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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 and Sherrill Nott (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).

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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

Second Year Report on 2001 Great Lakes Grazing Network Grazing Dairy Data

April, 2003

Regional Multi-State Interpretation of Small Farm Financial Data
Second Year Report on 2001 Great Lakes Grazing Network Grazing Dairy Data. [1]

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 (92 in 2000 and 126 in 2001) 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 that while many graziers are very successful economically some are not.
- 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 more than 100 cows.
- The average grazier in the 2001 data that used the seasonal calving strategy (stops milking at least one day each year), had more desirable financial performance than the average non-seasonal herd in 2001, whether NFIFO/cow, NFIFO/CWT EQ or total NFIFO is used as the yardstick. **This is a sharp contrast** to the 2000 comparison and with multiple years of other calving strategy comparisons. The average grazier in the 2000 data that used the seasonal calving strategy, had substantially less desirable financial performance than the average non-seasonal herd, whether NFIFO/cow, NFIFO/CWT EQ or total NFIFO is used as the yardstick. (see chapters XV and XVI for more explanation)
- The average grazier had a higher NFIFO per Cow and NFIFO per CWT EQ than their confinement counterparts in 2001 and 2000 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 also 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.

Cost of Production values from the graziers in the report are presented on a whole farm, per cow and per CWT EQ basis for you to use to compare with your costs**.** To more accurately compare your performance, it is recommended that you also calculate your cost of production using the per hundredweight equivalent of milk sold (CWT EQ) method. [2] In this report, the cost of production is also calculated on an actual CWT sold basis.

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.

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. All to provide financial benchmarks to help farm families and their communities be successful and sustainable.

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[2] 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, consult *Cost of Production Versus Cost of Production*, Dr. Gary Frank, UW Center for Dairy Profitability, 1997.

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 grazier 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.[3] [4]

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

The 2000 report summarized data from 92 graziers.

The 2001 data was collected from a total of 142 grazing dairy farms. All have been analyzed; However 15 of them were incomplete, so data from 126 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.

Readers of this report may notice that when the 126 graziers are sorted into groups for comparison purposes, the number in the groups often add up to less than 126. For example, the "top half" group has 61 farms while the bottom half group has 62 farms. Together these two groups total 123 farms. 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 often omits a small number of the most extreme observations. This is why not all comparisons include 126 observations.

This second year report of the project expands the scope of previous reports by adding financial comparisons. 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.
- 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.[5]

V. Case Farm Reports from Minnesota and Indiana

Not all graziers are created equal; consequently, there may not be a typical grazier. 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 Indiana farm is fully seasonal, while the Minnesota farm is semi-seasonal. Both switched to grazing after years of operating as a traditional confinement dairy 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.

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[3] *Financial Guidelines for Agricultural Producers: Recommendations of the Farm Financial Standards Council (FFSC)*, Revised December, 1997.

[4] Since FFSC allows some latitude on some details, anyone wishing to exactly duplicate the project data handling procedures should contact the authors.

[5] If you would like to participate in the study, refer to appendix three for contact information for your state or provincial representative.

The Molitor Case Farm from Minnesota

Joe and Tom Molitor are brothers who operate a 250-cow grazing dairy farm in Central Minnesota. Molitors raise their own replacement heifers. They also produce most of the forage and corn needs for the herd. The cows and heifers are housed out-of-doors all year round. The herd is fed a TMR in a feed bunker outside, year round.

About ten years ago, the Molitors milked one hundred cows in a tie stall barn. They decided to rotational graze as a method for controlling costs and increasing profits. The cost savings were not sufficient to provide an adequate level of income for two families. The Molitors decided to expand the herd through internal growth. They felt they either had to build a new facility to house more cows or move into a low-capital input system.

With the Molitors management skills and a positive experience with grazing, they made the decision to go the low capital route. They moved the animals outside permanently which provided flexibility in terms of slowly building the cow numbers and significantly lowered overhead costs. The Molitors remodeled the existing dairy barn into a New Zealand style swing parlor with 29 stalls per side and two people milking. The cost for the parlor and remodeling was $100,000.

Molitor Case Farm Managing the Dairy Herd

Molitors have a calving strategy, although not considered seasonal calving. They try to have most of the herd either dry or at the tail end of lactation during January-February. They do not stop milking at any point in the winter and cows begin to calve in mid to late-March. The reason for this particular strategy is Molitors do not want the cows to be milking heavily in the coldest part of the winter. Their experience has been that very full udders led to frozen teats. They have not experienced frozen teats when the cows are in late lactation or are dry.

The physical arrangement is equally important to herd well-being. The cows are kept on a bedding pack of straw. The amount of bedding used depends on the amount of moisture present in the form of snow and rain. The pack is bedded, to keep the cows dry and generates some heat on its own. There is also L-shaped windbreak which blocks the north and west winds. The windbreak is made of large round bales of ditch hay stacked three high. The cows are fed hay on the bedding pack with access to heated waterers. In the winter, the heifers have shelter in a woodlot and are fed good, quality hay in the pasture. The heifers come to a feed bunk once a day for some TMR, where they have access to heated waterers.

