Non-Farm Assets	26,364	26,108		
Non-Farm Liabilities	2,589	2,523		

**Statement of Equities (Net Worth)**

	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>
Contributed Capital	825	825	0
Retained Earnings <sup>1</sup>	133,626	132,552	-1,074
Valuation Adjustment	224,172	241,178	17,006
<b>Total Farm Equities</b>	<b>358,623</b>	<b>374,555</b>	<b>15,932</b>
Non-Farm Equities	23,775	23,585	-190
<b>Total Equities</b>	<b>382,398</b>	<b>398,140</b>	<b>15,742</b>

<sup>1</sup> All current assets and raised breeding livestock are included in retained earnings.

### XIII. Comparing the Top Half to the Bottom Half of Graziers Sorted by NFIFO/CWT EQ Sold<sup>8</sup>

The average “top half” herd in 2002 is smaller, produces slightly more milk per cow, has a lower basic, allocated and total cost per CWT EQ, and has more than four times as much NFIFO per CWT EQ and NFIFO per Cow than the “bottom half” herds. For every basic cost item, the top group spent less per CWT EQ than the bottom group, except for car and truck expenses, supplies, and depreciation on purchased livestock. There were no differences in spending per CWT EQ for breeding, land rent, machinery repairs, and seeds purchased.

Overall, the top herds have a \$1.68 advantage in basic cost per CWT EQ and another \$0.76 per CWT EQ advantage in the four non-basic cost categories that are added to the basic cost category to create the allocated cost category. More specifically, the top group spent \$0.23 per CWT EQ less for interest, \$0.40 per CWT EQ less for labor and management, and \$0.13 less per CWT EQ for depreciation. This accounts for the \$2.44 (\$3.11-\$0.67) advantage that the top herds have in NFIFO per CWT EQ.

Because of rounding, some small mathematical differences might be found in the summary tables below.

<b>Table 2-1 Comparing The Top Half With The Bottom Half of Graziers Sorted by NFIFO per CWT EQ Sold / Most Performance Measures Selected from Tables 2-2 to 2-9</b>	<b>Top Half</b>	<b>Bottom Half</b>	<b>2002 Average</b>
Number of Herds	50	50	103
Number of Cows per Herd	75	97	86
Average Lbs. Milk per Cow	15,587	15,282	15,332
Average Lbs. Milk per Herd	1,167,013	1,488,501	1,318,507
Group Average Mailbox Milk Price	\$14.23	\$13.39	\$13.73
U.S. All Milk Price (used to calculate CWT EQ)	\$12.15	\$12.15	\$12.15
Average Basic Cost per CWT EQ	\$6.76	\$8.44	\$7.74
Allocated Cost per CWT EQ	\$9.04	\$11.48	\$10.45
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	\$2.28	\$3.04	\$2.71
NFIFO per Cow (without deducting any labor compensation)	\$971	\$409	620
NFIFO per CWT EQ (without deducting any labor compensation)	\$3.99	\$1.95	\$2.80
NFIFO per Farm	\$56,608	\$13,590	\$32,354
<b>NFIFO per Cow</b>	<b>\$756</b>	<b>\$140</b>	<b>\$376</b>
<b>NFIFO per CWT EQ</b>	<b>\$3.11</b>	<b>\$0.67</b>	<b>\$1.70</b>

If paid labor and management compensation were omitted, the NFIFO per CWT EQ would increase to \$3.99 for the top half and to \$1.95 for the bottom half.

The year 2002 comparison of the top versus bottom half was more similar to the 2000 comparison, than to the 2001 comparison. The top half had over four times as much NFIFO per CWT EQ and NFIFO per cow in 2002 and 2000 and about two and one-half times NFIFO per CWT EQ and per cow in 2001. **The more difficult years (such as those with lower milk prices) often show more differences in financial performance between the top and bottom groups when compared to high profit years.**

**See tables 2-2 to 2-9 for more details about the average financial performance of the top and bottom half herds.**

<sup>8</sup> CWT EQ sold is not the same as actual hundredweights of milk sold. See Chapter X for more information about CWT EQ.





Table 2-2, p. 1

The Average AgFA© Farm Earnings Report for the Top Half of Great Lakes Graziers.  
The 50 Top Half Graziers were sorted by Net Farm Income from Operations (NFIFO)  
per CWT EQ

Income	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Income - Basis Adjustments</b>			
Sales of Livestock and Other Items Bought for Resale	221.56	2.96	0.01
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	166,315.44	2,221.33	9.14
Raised Non-Breeding Livestock Sales	6,400.20	85.48	0.35
Crop Sales	3,010.50	40.21	0.17
Distributions Received from Cooperatives	772.17	10.31	0.04
Agricultural Program Payments	13,342.84	178.21	0.73
Commodity Credit Corporation (CCC) Loans	0.00	0.00	0.00
Crop Insurance Proceeds and Certain Disaster Payments	0.00	0.00	0.00
Custom Hire (Machine Work) Income	623.50	8.33	0.03
Other Income, Incl. Tax Credits, Refunds	2,896.38	38.68	0.16
Sale of Purchased Breeding Livestock	58.52	0.78	0.00
Basis in Breeding Livestock Sold	(1,006.20)	(13.44)	(0.06)
Sale of Raised Breeding Livestock	10,060.23	134.37	0.55
<b>Total Cash Income - Basis Adjustments</b>	<b>202,695.13</b>	<b>2,707.22</b>	<b>11.14</b>
<b>Non-Cash Income</b>			
Change in Raised Crop Inventories	2,321.42	31.01	0.13
Change in Remaining Current Assets	1,525.50	20.37	0.08
Change in Raised Breeding Livestock	14,547.72	194.30	0.80
<b>Total Non-Cash Income</b>	<b>18,394.64</b>	<b>245.68</b>	<b>1.01</b>
<b>Total Income</b>	<b>221,089.78</b>	<b>2,952.90</b>	<b>12.15</b>



Table 2-2, p. 2

The Average AgFA© Farm Earnings Report for the Top Half of Great Lakes Graziers.  
The 50 Top Half Graziers were sorted by Net Farm Income from Operations (NFIFO)  
per CWT EQ

Expenses	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Expense</b>			
Cost of Items for Resale	0.02	0.00	0.00
Breeding Fees	2,482.62	33.16	0.14
Car and Truck Expenses	572.12	7.64	0.03
Chemicals	1,129.06	15.08	0.06
Conservation Expenses	0.00	0.00	0.00
Custom Heifer Raising Expenses	190.16	2.54	0.01
Custom Hire (Machine Work)	4,761.12	63.59	0.26
Employee Benefits - Dependents	422.29	5.64	0.02
Employee Benefits - Non-Dependents	43.62	0.58	0.00
Feed Purchase	43,371.95	579.28	2.38
Fertilizer and Lime	3,649.63	48.74	0.20
Freight and Trucking	1,920.82	25.65	0.11
Gasoline, Fuel, and Oil	3,853.95	51.47	0.21
Farm Insurance	2,837.38	37.90	0.16
Mortgage Interest	5,922.52	79.10	0.33
Other Interest	2,338.38	31.23	0.13
Labor Hired - Dependents	864.12	11.54	0.05
Labor Hired - Non-Dependents	14,787.55	197.50	0.81
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Rent/Lease Equipment	782.13	10.45	0.04
Rent/Lease Other	3,940.58	52.63	0.22
Repairs and Maintenance	12,075.63	161.28	0.66
Building and Fence Repairs	1,091.08	14.57	0.06
Machinery Repairs	254.16	3.39	0.01
Seeds and Plants Purchased	2,410.63	32.20	0.13
Storage and Warehousing	45.90	0.61	0.00
Supplies Purchased	5,766.24	77.01	0.32
Taxes - Other	3,124.30	41.73	0.17
Taxes - Payroll	42.66	0.57	0.00
Utilities	4,946.38	66.06	0.27
Veterinary Fees and Medicine	4,962.42	66.28	0.27
Other Farm Expenses	3,689.89	49.28	0.20
Marketing & Hedging	5,691.68	76.02	0.31
Other Crop Expenses	315.74	4.22	0.02
Other Livestock Expenses	4,263.64	56.95	0.23
<b>Total Cash Expense</b>	<b>142,550.38</b>	<b>1,903.92</b>	<b>7.83</b>
<b>Non-Cash Expenses</b>			
- Change in Prepaid Expenses	1,341.80	17.92	0.07
Change in Accounts Payable	1,170.46	15.63	0.06
Machinery, Equipment and Building Depreciation	17,037.44	227.55	0.94
Livestock Depreciation	2,381.74	31.81	0.13
<b>Total Non-Cash Expenses</b>	<b>21,931.44</b>	<b>292.92</b>	<b>1.21</b>
<b>Total Expenses</b>	<b>164,481.82</b>	<b>2,196.84</b>	<b>9.04</b>
<b>Net Farm Income From Operations (NFIFO)</b>	<b>56,607.96</b>	<b>756.06</b>	<b>3.11</b>
Gain (Loss) on Sale of All Farm Capital Assets	4,420.82	59.05	0.24
<b>Net Farm Income (NFI)</b>	<b>61,028.78</b>	<b>815.11</b>	<b>3.35</b>



Table 2-3, p. 1

The Average AgFA© Cost of Production Report for the Top Half of Great Lakes Graziers.  
The 50 Top Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.  
This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details.

Income		<u>2002</u>	<u>2002</u>	<u>2002</u>
		per Farm	per CWT sold	per CWT EQ
Total Income		221,089.78	18.94	12.15
Expenses		<u>2002</u>	<u>2002</u>	<u>2002</u>
		per Farm	per CWT Sold	per CWT EQ
Basic Cost				
Cost of Items for Resale	0.02	0.00	0.00	
Breeding Fees	2,482.62	0.21	0.14	
Car and Truck Expenses	572.12	0.05	0.03	
Chemicals	1,129.06	0.10	0.06	
Conservation Expenses	0.00	0.00	0.00	
Custom Heifer Raising Expenses	190.16	0.02	0.01	
Custom Hire (Machine Work)	4,761.12	0.41	0.26	
Feed Purchase	43,371.95	3.72	2.38	
Fertilizer and Lime	3,649.63	0.31	0.20	
Freight and Trucking	1,920.82	0.16	0.11	
Gasoline, Fuel, and Oil	3,853.95	0.33	0.21	
Farm Insurance	2,837.38	0.24	0.16	
Rent/Lease Equipment	782.13	0.07	0.04	
Rent/Lease Other	3,940.58	0.34	0.22	
Repairs and Maintenance	12,075.63	1.03	0.66	
Building and Fence Repairs	1,091.08	0.09	0.06	
Machinery Repairs	254.16	0.02	0.01	
Seeds and Plants Purchased	2,410.63	0.21	0.13	
Storage and Warehousing	45.90	0.00	0.00	
Supplies Purchased	5,766.24	0.49	0.32	
Taxes - Other	3,124.30	0.27	0.17	
Taxes - Payroll	42.66	0.00	0.00	
Utilities	4,946.38	0.42	0.27	
Veterinary Fees and Medicine	4,962.42	0.43	0.27	
Other Farm Expenses	3,689.89	0.32	0.20	
Marketing & Hedging	5,691.68	0.49	0.31	
Other Crop Expenses	315.74	0.03	0.02	
Other Livestock Expenses	4,263.64	0.37	0.23	
- Change in Prepaid Expenses	1,341.80	0.11	0.07	
Change in Accounts Payable	1,170.46	0.10	0.06	
Depreciation on Purchased Breeding Livestock	2,381.74	0.20	0.13	
Total Basic Cost	123,065.90	10.55	6.76	



**Table 2-3, p. 2**

**The Average AgFA® Cost of Production Report for the Top Half of Great Lakes Graziers.**  
**The 50 Top Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT**  
**EQ.**

**This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details.**

	<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
<b>Interest Cost</b>			
Mortgage Interest	5,922.52	0.51	0.33
Other Interest	2,338.38	0.20	0.13
<b>Total Interest Cost</b>	<b>8,260.90</b>	<b>0.71</b>	<b>0.45</b>
<b>Labor Cost</b>			
Employee Benefits - Dependents	422.29	0.04	0.02
Employee Benefits - Non-Dependents	43.62	0.00	0.00
Labor Hired - Dependents	864.12	0.07	0.05
Labor Hired - Non-Dependents	14,787.55	1.27	0.81
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Value of Unpaid Labor & Management	34,557.64	2.96	1.90
<b>Total Labor Cost</b>	<b>50,675.21</b>	<b>4.34</b>	<b>2.78</b>
<b>Depreciation &amp; Equity Cost</b>			
Machinery, Equipment, Building Depreciation	17,037.44	1.46	0.94
Interest on Equity Capital	25,455.22	2.18	1.40
<b>Total Depreciation &amp; Equity Cost</b>	<b>42,492.66</b>	<b>3.64</b>	<b>2.34</b>
<b>Total Expenses</b>	<b>224,494.68</b>	<b>19.24</b>	<b>12.34</b>
<b>Total Income - Total Expenses</b>	<b>(3,404.90)</b>	<b>(0.29)</b>	<b>(0.19)</b>
<b>Net Farm Income from Operations (NFIFO) Summary</b>			
Total Allocated Costs	164,481.82	14.09	9.04
<b>Net Farm Income From Operations (NFIFO)</b>	<b>56,607.96</b>	<b>4.85</b>	<b>3.11</b>
Gain (Loss) on Sale of All Farm Capital Assets	4,420.82	0.38	0.24
<b>Net Farm Income (NFI)</b>	<b>61,028.78</b>	<b>5.23</b>	<b>3.35</b>



Table 2-4

The Average AgFA© Financial Measures Report for the Top Half of Great Lakes Graziers.  
The 50 Top Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.

**Profitability (Assets at Cost and Cost (Tax) Depreciation)**

	2002	2002	2002
	per Farm	per cow	per CWT EQ
Net Farm Income From Operations	\$56,607.96	\$756.06	\$3.11
Net Farm Income	\$61,028.78	\$815.11	\$3.35
Rate of Return on Assets (ROROA)	18.66%	18.66%	18.66%
Cost (Tax) Depreciation Claimed	19,419.18	259.37	1.07
Rate of Return on Equity	76.01 %	76.01 %	76.01 %
Net Profit Margin	15.71 %	15.71 %	15.71 %

**Profitability (Assets at Market Value and Economic Depreciation)**

Net Farm Income From Operations	\$67,378.71	\$899.92	\$3.70
Net Farm Income	\$71,799.53	\$958.96	\$3.95
Rate of Return on Assets (ROROA)	6.88 %	6.88 %	6.88 %
Economic Depreciation Claimed	8,648.45	115.51	0.48
Rate of Return on Equity	7.32 %	7.32 %	7.32 %
Net Profit Margin	20.58 %	20.58 %	20.58 %

**Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value)**

Asset Turnover (Cost and Tax)	1.181	1.181	1.181
Basic Cost (Cost and Tax)	0.556	0.556	0.556
Asset Turnover (Market Value and Economic)	0.334	0.334	0.334
Basic Cost (Market Value and Economic)	0.556	0.556	0.556
Wages Paid (both)	0.073	0.073	0.073
Interest Paid (both)	0.037	0.037	0.037
Economic Depreciation	0.029	0.029	0.029
Net Farm Income from Operations (Market Value and Economic)	0.305	0.305	0.305
Cost (Tax) Depreciation	0.077	0.077	0.077
Net Farm Income from Operations (Cost and Tax)	0.256	0.256	0.256

**Repayment Capacity**

Capital Replacement & Debt Repayment Capacity	\$56,679.84	\$757.02	\$3.11
Coverage Margin	\$36,781.11	\$491.25	\$2.02
Term Debt Coverage Ratio	3.52	3.52	3.52

**Liquidity**

Net Cash Income	\$61,150.97	\$816.74	\$3.36
Working Capital	\$23,525.45	\$314.21	\$1.29
Current Ratio	2.10	2.10	2.10

**Solvency (Assets at Market Value)**

Beginning Total Farm Assets	\$639,687.40	\$8,543.75	\$35.15
Beginning Total Farm Liabilities	\$147,580.35	\$1,971.10	\$8.11
Ending Total Farm Assets	\$683,317.75	\$9,126.48	\$37.55
Ending Total Farm Liabilities	\$157,215.97	\$2,099.80	\$8.64
Ending Farm Net Worth	\$526,101.77	\$7,026.68	\$28.91
Change in Farm Net Worth	\$33,994.73	\$454.04	\$1.87



Table 2-5

The Average AgFA© **Balance Sheet** Report for the Top Half of Great Lakes Graziers in 2002  
 Showing the Current Market Values and Historic Cost Values of Assets.  
 The 50 Top Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.  
**Balance Sheet**

	<u>Beg. Dollars</u>	<u>End Dollars</u>	<u>Cost Basis</u>	
<b>Current Assets</b>				
Cash Accounts	7,035	6,241		
Prepaid Expenses & Purchased	6,512	5,171		
Raised Feed Inventories	21,162	23,483		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	7,107	8,388		
Market Livestock & Etc.	1,429	1,673		
<b>Total Current</b>	<b>43,245</b>	<b>44,956</b>		
<b>Non-Current Assets</b>				
Raised Breeding Livestock	125,528	140,076		
Purchased Breeding Livestock	1,286	934	1,495	1,006
Machinery & Equipment	107,906	112,915	26,920	28,100
Buildings	54,399	52,242	27,421	25,891
Land & House	208,911	220,051	56,942	58,567
Other Non-Current Assets	98,412	112,144	26,970	32,934
<b>Total Non-Current</b>	<b>596,443</b>	<b>638,362</b>	<b>139,748</b>	<b>146,498</b>
<b>Total Farm</b>	<b>639,687</b>	<b>683,318</b>		
<b>Current Liabilities</b>				
Accounts Payable	2,731	3,901		
Current Portion of Non-Current Liabilities	10,185	10,708		
Other Current Liabilities	5,977	6,821		
<b>Total Current</b>	<b>18,893</b>	<b>21,430</b>		
<b>Non-Current Liabilities</b>				
Intermediate Liabilities	24,715	25,727		
Long-Term Liabilities	103,973	110,058		
Contingent Liabilities	128,877	138,709		
<b>Total Non-Current</b>	<b>257,565</b>	<b>274,494</b>		
<b>Total Farm Liabilities</b>	<b>276,458</b>	<b>295,925</b>		
Non-Farm Assets	24,744	24,318		
Non-Farm Liabilities	1,345	1,156		

**Statement of Equities (Net Worth)**

	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>
Contributed Capital	168	168	0
Retained Earnings	160,773	174,146	13,373
Valuation	202,288	213,079	10,791
<b>Total Farm Equities</b>	<b>363,230</b>	<b>387,393</b>	<b>24,164</b>
Non-Farm Equities	23,399	23,162	-237
<b>Total Equities</b>	<b>386,629</b>	<b>410,556</b>	<b>23,927</b>

1 All current assets and raised breeding livestock are included in retained earnings.



Table 2-6, p. 1

The Average AgFA© Farm Earnings Report for the Bottom Half of Great Lakes Graziers.  
The 50 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.