Molitor Case Farm Key Facts 2001

- Milk sold per cow 16,480 pounds.
- Ending assets per cow $5,734
- Ending debt per cow$2,648

The Future of the Molitor Farm

The Molitors are planning to remain at their current size. They do have the potential to expand if any of the Molitor children express an interest in farming. Given the low cull rate in the herd, Molitors have begun selling bred dairy heifers. They are selling these heifer, because they have “too many heifers” and “don’t want to get any bigger.”

The Forgey Case Farm from Indiana

In 1991, Forgey’s River-View Farm was struggling financially. Dave Forgey had been farming since 1962 and had grown from his original purchase of the home farm of 111 acres in 1968 and milking 50 cows, to owning 372 acres and milking 150 cows. An expansion of land, cows and facilities in the late 1970’s had increased debt along with increasing the labor and equipment needs. The drought of 1988 was also a big factor since an investment was made to grow enough feed for the herd, but the drought created the need to purchase nearly three-fourths of the feed he needed for the next year. That, coupled with some vary high variable interest rates, had virtually eliminated his profit margin. In Forgey’s words, “Milk production was good with a RHA over 20,000 lbs, but bad economic planning put much burden on my operation.”

Forgey and his wife Helen were ready to give up before they heard Dr. David Zartman of the Ohio State University talk about a New Zealand system of dairying; involving rotational grazing and seasonal dairying. Since growing forages had been one of Forgey's strong suites, he decided to give it one last try.

They spent the rest of the year researching rotational grazing and turned the cows out on pasture in April of 1992. The first day seemed like total chaos when the cows went running out through eight-inch tall alfalfa/orchard grass pasture and returned to the gate bawling, wanting to go to the feed bunk.

"Since that day back in 1991, we've never stopped learning," Forgey relates. Since they adopted the grazing system early, good, sound advice was hard to come by. Consequently, many of the experiences were gained through trial and error. While this is an effective way to learn, it can also be a costly one. Surprisingly, most mistakes could be quickly corrected and did not have lasting results on either the cows or the pastures.

By 1994, the herd was moved to seasonal production, with all cows freshening in March and early April and drying off together in late December. Out of cycle cows were sold off, and the challenges of getting all cows bred in a short window of time reduced the herd size to only 100 cows for a few years. Since then, profit per cow increased dramatically, and debt was reduced.

Today the farm is highly profitable, selling well over one million pounds of milk per worker. The farm buys what limited grain is fed to the herd, but no protein supplement is used in that grain. The only purchased protein is a small amount used in calf starter, during April, May and June. Calves receive no grain after they reach a weight of 250 pounds until they freshen at two years old. In the winter, cows and young stock are fed high quality stored forages harvested from excess pastures the previous spring. From April through November most years, all consumed forages are harvested by the animals.

Labor, equipment and feed are some of the most expensive inputs in operating a dairy today. Having the cows harvest eight months of feed reduces these costs dramatically. In Forgey's old confinement dairy, one man spent a full working day mixing TMR, bedding down free stalls and hauling manure off the lots. None of that is done Forgey's River-view Farm today.

"Our feeding strategy is to turn cows out in the spring as soon as the grass is a couple of inches tall", says Forgey. "We give them large acreages each day and supply additional stored forages in feed wagons where they are grazing. Usually within a couple of weeks, the supplemental feed can be removed, and we begin shrinking the area to which the cows have access. That begins to set the farm up in many different stages of maturity and that's the secret of rotational grazing, having just the right amount of feed, at the right maturity, for the cows to graze everyday."

After 8 years of culling cows that do not breed in the six-week window, nearly 90% of the herd will freshen between March 1st and April 15th. It is rare to find a first-calf heifer that does not breed on first service. With a cull rate reduced to below 20% for *all* reasons, it is amazing how quickly one can build equity in their cows.

A strong base leads to future goals. Forgey reflects: "In 2002, we leased 160 joining acres which were developed into pasture. That should allow us to expand to 300 cows and their replacement heifers. And we should be able to do that within four years based on our current average cull rates. It really increases equity when you don't have to buy the cows to double your herd--that shares a bit of our sustainability. Feed cost stay low since we grow most of them. Equipment costs are low since we need very little of that and returns to labor are high since we sell high volumes of milk per man hour. Plus, we're developing a system of dairying that can compete with world market pricing. When you look at the regions of the world that produce dairy products for export like Australia, New Zealand, Ireland and some of the developing countries in South America, all of them are pasture based with low investments per cow. How can we compete when it cost about $5,000 per cow to set up a confinement dairy today and that cow lasts less than two lactations?"

VI. State-to-State Differences in Financial Performance

A farm is a sufficiently complex business for which no single factor will guarantee 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 both 2000 and 2001.

The average financial performance (NFIFO/cow and NFIFO/CWT EQ) is lowest in New York and second lowest in Michigan in 2000. The two states flip flopped in 2001. Ontario has been on top both years followed by Ohio and Wisconsin. When the project states (other than Michigan, Ohio, Ontario, New York, and Wisconsin) are summarized, their average financial performance is closer to the top than the bottom. The gap between the two lowest and the others was easily noticed in 2000 and is also noticeable in 2001.

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 the these differences is increased by the fact that there is a wide range in the amount of data submitted from each state.

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.

- Weather can also cause state-to-state differences in profitability. The general climate is fairly similar across the states and provinces 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.

- Feed costs may also partially explain the state-to-state differences. Purchased feed costs are higher in Michigan and New York than in the other cooperating states. Michigan and New York are farther from the Corn Belt than several other states.

- Several years of New York and Wisconsin 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 appears in this grazing data too (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 at levels similar to the larger herds in these two states. Consequently, size appears to be only a minor factor in the state-to-state differences observed in 2001.

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, 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, 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 many 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 2000 is $12.33.

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.

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 126 graziers from 2001 and repeats comparable numbers from 92 graziers from the 2000 report.

Table 1-3 shows the average cost of production values from all the graziers in 2000 and 2001 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. The farm earnings statement (table1-2) presents values on a whole farm, per cow and per CWT EQ basis. 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 grazier 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 grazier 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 92 Grazing Farms in 2000 and 126 in 2001

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 126 grazing dairy farm families that provided usable data in 2001 and the 92 in 2000 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. Since a few of the participants from 2000 did not participate in 2001, there are more than (126-92) 34 new herds. Both groups were not perfectly randomized samples, therefore variation in comparison results is to be expected 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 are not totalu representative of the larger population they come from.

The financial performance of graziers was respectable in 2000 and was considerably higher in 2001. Some of the differences are explained by an average milk price increase from $13.54 in 2000 to $16.31 in 2001. This improved profit level occurred with a smaller average herd size and despite fewer pounds of milk produced per cow per farm in 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 is 62% higher, NFIFO per CWT EQ is 96% higher and total NFIFO is 64% higher in 2001 compared to the 2000 all grazier average.

If all labor and management compensation were omitted, NFIFO/CWT EQ would increase substantially in both years. Labor and management compensation averaged $1.13/CWT in 2001.

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**
Number of Herds	92	126
Number of Cows per Herd	90	84
Average Lbs. Milk per Cow	16,836	15,426
Average Lbs. Milk per Herd	1,511,264	1,303,333
Average Basic Cost per CWT EQ	$7.83	$8.60
Allocated Cost per CWT EQ	$10.67	$11.68
Allocated Minus Basic Cost per CWT EQ (Non Basic Costs)	$2.84	$3.08
NFIFO per Cow(without deducting any labor compensation)	577	866
NFIFO per CWT EQ (without deducting any labor compensation)	$2.60	$4.39
NFIFO per Farm	$33,098	$54,283
NFIFO per Cow	**$395**	**$643**
NFIFO per CWT EQ	**$1.66**	**$3.26**

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 126 graziers in 2001.

Table 1-2, p. 1

The Average AgFA© Farm Earnings Report for 126 Great Lakes Graziers

Income	2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Income - Basis Adjustments			
Sales of Livestock and Other Items Bought for Resale	6.65	0.08	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	212,957.06	2,523.52	12.77
Raised Non-Breeding Livestock Sales	6,089.54	72.16	0.37
Crop Sales	2,081.38	24.66	0.12
Distributions Received from Cooperatives	672.55	7.97	0.04
Agricultural Program Payments	6,079.15	72.04	0.36
Crop Insurance Proceeds and Certain Disaster Payments	145.48	1.72	0.01
Custom Hire (Machine Work) Income	791.45	9.38	0.05
Other Income, Incl. Tax Credits, Refunds	3,196.02	37.87	0.19
Sale of Purchased Breeding Livestock	6.21	0.07	0.00
Basis in Breeding Livestock Sold	(417.59)	(4.95)	(0.03)
Sale of Raised Breeding Livestock	11,062.29	131.09	0.66
Total Cash Income - Basis Adjustments	**242,670.20**	**2,875.62**	**14.55**
Non-Cash Income			
Change in Raised Crop Inventories	(516.51)	(6.12)	(0.03)
Change in Remaining Current Assets	1,083.04	12.83	0.06
Change in Raised Breeding Livestock	5,870.66	69.57	0.35
Total Non-Cash Income	**6,437.19**	**76.28**	**0.39**
Total Income	**249,107.39**	**2,951.90**	**14.94**