Income	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Income - Basis Adjustments</b>			
Sales of Livestock and Other Items Bought for	0.00	0.00	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	199,447.96	2,047.72	9.79
Raised Non-Breeding Livestock Sales	8,791.20	90.26	0.43
Crop Sales	3,485.70	35.79	0.17
Distributions Received from Cooperatives	965.64	9.91	0.05
Agricultural Program Payments	19,062.48	195.71	0.94
Crop Insurance Proceeds and Certain Disaster	0.00	0.00	0.00
Custom Hire (Machine Work) Income	230.78	2.37	0.01
Other Income, Incl. Tax Credits, Refunds	4,058.92	41.67	0.20
Basis in Breeding Livestock Sold	(242.48)	(2.49)	(0.01)
Sale of Raised Breeding Livestock	10,684.12	109.69	0.52
<b>Total Cash Income - Basis</b>	<b>246,484.32</b>	<b>2,530.64</b>	<b>12.10</b>
<b>Non-Cash Income</b>			
Change in Raised Crop Inventories	(1,257.12)	(12.91)	(0.06)
Change in Remaining Current Assets	(788.55)	(8.10)	(0.04)
Change in Raised Breeding Livestock	3,063.47	31.45	0.15
<b>Total Non-Cash Income</b>	<b>1,017.81</b>	<b>10.45</b>	<b>0.05</b>
<b>Total Income</b>	<b>247,502.13</b>	<b>2,541.09</b>	<b>12.15</b>



Table 2-6, p. 2

The Average AgFA© Farm Earnings Report for the Bottom Half of Great Lakes Graziers.  
The 50 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.

Expenses	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Expense</b>			
Cost of Items for Resale	76.42	0.78	0.00
Breeding Fees	2,760.58	28.34	0.14
Car and Truck Expenses	271.06	2.78	0.01
Chemicals	1,652.20	16.96	0.08
Conservation Expenses	0.00	0.00	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	7,463.38	76.63	0.37
Employee Benefits - Dependents	194.10	1.99	0.01
Employee Benefits - Non-Dependents	544.18	5.59	0.03
Feed Purchase	62,836.46	645.14	3.08
Fertilizer and Lime	5,407.06	55.51	0.27
Freight and Trucking	1,345.62	13.82	0.07
Gasoline, Fuel, and Oil	4,686.74	48.12	0.23
Farm Insurance	3,735.82	38.36	0.18
Mortgage Interest	10,612.76	108.96	0.52
Other Interest	3,331.84	34.21	0.16
Labor Hired - Dependents	96.00	0.99	0.00
Labor Hired - Non-Dependents	25,337.02	260.13	1.24
Rent/Lease Equipment	1,140.40	11.71	0.06
Rent/Lease Other	4,498.38	46.18	0.22
Repairs and Maintenance	16,708.20	171.54	0.82
Building and Fence Repairs	677.72	6.96	0.03
Machinery Repairs	237.38	2.44	0.01
Seeds and Plants Purchased	2,603.44	26.73	0.13
Supplies Purchased	5,191.32	53.30	0.25
Taxes - Other	3,766.40	38.67	0.18
Taxes - Payroll	0.00	0.00	0.00
Utilities	6,363.10	65.33	0.31
Veterinary Fees and Medicine	6,590.88	67.67	0.32
Other Farm Expenses	6,827.12	70.09	0.34
Marketing & Hedging	9,534.84	97.89	0.47
Other Crop Expenses	648.20	6.66	0.03
Other Livestock Expenses	8,037.90	82.52	0.39
<b>Total Cash Expense</b>	<b>203,176.52</b>	<b>2,086.00</b>	<b>9.97</b>
<b>Non-Cash Expenses</b>			
- Change in Prepaid Expenses	1,778.82	18.26	0.09
Change in Accounts Payable	4,716.32	48.42	0.23
Machinery, Equipment and Building	21,801.64	223.84	1.07
Livestock Depreciation	2,439.04	25.04	0.12
<b>Total Non-Cash Expenses</b>	<b>30,735.82</b>	<b>315.56</b>	<b>1.51</b>
<b>Total Expenses</b>	<b>233,912.34</b>	<b>2,401.56</b>	<b>11.48</b>
Net Farm Income From Operations (NFIFO)	13,589.78	139.53	0.67
Gain (Loss) on Sale of All Farm Capital Assets	4,363.30	44.80	0.21
<b>Net Farm Income (NFI)</b>	<b>17,953.08</b>	<b>184.32</b>	<b>0.88</b>





Table 2-7, p. 1

The Average AgFA® Cost of Production Report for the Bottom Half of Great Lakes Graziers. The 50 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.

This Report Shows Basic Costs, Allocated Costs, Total Costs, NFIFO and other Financial Details.

Income		<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
	Total Income	247,502.13	16.63	12.15
Expenses		<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
Basic Cost				
	Cost of Items for Resale	76.42	0.01	0.00
	Breeding Fees	2,760.58	0.19	0.14
	Car and Truck Expenses	271.06	0.02	0.01
	Chemicals	1,652.20	0.11	0.08
	Conservation Expenses	0.00	0.00	0.00
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	7,463.38	0.50	0.37
	Feed Purchase	62,836.46	4.22	3.08
	Fertilizer and Lime	5,407.06	0.36	0.27
	Freight and Trucking	1,345.62	0.09	0.07
	Gasoline, Fuel, and Oil	4,686.74	0.31	0.23
	Farm Insurance	3,735.82	0.25	0.18
	Rent/Lease Equipment	1,140.40	0.08	0.06
	Rent/Lease Other	4,498.38	0.30	0.22
	Repairs and Maintenance	16,708.20	1.12	0.82
	Building and Fence Repairs	677.72	0.05	0.03
	Machinery Repairs	237.38	0.02	0.01
	Seeds and Plants Purchased	2,603.44	0.17	0.13
	Supplies Purchased	5,191.32	0.35	0.25
	Taxes - Other	3,766.40	0.25	0.18
	Taxes - Payroll	0.00	0.00	0.00
	Utilities	6,363.10	0.43	0.31
	Veterinary Fees and Medicine	6,590.88	0.44	0.32
	Other Farm Expenses	6,827.12	0.46	0.34
	Marketing & Hedging	9,534.84	0.64	0.47
	Other Crop Expenses	648.20	0.04	0.03
	Other Livestock Expenses	8,037.90	0.54	0.39
	- Change in Prepaid Expenses	1,778.82	0.12	0.09
	Change in Accounts Payable	4,716.32	0.32	0.23
	Depreciation on Purchased Breeding Livestock	2,439.04	0.16	0.12
	<b>Total Basic Cost</b>	<b>171,994.80</b>	<b>11.55</b>	<b>8.44</b>



Table 2-7, p. 2

The Average AgFA© **Cost of Production Report** for the Bottom Half of Great Lakes Graziers. The 50 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.

This Report Shows Basic Costs, Allocated Costs, Total Costs, NFIFO and other Financial Details.

	<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
<b>Interest Cost</b>			
Mortgage Interest	10,612.76	0.71	0.52
Other Interest	3,331.84	0.22	0.16
<b>Total Interest Cost</b>	<b>13,944.60</b>	<b>0.94</b>	<b>0.68</b>
<b>Labor Cost</b>			
Employee Benefits - Dependents	194.10	0.01	0.01
Employee Benefits - Non-Dependents	544.18	0.04	0.03
Labor Hired - Dependents	96.00	0.01	0.00
Labor Hired - Non-Dependents	25,337.02	1.70	1.24
Value of Unpaid Labor & Management	38,447.02	2.58	1.89
<b>Total Labor Cost</b>	<b>64,618.32</b>	<b>4.34</b>	<b>3.17</b>
<b>Depreciation &amp; Equity Cost</b>			
Machinery, Equipment, Building Depreciation	21,801.64	1.46	1.07
Interest on Equity Capital	27,240.55	1.83	1.34
<b>Total Depreciation &amp; Equity Cost</b>	<b>49,042.19</b>	<b>3.29</b>	<b>2.41</b>
<b>Total Expenses</b>	<b>299,599.91</b>	<b>20.13</b>	<b>14.71</b>
<b>Total Income - Total Expenses</b>	<b>(52,097.78)</b>	<b>(3.50)</b>	<b>(2.56)</b>
<b>Net Farm Income from Operations (NFIFO) Summary</b>			
Total Allocated Costs	233,912.34	15.71	11.48
<b>Net Farm Income From Operations (NFIFO)</b>	<b>13,589.78</b>	<b>0.91</b>	<b>0.67</b>
Gain (Loss) on Sale of All Farm Capital Assets	4,363.30	0.29	0.21
<b>Net Farm Income (NFI)</b>	<b>17,953.08</b>	<b>1.21</b>	<b>0.88</b>



**Table 2-8**

**The Average AgFA© Financial Measures Report for the Bottom Half of Great Lakes Graziers.**  
**The 50 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.**

<b>Profitability (Assets at Cost and Cost (Tax) Depreciation)</b>	<b>2002</b> per Farm	<b>2002</b> per Cow	<b>2002</b> per CWT EQ
Net Farm Income From Operations	\$13,589.78	\$139.53	\$0.67
Net Farm Income	\$17,953.08	\$184.32	\$0.88
Rate of Return on Assets (ROROA)	-3.28%	-3.28%	-3.28%
Cost (Tax) Depreciation Claimed	24,240.68	248.88	1.19
Rate of Return on Equity	N/A	N/A	N/A
Net Profit Margin	-2.62 %	-2.62 %	-2.62 %
<b>Profitability (Assets at Market Value and Economic Depreciation)</b>			
Net Farm Income From Operations	\$28,591.82	\$293.55	\$1.40
Net Farm Income	\$32,955.12	\$338.35	\$1.62
Rate of Return on Assets (ROROA)	1.07 %	1.07 %	1.07 %
Economic Depreciation Claimed	9,315.06	95.64	0.46
Rate of Return on Equity	-1.01 %	-1.01 %	-1.01 %
Net Profit Margin	3.42 %	3.42 %	3.42 %
<b>Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)</b>			
Asset Turnover (Cost and Tax)	1.286	1.286	1.286
Basic Cost (Cost and Tax)	0.695	0.695	0.695
Asset Turnover (Market Value and Economic)	0.313	0.313	0.313
Basic Cost (Market Value and Economic)	0.694	0.694	0.694
Wages Paid (both)	0.106	0.106	0.106
Interest Paid (both)	0.056	0.056	0.056
Economic Depreciation	0.028	0.028	0.028
Net Farm Income from Operations (Market Value and Economic)	0.116	0.116	0.116
Cost (Tax) Depreciation	0.088	0.088	0.088
Net Farm Income from Operations (Cost and Tax)	0.055	0.055	0.055
<b>Repayment Capacity</b>			
Capital Replacement & Debt Repayment Capacity	\$24,167.28	\$248.12	\$1.19
Coverage Margin	-\$14,585.51	-\$149.75	-\$0.72
Term Debt Coverage Ratio	0.96	0.96	0.96
<b>Liquidity</b>			
Net Cash Income	\$43,626.70	\$447.91	\$2.14
Working Capital	\$7,079.61	\$72.69	\$0.35
Current Ratio	1.14	1.14	1.14
<b>Solvency (Assets at Market Value)</b>			
Beginning Total Farm Assets	\$774,974.56	\$7,956.62	\$38.04
Beginning Total Farm Liabilities	\$240,047.80	\$2,464.56	\$11.78
Ending Total Farm Assets	\$804,685.92	\$8,261.66	\$39.50
Ending Total Farm Liabilities	\$249,990.86	\$2,566.64	\$12.27
Ending Farm Net Worth	\$554,695.06	\$5,695.02	\$27.23
Change in Farm Net Worth	\$19,768.30	\$202.96	\$0.97
Year Ending Farm Debt to Asset Ratio	0.311	0.311	0.311



**Table 2-9**

**The Average AgFA© Balance Sheet Report for the Bottom Half of Great Lakes Graziers in 2002 Showing the Current Market Values and Historic Cost Values of Assets.**  
**The 50 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ.**

	<u>Beg. Dollars</u>	<u>End Dollars</u>	<u>Cost Basis</u>	
<b>Current Assets</b>				
Cash Accounts	6,824	7,128		
Prepaid Expenses & Purchased Inventories	9,719	7,940		
Raised Feed Inventories	32,195	30,938		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	11,102	10,272		
Market Livestock & Etc.	2,893	2,934		
<b>Total Current Assets</b>	<b>62,732</b>	<b>59,212</b>		
<b>Non-Current Assets</b>				
			<u>Beg. Dollars</u>	<u>End Dollars</u>
Raised Breeding Livestock	162,058	165,122		
Purchased Breeding Livestock	1,032	1,169	1,090	1,072
Machinery & Equipment	110,698	112,096	25,719	24,431
Buildings	40,312	39,792	19,932	19,799
Land & House	311,231	328,654	58,396	57,734
Other Non-Current Assets	86,912	98,642	26,933	27,891
<b>Total Non-Current Assets</b>	<b>712,242</b>	<b>745,474</b>	<b>132,071</b>	<b>130,927</b>
<b>Total Farm Assets</b>	<b>774,975</b>	<b>804,686</b>		
<b>Current Liabilities</b>				
Accounts Payable	6,778	11,495		
Current Portion of Non-Current Liabilities	25,902	26,793		
Other Current Liabilities	5,830	13,844		
<b>Total Current Liabilities</b>	<b>38,510</b>	<b>52,132</b>		
<b>Non-Current Liabilities</b>				
Intermediate Liabilities	24,459	24,539		
Long-Term Liabilities	177,079	173,319		
Contingent Liabilities	166,996	174,533		
<b>Total Non-Current Liabilities</b>	<b>368,534</b>	<b>372,392</b>		
<b>Total Farm Liabilities</b>	<b>407,044</b>	<b>424,524</b>		
Non-Farm Assets	28,601	28,468		
Non-Farm Liabilities	3,679	4,033		

**Statement of Equities (Net Worth)**

	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>
Contributed Capital	1,531	1,531	0
Retained Earnings <sup>1</sup>	115,282	103,738	-11,544
Valuation Adjustment	251,118	274,893	23,776
<b>Total Farm Equities</b>	<b>367,931</b>	<b>380,162</b>	<b>12,232</b>
Non-Farm Equities	24,921	24,436	-485
<b>Total Equities</b>	<b>392,852</b>	<b>404,598</b>	<b>11,746</b>

1. All current assets and raised breeding livestock are included in retained earnings.

#### XIV. Comparing Herds by Size: Less Than 100 Cows vs. 100 Cows or More

The average “large” herd in 2002 had about three times as many cows, produced about ten percent less milk per cow, and was less profitable on a per Cow and a per CWT EQ basis. The average “large” farm does provide more total dollars of NFIFO per farm. For every basic cost item, the larger herds spent less per CWT EQ than the smaller herds except for purchased feed, rent, fertilizer and lime, repairs, other livestock expenses, changes in accounts payable and depreciation of purchased livestock.

Overall, the smaller herds have a \$0.23 advantage in basic cost per CWT EQ and another \$0.84 per CWT EQ advantage in the four non-basic cost categories that are added to the basic cost category to create the allocated cost category. More specifically, the smaller herds spent \$0.06 per CWT EQ less for interest, \$0.76 per CWT EQ less for paid labor and management, and \$0.02 less per CWT EQ for depreciation than the large herds.

This accounts for the \$1.07 (\$2.23-\$1.16) overall advantage that the smaller herds have in NFIFO per CWT EQ.

Because of rounding, some small mathematical differences might be found in the summary tables below.

<b>Table 3-1 Comparing Herds by Size: Less Than 100 vs. 100 Cows or More/ Most Performance Measures Selected from Tables 3-2 to 3-9</b>			
	<b>Less than 100 Cows</b>	<b>More than 100 Cows</b>	<b>2002 Average</b>
Number of Herds	75	28	103
Number of Cows per Herd	57	164	86
Average Lbs. Milk per Cow	16,418	14,318	15,332
Average Lbs. Milk per Herd	936,493	2,341,760	1,318,507
Group Average Mailbox Milk Price	\$13.44	\$14.04	\$13.73
U.S. All Milk Price (used in calculating CWT EQ)	\$12.15	\$12.15	\$12.15
Average Basic Cost per CWT EQ	\$7.63	\$7.86	\$7.74
Allocated Cost per CWT EQ	\$9.92	\$10.99	\$10.45
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	\$2.29	\$3.13	\$2.71
NFIFO per Cow (without deducting any labor compensation)	683	560	620
NFIFO per CWT EQ (without deducting any labor compensation)	\$2.96	\$2.65	\$2.80
NFIFO per Farm	\$29,465	\$40,095	\$32,354
<b>NFIFO per Cow</b>	<b>\$516</b>	<b>\$245</b>	<b>\$376</b>
<b>NFIFO per CWT EQ</b>	<b>\$2.23</b>	<b>\$1.16</b>	<b>\$1.70</b>

The larger herds cost of paid labor which is \$0.76 per CWT EQ higher, provides the smaller herds much but not all of their advantage in NFIFO per CWT EQ. If all labor expenses were omitted, the smaller herd size would still have a higher NFIFO per CWT EQ as shown above.