Table 1-2, p. 2

The Average AgFA© Farm Earnings Report for 126 Great Lakes Graziers

Expenses		2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Expense	**Cost of Items for Resale**	19.42	0.23	0.00
	Breeding Fees	2,814.23	33.35	0.17
	Car and Truck Expenses	483.45	5.73	0.03
	Chemicals	1,704.22	20.19	0.10
	Conservation Expenses	17.20	0.20	0.00
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	5,584.57	66.18	0.33
	Employee Benefits - Dependents	127.16	1.51	0.01
	Employee Benefits - Non-Dependents	119.66	1.42	0.01
	Feed Purchase	53,668.07	635.96	3.22
	Fertilizer and Lime	5,828.69	69.07	0.35
	Freight and Trucking	1,951.78	23.13	0.12
	Gasoline, Fuel, and Oil	4,994.05	59.18	0.30
	Farm Insurance	3,131.51	37.11	0.19
	Mortgage Interest	8,476.26	100.44	0.51
	Other Interest	3,111.99	36.88	0.19
	Labor Hired - Dependents	668.01	7.92	0.04
	Labor Hired - Non-Dependents	17,893.84	212.04	1.07
	Rent/Lease Equipment	638.33	7.56	0.04
	Rent/Lease Other	4,406.18	52.21	0.26
	Repairs and Maintenance	15,351.27	181.91	0.92
	Building and Fence Repairs	1,003.03	11.89	0.06
	Machinery Repairs	175.84	2.08	0.01
	Seeds and Plants Purchased	2,713.03	32.15	0.16
	Supplies Purchased	6,475.83	76.74	0.39
	Taxes - Other	4,000.42	47.40	0.24
	Taxes - Payroll	0.00	0.00	0.00
	Utilities	5,749.03	68.13	0.34
	Veterinary Fees and Medicine	5,364.18	63.57	0.32
	Other Farm Expenses	4,724.88	55.99	0.28
	Marketing & Hedging	7,178.07	85.06	0.43
	Other Crop Expenses	317.46	3.76	0.02
	Other Livestock Expenses	5,587.21	66.21	0.34
	Total Cash Expense	**174,278.85**	**2,065.19**	**10.45**
Non-Cash Expenses				
	Change in Prepaid Expenses	(2,085.51)	(24.71)	(0.13)
	Change in Accounts Payable	(474.59)	(5.62)	(0.03)
	Machinery, Equipment and Building Depreciation	21,098.73	250.02	1.27
	Livestock Depreciation	2,007.19	23.79	0.12
	Total Non-Cash Expenses	**20,545.82**	**243.47**	**1.23**
	Total Expenses	**194,824.67**	**2,308.66**	**11.68**
	Net Farm Income From Operations (NFIFO)	54,282.72	643.25	3.26
	Gain (Loss) on Sale of All Farm Capital Assets	2,548.38	30.20	0.15
	Net Farm Income (NFI)	56,831.10	673.44	3.41

Table 1-3, p.1

The Average Cost of Production Report for 126 Great Lakes Graziers. This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details

Income	**2001** per Farm	**2001** per CWT Sold	**2001** per CWT EQ
Total Income	**248,822.98**	**19.09**	**14.94**
Expenses	**2001** per Farm	**2001** per CWT Sold	**2001** per CWT EQ
Basic Cost			
Cost of Items for Resale	19.27	0.00	0.00
Breeding Fees	2,796.83	0.21	0.17
Car and Truck Expenses	479.61	0.04	0.03
Chemicals	1,690.69	0.13	0.10
Conservation Expenses	17.06	0.00	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	5,609.77	0.43	0.34
Feed Purchase	53,369.24	4.09	3.20
Fertilizer and Lime	5,782.44	0.44	0.35
Freight and Trucking	1,978.15	0.15	0.12
Gasoline, Fuel, and Oil	4,979.59	0.38	0.30
Farm Insurance	3,126.90	0.24	0.19
Rent/Lease Equipment	633.26	0.05	0.04
Rent/Lease Other	4,371.21	0.34	0.26
Repairs and Maintenance	15,348.78	1.18	0.92
Building and Fence Repairs	995.07	0.08	0.06
Machinery Repairs	174.44	0.01	0.01
Seeds and Plants Purchased	2,691.50	0.21	0.16
Supplies Purchased	6,479.07	0.50	0.39
Taxes - Other	4,005.43	0.31	0.24
Taxes - Payroll	0.00	0.00	0.00
Utilities	5,734.32	0.44	0.34
Veterinary Fees and Medicine	5,330.78	0.41	0.32
Other Farm Expenses	4,758.53	0.37	0.29
Marketing & Hedging	7,121.10	0.55	0.43
Other Crop Expenses	314.94	0.02	0.02
Other Livestock Expenses	5,556.81	0.43	0.33
- Change in Prepaid Expenses	(2,068.93)	(0.16)	(0.12)
Change in Accounts Payable	(476.12)	(0.04)	(0.03)
Depreciation on Purchased Breeding Livestock	1,991.26	0.15	0.12
Total Basic Cost	**142,811.01**	**10.96**	**8.57**

Table 1-3, p. 2

The Average AgFA© Cost of Production Reports for 126 Great Lakes Graziers

This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO, and Other Financial Measures