The “large” versus “small” herd comparison was similar in all three years, but the smaller herds had a slightly larger NFIFO/CWT EQ advantage in 2002 and 2000 than in 2001.

**Tables 3-2 to 3-9 provide more information about the financial performance of the average herd with less than 100 cows to the average herd with more than 100 cows.**



Table 3-2, p. 1

The Average AgFA© Farm Earnings Report for the 75 Great Lakes Graziers with Less than 100 Cows

Income	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Income - Basis Adjustments</b>			
Sales of Livestock and Other Items Bought for Resale	119.07	2.09	0.01
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	125,949.15	2,208.03	9.53
Raised Non-Breeding Livestock Sales	5,207.21	91.29	0.39
Crop Sales	2,850.84	49.98	0.22
Distributions Received from Cooperatives	585.37	10.26	0.04
Agricultural Program Payments	11,075.50	194.17	0.84
Commodity Credit Corporation (CCC) Loans	0.00	0.00	0.00
Crop Insurance Proceeds and Certain Disaster Payments	0.00	0.00	0.00
Custom Hire (Machine Work) Income	344.23	6.03	0.03
Other Income, Incl. Tax Credits, Refunds	2,343.48	41.08	0.18
Sale of Purchased Breeding Livestock	20.35	0.36	0.00
Basis in Breeding Livestock Sold	(642.99)	(11.27)	(0.05)
Sale of Raised Breeding Livestock	7,619.31	133.58	0.58
<b>Total Cash Income - Basis Adjustments</b>	<b>155,471.51</b>	<b>2,725.59</b>	<b>11.76</b>
<b>Non-Cash Income</b>			
Change in Raised Crop Inventories	942.65	16.53	0.07
Change in Remaining Current Assets	(121.75)	(2.13)	(0.01)
Change in Raised Breeding Livestock	4,350.41	76.27	0.33
<b>Total Non-Cash Income</b>	<b>5,171.30</b>	<b>90.66</b>	<b>0.39</b>
<b>Total Income</b>	<b>160,642.81</b>	<b>2,816.25</b>	<b>12.15</b>



Table 3-2, p. 2

The Average AgFA© Farm Earnings Report for the 75 Great Lakes Graziers with Less than 100 Cows

Expenses	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Expense</b>			
Cost of Items for Resale	19.61	0.34	0.00
Breeding Fees	2,288.11	40.11	0.17
Car and Truck Expenses	512.83	8.99	0.04
Chemicals	1,016.00	17.81	0.08
Conservation Expenses	0.00	0.00	0.00
Custom Heifer Raising Expenses	126.77	2.22	0.01
Custom Hire (Machine Work)	4,636.12	81.28	0.35
Employee Benefits - Dependents	250.47	4.39	0.02
Employee Benefits - Non-Dependents	391.87	6.87	0.03
Feed Purchase	35,315.71	619.12	2.67
Fertilizer and Lime	2,694.72	47.24	0.20
Freight and Trucking	1,730.31	30.33	0.13
Gasoline, Fuel, and Oil	2,972.98	52.12	0.22
Farm Insurance	2,720.09	47.69	0.21
Mortgage Interest	5,752.21	100.84	0.44
Other Interest	1,616.62	28.34	0.12
Labor Hired - Dependents	640.07	11.22	0.05
Labor Hired - Non-Dependents	8,272.07	145.02	0.63
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Rent/Lease Equipment	639.62	11.21	0.05
Rent/Lease Other	2,334.49	40.93	0.18
Repairs and Maintenance	9,510.21	166.72	0.72
Building and Fence Repairs	1,071.01	18.78	0.08
Machinery Repairs	327.69	5.74	0.02
Seeds and Plants Purchased	1,593.67	27.94	0.12
Storage and Warehousing	30.60	0.54	0.00
Supplies Purchased	4,348.90	76.24	0.33
Taxes - Other	2,483.11	43.53	0.19
Taxes - Payroll	19.45	0.34	0.00
Utilities	4,505.51	78.99	0.34
Veterinary Fees and Medicine	3,981.17	69.79	0.30
Other Farm Expenses	3,784.54	66.35	0.29
Marketing & Hedging	5,279.69	92.56	0.40
Other Crop Expenses	370.71	6.50	0.03
Other Livestock Expenses	3,651.40	64.01	0.28
<b>Total Cash Expense</b>	<b>114,888.32</b>	<b>2,014.12</b>	<b>8.69</b>
<b>Non-Cash Expenses</b>			
- Change in Prepaid Expenses	1,307.00	22.91	0.10
Change in Accounts Payable	820.64	14.39	0.06
Machinery, Equipment and Building Depreciation	13,370.71	234.40	1.01
Livestock Depreciation	791.49	13.88	0.06
<b>Total Non-Cash Expenses</b>	<b>16,289.84</b>	<b>285.58</b>	<b>1.23</b>
<b>Total Expenses</b>	<b>131,178.16</b>	<b>2,299.70</b>	<b>9.92</b>
<b>Net Farm Income From Operations (NFIFO)</b>	<b>29,464.65</b>	<b>516.55</b>	<b>2.23</b>
Gain (Loss) on Sale of All Farm Capital Assets	2,901.60	50.87	0.22
<b>Net Farm Income (NFI)</b>	<b>32,366.25</b>	<b>567.42</b>	<b>2.45</b>



Table 3-3, p. 1

The Average Cost of Production Report for the 75 Great Lakes Graziers. This report shows Basic Costs, Allocated Costs, Total Costs, FIFO and Other Financial Details.

Income		<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
	Total Income	160,642.81	17.15	12.15
Expenses		<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
<b>Basic Cost</b>				
	Cost of Items for Resale	19.61	0.00	0.00
	Breeding Fees	2,288.11	0.24	0.17
	Car and Truck Expenses	512.83	0.05	0.04
	Chemicals	1,016.00	0.11	0.08
	Conservation Expenses	0.00	0.00	0.00
	Custom Heifer Raising Expenses	126.77	0.01	0.01
	Custom Hire (Machine Work)	4,636.12	0.50	0.35
	Feed Purchase	35,315.71	3.77	2.67
	Fertilizer and Lime	2,694.72	0.29	0.20
	Freight and Trucking	1,730.31	0.18	0.13
	Gasoline, Fuel, and Oil	2,972.98	0.32	0.22
	Farm Insurance	2,720.09	0.29	0.21
	Rent/Lease Equipment	639.62	0.07	0.05
	Rent/Lease Other	2,334.49	0.25	0.18
	Repairs and Maintenance	9,510.21	1.02	0.72
	Building and Fence Repairs	1,071.01	0.11	0.08
	Machinery Repairs	327.69	0.03	0.02
	Seeds and Plants Purchased	1,593.67	0.17	0.12
	Storage and Warehousing	30.60	0.00	0.00
	Supplies Purchased	4,348.90	0.46	0.33
	Taxes - Other	2,483.11	0.27	0.19
	Taxes - Payroll	19.45	0.00	0.00
	Utilities	4,505.51	0.48	0.34
	Veterinary Fees and Medicine	3,981.17	0.43	0.30
	Other Farm Expenses	3,784.54	0.40	0.29
	Marketing & Hedging	5,279.69	0.56	0.40
	Other Crop Expenses	370.71	0.04	0.03
	Other Livestock Expenses	3,651.40	0.39	0.28
	- Change in Prepaid Expenses	1,307.00	0.14	0.10
	Change in Accounts Payable	820.64	0.09	0.06
	Depreciation on Purchased Breeding Livestock	791.49	0.08	0.06
	<b>Total Basic Cost</b>	<b>100,884.16</b>	<b>10.77</b>	<b>7.63</b>





Table 3-3, p. 2

The Average Cost of Production Report for the 75 Great Lakes Graziers. This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details.

	<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
<b>Interest Cost</b>			
Mortgage Interest	5,752.21	0.61	0.44
Other Interest	1,616.62	0.17	0.12
<b>Total Interest Cost</b>	<b>7,368.83</b>	<b>0.79</b>	<b>0.56</b>
<b>Labor Cost</b>			
Employee Benefits - Dependents	250.47	0.03	0.02
Employee Benefits - Non-Dependents	391.87	0.04	0.03
Labor Hired - Dependents	640.07	0.07	0.05
Labor Hired - Non-Dependents	8,272.07	0.88	0.63
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Value of Unpaid Labor & Management	33,281.29	3.55	2.52
<b>Total Labor Cost</b>	<b>42,835.76</b>	<b>4.57</b>	<b>3.24</b>
<b>Depreciation &amp; Equity Cost</b>			
Machinery, Equipment, Building Depreciation	13,370.71	1.43	1.01
Interest on Equity Capital	21,816.20	2.33	1.65
<b>Total Depreciation &amp; Equity Cost</b>	<b>35,186.91</b>	<b>3.76</b>	<b>2.66</b>
<b>Total Expenses</b>	<b>186,275.66</b>	<b>19.89</b>	<b>14.09</b>
<b>Total Income - Total Expenses</b>	<b>(25,632.85)</b>	<b>(2.74)</b>	<b>(1.94)</b>
<b>Net Farm Income from Operations (NFIFO) Summary</b>			
Total Allocated Costs	131,178.16	14.01	9.92
<b>Net Farm Income From Operations (NFIFO)</b>	<b>29,464.65</b>	<b>3.15</b>	<b>2.23</b>
Gain (Loss) on Sale of All Farm Capital Assets	2,901.60	0.31	0.22
<b>Net Farm Income (NFI)</b>	<b>32,366.25</b>	<b>3.46</b>	<b>2.45</b>



**Table 3-4**

**The Average AgFA© Financial Measures Report for the 75 Great Lakes Graziers with less than 100 Cows.**

<b>Profitability (Assets at Cost and Cost (Tax) Depreciation)</b>	<b>2002</b>	<b>2002</b>	<b>2002</b>
	per Farm	per Cow	per CWT EQ
Net Farm Income From Operations	\$29,464.65	\$516.55	\$2.23
Net Farm Income	\$32,366.55	\$567.42	\$2.45
Rate of Return on Assets (ROROA) <span>▲</span>	3.96%	3.96%	3.96%
Cost (Tax) Depreciation Claimed	14,162.20	248.28	1.07
Rate of Return on Equity <span>▲</span>	-2.17 %	-2.17 % <span>▲</span>	-2.17 %
Net Profit Margin <span>▲</span>	4.03 %	4.03 % <span>▲</span>	4.03 %
<b>Profitability (Assets at Market Value and Economic Depreciation)</b>			
Net Farm Income From Operations	\$41,060.88	\$719.84	\$3.11
Net Farm Income	\$43,962.48	\$770.71	\$3.33
Rate of Return on Assets (ROROA) <span>▲</span>	3.20 % <span>▲</span>	3.20 %	3.20 %
Economic Depreciation Claimed	2,585.58	45.33	0.20
Rate of Return on Equity <span>▲</span>	2.45 %	2.45 %	2.45 %
Net Profit Margin <span>▲</span>	11.24 %	11.24 %	11.24 %
<b>Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)</b>			
Asset Turnover (Cost and Tax) <span>▲</span>	0.946 <span>▲</span>	0.946	0.946
Basic Cost (Cost and Tax) <span>▲</span>	0.628 <span>▲</span>	0.628	0.628
Asset Turnover (Market Value and Economic) <span>▲</span>	0.284 <span>▲</span>	0.284	0.284
Basic Cost (Market Value and Economic)	0.626	0.626	0.626
Wages Paid (both)	0.060	0.060	0.060
Interest Paid (both)	0.046	0.046	0.046
Economic Depreciation	0.013	0.013	0.013
Net Farm Income from Operations (Market Value and Economic)	0.256	0.256	0.256
Cost (Tax) Depreciation	0.083	0.083	0.083
Net Farm Income from Operations (Cost and Tax)	0.184	0.184	0.184
<b>Repayment Capacity</b>			
Capital Replacement & Debt Repayment Capacity	\$32,554.32	\$570.71	\$2.46
Coverage Margin	\$14,982.56	\$262.66	\$1.13
Term Debt Coverage Ratio	2.16	2.16	2.16
<b>Liquidity</b>			
Net Cash Income	\$41,245.79	\$723.09	\$3.12
Working Capital	\$16,988.98	\$297.84	\$1.28
Current Ratio	1.83	1.83	1.83
<b>Solvency (Assets at Market Value)</b>			
Beginning Total Farm Assets	\$551,632.77	\$9,670.76	\$41.72
Beginning Total Farm Liabilities	\$128,815.69	\$2,258.29	\$9.74
Ending Total Farm Assets	\$578,070.35	\$10,134.24	\$43.72
Ending Total Farm Liabilities	\$128,239.37	\$2,248.18	\$9.70
Ending Farm Net Worth	\$449,830.98	\$7,886.05	\$34.02
Change in Farm Net Worth	\$27,013.90	\$473.58	\$2.04
Year Ending Farm Debt to Asset Ratio	0.222	0.222	0.222



**Table 3-5**

**The Average AgFA© Balance Sheet for the 75 Great Lakes Graziers in 2002 with less than 100 Cows, Showing Current Market Values and Historic Cost Values in Assets.**

	<u>Beg Dollars</u>	<u>End Dollars</u>	<u>Cost Basis</u>	
<b>Current Assets</b>				
Cash Accounts	5,310	5,273		
Prepaid Expenses & Purchased Inventories	5,858	4,551		
Raised Feed Inventories	19,715	20,657		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	5,616	5,437		
Market Livestock & Etc.	1,381	1,438		
<b>Total Current Assets</b>	<b>37,879</b>	<b>37,357</b>		
<b>Non-Current Assets</b>				
			<u>Beg. Dollars</u>	<u>End Dollars</u>
Raised Breeding Livestock	98,942	103,292		
Purchased Breeding Livestock	1,448	1,319	1,706	1,373
Machinery & Equipment	82,647	83,288	23,578	23,862
Buildings	43,313	42,518	23,185	22,789
Land & House	185,671	196,768	52,805	53,409
Other Non-Current Assets	101,733	113,528	30,416	31,141
<b>Total Non-Current Assets</b>	<b>513,754</b>	<b>540,714</b>	<b>131,690</b>	<b>132,573</b>
<b>Total Farm Assets</b>	<b>551,633</b>	<b>578,070</b>		
<b>Current Liabilities</b>				
Accounts Payable	1,854	2,675		
Current Portion of Non-Current Liabilities	11,099	11,736		
Other Current Liabilities	3,976	5,956		
<b>Total Current Liabilities</b>	<b>16,929</b>	<b>20,368</b>		
<b>Non-Current Liabilities</b>				
Intermediate Liabilities	14,260	14,150		
Long-Term Liabilities	97,626	93,722		
Contingent Liabilities	108,569	115,084		
<b>Total Non-Current Liabilities</b>	<b>220,456</b>	<b>222,956</b>		
<b>Total Farm Liabilities</b>	<b>237,385</b>	<b>243,324</b>		
Non-Farm Assets	28,880	28,444		
Non-Farm Liabilities	1,352	1,313		

**Statement of Equities (Net Worth)**

	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>
Contributed Capital	1,021	1,021	0
Retained Earnings <sup>1</sup>	138,675	143,962	5,287
Valuation Adjustment	174,553	189,764	15,212
<b>Total Farm Equities</b>	<b>314,248</b>	<b>334,747</b>	<b>20,499</b>
Non-Farm Equities	27,528	27,131	-397
<b>Total Equities</b>	<b>341,776</b>	<b>361,878</b>	<b>20,102</b>

<sup>1</sup> All current assets and raised breeding livestock are included in retained earnings.



**Table 3-6, p. 1**  
**The Average AgFA© Farm Earnings Report for the 28 Great Lakes Graziers with 100 or More Cows**

<b>Income</b>	<b>2002</b> per Farm	<b>2002</b> per Cow	<b>2002</b> per CWT EQ
<b>Cash Income - Basis Adjustments</b>			
Sales of Livestock and Other Items Bought for Resale	76.71	0.47	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	329,332.25	2,013.60	9.52
Raised Non-Breeding Livestock Sales	14,026.39	85.76	0.41
Crop Sales	3,980.43	24.34	0.12
Distributions Received from Cooperatives	1,535.27	9.39	0.04
Agricultural Program Payments	29,920.01	182.94	0.87
Commodity Credit Corporation (CCC) Loans	0.00	0.00	0.00
Crop Insurance Proceeds and Certain Disaster Payments	0.00	0.00	0.00
Custom Hire (Machine Work) Income	915.71	5.60	0.03
Other Income, Incl. Tax Credits, Refunds	6,311.25	38.59	0.18
Sale of Purchased Breeding Livestock	50.00	0.31	0.00
Basis in Breeding Livestock Sold	(1,857.50)	(11.36)	(0.05)
Sale of Raised Breeding Livestock	17,122.09	104.69	0.50
<b>Total Cash Income - Basis Adjustments</b>	<b>401,412.62</b>	<b>2,454.32</b>	<b>11.61</b>
<b>Non-Cash Income</b>			
Change in Raised Crop Inventories	(2,000.18)	(12.23)	(0.06)
Change in Remaining Current Assets	1,507.35	9.22	0.04
Change in Raised Breeding Livestock	19,288.54	117.93	0.56
<b>Total Non-Cash Income</b>	<b>18,795.71</b>	<b>114.92</b>	<b>0.54</b>
<b>Total Income</b>	<b>420,208.34</b>	<b>2,569.24</b>	<b>12.15</b>



**Table 3-6, p. 2**  
**The Average AgFA© Farm Earnings Report for the 28 Great Lakes Graziers with 100 or More Cows**

<b>Expenses</b>	<b>2002</b> per Farm	<b>2002</b> per Cow	<b>2002</b> per CWT EQ
<b>Cash Expense</b>			
Cost of Items for Resale	83.96	0.51	0.00
Breeding Fees	3,398.61	20.78	0.10
Car and Truck Expenses	170.50	1.04	0.00
Chemicals	2,425.01	14.83	0.07
Conservation Expenses	0.00	0.00	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	10,087.39	61.68	0.29
Employee Benefits - Dependents	429.80	2.63	0.01
Employee Benefits - Non-Dependents	0.00	0.00	0.00
Feed Purchase	100,424.54	614.02	2.90
Fertilizer and Lime	9,176.26	56.11	0.27
Freight and Trucking	1,248.14	7.63	0.04
Gasoline, Fuel, and Oil	7,681.19	46.96	0.22
Farm Insurance	4,815.82	29.44	0.14
Mortgage Interest	15,368.43	93.97	0.44
Other Interest	6,120.92	37.42	0.18
Labor Hired - Dependents	0.07	0.00	0.00
Labor Hired - Non-Dependents	51,062.01	312.20	1.48
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Rent/Lease Equipment	1,719.83	10.52	0.05
Rent/Lease Other	9,346.46	57.15	0.27
Repairs and Maintenance	26,988.29	165.01	0.78
Building and Fence Repairs	289.79	1.77	0.01
Seeds and Plants Purchased	4,952.55	30.28	0.14
Storage and Warehousing	0.00	0.00	0.00
Supplies Purchased	8,312.91	50.83	0.24
Taxes - Other	5,960.82	36.45	0.17
Taxes - Payroll	24.08	0.15	0.00
Utilities	8,754.92	53.53	0.25
Veterinary Fees and Medicine	10,374.26	63.43	0.30
Other Farm Expenses	9,313.84	56.95	0.27
Marketing & Hedging	13,612.75	83.23	0.39
Other Crop Expenses	728.36	4.45	0.02
Other Livestock Expenses	14,716.29	89.98	0.43
<b>Total Cash Expense</b>	<b>327,587.79</b>	<b>2,002.94</b>	<b>9.47</b>
<b>Non-Cash Expenses</b>			
- Change in Prepaid Expenses	2,218.92	13.57	0.06
Change in Accounts Payable	8,262.86	50.52	0.24
Machinery, Equipment and Building Depreciation	35,392.04	216.39	1.02
Livestock Depreciation	6,651.67	40.67	0.19
<b>Total Non-Cash Expenses</b>	<b>52,525.49</b>	<b>321.15</b>	<b>1.52</b>
<b>Total Expenses</b>	<b>380,113.28</b>	<b>2,324.09</b>	<b>10.99</b>
<b>Net Farm Income From Operations (NFIPO)</b>	<b>40,095.05</b>	<b>245.15</b>	<b>1.16</b>
Gain (Loss) on Sale of All Farm Capital Assets	8,092.36	49.48	0.23
<b>Net Farm Income (NFI)</b>	<b>48,187.41</b>	<b>294.63</b>	<b>1.39</b>



Table 3-7, p. 1

The Average Cost of Production Report for the 28 Great Lakes Graziers with 100 or more Cows. This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details.

Income		<u>2002</u>	<u>2002</u>	<u>2002</u>
		per Farm	per CWT Sold	per CWT EQ
	Total Income	420,208.34	17.94	12.15
Expenses		<u>2002</u>	<u>2002</u>	<u>2002</u>
		per Farm	per CWT Sold	per CWT EQ
<b>Basic Cost</b>				
	Cost of Items for Resale	83.96	0.00	0.00
	Breeding Fees	3,398.61	0.15	0.10
	Car and Truck Expenses	170.50	0.01	0.00
	Chemicals	2,425.01	0.10	0.07
	Conservation Expenses	0.00	0.00	0.00
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	10,087.39	0.43	0.29
	Feed Purchase	100,424.54	4.29	2.90
	Fertilizer and Lime	9,176.26	0.39	0.27
	Freight and Trucking	1,248.14	0.05	0.04
	Gasoline, Fuel, and Oil	7,681.19	0.33	0.22
	Farm Insurance	4,815.82	0.21	0.14
	Rent/Lease Equipment	1,719.83	0.07	0.05
	Rent/Lease Other	9,346.46	0.40	0.27
	Repairs and Maintenance	26,988.29	1.15	0.78
	Building and Fence Repairs	289.79	0.01	0.01
	Seeds and Plants Purchased	4,952.55	0.21	0.14
	Storage and Warehousing	0.00	0.00	0.00
	Supplies Purchased	8,312.91	0.35	0.24
	Taxes - Other	5,960.82	0.25	0.17
	Taxes - Payroll	24.08	0.00	0.00
	Utilities	8,754.92	0.37	0.25
	Veterinary Fees and Medicine	10,374.26	0.44	0.30
	Other Farm Expenses	9,313.84	0.40	0.27
	Marketing & Hedging	13,612.75	0.58	0.39
	Other Crop Expenses	728.36	0.03	0.02
	Other Livestock Expenses	14,716.29	0.63	0.43
	- Change in Prepaid Expenses	2,218.92	0.09	0.06
	Change in Accounts Payable	8,262.86	0.35	0.24
	Depreciation on Purchased Breeding Livestock	6,651.67	0.28	0.19
	<b>Total Basic Cost</b>	<b>271,740.01</b>	<b>11.60</b>	<b>7.86</b>



Table 3-7, p. 2

The Average **Cost of Production** Report for the 28 Great Lakes Graziers with 100 or more Cows. This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details.

	<u>2002</u> per Farm	<u>2002</u> per CWT Sold	<u>2002</u> per CWT EQ
<b>Interest Cost</b>			
Mortgage Interest	15,368.43	0.66	0.44
Other Interest	6,120.92	0.26	0.18
<b>Total Interest Cost</b>	<b>21,489.35</b>	<b>0.92</b>	<b>0.62</b>
<b>Labor Cost</b>			
Employee Benefits - Dependents	429.80	0.02	0.01
Employee Benefits - Non-Dependents	0.00	0.00	0.00
Labor Hired - Dependents	0.07	0.00	0.00
Labor Hired - Non-Dependents	51,062.01	2.18	1.48
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Value of Unpaid Labor & Management	43,808.43	1.87	1.27
<b>Total Labor Cost</b>	<b>95,300.31</b>	<b>4.07</b>	<b>2.76</b>
<b>Depreciation &amp; Equity Cost</b>			
Machinery, Equipment, Building Depreciation	35,392.04	1.51	1.02
Interest on Equity Capital	36,743.57	1.57	1.06
<b>Total Depreciation &amp; Equity Cost</b>	<b>72,135.61</b>	<b>3.08</b>	<b>2.09</b>
<b>Total Expenses</b>	<b>460,665.28</b>	<b>19.67</b>	<b>13.32</b>
<b>Total Income - Total Expenses</b>	<b>(40,456.94)</b>	<b>(1.73)</b>	<b>(1.17)</b>
<b>Net Farm Income from Operations (NFIFO) Summary</b>			
Total Allocated Costs	380,113.28	16.23	10.99
<b>Net Farm Income From Operations (NFIFO)</b>	<b>40,095.05</b>	<b>1.71</b>	<b>1.16</b>
Gain (Loss) on Sale of All Farm Capital Assets	8,092.36	0.35	0.23
<b>Net Farm Income (NFI)</b>	<b>48,187.41</b>	<b>2.06</b>	<b>1.39</b>



**Table 3-8**

**The Average AgFA© Financial Measures Report for the 28 Great Lakes Graziers with 100 or more Cows**

<b>Profitability (Assets at Cost and Cost (Tax) Depreciation)</b>	<b>2002</b>	<b>2002</b>	<b>2002</b>
	per Farm	per Cow	per CWT EQ
Net Farm Income From Operations	\$40,095.05	\$245.15	\$1.16
Net Farm Income	\$48,187.41	\$294.63	\$1.39
Rate of Return on Assets (ROROA)	11.30%	11.30%	11.30%
Cost (Tax) Depreciation Claimed	42,043.71	257.06	1.22
Rate of Return on Equity	N/A	N/A	N/A
Net Profit Margin	6.18 %	6.18 %	6.18 %
<b>Profitability (Assets at Market Value and Economic Depreciation)</b>			
Net Farm Income From Operations	\$56,090.55	\$342.95	\$1.62
Net Farm Income	\$64,182.90	\$392.43	\$1.86
Rate of Return on Assets (ROROA)	3.72 %	3.72 %	3.72 %
Economic Depreciation Claimed	26,132.18	159.78	0.76
Rate of Return on Equity	2.77 %	2.77 %	2.77 %
Net Profit Margin	9.96 %	9.96 %	9.96 %
<b>Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm)</b>			
Asset Turnover (Cost and Tax)	1.820	1.820	1.820
Basic Cost (Cost and Tax)	0.646	0.646	0.646
Asset Turnover (Market Value and Economic)	0.373	0.373	0.373
Basic Cost (Market Value and Economic)	0.646	0.646	0.646
Wages Paid (both)	0.123	0.123	0.123
Interest Paid (both)	0.051	0.051	0.051
Economic Depreciation	0.047	0.047	0.047
Net Farm Income from Operations (Market Value and Economic)	0.133	0.133	0.133
Cost (Tax) Depreciation	0.084	0.084	0.084
Net Farm Income from Operations (Cost and Tax)	0.096	0.096	0.096
<b>Repayment Capacity</b>			
Capital Replacement & Debt Repayment Capacity	\$52,835.35	\$323.05	\$1.53
Coverage Margin	-\$12,587.13	-\$76.96	-\$0.36
Term Debt Coverage Ratio	1.26	1.26	1.26
<b>Liquidity</b>			
Net Cash Income	\$75,766.30	\$463.25	\$2.19
Working Capital	\$3,136.58	\$19.18	\$0.09
Current Ratio	1.04	1.04	1.04
<b>Solvency (Assets at Market Value)</b>			
Beginning Total Farm Assets	\$1,097,839.59	\$6,712.42	\$31.74
Beginning Total Farm Liabilities	\$371,287.58	\$2,270.13	\$10.74
Ending Total Farm Assets	\$1,154,964.92	\$7,061.69	\$33.39
Ending Total Farm Liabilities	\$411,774.24	\$2,517.67	\$11.91
Ending Farm Net Worth	\$743,190.68	\$4,544.02	\$21.49
Change in Farm Net Worth	\$16,638.67	\$101.73	\$0.48
Year Ending Farm Debt to Asset Ratio	0.357	0.357	0.357





**Table 3-9**

**The Average AgFA© Balance Sheet for the 28 Great Lakes Graziers in 2002 with 100 or more Cows, Showing the Current Market Values and Historic Cost Values of Assets**

	<u>Beg. Dollars</u>	<u>End Dollars</u>	<u>Cost Basis</u>	
<b>Current Assets</b>				
Cash Accounts	10,728	9,769		
Prepaid Expenses & Purchased Inventories	13,819	11,600		
Raised Feed Inventories	45,072	43,072		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	18,034	19,184		
Market Livestock & Etc.	4,017	4,375		
<b>Total Current Assets</b>	<b>91,670</b>	<b>88,000</b>		
<b>Non-Current Assets</b>				
			<u>Beg. Dollars</u>	<u>End Dollars</u>
Raised Breeding Livestock	262,309	281,598		
Purchased Breeding Livestock	261	221	490	313
Machinery & Equipment	177,702	187,043	32,489	31,065
Buildings	57,717	54,759	24,836	22,674
Land & House	446,331	467,613	65,112	65,213
Other Non-Current Assets	61,849	75,732	14,784	25,203
<b>Total Non-Current Assets</b>	<b>1,006,169</b>	<b>1,066,965</b>	<b>137,711</b>	<b>144,468</b>
<b>Total Farm Assets</b>	<b>1,097,840</b>	<b>1,154,965</b>		
<b>Current Liabilities</b>				
Accounts Payable	12,544	20,807		
Current Portion of Non-Current Liabilities	37,462	38,728		
Other Current Liabilities	13,559	25,328		
<b>Total Current Liabilities</b>	<b>63,565</b>	<b>84,863</b>		
<b>Non-Current Liabilities</b>				
Intermediate Liabilities	54,295	58,541		
Long-Term Liabilities	253,428	268,370		
Contingent Liabilities	249,069	262,007		
<b>Total Non-Current Liabilities</b>	<b>556,791</b>	<b>588,918</b>		
<b>Total Farm Liabilities</b>	<b>620,356</b>	<b>673,781</b>		
Non-Farm Assets	19,627	19,849		
Non-Farm Liabilities	5,903	5,762		

**Statement of Equities (Net Worth)**

	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>
Contributed Capital	300	300	0
Retained Earnings <sup>1</sup>	120,104	101,991	-18,112
Valuation Adjustment	357,080	378,893	21,813
<b>Total Farm Equities</b>	<b>477,483</b>	<b>481,184</b>	<b>3,700</b>
Non-Farm Equities	13,724	14,087	363
<b>Total Equities</b>	<b>491,207</b>	<b>495,271</b>	<b>4,063</b>

1 All current assets and raised breeding livestock are included in retained earnings.

## **XV. Why the Changes in the Seasonal Calving/Milking Strategy Comparison from 2000 to 2002?**

### ***Defined***

In this study, a herd is considered to be employing the seasonal calving/milking system if they stop milking at least one day or more each calendar year. They may be referred to as simply "seasonal" hereafter. A semi-seasonal calving herd milks at least one cow every day of the year **and** makes a serious attempt to "bunch" their calving to one or two times of the year, but are less likely to cull healthy, productive animals that don't conceive in the breeding window. Continuous calving herds distribute calving among most months of the year. Any calving strategies not meeting the seasonal definition is referred to as non-seasonal in this analysis and is comprised of continuous and bunch calving (semi-seasonal) herds.

### ***Challenge of Seasonal Calving/Milking***

The biggest challenge in managing a seasonal dairy herd is maintaining a 12-month calving interval. There are three ways of maintaining the 12-month interval; (1) Shortening or increasing the voluntary waiting period to first breeding, (2) Shorten the lactation for cows that were late in breeding back and (3) Cull cows that do not fit the seasonal calving/milking strategy, requiring more raised or purchased replacements that are due to freshen in the appropriate calving window. The small number of seasonal herds in the dataset is an indicator of the challenge of maintaining the 12-month calving interval.

### ***Comparing the Three Years***

In 2002, the non-seasonal herds returned to a nearly two-to-one advantage in NFIFO/Cow. The non-seasonal NFIFO/CWT EQ was 34% higher than the seasonal NFIFO/CWT EQ in 2002. This was similar to the results in 2000 where the non-seasonal herds had more than twice the NFIFO per CWT EQ and NFIFO per Cow. However, in the 2001 multi-state data, the seasonal herds had almost 1.5 times the NFIFO per Cow and NFIFO per CWT EQ than the non-seasonal herds. In six previous years of comparing seasonal with non-seasonal herds in Wisconsin data, the non-seasonal herds generated an average of about twice as much NFIFO/Cow compared to seasonal herds. In 2001, Wisconsin seasonal herds had slightly higher NFIFO per Cow and NFIFO per CWT EQ than the non-seasonal herds.

In three years of multi-state data, and in seven previous years of comparing seasonal with non-seasonal herds in Wisconsin data, more non-seasonal herds (than total seasonal herds) had higher NFIFO/Cow and NFIFO/CWT EQ values than the average NFIFO/Cow and NFIFO/CWT EQ values for the seasonal herds. The highest of the seasonal performance was not as high as the highest of the non-seasonal performance in 2001, a year in which (as explained later) the milk price pattern was extremely favorable for seasonal herds. In three years of multi-state data and eight years of Wisconsin data, no seasonal herd has attained the NFIFO/Cow or NFIFO/CWT EQ levels achieved by the highest performing non-seasonal herds. When all the collected data are considered, it is more likely a non-seasonal herd will perform better than a seasonal herd in terms of economic profitability (NFIFO/Cow and NFIFO/CWT EQ).

The seasonal herds exhibit a smaller range in financial performance than non-seasonal herds within a given year. The 2001 seasonal NFIFO per Cow ranged from \$343 to \$1198 compared to the non-seasonal range of -\$401 to \$2425. The 2001 seasonal NFIFO per CWT EQ ranged from \$1.50 to \$6.90 compared to the non-seasonal range of -\$2.60 to \$9.40. The highest non-seasonal NFIFO per Cow was twice as high as the highest seasonal NFIFO per Cow. The highest non-seasonal NFIFO per CWT EQ was 36% higher than the highest seasonal NFIFO per CWT EQ. The lowest NFIFO per cow and NFIFO per CWT EQ among the seasonal herds was higher than the lowest NFIFO per Cow and NFIFO per CWT EQ among the non-seasonal herds in 2001. Similar comparisons of range in financial performance exist in 2000 and 2002.

### ***Selection Bias Appears To Be A Major Factor In Explaining The Year-to-Year Differences.***

The number of summarized seasonal farms increased from 7 in 2000 to 18 in 2001 and declined to 13 in 2002. Of all the seasonal herds summarized in 2001, twice as many were new to the summary than were repeats from 2000. Since one of the seasonal herds in 2000 became semi-seasonal in 2001, twelve of the seasonal herds summarized in 2001 were not part of the 2000 seasonal summary. Many of the twelve new herds were well-established seasonal herds. This group of experienced seasonal graziers made their seasonal system function efficiently in 2001. Of the 13 seasonal herds included in the 2002

summary, 10 were included in 2001 and two were included in 2000. The 10 seasonal herds repeating from 2001 are among the more experienced seasonal graziers that have participated in the study.

Because farms entered and left the study during the three years, some variation in comparison results is to be expected. Primarily because the sharing of farm financial data is a voluntary act, data is not collected via a random selection procedure. It is difficult to know if one year has a more representative sample than the other. In general, the larger the group, the more likely that the group is a representative sample. Also in general, most groups of less than 20 may not be representative of the larger population that they came from.

As one way of seeing the impact of herd turnover on the seasonal results, the 2001 data was summarized from the seven herds included in the seasonal group summary in 2001 and 2000. The 2001 results from this group were noticeably below average at \$429 NFIFO/Cow and \$2.40 NFIFO/CWT EQ. One of these seven herds dropped out of the seasonal group in 2001 by becoming semi-seasonal in 2001. A 2001 summary of the other six seasonal herds that were in the 2000 summary yields an average of \$650 NFIFO/cow and \$3.53 NFIFO/CWT EQ—measures that are much higher than when the seventh herd was included and a bit above the all grazer average. The six seasonal herds that submitted data in both 2000 and 2001 are quite different from the 12 seasonal herds that were new to the summary in 2001. The 12 new herds had an average NFIFO/Cow of \$983 and an average NFIFO of \$5.32/CWT EQ.