		2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Interest Cost				
	Mortgage Interest	8,408.99	0.65	0.50
	Other Interest	3,236.51	0.25	0.19
	Total Interest Cost	**11,645.50**	**0.89**	**0.70**
Labor Cost	**Employee Benefits - Dependents**	126.15	0.01	0.01
	Employee Benefits - Non-Dependents	118.71	0.01	0.01
	Labor Hired - Dependents	662.71	0.05	0.04
	Labor Hired - Non-Dependents	18,036.44	1.38	1.08
	Value of Unpaid Labor & Management	35,880.40	2.75	2.15
	Total Labor Cost	**54,824.40**	**4.21**	**3.29**
Depreciation & Equity Cost				
	Machinery, Equipment, Building Depreciation	21,132.02	1.62	1.27
	Interest on Equity Capital	25,766.28	1.98	1.55
	Total Depreciation & Equity Cost	**46,898.30**	**3.60**	**2.82**
	Total Expenses	**256,179.21**	**19.66**	**15.38**
	Total Income - Total Expenses	**(7,356.23)**	**(0.56)**	**(0.44)**
Net Farm Income from Operations (NFIFO) Summary				
	Total Allocated Costs	194,532.53	14.93	11.68
	Net Farm Income From Operations (NFIFO)	54,290.45	4.17	3.26
	Gain (Loss) on Sale of All Farm Capital Assets	2,578.29	0.20	0.15
	Net Farm Income (NFI)	56,868.73	4.36	3.41

Table 1-4

The Average AgFA© Financial Measures Report
Showing Selected Measures of Financial Performance for 126 Great Lakes Graziers

	2001 per Farm	2001 per Cow	2001 per CWT EQ
Profitability (Assets at Cost and Cost (Tax) Depreciation)			
Net Farm Income From Operations	$56,300.98	$666.37	$3.38
Net Farm Income	$58,879.26	$696.89	$3.54
Rate of Return on Assets (ROROA)	19.29%	19.29%	19.29%
Cost (Tax) Depreciation Claimed	*$21,132.02*	*$250.12*	*$1.27*
Rate of Return on Equity	244.99 %	244.99 %	244.99 %
Net Profit Margin	13.92 %	13.92 %	13.92 %
Profitability (Assets at Market Value and Economic Depreciation)			
Net Farm Income From Operations	$69,686.38	$824.80	$4.18
Net Farm Income	$72,264.67	$855.32	$4.34
Rate of Return on Assets (ROROA)	7.01 %	7.01 %	7.01 %
Economic Depreciation Claimed	*$7,746.61*	*$91.69*	*$0.47*
Rate of Return on Equity	7.06 %	7.06 %	7.06 %
Net Profit Margin	19.30 %	19.30 %	19.30 %
Financial Efficiency Ratios (Ratios are calculated using Total Farm Income not Value of Farm Production)			
Asset Turnover (Cost and Tax)	1.386	1.386	1.386
Asset Turnover (Market Value and Economic)	0.363	0.363	0.363
Basic Cost (both)*	0.566	0.566	0.566
Wages Paid (both)*	0.076	0.076	0.076
Interest Paid (both)	0.047	0.047	0.047
Economic Depreciation	0.031	0.031	0.031
Net Farm Income from Operations (Market Value and Economic)	0.280	0.280	0.280
Cost (Tax) Depreciation	0.085	0.031	0.031
Net Farm Income from Operations (Cost and Tax)	0.226	0.226	0.226
Repayment Capacity			
Capital & Debt Repayment Capacity	$54,584.60	$646.06	$3.28
Coverage Margin	$24,394.36	$288.73	$1.46
Term Debt Coverage Ratio	2.48	2.48	2.48
Liquidity			
Net Cash Income	$68,802.46	$814.34	$4.13
Working Capital	$28,887.73	$341.91	$1.73
Current Ratio	1.93	1.93	1.93
Solvency (Assets at Market Value)			
Beginning Total Farm Assets	$660,267.25	$7,814.84	$39.64
Beginning Total Farm Liabilities	$169,684.78	$2,008.37	$10.19
Ending Total Farm Assets	$710,751.68	$8,412.37	$42.68
Ending Total Farm Liabilities	$170,682.91	$2,020.18	$10.25
Ending Farm Net Worth	$540,068.77	$6,392.19	$32.43
Change in Farm Net Worth	$49,486.30	$585.71	$2.97
Year Ending Farm Debt to Asset Ratio	0.240	0.240	0.240
Year Ending Farm Equity to Asset Ratio	0.760	0.760	0.760

* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

Table 1-5

The Average AgFA© Balance Sheet of 126 Great Lakes Graziers in 2001
Showing the Current Market Values and Historic Cost Values of Assets

	Beg. Dollars	End Dollars	Historic Cost Basis	
Current Assets				
Cash Accounts	10,339	10,608		
Prepaid Expenses & Purchased Inventories	7,083	9,152		
Raised Feed Inventories	28,391	27,848		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	9,441	10,204		
Market Livestock & Etc.	2,006	2,291		
Total Current Assets	**57,260**	**60,102**		
Non-Current Assets			**Beg. Dollars**	**End Dollars**
Raised Breeding Livestock	134,380	140,394		
Purchased Breeding Livestock	583	529	281	376
Machinery & Equipment	104,118	112,485	25,362	28,348
Buildings	33,653	34,066	19,904	20,132
Land & House	250,134	270,251	53,816	55,117
Other Non-Current Assets	80,140	92,925	17,182	21,264
Total Non-Current Assets	**603,007**	**650,650**	**116,544**	**125,237**
Total Farm Assets	**660,267**	**710,752**		
Current Liabilities				
Accounts Payable	4,542	4,066		
Current Portion of Non-Current Liabilities	15,104	17,977		
Other Current Liabilities	10,112	9,172		
Total Current Liabilities	**29,758**	**31,214**		
Non-Current Liabilities				
Intermediate Liabilities	18,540	20,291		
Long-Term Liabilities	121,387	119,178		
Contingent Liabilities	140,037	150,858		
Total Non-Current Liabilities	**279,964**	**290,327**		
Total Farm Liabilities	**309,722**	**321,541**		
Non-Farm Assets	17,395	16,946		
Non-Farm Liabilities	3,159	3,348		