**The 2001 milk price pattern** was more favorable for spring seasonal herds than for non-seasonal herds. There was an unusual pattern of higher prices in the spring months. The typical milk price pattern has higher milk prices in September, October and November. Milk prices in 2001 were lowest in January, February, November and December – the months of lowest milk output for most spring seasonal herds. All of the seasonal herds summarized in all years practice spring calving. In 2001, the summarized seasonal herds received a milk price that was \$1.36/CWT sold higher than received by the non-seasonal herds. In 2001, the Wisconsin seasonal herds averaged a milk price that was \$2.75/CWT higher than the Wisconsin non-seasonal herds. The "seasonal price advantage" for Wisconsin seasonal herds in the six previous years ranged from \$1.61 to minus \$0.58. The multi-state "seasonal price advantage" in 2000 was \$0.64/CWT. **In 2002, the multi-state seasonal herds had a price disadvantage of \$0.80/CWT sold.**

**In a few words, the financial performance of the average seasonal grazer in the 2001 data is likely to be a better indicator of what can be achieved under favorable conditions by experienced and highly capable managers committed to the seasonal system.**

**Furthermore, the financial performance of the average seasonal grazer in the 2001 data probably does not represent the kind of financial performance that less experienced or less capable managers could expect to achieve quickly and consistently while working toward the establishment of a seasonal system.**

This comparison of seasonal and non-seasonal calving systems illustrates the challenge in reaching confident conclusions from small groups of data and it reminds us of the danger in reaching confident conclusions from testimonials. It demonstrates the importance of using standardized and complete financial documentation to compare different farms and systems. It also begs for a careful ongoing examination to understand what is happening and what factors can result in profitability shifts.

#### **XVI. Comparing Seasonal Calving/Milking (Stop Milking at Least One Day Each Year) with Non-Seasonal Herds**

The average grazer in the 2002 data that used the non-seasonal calving strategy had more desirable financial performance than the average seasonal herd, whether NFIFO/Cow, NFIFO/CWT EQ or total NFIFO is used as the yardstick. **This is a sharp contrast** to the 2001 comparison but in agreement with 2000 results and with multiple years of other calving/milking strategy comparisons.

Unfortunately for research purposes, less than 15 percent of the herds in the three years of summaries practice seasonal calving/milking. The average seasonal herd in the 2002 data has 80% more cows which produce about 67% as much milk per cow as the cows in the non-seasonal herds.

The seasonal herds spent less per CWT EQ for most of the basic cost categories compared to the non-seasonal herds. However, the seasonal herds spent \$0.70/CWT EQ more for purchased feed and \$0.19 more on depreciation of purchased livestock. Overall, the seasonal herds spent \$0.33 more per CWT EQ for all basic costs in 2002.

The seasonal herds also have a combined \$0.12 per CWT EQ disadvantage in the four non-basic cost categories that are added to the basic cost category to create the allocated cost category. More specifically, the average seasonal grazer in 2002 had a \$0.08 per CWT EQ advantage in paid labor and management expense but a disadvantage of \$0.14 per CWT EQ in interest expense and a \$0.05 disadvantage in depreciation per CWT EQ.

The \$0.12 per CWT EQ advantage in the non-basic cost of the non-seasonal herds, plus the non-seasonal herd's total basic cost advantage of \$0.33 per CWT EQ, accounts for the \$0.45 (\$1.77-\$1.32) advantage that the non-seasonal herds have in NFIFO per CWT EQ.

If paid labor and management compensation were omitted, the NFIFO per CWT EQ would increase to \$2.36 for the seasonal and to \$2.89 for the non-seasonal herds.

Because of rounding, some small mathematical differences might be found in the summary tables below.

<b>Table 4-1 Comparing Seasonal with Non-Seasonal Calving/Milking Herds / Many Performance Measures from Tables 4-2 to 4-9</b>	<b>Seasonal</b>			<b>Non-Seasonal</b>			<b>Average</b>		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Number of Herds	7	18	13	85	101	90	92	126	103
Number of Cows per Herd	145	85	141	85	84	78	90	84	86
Average Lbs. Milk per Cow	11,667	12,270	11,044	17,560	15,695	16,454	16,560	15,426	15,332
Average Lbs. Milk per Herd	1,691,715	1,044,970	1,560,561	1,496,401	1,325,900	1,283,544	1,511,264	1,303,333	1,318,507
Group Average Mailbox Milk Price	\$13.70	\$17.50	\$13.05	\$13.06	\$16.14	\$13.85	\$13.16	\$16.31	\$13.73
U.S. All Milk Price (used to calculate CWTEQ)	\$12.33	\$14.94	\$12.15	\$12.33	\$14.94	\$12.15	\$12.33	\$14.94	\$12.15
Average Basic Cost per CWT EQ	\$6.73	\$7.67	\$8.02	\$7.96	\$8.69	\$7.69	\$7.83	\$8.60	\$7.74
Allocated Cost per CWT EQ	\$11.46	\$10.28	\$10.83	\$10.58	\$11.90	\$10.38	\$10.67	\$11.68	\$10.45
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	\$4.73	\$2.61	\$2.81	\$2.62	\$3.21	\$2.69	\$2.84	\$3.08	\$2.71
NFIFO per Cow (without deducting any labor compensation)	\$404	\$1,101	\$381	\$602	\$825	\$683	\$577	\$866	\$620
NFIFO per CWT EQ (without deducting any labor compensation)	\$2.20	\$5.46	\$2.36	\$2.64	\$4.21	\$2.89	\$2.60	\$4.39	\$2.80
NFIFO per Farm	\$23,202	\$73,322	\$30,061	\$33,913	\$50,413	\$32,686	\$33,098	\$54,283	\$32,354
<b>NFIFO per Cow</b>	<b>\$160</b>	<b>\$861</b>	<b>\$213</b>	<b>\$398</b>	<b>\$597</b>	<b>\$419</b>	<b>\$395</b>	<b>\$643</b>	<b>\$376</b>
<b>NFIFO per CWT EQ</b>	<b>\$0.87</b>	<b>\$4.66</b>	<b>\$1.32</b>	<b>\$1.75</b>	<b>\$3.04</b>	<b>\$1.77</b>	<b>\$1.66</b>	<b>\$3.26</b>	<b>\$1.70</b>



Table 4-2, p. 1

The Average AgFA© Farm Earnings Report for the 13 Seasonal Great Lakes Graziers  
(Stop Milking Herd at Least One Day Each Year)

Income	<u>2002</u> per Farm	<u>2002</u> per Cow	<u>2002</u> per CWT EQ
<b>Cash Income - Basis Adjustments</b>			
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	204,083.46	1,444.25	8.97
Raised Non-Breeding Livestock Sales	13,784.00	97.55	0.61
Crop Sales	5,518.31	39.05	0.24
Distributions Received from Cooperatives	134.31	0.95	0.01
Agricultural Program Payments	19,838.15	140.39	0.87
Custom Hire (Machine Work) Income	158.85	1.12	0.01
Other Income, Incl. Tax Credits, Refunds	4,637.77	32.82	0.20
Basis in Breeding Livestock Sold	(2,427.23)	(17.18)	(0.11)
Sale of Raised Breeding Livestock	17,200.38	121.72	0.76
<b>Total Cash Income - Basis Adjustments</b>	<b>262,928.00</b>	<b>1,860.68</b>	<b>11.56</b>
<b>Non-Cash Income</b>			
Change in Raised Crop Inventories	(10,424.69)	(73.77)	(0.46)
Change in Remaining Current Assets	3,915.38	27.71	0.17
Change in Raised Breeding Livestock	19,987.38	141.45	0.88
<b>Total Non-Cash Income</b>	<b>13,478.08</b>	<b>95.38</b>	<b>0.59</b>
<b>Total Income</b>	<b>276,406.08</b>	<b>1,956.06</b>	<b>12.15</b>



Table 4-2, p. 2

**The Average AgFA© Farm Earnings Report for the 13 Seasonal Great Lakes Graziers  
(Stop Milking Herd at Least One Day Each Year)**

<b>Expenses</b>	<b>2002</b> per Farm	<b>2002</b> per Cow	<b>2002</b> per CWT EQ
<b>Cash Expense</b>			
Cost of Items for Resale	180.85	1.28	0.01
Breeding Fees	2,392.38	16.93	0.11
Car and Truck Expenses	594.08	4.20	0.03
Chemicals	1,290.62	9.13	0.06
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	6,132.23	43.40	0.27
Employee Benefits - Dependents	0.00	0.00	0.00
Employee Benefits - Non-Dependents	0.00	0.00	0.00
Feed Purchase	76,945.62	544.53	3.38
Fertilizer and Lime	9,524.77	67.40	0.42
Freight and Trucking	602.54	4.26	0.03
Gasoline, Fuel, and Oil	4,303.92	30.46	0.19
Farm Insurance	3,062.85	21.68	0.13
Mortgage Interest	14,499.00	102.61	0.64
Other Interest	1,687.85	11.94	0.07
Labor Hired - Dependents	0.00	0.00	0.00
Labor Hired - Non-Dependents	23,715.54	167.83	1.04
Rent/Lease Equipment	898.46	6.36	0.04
Rent/Lease Other	5,301.69	37.52	0.23
Repairs and Maintenance	17,354.00	122.81	0.76
Building and Fence Repairs	0.00	0.00	0.00
Seeds and Plants Purchased	2,813.69	19.91	0.12
Supplies Purchased	6,217.85	44.00	0.27
Taxes - Other	4,623.46	32.72	0.20
Utilities	5,835.69	41.30	0.26
Veterinary Fees and Medicine	6,474.08	45.82	0.28
Other Farm Expenses	4,774.31	33.79	0.21
Marketing & Hedging	10,475.38	74.13	0.46
Other Crop Expenses	65.08	0.46	0.00
Other Livestock Expenses	2,208.69	15.63	0.10
<b>Total Cash Expense</b>	<b>211,974.62</b>	<b>1,500.09</b>	<b>9.32</b>
<b>Non-Cash Expenses</b>			
- Change in Prepaid Expenses	2,095.38	14.83	0.09
Change in Accounts Payable	1,600.85	11.33	0.07
Machinery, Equipment and Building Depreciation	24,024.00	170.01	1.06
Livestock Depreciation	6,649.85	47.06	0.29
<b>Total Non-Cash Expenses</b>	<b>34,370.08</b>	<b>243.23</b>	<b>1.51</b>
<b>Total Expenses</b>	<b>246,344.69</b>	<b>1,743.32</b>	<b>10.83</b>
<b>Net Farm Income From Operations (NIIFO)</b>	<b>30,061.38</b>	<b>212.74</b>	<b>1.32</b>
Gain (Loss) on Sale of All Farm Capital Assets	14,708.00	104.08	0.65
<b>Net Farm Income (NFI)</b>	<b>44,769.38</b>	<b>316.82</b>	<b>1.97</b>



Table 4-3, p. 1

**The Average AgFA® Cost of Production Report for the 13 Seasonal Great Lakes Graziers  
(Stop Milking Herd at Least One Day Each Year)**

<b>Income</b>		<b>2002</b>	<b>2002</b>	<b>2002</b>
		per Farm	per CWT Sold	per CWT EQ
	<b>Total Income</b>	<b>276,406.08</b>	<b>17.71</b>	<b>12.15</b>
<b>Expenses</b>		<b>2002</b>	<b>2002</b>	<b>2002</b>
		per Farm	per CWT Sold	per CWT EQ
<b>Basic Cost</b>				
	Cost of Items for Resale	180.85	0.01	0.01
	Breeding Fees	2,392.38	0.15	0.11
	Car and Truck Expenses	594.08	0.04	0.03
	Chemicals	1,290.62	0.08	0.06
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	6,132.23	0.39	0.27
	Feed Purchase	76,945.62	4.93	3.38
	Fertilizer and Lime	9,524.77	0.61	0.42
	Freight and Trucking	602.54	0.04	0.03
	Gasoline, Fuel, and Oil	4,303.92	0.28	0.19
	Farm Insurance	3,062.85	0.20	0.13
	Rent/Lease Equipment	898.46	0.06	0.04
	Rent/Lease Other	5,301.69	0.34	0.23
	Repairs and Maintenance	17,354.00	1.11	0.76
	Building and Fence Repairs	0.00	0.00	0.00
	Seeds and Plants Purchased	2,813.69	0.18	0.12
	Supplies Purchased	6,217.85	0.40	0.27
	Taxes - Other	4,623.46	0.30	0.20
	Utilities	5,835.69	0.37	0.26
	Veterinary Fees and Medicine	6,474.08	0.41	0.28
	Other Farm Expenses	4,774.31	0.31	0.21
	Marketing & Hedging	10,475.38	0.67	0.46
	Other Crop Expenses	65.08	0.00	0.00
	Other Livestock Expenses	2,208.69	0.14	0.10
	- Change in Prepaid Expenses	2,095.38	0.13	0.09
	Change in Accounts Payable	1,600.85	0.10	0.07
	Depreciation on Purchased Breeding Livestock	6,649.85	0.43	0.29
	<b>Total Basic Cost</b>	<b>182,418.31</b>	<b>11.69</b>	<b>8.02</b>





Table 4-3, p. 2

**The Average AgFA® Cost of Production Report for the 13 Seasonal Great Lakes Graziers  
(Stop Milking Herd at Least One Day Each Year)**

	<b>2002</b> per Farm	<b>2002</b> per CWT Sold	<b>2002</b> per CWT EQ
<b>Interest Cost</b>			
Mortgage Interest	14,499.00	0.93	0.64
Other Interest	1,687.85	0.11	0.07
<b>Total Interest Cost</b>	<b>16,186.85</b>	<b>1.04</b>	<b>0.71</b>
<b>Labor Cost</b>			
Employee Benefits - Dependents	0.00	0.00	0.00
Employee Benefits - Non-Dependents	0.00	0.00	0.00
Labor Hired - Dependents	0.00	0.00	0.00
Labor Hired - Non-Dependents	23,715.54	1.52	1.04
Value of Unpaid Labor & Management	37,654.15	2.41	1.66
<b>Total Labor Cost</b>	<b>61,369.69</b>	<b>3.93</b>	<b>2.70</b>
<b>Depreciation &amp; Equity Cost</b>			
Machinery, Equipment, Building Depreciation	24,024.00	1.54	1.06
Interest on Equity Capital	30,890.19	1.98	1.36
<b>Total Depreciation &amp; Equity Cost</b>	<b>54,914.19</b>	<b>3.52</b>	<b>2.41</b>
<b>Total Expenses</b>	<b>314,889.04</b>	<b>20.18</b>	<b>13.84</b>
<b>Total Income - Total Expenses</b>	<b>(38,482.96)</b>	<b>(2.47)</b>	<b>(1.69)</b>
<b>Net Farm Income from Operations (NFIFO) Summary</b>			
Total Allocated Costs	246,344.69	15.79	10.83
<b>Net Farm Income From Operations (NFIFO)</b>	<b>30,061.38</b>	<b>1.93</b>	<b>1.32</b>
Gain (Loss) on Sale of All Farm Capital Assets	14,708.00	0.94	0.65
<b>Net Farm Income (NFI)</b>	<b>44,769.38</b>	<b>2.87</b>	<b>1.97</b>



**Table 4-4**

**The Average AgFA© Financial Measures Report for the 13 Seasonal Great Lakes Graziers**

<b>Profitability (Assets at Cost and Cost (Tax) Depreciation)</b>	<b>2002</b> per farm	<b>2002</b> per cow	<b>2002</b> per CWT EQ
Net Farm Income From Operations	\$30,061.38	\$212.74	\$1.32
Net Farm Income	\$44,769.38	\$316.82	\$1.97
Rate of Return on Assets (ROROA)	17.87%	17.87%	17.87%
Cost (Tax) Depreciation Claimed	30,673.85	217.07	1.35
Rate of Return on Equity	N/A	N/A	N/A
Net Profit Margin	8.50 %	8.50 %	8.50 %
<b>Profitability (Assets at Market Value and Economic Depreciation)</b>			
Net Farm Income From Operations	\$36,569.73	\$258.80	\$1.61
Net Farm Income	\$51,277.73	\$362.88	\$2.25
Rate of Return on Assets (ROROA)	3.33 %	3.33 %	3.33 %
Economic Depreciation Claimed	24,346.34	172.29	1.07
Rate of Return on Equity	2.21 %	2.21 %	2.21 %
	10.79 %	10.79 %	10.79 %
<b>Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)</b>			
Asset Turnover (Cost and Tax)	2.075	2.075	2.075
Basic Cost (Cost and Tax)	0.659	0.659	0.659
Asset Turnover (Market Value and Economic)	0.309	0.309	0.309
Basic Cost (Market Value and Economic)	0.658	0.658	0.658
Wages Paid (both)	0.086	0.086	0.086
Interest Paid (both)	0.059	0.059	0.059
Economic Depreciation	0.065	0.065	0.065
Net Farm Income from Operations (Market Value and Economic)	0.132	0.132	0.132
Cost (Tax) Depreciation	0.087	0.087	0.087
Net Farm Income from Operations (Cost and Tax)	0.109	0.109	0.109
<b>Repayment Capacity</b>			
Capital Replacement & Debt Repayment Capacity	\$31,686.38	\$224.24	\$1.39
Coverage Margin	-\$10,980.31	-\$77.70	-\$0.48
Term Debt Coverage Ratio	1.05	1.05	1.05
<b>Liquidity</b>			
Net Cash Income	\$53,561.46	\$379.04	\$2.35
Working Capital	\$10,415.62	\$73.71	\$0.46
Current Ratio	1.19	1.19	1.19
<b>Solvency (Assets at Market Value)</b>			
Beginning Total Farm Assets	\$872,432.28	\$6,173.99	\$38.35
Beginning Total Farm Liabilities	\$257,032.46	\$1,818.96	\$11.30
Ending Total Farm Assets	\$916,806.78	\$6,488.02	\$40.30
Ending Total Farm Liabilities	\$296,599.00	\$2,098.96	\$13.04
Ending Farm Net Worth	\$620,207.78	\$4,389.06	\$27.26
Change in Farm Net Worth	\$4,807.96	\$34.02	\$0.21
Year Ending Farm Debt to Asset Ratio	0.324	0.324	0.324