Statement of Equities (Net Worth)

	Beginning	Ending	Change	
Contributed Capital	963	1,571	608	
Retained Earnings	137,535	153,479	15,944	* All current assets and raised
Valuation Adjustment	212,046	234,160	22,114	breeding livestock are included in
Total Farm Equities	350,545		38,665	retained earnings.
Non-Farm Equities	14,235	13,598	-637	
Total Equities	**364,780**	**402,809**	**38,028**	

XII. Comparing the Top Half to the Bottom Half of Graziers Sorted by NFIFO/CWT EQ Sold[6]

The average "top half" herd in 2001 is smaller, produces slightly more milk per cow, has a lower basic, allocated and total cost per CWT EQ, and has about two and a half 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 rent, supplies, and seeds. They were tied in spending per CWT EQ for breeding, chemicals, fertilizer and lime.

Overall, the top herds have a $1.40 per CWT EQ advantage in basic costs and another $1.41 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 $0.32 per CWT EQ less for interest, $0.76 per CWT EQ less for labor and management, and $0.33 less per CWT EQ for depreciation than the low group.

This accounts for the $2.81 per CWT EQ advantage that the top herds have in NFIFO.

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

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	Top Half	Bottom Half	2001 Average
Number of Herds	61	62	126
Number of Cows per Herd	80	91	84
Average Lbs. Milk per Cow	15,578	15,416	15,426
Average Lbs. Milk per Herd	1,244,299	1,407,833	1,303,333
Average Basic Cost per CWT EQ	$7.82	$9.22	$8.60
Allocated Cost per CWT EQ	$10.18	$12.99	$11.68
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	$2.36	$3.77	$3.08
NFIFO per Cow (without deducting any labor compensation	$1101	$676	866
NFIFO per CWT EQ NFIFO per CWT EQ (without deducting any labor compensation)	$5.49	$3.45	$4.39
NFIFO per Farm	$76,462	$34,907	$54,283
NFIFO per Cow	**$962**	**$382**	**$643**
NFIFO per CWT EQ	**$4.76**	**$1.95**	**$3.26**

If paid labor and management compensation were omitted, the NFIFO per CWT EQ would increase to $5.49 for the top half and to $3.45 for the bottom half.

The year 2000 comparison of the top versus bottom half was similar to the 2001 comparison but, the top half had over four times as much NFIFO per CWT EQ and NFIFO per cow in 2000.

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

[6] CWT EQ sold is not the same as actual hundredweights of milk sold. See page 9 and 10 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 61 Top Half Graziers were sorted by Net Farm Income From Operations (NFIFO) Per CWT EQ

Income	2001	2001	2001
	per Farm	per Cow	per CWT EQ
Cash Income - Basis Adjustments			
Sales of Livestock and Other Items Bought for Resale	13.62	0.17	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	200,492.72	2,501.29	12.49
Raised Non-Breeding Livestock Sales	5,036.02	62.83	0.31
Crop Sales	2,795.38	34.87	0.17
Distributions Received from Cooperatives	763.95	9.53	0.05
Agricultural Program Payments	5,136.28	64.08	0.32
Crop Insurance Proceeds and Certain Disaster Payments	298.11	3.72	0.02
Custom Hire (Machine Work) Income	982.43	12.26	0.06
Other Income, Incl. Tax Credits, Refunds	2,482.49	30.97	0.15
Basis in Breeding Livestock Sold	(361.85)	(4.51)	(0.02)
Sale of Raised Breeding Livestock	9,554.76	119.20	0.60
Total Cash Income - Basis Adjustments	**227,193.92**	**2,834.41**	**14.16**
Non-Cash Income			
Change in Raised Crop Inventories	511.64	6.38	0.03
Change in Remaining Current Assets	773.05	9.64	0.05
Change in Raised Breeding Livestock	11,311.15	141.11	0.70
Total Non-Cash Income	**12,595.83**	**157.14**	**0.78**
Total Income	**239,789.74**	**2,991.55**	**14.94**

Table 2-2, p. 2

The Average AgFA© Farm Earnings Report for the Top Half of Great Lakes Graziers. The 61 Top Half Graziers were sorted by Net Farm Income From Operations (NFIFO) Per CWT EQ