**Table 4-5**

**The Average AgFA© Balance Sheet Report for the 13 Seasonal Great Lakes Graziers in 2002**  
**Showing the Current Market Values and Historic Cost Value of Assets**  
**(Stop Milking Herd at Least One Day Each Year)**

	<u>Beg. Dollars</u>	<u>End Dollars</u>	<u>Cost Basis</u>	
<b>Current Assets</b>				
Cash Accounts	16,916	16,056		
Prepaid Expenses & Purchased Inventories	13,063	10,968		
Raised Feed Inventories	28,122	17,697		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	12,472	15,580		
Market Livestock & Etc.	3,669	4,476		
<b>Total Current Assets</b>	<b>74,242</b>	<b>64,777</b>		
<b>Non-Current Assets</b>				
			<u>Beg. Dollars</u>	<u>End Dollars</u>
Raised Breeding Livestock	219,546	239,533		
Purchased Breeding Livestock	0	0	541	215
Machinery & Equipment	100,757	101,654	5,898	6,694
Buildings	29,459	29,845	17,401	17,040
Land & House	433,200	465,623	28,743	28,052
Other Non-Current Assets	15,229	15,374	6,547	16,326
<b>Total Non-Current Assets</b>	<b>798,191</b>	<b>852,030</b>	<b>59,129</b>	<b>68,326</b>
<b>Total Farm Assets</b>	<b>872,432</b>	<b>916,807</b>		
<b>Current Liabilities</b>				
Accounts Payable	6,121	7,722		
Current Portion of Non-Current Liabilities	29,518	24,417		
Other Current Liabilities	4,600	22,222		
<b>Total Current Liabilities</b>	<b>40,239</b>	<b>54,361</b>		
<b>Non-Current Liabilities</b>				
Intermediate Liabilities	21,673	23,818		
Long-Term Liabilities	195,120	218,420		
Contingent Liabilities	208,140	216,726		
<b>Total Non-Current Liabilities</b>	<b>424,933</b>	<b>458,964</b>		
<b>Total Farm Liabilities</b>	<b>465,173</b>	<b>513,325</b>		
Non-Farm Assets	1,202	1,225		
Non-Farm Liabilities	4,345	4,606		

**Statement of Equities (Net Worth)**

	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>
Contributed Capital	646	646	0
Retained Earnings <sup>1</sup>	95,237	75,391	-19,846
Valuation Adjustment	311,376	327,445	16,069
<b>Total Farm Equities</b>	<b>407,260</b>	<b>403,482</b>	<b>-3,777</b>
Non-Farm Equities	-3,144	-3,381	-238
<b>Total Equities</b>	<b>404,116</b>	<b>400,101</b>	<b>-4,015</b>

<sup>1</sup> All current assets and raised breeding livestock are included in retained earnings.



Table 4-6, p. 1

The Average AgFA© <u>Farm Earnings</u> Report for the 90 Non-Seasonal Great Lakes Graziers			
Income	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Income - Basis Adjustments</b>			
Sales of Livestock and Other Items Bought for Resale	123.09	1.58	0.01
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	177,937.82	2,281.06	9.62
Raised Non-Breeding Livestock Sales	6,712.09	86.05	0.36
Crop Sales	2,816.97	36.11	0.15
Distributions Received from Cooperatives	946.05	12.13	0.05
Agricultural Program Payments	15,672.52	200.91	0.85
Commodity Credit Corporation (CCC) Loans	0.00	0.00	0.00
Crop Insurance Proceeds and Certain Disaster Payments	0.00	0.00	0.00
Custom Hire (Machine Work) Income	548.80	7.04	0.03
Other Income, Incl. Tax Credits, Refunds	3,246.50	41.62	0.18
Sale of Purchased Breeding Livestock	32.51	0.42	0.00
Basis in Breeding Livestock Sold	(763.11)	(9.78)	(0.04)
Sale of Raised Breeding Livestock	9,191.80	117.83	0.50
<b>Total Cash Income - Basis Adjustments</b>	<b>216,465.03</b>	<b>2,774.96</b>	<b>11.71</b>
<b>Non-Cash Income</b>			
Change in Raised Crop Inventories	1,669.05	21.40	0.09
Change in Remaining Current Assets	(198.06)	(2.54)	(0.01)
Change in Raised Breeding Livestock	6,739.15	86.39	0.36
<b>Total Non-Cash Income</b>	<b>8,210.14</b>	<b>105.25</b>	<b>0.44</b>
<b>Total Income</b>	<b>224,675.17</b>	<b>2,880.20</b>	<b>12.15</b>



Table 4-6, p. 2

The Average AgFA© Farm Earnings Report for the 90 Non-Seasonal Great Lakes Graziers

Expenses	2002 per Farm	2002 per Cow	2002 per CWT EQ
<b>Cash Expense</b>			
Cost of Items for Resale	16.34	0.21	0.00
Breeding Fees	2,618.53	33.57	0.14
Car and Truck Expenses	394.59	5.06	0.02
Chemicals	1,414.69	18.14	0.08
Conservation Expenses	0.00	0.00	0.00
Custom Heifer Raising Expenses	105.64	1.35	0.01
Custom Hire (Machine Work)	6,115.97	78.40	0.33
Employee Benefits - Dependents	342.44	4.39	0.02
Employee Benefits - Non-Dependents	326.56	4.19	0.02
Feed Purchase	49,558.58	635.31	2.68
Fertilizer and Lime	3,724.64	47.75	0.20
Freight and Trucking	1,743.20	22.35	0.09
Gasoline, Fuel, and Oil	4,245.51	54.42	0.23
Farm Insurance	3,322.59	42.59	0.18
Mortgage Interest	7,480.50	95.90	0.40
Other Interest	3,007.67	38.56	0.16
Labor Hired - Dependents	533.41	6.84	0.03
Labor Hired - Non-Dependents	19,353.77	248.10	1.05
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Rent/Lease Equipment	938.30	12.03	0.05
Rent/Lease Other	4,087.40	52.40	0.22
Repairs and Maintenance	13,814.84	177.10	0.75
Building and Fence Repairs	982.67	12.60	0.05
Machinery Repairs	273.08	3.50	0.01
Seeds and Plants Purchased	2,462.43	31.57	0.13
Storage and Warehousing	25.50	0.33	0.00
Supplies Purchased	5,312.19	68.10	0.29
Taxes - Other	3,255.90	41.74	0.18
Taxes - Payroll	23.70	0.30	0.00
Utilities	5,635.41	72.24	0.30
Veterinary Fees and Medicine	5,610.04	71.92	0.30
Other Farm Expenses	5,361.80	68.74	0.29
Marketing & Hedging	7,121.71	91.30	0.39
Other Crop Expenses	526.12	6.74	0.03
Other Livestock Expenses	7,302.20	93.61	0.39
<b>Total Cash Expense</b>	<b>167,037.91</b>	<b>2,141.33</b>	<b>9.03</b>
<b>Non-Cash Expenses</b>			
- Change in Prepaid Expenses	1,476.83	18.93	0.08
Change in Accounts Payable	3,023.30	38.76	0.16
Machinery, Equipment and Building Depreciation	18,682.98	239.50	1.01
Livestock Depreciation	1,768.45	22.67	0.10
<b>Total Non-Cash Expenses</b>	<b>24,951.57</b>	<b>319.86</b>	<b>1.35</b>
<b>Total Expenses</b>	<b>191,989.48</b>	<b>2,461.19</b>	<b>10.38</b>
Net Farm Income From Operations (NFIFO)	32,685.69	419.01	1.77
Gain (Loss) on Sale of All Farm Capital Assets	2,811.13	36.04	0.15
<b>Net Farm Income (NFI)</b>	<b>35,496.82</b>	<b>455.05</b>	<b>1.92</b>



Table 4-7, p. 1

**The Average AgFA® Cost of Production Report for the 90 Non-Seasonal Great Lakes Graziers**  
**Showing Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details**

<b>Income</b>		<b><u>2002</u></b> per Farm	<b><u>2002</u></b> per CWT Sold	<b><u>2002</u></b> per CWT EQ
	<b>Total Income</b>	<b>224,675.17</b>	<b>17.50</b>	<b>12.15</b>
<b>Expenses</b>		<b><u>2002</u></b> per Farm	<b><u>2002</u></b> per CWT Sold	<b><u>2002</u></b> per CWT EQ
<b>Basic Cost</b>				
	Cost of Items for Resale	16.34	0.00	0.00
	Breeding Fees	2,618.53	0.20	0.14
	Car and Truck Expenses	394.59	0.03	0.02
	Chemicals	1,414.69	0.11	0.08
	Conservation Expenses	0.00	0.00	0.00
	Custom Heifer Raising Expenses	105.64	0.01	0.01
	Custom Hire (Machine Work)	6,115.97	0.48	0.33
	Feed Purchase	49,558.58	3.86	2.68
	Fertilizer and Lime	3,724.64	0.29	0.20
	Freight and Trucking	1,743.20	0.14	0.09
	Gasoline, Fuel, and Oil	4,245.51	0.33	0.23
	Farm Insurance	3,322.59	0.26	0.18
	Rent/Lease Equipment	938.30	0.07	0.05
	Rent/Lease Other	4,087.40	0.32	0.22
	Repairs and Maintenance	13,814.84	1.08	0.75
	Building and Fence Repairs	982.67	0.08	0.05
	Machinery Repairs	273.08	0.02	0.01
	Seeds and Plants Purchased	2,462.43	0.19	0.13
	Storage and Warehousing	25.50	0.00	0.00
	Supplies Purchased	5,312.19	0.41	0.29
	Taxes - Other	3,255.90	0.25	0.18
	Taxes - Payroll	23.70	0.00	0.00
	Utilities	5,635.41	0.44	0.30
	Veterinary Fees and Medicine	5,610.04	0.44	0.30
	Other Farm Expenses	5,361.80	0.42	0.29
	Marketing & Hedging	7,121.71	0.55	0.39
	Other Crop Expenses	526.12	0.04	0.03
	Other Livestock Expenses	7,302.20	0.57	0.39
	- Change in Prepaid Expenses	1,476.83	0.12	0.08
	Change in Accounts Payable	3,023.30	0.24	0.16
	Depreciation on Purchased Breeding Livestock	1,768.45	0.14	0.10
	<b>Total Basic Cost</b>	<b>142,262.16</b>	<b>11.08</b>	<b>7.69</b>



Table 4-7, p. 2

**The Average AgFA© Cost of Production Report for the 90 Non-Seasonal Great Lakes Graziers  
Showing Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details**

	<b>2002</b> per Farm	<b>2002</b> per CWT Sold	<b>2002</b> per CWT EQ
<b>Interest Cost</b>			
Mortgage Interest	7,480.50	0.58	0.40
Other Interest	3,007.67	0.23	0.16
<b>Total Interest Cost</b>	<b>10,488.17</b>	<b>0.82</b>	<b>0.57</b>
<b>Labor Cost</b>			
Employee Benefits - Dependents	342.44	0.03	0.02
Employee Benefits - Non-Dependents	326.56	0.03	0.02
Labor Hired - Dependents	533.41	0.04	0.03
Labor Hired - Non-Dependents	19,353.77	1.51	1.05
Pension and Profit-Sharing Plans - Non-Dependents	0.00	0.00	0.00
Pension and Profit-Sharing Plans - Dependents	0.00	0.00	0.00
Value of Unpaid Labor & Management	35,924.77	2.80	1.94
<b>Total Labor Cost</b>	<b>56,480.94</b>	<b>4.40</b>	<b>3.05</b>
<b>Depreciation &amp; Equity Cost</b>			
Machinery, Equipment, Building Depreciation	18,682.98	1.46	1.01
Interest on Equity Capital	25,149.58	1.96	1.36
<b>Total Depreciation &amp; Equity Cost</b>	<b>43,832.56</b>	<b>3.41</b>	<b>2.37</b>
<b>Total Expenses</b>	<b>253,063.83</b>	<b>19.72</b>	<b>13.69</b>
<b>Total Income - Total Expenses</b>	<b>(28,388.66)</b>	<b>(2.21)</b>	<b>(1.54)</b>
<b>Net Farm Income from Operations (NFIFO) Summary</b>			
Total Allocated Costs	191,989.48	14.96	10.38
<b>Net Farm Income From Operations (NFIFO)</b>	<b>32,685.69</b>	<b>2.55</b>	<b>1.77</b>
Gain (Loss) on Sale of All Farm Capital Assets	2,811.13	0.22	0.15
<b>Net Farm Income (NFI)</b>	<b>35,496.82</b>	<b>2.77</b>	<b>1.92</b>



**Table 4-8**

**The Average AgFA© Financial Measures Report for the 90 Non-Seasonal Great Lakes Graziers**

<b>Profitability (Assets at Cost and Cost (Tax) Depreciation)</b>	<b>2002</b> per Farm	<b>2002</b> per Cow	<b>2002</b> per CWT EQ
Net Farm Income From Operations	\$32,685.69	\$419.01	\$1.77
Net Farm Income	\$35,496.82	\$455.05	\$1.92
Rate of Return on Assets (ROROA)	5.29%	5.29%	5.29%
Cost (Tax) Depreciation Claimed	20,451.43	262.18	1.11
Rate of Return on Equity	-8.03 %	-8.03 %	-8.03 %
Net Profit Margin	4.48 %	4.48 %	4.49 %
<b>Profitability (Assets at Market Value and Economic Depreciation)</b>			
Net Farm Income From Operations	\$46,385.50	\$594.64	\$2.51
Net Farm Income	\$49,196.63	\$630.67	\$2.66
Rate of Return on Assets (ROROA)	3.43 %	3.43 %	3.43 %
Economic Depreciation Claimed	6,767.97	86.76	0.37
Rate of Return on Equity	2.64 %	2.64 %	2.64 %
Net Profit Margin	10.58 %	10.58 %	10.58 %
<b>Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)</b>			
Asset Turnover (Cost and Tax)	1.158	1.158	1.158
Basic Cost (Cost and Tax)	0.633	0.633	0.633
Asset Turnover (Market Value and Economic)	0.325	0.325	0.325
Basic Cost (Market Value and Economic)	0.632	0.632	0.632
Wages Paid (both)	0.092	0.092	0.092
Interest Paid (both)	0.047	0.047	0.047
Economic Depreciation	0.023	0.023	0.023
Net Farm Income from Operations (Market Value and Economic)	0.206	0.206	0.206
Cost (Tax) Depreciation	0.083	0.083	0.083
Net Farm Income from Operations (Cost and Tax)	0.146	0.146	0.146
<b>Repayment Capacity</b>			
Capital Replacement & Debt Repayment Capacity	\$38,989.34	\$499.82	\$2.11
Coverage Margin	\$10,155.52	\$130.19	\$0.55
Term Debt Coverage Ratio	1.82	1.82	1.82
<b>Liquidity</b>			
Net Cash Income	\$50,206.57	\$643.62	\$2.72
Working Capital	\$13,628.83	\$174.71	\$0.74
Current Ratio	1.38	1.38	1.38
<b>Solvency (Assets at Market Value)</b>			
Beginning Total Farm Assets	\$675,226.07	\$8,656.00	\$36.51
Beginning Total Farm Liabilities	\$185,731.19	\$2,380.97	\$10.04
Ending Total Farm Assets	\$708,620.07	\$9,084.10	\$38.32
Ending Total Farm Liabilities	\$192,131.61	\$2,463.02	\$10.39
Ending Farm Net Worth	\$516,488.46	\$6,621.08	\$27.93
Change in Farm Net Worth	\$26,993.58	\$346.04	\$1.46
Year Ending Farm Debt to Asset Ratio	0.271	0.271	0.271





**Table 4-9**

**The Average AgFA© Balance Sheet Report for the 90 Non-Seasonal Great Lakes Graziers in 2002**

**Showing the Current Market Values and Historic Cost Values of Assets**

	<u>Beg. Dollars</u>	<u>End Dollars</u>	<u>Cost Basis</u>	
<b>Current Assets</b>				
Cash Accounts	5,319	5,114		
Prepaid Expenses & Purchased Inventories	7,294	5,817		
Raised Feed Inventories	26,389	28,058		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	8,489	8,249		
Market Livestock & Etc.	1,871	1,913		
<b>Total Current Assets</b>	<b>49,362</b>	<b>49,152</b>		
<b>Non-Current Assets</b>				
			<u>Beg. Dollars</u>	<u>End Dollars</u>
Raised Breeding Livestock	132,347	139,086		
Purchased Breeding Livestock	1,288	1,168	1,496	1,211
Machinery & Equipment	109,604	112,914	28,904	28,582
Buildings	49,796	48,156	24,534	23,584
Land & House	231,011	242,196	60,110	60,744
Other Non-Current Assets	101,819	115,947	29,000	31,433
<b>Total Non-Current Assets</b>	<b>625,864</b>	<b>659,468</b>	<b>144,045</b>	<b>145,554</b>
<b>Total Farm Assets</b>	<b>675,226</b>	<b>708,620</b>		
<b>Current Liabilities</b>				
Accounts Payable	4,564	7,587		
Current Portion of Non-Current Liabilities	16,640	18,302		
Other Current Liabilities	6,867	9,634		
<b>Total Current Liabilities</b>	<b>28,071</b>	<b>35,523</b>		
<b>Non-Current Liabilities</b>				
Intermediate Liabilities	25,645	26,564		
Long-Term Liabilities	132,016	130,045		
Contingent Liabilities	137,898	146,112		
<b>Total Non-Current Liabilities</b>	<b>295,558</b>	<b>302,721</b>		
<b>Total Farm Liabilities</b>	<b>323,629</b>	<b>338,244</b>		
Non-Farm Assets	29,999	29,702		
Non-Farm Liabilities	2,336	2,222		

**Statement of Equities (Net Worth)**

	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>
Contributed Capital	851	851	0
Retained Earnings	139,171	140,809	1,638
Valuation Adjustment	211,575	228,717	17,141
<b>Total Farm Equities</b>	<b>351,597</b>	<b>370,376</b>	<b>18,779</b>
Non-Farm Equities	27,663	27,480	-183
<b>Total Equities</b>	<b>379,261</b>	<b>397,857</b>	<b>18,596</b>

1 All current assets and raised breeding livestock are included in retained earnings.

## XVII. Comparing Grazing Herds to Confinement Herds

Most of the available data indicates that the NFIFO per Cow and NFIFO per CWT EQ decrease as herd size increases. That is only one of the many reasons to be very careful when comparing the average financial performance of graziers to the average financial performance of confinement herds. While progress has been made in standardizing data handling procedures and analysis for graziers in some states, this level of uniformity does not yet exist with all confinement data. Consequently, the comments made about the relative financial performance of graziers versus confinement herds focus on data from New York and Wisconsin. These states have collected their confinement data under conditions similar to those used to collect grazer data.