Expenses		2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Expense				
	Cost of Items for Resale	0.00	0.00	0.00
	Breeding Fees	2,651.66	33.08	0.17
	Car and Truck Expenses	334.30	4.17	0.02
	Chemicals	1,615.87	20.16	0.10
	Conservation Expenses	35.25	0.44	0.00
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	3,921.62	48.93	0.24
	Employee Benefits - Dependents	0.00	0.00	0.00
	Employee Benefits - Non-Dependents	61.62	0.77	0.00
	Feed Purchase	48,413.46	603.99	3.02
	Fertilizer and Lime	5,458.79	68.10	0.34
	Freight and Trucking	1,392.30	17.37	0.09
	Gasoline, Fuel, and Oil	4,405.05	54.96	0.27
	Farm Insurance	2,950.43	36.81	0.18
	Mortgage Interest	5,486.54	68.45	0.34
	Other Interest	2,946.69	36.76	0.18
	Labor Hired - Dependents	364.13	4.54	0.02
	Labor Hired - Non-Dependents	11,429.02	142.59	0.71
	Rent/Lease Equipment	812.38	10.13	0.05
	Rent/Lease Other	4,309.00	53.76	0.27
	Repairs and Maintenance	13,926.54	173.74	0.87
	Building and Fence Repairs	1,292.39	16.12	0.08
	Machinery Repairs	67.33	0.84	0.00
	Seeds and Plants Purchased	2,556.31	31.89	0.16
	Supplies Purchased	6,657.97	83.06	0.41
	Taxes - Other	3,187.82	39.77	0.20
	Taxes - Payroll	0.00	0.00	0.00
	Utilities	4,826.70	60.22	0.30
	Veterinary Fees and Medicine	4,256.08	53.10	0.27
	Other Farm Expenses	3,592.43	44.82	0.22
	Marketing & Hedging	6,447.95	80.44	0.40
	Other Crop Expenses	244.46	3.05	0.02
	Other Livestock Expenses	2,505.43	31.26	0.16
	Total Cash Expense	**146,149.49**	**1,823.32**	**9.11**
Non-Cash Expenses				
	Change in Prepaid Expenses	(2,744.96)	(34.25)	(0.17)
	Change in Accounts Payable	81.67	1.02	0.01
	Machinery, Equipment and Building Depreciation	17,454.31	217.75	1.09
	Livestock Depreciation	2,386.80	29.78	0.15
	Total Non-Cash Expenses	**17,177.83**	**214.31**	**1.07**
	Total Expenses	**163,327.32**	**2,037.62**	**10.18**
	Net Farm Income From Operations (NFIFO)	76,462.42	953.92	4.76
	Gain (Loss) on Sale of All Farm Capital Assets	1,068.51	13.33	0.07
	Net Farm Income (NFI)	77,530.93	967.25	4.83

Table 2-3, p.1

The Average AgFA© Cost of Production Report for the Top Half of Great Lakes Graziers. The 61 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	**2001** per Farm	**2001** per CWT Sold	**2001** per CWT EQ
Total Income	**239,789.74**	**19.31**	**14.94**
Expenses	**2001** Cost (tax)	**2001** per CWT Sold	**2001** per CWT EQ
Basic Cost			
Cost of Items for Resale	0.00	0.00	0.00
Breeding Fees	2,651.66	0.21	0.17
Car and Truck Expenses	334.30	0.03	0.02
Chemicals	1,615.87	0.13	0.10
Conservation Expenses	35.25	0.00	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	3,921.62	0.32	0.24
Feed Purchase	48,413.46	3.90	3.02
Fertilizer and Lime	5,458.79	0.44	0.34
Freight and Trucking	1,392.30	0.11	0.09
Gasoline, Fuel, and Oil	4,405.05	0.35	0.27
Farm Insurance	2,950.43	0.24	0.18
Rent/Lease Equipment	812.38	0.07	0.05
Rent/Lease Other	4,309.00	0.35	0.27
Repairs and Maintenance	13,926.54	1.12	0.87
Building and Fence Repairs	1,292.39	0.10	0.08
Machinery Repairs	67.33	0.01	0.00
Seeds and Plants Purchased	2,556.31	0.21	0.16
Supplies Purchased	6,657.97	0.54	0.41
Taxes - Other	3,187.82	0.26	0.20
Taxes - Payroll	0.00	0.00	0.00
Utilities	4,826.70	0.39	0.30
Veterinary Fees and Medicine	4,256.08	0.34	0.27
Other Farm Expenses	3,592.43	0.29	0.22
Marketing & Hedging	6,447.95	0.52	0.40
Other Crop Expenses	244.46	0.02	0.02
Other Livestock Expenses	2,505.43	0.20	0.16
Change in Prepaid Expenses	(2,744.96)	(0.22)	(0.17)
Change in Accounts Payable	81.67	0.01	0.01
Depreciation on Purchased Breeding Livestock	2,386.80	0.19	0.15
Total Basic Cost	**125,585.01**	**10.12**	**7.82**

Table 2-3, p.2

The Average AgFA © Cost of Production Report for the Top Half of Great Lakes Graziers. The 61 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.