A higher percent of total labor used on the larger confinement farms is hired. To better understand the effects of this information on financial performance, it is useful to examine the impact of labor compensation on NFIFO/Cow and NFIFO/CWT EQ.

As shown in Table 5-1 below, the Wisconsin graziers NFIFO/CWT EQ advantage in 2002 would narrow from \$1.68 (\$2.53 – \$0.85) to \$0.78 (\$3.14 – \$2.36) if all (paid and unpaid) labor compensation were omitted. In addition, the NFIFO/Cow advantage would nearly disappear, narrowing from \$294 (\$524 – \$230) to \$10 (\$651 – \$641) in 2002 if all labor compensation were omitted.

The New York graziers NFIFO/CWT EQ advantage in 2002 would narrow from \$1.15 (\$1.56-\$0.41) to \$0.52 (\$2.86-\$2.34) if all labor compensation were omitted. The NFIFO/cow advantage narrows from \$255 (\$374-\$119) to \$114 (\$786-\$672) when labor compensation is omitted.

**The graziers in both states in all three years had a NFIFO/CWT EQ advantage over their confinement counterparts in the allocated and non-basic cost categories. In all years, the Wisconsin graziers also had a NFIFO/CWT EQ advantage in the basic cost category too. The New York graziers had a NFIFO/CWT EQ advantage in the basic cost category in one year and a very slight disadvantage in the other two years. Together, this suggests that the graziers in this study spread their NFIFO/CWT EQ advantage among many factors.**

As is the case with most of the other comparisons, the results from 2002 are more similar to the results from 2000 as compared to 2001.

Because of rounding, some small mathematical differences might be found in the summary tables below.

Table 5-1 Comparing The Financial Performance Of Graziers To Confinement Dairy Herds In Two Participating States In 2002	Wisconsin		New York	
	Grazier	Confinement	Grazier	Confinement
Number of Herds	31	581	34	194
Number of Cows per Herd	61	117	102	323
Average Pounds of Milk per Cow	15,644	20,858	16,353	22,591
Average Pounds of Milk per Herd	954,085	2,440,386	1,675,724	7,305,774
Group Average Mailbox Milk Price	\$12.55	\$12.66	\$14.27	\$12.93
U.S. All Milk Price (used in calculating CWT EQ)	\$12.15	\$12.15	\$12.15	\$12.15
Average Basic Cost per Cwt EQ	\$7.23	\$7.91	\$7.84	\$8.22
Allocated Cost per Cwt EQ	\$9.62	\$11.30	\$9.68	\$11.74
Allocated Cost Minus Basic Cost per CWT EQ (Non-Basic Costs)	\$2.39	\$3.39	\$1.84	\$3.52
NFIFO Per Cow (Without Deducting Labor Compensation)	\$651	\$641	\$786	\$672
NFIFO Per CWT EQ (Without Deducting Labor Compensation)	\$3.14	\$2.36	\$2.86	\$2.34
NFIFO per Farm	\$31,928	\$26,963	\$38,316	\$38,284
<b>NFIFO per Cow</b>	<b>\$524</b>	<b>\$230</b>	<b>\$374</b>	<b>\$119</b>
<b>NFIFO per CWT EQ</b>	<b>\$2.53</b>	<b>\$0.85</b>	<b>\$1.56</b>	<b>\$0.41</b>

As shown in Table 5-2 below, the Wisconsin graziers NFIFO/CWT EQ would narrow from \$2.31 (\$4.48 – \$2.17) to \$1.27 (\$5.02 – \$3.75) if all labor compensation were omitted. In addition, the NFIFO/Cow advantage would nearly disappear, narrowing from \$322 (\$842 – \$520) to \$36 (\$933 – \$897) in 2001 if all labor compensation were omitted.

If all labor compensation were omitted, the New York graziers would lose their advantage in NFIFO/CWT EQ (from a plus \$0.63 to a minus \$0.11) and in NFIFO/Cow (from a positive \$41 to a negative \$353) in 2001. In addition, when labor costs are not included, the New York confinement herds would have a higher NFIFO/cow than the Wisconsin confinement and grazing herds in 2001.

Because of rounding, some small mathematical differences might be found in the summary tables below.

Table 5-2 Comparing The Financial Performance Of Graziers To Confinement Dairy Herds In Two Participating States In 2001	Wisconsin		New York	
	Grazier	Confinement	Grazier	Confinement
Number of Herds	27	627	53	192
Number of Cows per Herd	62	106	94	340
Average Pounds of Milk per Cow	15,644	20,454	16,150	22,191
Average Pounds of Milk per Herd	974,346	2,192,928	1,513,178	6,983,700
Group Average Mailbox Milk Price	\$15.41	\$14.96	\$15.81	\$14.68
U.S. All Milk Price (used in calculating CWT EQ)	\$14.94	\$14.94	\$14.94	\$14.94
Average Basic Cost per Cwt EQ	7.68	9.03	9.06	9.01
Allocated Cost per Cwt EQ	10.46	12.77	12.26	12.89
Allocated Cost Minus Basic Cost per CWT EQ (Non-Basic Costs)	2.78	3.74	3.20	3.88
NFIFO per Cow (Without Deducting Labor Compensation)	933	897	810	1163
NFIFO per CWT EQ (Without Deducting Labor Compensation)	5.02	3.75	3.96	4.07
NFIFO per Farm	52,446	54,579	51,428	172,785
<b>NFIFO per Cow</b>	<b>842</b>	<b>520</b>	<b>549</b>	<b>508</b>
<b>NFIFO per CWT EQ</b>	<b>4.48</b>	<b>2.17</b>	<b>2.68</b>	<b>2.05</b>

The graziers have a higher NFIFO per Cow (\$617 versus \$296 in Wisconsin and \$315 versus \$181 in New York) than their confinement counterparts in both states in 2000. This is presented in table 5-3 below. Also, graziers have a higher NFIFO per CWT EQ.

Table 5-3 also shows the grazer's NFIFO/CWT EQ advantage narrows (from \$2.24 to \$0.90 in Wisconsin and from \$0.73 to \$0.53 in New York) when all (paid and unpaid) labor compensation is omitted. The NFIFO/cow advantage does disappear for the New York Graziers, changing from a positive \$134 to a negative \$129). However for Wisconsin it only narrows from \$324 to \$49.

Because of rounding, some small mathematical differences might be found in the summary tables below.

Table 5-3 Comparing The Financial Performance of Graziers to Confinement Dairy Herds in Two Participating States in 2000	Wisconsin		New York	
	Grazier	Confinement	Grazier	Confinement
Number of Herds	16	605	65	239
Number of Cows per Herd	65	109	93	294
Average Pounds of Milk per Cow	16,404	20,202	17,107	22,167
Average Pounds of Milk per Herd	1,066,764	2,192,928	1,585,980	6,517,830
Group Average Mailbox Milk Price	\$12.38	\$12.21	\$13.30	\$12.61
U.S. All Milk Price (used in calculating CWT EQ)	\$12.33	\$12.33	\$12.33	\$12.33
Average Basic Cost per Cwt EQ	\$ 6.60	\$7.75	\$8.12	\$8.06
Allocated Cost per Cwt EQ	\$9.19	\$11.13	\$10.95	\$11.68
Allocated Cost Minus Basic Cost per CWT EQ (Non-Basic Costs)	\$2.59	\$3.38	\$2.83	\$3.62
NFIFO per Cow (Without Deducting Labor Compensation)	\$689	\$640	\$534	\$663
NFIFO per CWT EQ (Without Deducting Labor Compensation)	\$3.50	\$2.60	\$2.34	\$1.81
NFIFO per Farm	\$40,120	\$32,199	\$29,227	\$50,897
<b>NFIFO per Cow</b>	<b>\$617</b>	<b>\$296</b>	<b>\$315</b>	<b>\$181</b>
<b>NFIFO per CWT EQ</b>	<b>\$3.44</b>	<b>\$1.20</b>	<b>\$1.38</b>	<b>\$0.65</b>

NFIFO (without deducting any labor compensation) is not a common measure. It is used in this project because some comparisons are made between farms that rely mainly on hired labor and farms that rely entirely on unpaid labor. In such cases, this uncommon measure provides additional insight to the comparisons.

In summary, graziers' disadvantage in income and production per farm and per cow was more than offset by their control of operating expense, investment and debt. The average grazer, in both states, were more profitable than their confinement counterparts in 2002, 2001, and 2000 in spite of lower production per cow.

## XVIII. Preview of Financial Performance of Graziers by Breed of Cattle

Dairy herds in the GLGN database represent a number of different breeds of dairy cows as well as crossbred cattle. **Many graziers are keenly interested in breeding the ideal grazing dairy cow.** Therefore, data in this project have been sorted by breed in an attempt to measure the impact of breed on profitability.

The participating herds are categorized as being one of the seven major dairy breeds (Ayrshire, Brown Swiss, Guernsey, Jersey, Holstein (black and white), Holstein (red and white), and Milking Shorthorn) if the herd is at least 85% of one of the above breeds. No red and white Holstein herds are in the data. *The term pure bred as used here doesn't require registration. It is used to designate an animal that most experienced observers would recognize as a member of a specific breed and is not known to have crossbreeding in recent ancestry.*

Since not all herds are homogeneous, additional categories and their definitions are necessary.

- 1) Other implies a herd that is at least 85% of a "pure breed" other than the seven major dairy breeds listed as a choice above. Examples are Dutch Belted and Normande.
- 2) Crossbred implies a herd consisting mainly of cows that are the genetic result of a deliberately planned crossbreeding program.
- 3) Mixed implies a combination of several "pure" breeds or a combination of one or more purebreds plus crossbreeds such that no single homogeneous group represents the "predominant breed in the herd." The definition of a herd of mixed breeds is so broad that no two herds are alike. The

mixed breed category is a “catch all” category. If a herd doesn’t fit into one of the more precisely defined breed categories, it is included in the mixed breed category.

There are not enough herds from most breeds to make any meaningful comparisons. In 2002, 63 of the herds were identified as Holstein. Of the 40 that were not identified as Holstein, 26 were mixed, 8 were Jersey, 3 were crossbred with one each of Ayrshire, Brown Swiss, and Dutch Belted. In 2001, 70 of the herds were identified as Holstein. Of the 54 herds that were not categorized as Holstein, 19 were mixed, 10 were Jersey, five were crossbred, three were Ayrshire, and one each of Brown Swiss and Dutch Belted.

Only one other pure breed was found as the predominant breed on 8 or more herds in the study in more than one year. That breed is Jersey and this number of observations is too small to use for confident conclusions. Also since half of the Jersey herds in 2002 practiced seasonal calving, the Jersey herd performance may be influenced more by calving practice than by breed. Another section of this report discusses the financial performance of herds meeting the seasonal calving/milking definition.

With Holstein and non-Holstein being the two largest “breed” groups, the third largest number of observations is the mixed group with 26 observations in 2002 and 19 in 2001. The mixed group is the most Holstein-like subset of the non-Holstein group.

A mixed herd could consist of up to 85% of one pure breed. In the data, none of the mixed herds comes that close to being in another category. Several of the mixed herds are between 50 and 84% Holstein. Other mixed herds do not have a breed that makes up as much as 50% of the total.

It is difficult to compare mixed or crossbred herds as a group with any other breed group, because no two crossbred or mixed herds are alike. **The best comparison that can be made with this group of data is to compare Holstein with non-Holstein herds for a couple of years before trying to propose conclusions.** Not even this comparison was made for 2000 because many herds in the 2000 data were not categorized as precisely as previously described. Yet, because the mixed group is sizable, it is also shown in the tables.

In 2001 and 2002, the herds with 85% or more Holsteins had noticeably higher NFIFO/cow and NFIFO/CWT EQ than the non-Holstein herds. This is contrary to a fairly common belief that Holsteins is a less profitable breed for grazing systems. Because a dairy farm is a very complex business with many variables, the differences in profit levels between the two cannot be entirely credited to the breed of cows. For example, while we don’t have the years of grazing and farming experience for all of the graziers in the data, it does appear that Holstein herds tend to also have the more experienced managers. The managers with more years of experience have had more time to increase equity and decrease debt. Such factors may be responsible for some of the difference in performance between the Holstein herds and those called non-Holstein.

Therefore the results don’t allow us to say that one breed is more profitable than the others.

The NFIFO/Cow and NFIFO/CWT EQ is shown in the Table 6.1 for each group with enough observations.

Because of rounding, some small mathematical differences might be found in the summary tables below.

<b>Table 6-1 Performance Measures Selected from the Average Performance of Grazing Farms from Many States By Herd Breed- 2002-2001</b>	<b>Holstein</b>		<b>Non-Holstein</b>		<b>Mixed</b>		<b>2002 Average</b>	
	<b>2001</b>	<b>2002</b>	<b>2001</b>	<b>2002</b>	<b>2001</b>	<b>2002</b>	<b>2001</b>	<b>2002</b>
Number of Herds	70	63	54	40	19	26	126	103
Number of Cows per Herd	74*	74*	97	105	105	112	84	86
Average Lbs. Milk per Cow	16,817	17,277	14,093	13,165	13,551	13,624	15,426	15,332
Average Lbs. Milk per Herd	1,247,371	1,280,295	1,371,647	1,378,691	1,418,213	1,524,881	1,303,333	1,318,507
Group Average Mailbox Milk Price	\$16.17	\$13.92	\$16.54	\$13.46	\$16.36	\$12.92	\$16.31	\$13.73
U.S. All Milk Price (used to calculate CWT EQ)	\$14.94	\$12.15	\$14.94	\$12.15	\$14.94	\$12.15	\$14.94	\$12.15
Average Basic Cost per CWT EQ	\$8.30	\$7.36	\$8.89	\$8.29	\$8.60	\$8.57	\$8.60	\$7.74
Allocated Cost per CWT EQ	\$11.25	\$10.10	\$12.18	\$10.96	\$11.58	\$11.25	\$11.68	\$10.45
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	\$2.95	\$2.74	\$3.29	\$2.67	\$2.98	\$2.68	\$3.08	\$2.71
NFIFO per cow (without deducting any labor compensation)	\$982	\$792	\$758	\$428	\$775	\$373	\$866	\$620
NFIFO per CWT EQ (without deducting any labor compensation)	\$4.69	\$3.18	\$4.05	\$2.25	\$4.13	\$1.95	\$4.39	\$2.80
NFIFO per Farm	\$57,199	\$37,812	\$50,201	\$13,759	\$47,895	\$19,232	\$54,283	\$32,354
<b>NFIFO per Cow</b>	<b>\$771</b>	<b>\$510</b>	<b>\$515</b>	<b>\$227</b>	<b>\$630</b>	<b>\$172</b>	<b>\$643</b>	<b>\$376</b>
NFIFO per CWT EQ	<b>\$3.69</b>	<b>\$2.05</b>	<b>\$2.76</b>	<b>\$1.19</b>	<b>\$3.36</b>	<b>\$0.90</b>	<b>\$3.26</b>	<b>\$1.70</b>
* By coincidence both herd sizes are equal								

## **XIX. Preview of Organic Dairy Farm Financial Performance**

Potential organic dairy producers want to know three things about the economic impact of choosing that system:

1. What are the potential rewards once the goal is achieved?
2. How long will it take to attain the goal?
3. What will it cost to attain the goal?

Consequently, analyzing the economic performance of organic farms is fairly complex.

It is often said “when switching from conventional to organic, things will get worse before they will get better.” To better understand and fairly compare the financial performance of organic farms, the stages of progression of individual organic farms should be recognized.

This project seeks data from farms in each of the following stages or categories of organic production:

- A. **Pre-organic-** The period of operation of a farm before it attempted to become organic. Since anyone not attempting to become organic could be called pre-organic, it may not be as important to gather data from that period as it is to gather data from farms at some other “organic stage.”
- B. **Transitional organic-** The period of operation of a farm from the time it began to adopt organic practices until achieving organic certification. This is expected to be the least profitable stage
- C. **Certified organic-** The period of operation of a farm from the time it achieved organic certification until receiving organic milk price premiums.
- D. **Certified market organic-** The period of operation of a farm during which it receives organic milk price premiums.

In reality, few farms will supply financial data from years prior to the point at which they “join the project.” At times farms may slip into and out of the above stages or categories, especially between certified organic and certified market organic. Some certified organic producers only obtain organic premiums for part of the year. When that happens, additional judgment will be required to determine the best way to sort the data.

### **Data from organic dairy herds is scarce.**

Data was collected from eight herds selling all of their milk to an organic market in 2002, and seven in 2001. Five were from one state and three from another state in 2002 versus four and three in 2001. Only four were practicing MORG in 2002 and six in 2001. The data from one in 2002 is still incomplete. Three other grazing herds in the 2002 data were transitioning to organic.

### **Even two years of data from this number of organic herds is insufficient to make creditable judgments, and only selected numbers will be printed below from organic herds.**

The average organic dairy farm that submitted data in 2002 was larger, produced fewer lbs. of milk per cow, but more lbs. of milk per farm than the average grazing herd in 2002. In 2001, the average grazing organic herd was smaller, produced fewer pounds of milk per cow and per farm than the average grazing herd. Each organic herd generated enough NFIFO both years to satisfy some farm managers. This is explained in part by the higher average price per CWT of milk sold by the organic herds. Their milk price was \$20.40 compared to \$13.73 for the average grazer in 2002, and \$19.31 compared to \$16.31 for the average grazer in 2001.

## Appendix 1

The Agriculture Financial Advisor (AgFA<sup>®</sup>) program has been developed to assist in the collection, analysis, storage of financial data and certain farm profile information from all farm types. Dr. Gary Frank, Randy Gregory, and University of Wisconsin's Farm Management Education Team are the developers. Several attributes built into AgFA<sup>®</sup> are similar to attributes of other farm financial computer programs.

In addition, AgFA<sup>®</sup> is set apart from many other computer programs for working with farm data by:

- Allowing for use of the profile data to create specific farm type benchmarks and provide other information to assist farm managers in decision-making for improved profits and lifestyles.
- Allowing data to be keyboard entered into a Windows style input form or electronically transferred from accounting software or other electronic records.
- Allowing licensed users to enter data and receive reports on their own desktop computer or via their own Internet connected computer.
- Allowing each user to obtain summaries (via the Internet) of their group's data and summaries of the entire AgFA<sup>®</sup> data set. The group reports are in the same format as individual reports. Both types can have three years of data on the same report. *Note: groups of less than six users will not be summarized as a method of protecting the **confidentiality** of individual farm's data.*
- Rapid sorting and calculating of a group's financial information. As soon as a user enters a new farm's financial data, the user can obtain an analysis of their group that includes the new farm (if there are six or greater farms in the identified group).
- Built-in statistical analysis for research purposes
- For more information about AgFA<sup>®</sup>, contact at the UW Center for Dairy Profitability, 1675 Observatory Drive, Madison, WI, (608) 263-5665.



**Cost of Producing Milk  
per  
Hundredweight Equivalent**

Prepared by Gary Frank, Center for Dairy Profitability – Madison, WI

Work Sheet:	An Example Farm	Your Farm
1. Total Schedule F Income (Schedule F, line 11)	\$126,161	_____
2. Form 4797 Income <sup>1</sup>	\$ 12,143	_____
3. Change <sup>2</sup> in Feed Inventory	-\$ 4,127	_____
4. Change <sup>2</sup> in Dairy Livestock Inventory	\$ 10,500	_____
5. Change in Acc. Rec. Other Lst Inv., Etc.	\$0	_____
6. Total Farm Income (On this worksheet, add lines 1 through 5.)	\$144,677	_____
7. Average Milk Price <sup>3</sup> Use \$12.15 when calculating 2002 cost of production.	\$ 12.86	_____
8. Hundredweight Equivalents (CWT EQ) of Milk Produced <b>Critical Value<sup>4</sup></b> (On this worksheet, divide line 6 by line 7)	11,250	_____
9. Total Schedule F Expenses (Schedule F, line 35)	\$122,521	_____
10. Change <sup>2</sup> in Accounts Payable	\$ 1,543	_____
11. Change <sup>2</sup> in Prepaid Expenses	\$ 1,200	_____
12. Total Allocated Costs (On this worksheet, add lines 9 and 10, then subtract line 11)	\$122,864	_____
13. Total Interest Paid (Add Schedule F lines 23a and 23b)	\$ 8,470	_____
14. Wages and Benefits Paid (Only those reported on Schedule F; to obtain this value add Schedule F lines 17, 24, and 25)	\$ 12,682	_____
15. Depreciation Claimed (Schedule F line 16 minus Depr. claimed on livestock)	\$ 15,346	_____
16. Total Basic Costs (On this worksheet, line 12 minus lines 13, 14, and 15)	\$ 86,366	_____
17. Basic Cost per CWT EQ <sup>5</sup> (On this worksheet, line 16 divided by line 8)	\$7.68	_____
		Goal <= \$8.00
18. Total \$'s available for other costs <sup>6</sup> (On this worksheet, line 6 minus line 16)	\$58,311	_____
19. Basic Cost Margin per COW (On this worksheet, divide line 18 by average number of cows, both milking and dry, in herd.)	\$1,166	_____
20. Total Allocated Costs per CWT EQ (On this worksheet, divide line 12 by line 8)	\$10.92	_____
		Goal => \$1,200
21. Total \$ available to cover unallocated costs <sup>7</sup> (On this worksheet, (line 7 minus line 20) times line 8)	\$21,825	_____
22. Unpaid labor & management charge per CWT EQ (Unpaid labor & management charge divide by line 8) (In this example, the opportunity cost of all family labor & management was set at \$35,000. This minus wages paid to family members of \$12,682 = \$22,318. This divided by line 8 equals \$1.98.)	\$1.98	_____
23. Total Allocated plus unpaid labor & management (On this worksheet, add lines 20 and 22.)	\$12.90	_____
		Goal <= line 7

The footnotes are on the back of this page.

## Footnotes

- <sup>1</sup> When Form 4797 contains only income from the sale of culled raised dairy livestock, enter the income reported. If it contains the sale of purchased dairy livestock and the "one-time" sale of some other asset(s), such as an old plow adjustments must be made.  
  
Note: in the case of the "one-time" sale, that income must be subtracted from the Total Form 4797 income before a value is entered. In the case where purchased breeding livestock are included, enter the net amount. This net will take into account the unrecovered basis that was claimed against this sale.
- <sup>2</sup> Change equals the ending amount minus the beginning amount. The best way to get this value is to ask yourself if there was any change in this item during the year in question. If the answer is "yes" then follow with the question, "how much?" This method avoids having to determine the absolute inventory level at the beginning and end of the year in question.
- <sup>3</sup> If you wish to compare your costs to the costs on other farms, use the U.S. average all milk price for the year in question. It was \$13.68, \$12.24, \$13.09, \$12.80, \$12.97, \$12.74, \$14.88, \$13.34, \$15.43, \$14.37, \$12.33, \$14.94, and \$12.15 in 1990 - 2002, respectively. Or you can divide your total milk income (before any deductions for hauling, marketing, etc.) by the number of hundredweight of milk you sold during the year to calculate the average milk price on your farm. However, then you can only accurately compare your costs this year to your costs in previous years.
- <sup>4</sup> The Critical Value should be divided into the total cost of an expense item to obtain its Cost of Production per Hundredweight Equivalent (CWT EQ). Example, your purchased feed costs are \$34,871 and you Critical Value is 12,842. Then, your purchased feed costs are \$2.72 ( $34871 / 12842$ ) per CWT EQ. You can then compare your costs to those on the tables.
- <sup>5</sup> The average Basic Cost on selected Wisconsin dairy farms was \$7.54, \$7.68, \$7.11, \$7.41, \$8.55, \$7.86, \$8.23, \$7.72, \$7.75, \$7.91, and \$9.03 in 1992-2002, respectively. Farmers should calculate this value each year to monitor changes in their basic production costs. This value allows farm managers to compare their cost to previous years, other dairy businesses, and the price without regard to herd size, production level, debt position, and percent of total labor paid. See Managing the Farm Vol. 28 No. 1&2 for more information.
- <sup>6</sup> The "other" cost items are: Interest (both that actually paid and the opportunity cost interest on your equity in the business), Capital Consumed (reduction in the value of your machinery, equipment, etc. caused by using it and/or by it becoming obsolete), Labor and Management Paid, and the Opportunity Cost of Unpaid Labor and Management. Any return above all these costs is an economic profit.
- <sup>7</sup> Unallocated costs, for most farm managers, are their (and their family's) Labor and Management plus a Return to Equity Capital. However, some farm managers pay their family members (or themselves) some wages and benefits that are deductible on Schedule F. In those cases, this margin will not be as large as when the return to the entire farmer's (and family's) labor, management, and equity capital are imbedded in it.  
  
In the example, the farm's margin available for unallocated costs is \$21,825; this is not the return to the farmer's (and family's) Labor, Management, and Equity Capital. The Return to Labor, Management, and Equity Capital is the amount calculated above plus the Wages and Benefits paid to family members. In the example, if all the Wages and Benefits paid were to family members, the total return to their Labor, Management, and Equity Capital is \$34,507 (\$21,825 plus \$12,682)

## State Contacts

James Endress  
Extension Educator, Farm Management  
University of Illinois, Rockford Extension Ctr.  
417 Ware Avenue, Ste. 102  
Rockford, IL 61107  
(815) 397-7714 - Phone  
(815) 394-8620 – Fax  
*jendress@uiuc.edu*

Robert Tigner  
Northeastern IA Farm Management Specialist  
Chickasaw County Extension  
104 East Main Street  
New Hampton, IA 50659  
(641) 394-2174 – Phone  
(641) 6394-5415 – Fax  
*rtigner@iastate.edu*

Larry Tranel  
14858 West Ridge Lane Suite 2,  
Dubuque IA 52003-8466  
(563) 583-6496 – Phone  
(563) 583-4844 – Fax  
*tranel@iastate.edu*

Ralph E. Booker  
9110 Suter Road  
Plymouth, Indiana 46563  
*rbooker@purdue.edu*  
*agbooker@earthlink.net*  
574-936-3502

Bill Bivens  
Agricultural Extension Agent Retired  
8915 Minard Road  
Parma, MI 49269  
517-569-3834 - Phone  
517-788-4640 - Fax  
*bivens@msu.edu*

Christopher A. Wolf  
Associate Professor  
Michigan State University  
317B Agriculture Hall  
East Lansing, MI 48824-1039  
(517) 353-3974 – Phone  
(517) 432-1800 – Fax  
*wolfch@msu.edu*

Phil Taylor  
Michigan State University  
Extension Dairy Agent  
Eaton, Barry, Calhoun, and Ionia Counties  
551 Courthouse Drive, Suite One  
Charlotte, MI 48813  
517-543-2310 – Phone  
517-543-8119 – Fax  
*taylorp@msue.msu.edu*

Margot Rudstrom  
University of Minnesota  
West-Central Experiment Station  
State Hwy 329  
PO Box 471  
Morris, MN 56267-0471  
(320) 589-1711 – Phone  
(320) 589-4870 - Fax  
*rudstrmv@cda.mrs.umn.edu*

Tony Rickard  
700 Main Street Suite #4  
Cassville, MO 65625  
(417) 847-3161 – Phone  
(417) 847-3162 – Fax  
*rickardt@missouri.edu*

James Grace  
Farm Business Educator  
Cornell Cooperative Extension of Steuben Co.  
3 East Pulteney Square  
Bath, NY 14810  
(607) 664-2316 – Phone  
(607) 664-2303 - Fax  
*jwg8@cornell.edu*

Thomas E. Noyes  
Extension Dairy Agent  
OSU Extension  
428 West Liberty Street  
Wooster, OH 44691  
(330) 264-8722 - Phone  
(330) 263-7696 – Fax  
*noyes1@postoffice.ag.ohio-state.edu*

Clif Little  
OSU Extension  
1112 Wheeling Street  
Cambridge, OH 43725  
(740) 432-9300 - Phone  
(740) 439-1817 - Fax  
*little16@postoffice.ag.ohio-state.edu*

J. Craig Williams  
Penn State Extension- Tioga Co.  
118 Main Street  
Wellsboro, PA 16901  
(570) 724-9120 – Phone  
(570) 724-6819 - Fax  
[jcw17@psu.edu](mailto:jcw17@psu.edu)

Jack Kyle  
Provincial Grazier Specialist  
Ontario Ministry of Agriculture and Food  
322 Kent Street West  
Lindsay, ON K9V4T7  
(705) 324-5855 – Phone  
(705) 324-1638 – Fax  
[jack.kyle@omaf.gov.on.com](mailto:jack.kyle@omaf.gov.on.com)

Business Analysis and Cost of Production Lead  
Business and Organizational Management Unit  
Ontario Ministry of Agriculture and Food  
R.R. # 3, 95 Dundas Street,  
Brighton, ON K0K 1H0  
Ph. 613-475-9472  
Fax. 613-475-3835  
[john.molenhuis@omaf.gov.on.ca](mailto:john.molenhuis@omaf.gov.on.ca)

Tom Kriegl  
UW Center for Dairy Profitability  
Animal Science Building, Rm. 202  
1675 Observatory Drive  
Madison, WI 53706-1284  
(608) 263-2685 – Phone  
(608) 262-9017 – Fax  
[tskriegl@wisc.edu](mailto:tskriegl@wisc.edu)  
<http://cdp.wisc.edu>

Gary Frank  
UW Center for Dairy Profitability  
Animal Sciences Building  
1675 Observatory Drive  
Madison, WI 53706-1284  
(608) 263-5665 – Phone  
(608) 262-9017 – Fax  
[ggfrank@wisc.edu](mailto:ggfrank@wisc.edu)  
<http://cdp.wisc.edu>

## Selected Acronyms, Definitions and Terms

**AgFA**® - Agricultural Financial Advisor®

**Allocated Costs** - equals total cost minus the opportunity cost of unpaid labor, management and capital supplied by the owner(s). Since opportunity cost is not consciously calculated by everyone, allocated cost is often used by non-economists as a default proxy for total cost. Allocated cost also equals total income minus NFIFO. See Chapter IX for more information.

**Basic costs** - equals allocated cost minus, interest, non-livestock depreciation, paid labor, and paid management. See Chapter IX for more information. Also see non-basic costs.

**CCC** - Commodity Credit Corporation

**CMV** - Current Market Value Asset Valuation Method

**COP** - Cost of Production

**Continuous calving/milking**- A calving/milking strategy in which calving is distributed among most months of the year. Cows are milked every day of the year.

**CWT EQ- per hundredweight equivalent of milk sold** is an indexing procedure which focuses on the primary product that is sold and standardizes farms in terms of milk price and other variables for analysis purposes.

*In contrast, the number at the top of the CWT **sold** column on the cost of production reports is the **INCOME per 100 pounds of milk sold** by the business. **It is not the milk price.** The income per 100 pounds of milk sold is calculated by dividing total farm income by the hundredweight of milk sold. This is necessary because each expense item is divided by the hundredweight of milk sold. Therefore these expense amounts must be compared to the **INCOME per hundredweight of milk sold** and not to the price of milk. See Chapter X for more information.*

**GLGN** - Great Lakes Grazing Network

**Group average mailbox milk price**- is calculated in this report by summing all the gross income from milk sales from all of the farms in the group and dividing that sum by the sum of the total hundredweights of milk sold by all the farms in the group.

**HC** - Historic Cost asset valuation method

**IFAFS** - Initiative for Future Agricultural and Food Systems (the name of the class of grant from the USDA that is supporting the project)

**MIRG** - Management Intensive Rotational Grazing

**NFI** - Net Farm Income represents the returns to unpaid labor, management, and equity capital invested in the business.

**NFIFO** - Net Farm Income from Operations represents the returns to unpaid labor, management, and equity capital invested in the business. NFIFO excludes income from unusual capital item sales.

**Non-Basic Costs** – are interest, non-livestock depreciation, paid labor and paid management. The four non-basic costs are added to basic cost to become allocated costs. See Chapter IX for more information.

**Opportunity Cost-** A simple definition of opportunity cost is “the best alternative return that could be earned by the operator's labor, management, and equity capital.”

**ROROA** - Rate of Return on Assets can be thought of as the average interest rate being earned on all investments in the farm or ranch business. If assets are valued at market value, the rate of return on assets can be looked at as the “opportunity cost” of farming versus alternate investments. If assets are valued at cost value, the rate of return on assets more closely represents the actual return on the average dollar invested in the farm. The rate of return on farm assets is calculated as follows:  $\text{Rate of Return on Assets} = \frac{\text{Return on Farm Assets}}{\text{Average Farm Investment}}$ , where:  $\text{Return on Farm Assets} = \text{Net Farm Income} + \text{Farm Interest} - \text{Value of Operator's Labor \& Management}$  and  $\text{Average Farm Investment} = \frac{(\text{Beginning Total Farm Assets} + \text{Ending Total Farm Assets})}{2}$ .

**ROROE** - Rate of Return on Equity represents the interest rate being earned on your farm net worth. If assets are valued at market value, this return can be compared to returns available if the assets were liquidated and invested in alternate investments. If assets are valued at cost value, this more closely represents the actual return on the funds that have been invested or retained in the business. The rate of return on the farm equity is calculated as follows:  $\text{Rate of Return on Equity} = \frac{\text{Return Farm Equity}}{\text{Average Farm Net Worth}}$ , where:  $\text{Return on Farm Equity} = \text{Net Farm Income} - \text{Value of Operator's Labor \& Management}$ , and  $\text{Average Farm Net Worth} = \frac{(\text{Beginning Farm Net Worth} + \text{Ending Farm Net Worth})}{2}$ .

**Seasonal Calving/Milking-** A calving/milking strategy in which the dry period of all the cows in the herd overlap enough to shut down the milking facility for more than a day and preferably for at least a few weeks each year for a period of consecutive years. Any calving strategy not meeting the preceding seasonal definition is referred to as **non-seasonal** in this analysis.

**Semi-Seasonal Calving/Milking-** A calving/milking strategy in which at least one cow is milked every day of the year. Calving is “bunched” in one or two times of the year, cull healthy, productive animals that don't conceive in the breeding window are not culled.

**USDA** - United States Department of Agriculture

**U.S. All Milk Price-** is calculated by the USDA by summing all the gross income from milk sales from all of the farms in the country and dividing that sum by the sum of the total hundredweights of milk sold by all the farms in the country. This price is used for the Hundredweight of Milk Sales Equivalent (CWT EQ) calculation. See Chapter X for more information.

*In contrast, the number at the top of the CWT **sold** column on the cost of production reports is the **INCOME per 100 pounds of milk sold** by the business. **It is not the milk price.** The income per 100 pounds of milk sold is calculated by dividing total farm income by the hundredweight of milk sold. This is necessary because each expense item is divided by the hundredweight of milk sold. Therefore these expense amounts must be compared to the INCOME per hundredweight of milk sold and not to the price of milk. See Chapter X for more information.*