	2001	2001	2001
Interest Cost	per Farm	per CWT Sold	per CWT EQ
Mortgage Interest	5,486.54	0.44	0.34
Other Interest	2,946.69	0.24	0.18
Total Interest Cost	**8,433.23**	**0.68**	**0.53**
Labor Cost			
Employee Benefits - Dependents	0.00	0.00	0.00
Employee Benefits - Non-Dependents	61.62	0.00	0.00
Labor Hired - Dependents	364.13	0.03	0.02
Labor Hired - Non-Dependents	11,429.02	0.92	0.71
Value of Unpaid Labor & Management	35,106.20	2.83	2.19
Total Labor Cost	**46,960.97**	**3.78**	**2.93**
Depreciation & Equity Cost			
Machinery, Equipment, Building Depreciation	17,454.31	1.41	1.09
Interest on Equity Capital	26,085.38	2.10	1.63
Total Depreciation & Equity Cost	**43,539.70**	**3.51**	**2.71**
Total Expenses	**224,518.90**	**18.08**	**13.99**
Total Income - Total Expenses	**15,270.84**	**1.23**	**0.95**
Net Farm Income from Operations (NFIFO) Summary			
Total Allocated Costs	163,327.32	13.16	10.18
Net Farm Income From Operations (NFIFO)	76,462.42	6.16	4.76
Gain (Loss) on Sale of All Farm Capital Assets	1,068.51	0.09	0.07
Net Farm Income (NFI)	77,530.93	6.25	4.83

Table 2-4

The Average AgFA© Financial Measures Report for the Top Half of Great Lakes Graziers.
The 61 Top Half Graziers were sorted by Net Farm Income From Operations (NFIFO) per CWT EQ.

		2001 per Farm	2001 per Cow	2001 per CWT EQ
Profitability (Assets at Cost and Cost (Tax) Depreciation)				
	Net Farm Income From Operations	$78,849.23	$983.70	$4.91
	Net Farm Income	$79,917.74	$997.03	$4.98
	Rate of Return on Assets (ROROA)	27.40%	27.40%	27.40%
	Cost (Tax) Depreciation Claimed	*$17,454.31*	*$217.75*	*$1.09*
	Rate of Return on Equity	58.58 %	58.58 %	58.58 %
	Net Profit Margin	22.20 %	22.20 %	22.20 %
Profitability (Assets at Market Value and Economic Depreciation)				
	Net Farm Income From Operations	$90,704.64	$1,131.61	$5.65
	Net Farm Income	$91,773.15	$1,144.94	$5.72
	Rate of Return on Assets (ROROA)	10.18 %	10.18 %	10.18 %
	Economic Depreciation Claimed	*$5,598.89*	*$69.85*	*$0.35*
	Rate of Return on Equity	10.86 %	10.86 %	10.86 %
	Net Profit Margin	27.15 %	27.15 %	27.15 %
Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)				
	Asset Turnover (Cost and Tax)	1.234	1.234	1.234
	Asset Turnover (Market Value and Economic)	0.375	0.375	0.375
	Basic Cost (both)*	0.514	0.514	0.514
	Wages Paid (both)*	0.049	0.049	0.049
	Interest Paid (both)	0.035	0.035	0.035
	Economic Depreciation	0.023	0.023	0.023
	Net Farm Income from Operations (Market Value and Economic)	0.378	0.378	0.378
	Cost (Tax) Depreciation	0.073	0.023	0.023
	Net Farm Income from Operations (Cost and Tax)	0.329	0.329	0.329
Repayment Capacity	Capital Replacement & Debt Repayment Capacity	$69,007.52	$860.92	$4.30
	Coverage Margin	$46,667.94	$582.22	$2.91
	Term Debt Coverage Ratio	3.72	3.72	3.72
Liquidity	Net Cash Income	$81,406.28	$1,015.60	$5.07
	Working Capital	$39,320.94	$490.56	$2.45
	Current Ratio	2.82	2.82	2.82
Solvency (Assets at Market Value)				
	Beginning Total Farm Assets	$613,802.83	$7,657.63	$38.24
	Beginning Total Farm Liabilities	$120,619.12	$1,504.81	$7.52
	Ending Total Farm Assets	$665,335.39	$8,300.53	$41.45
	Ending Total Farm Liabilities	$115,103.70	$1,436.00	$7.17
	Ending Farm Net Worth	$550,231.69	$6,864.53	$34.28
	Change in Farm Net Worth	$57,047.98	$711.71	$3.55
	Year Ending Farm Debt to Asset Ratio	0.173	0.173	0.173
	Year Ending Farm Equity to Asset Ratio	0.827	0.827	0.827

* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

Table 2-5

The Average AgFA© Balance Sheet for the Top Half of Great Lakes Graziers in 2001 Showing the Current Market and Historic Cost Values of Assets. The 61 Top Half of Graziers were sorted by Net Farm Income From Operations (NFIFO) per CWT EQ

		Beg. Dollars	End Dollars	Basis	
Current Assets					
	Cash Accounts	13,128	14,463		
	Prepaid Expenses & Purchased Inventories	8,941	11,732		
	Raised Feed Inventories	25,270	25,666		
	Basis in Resale Livestock Purchased	0	0		
	Accounts Receivable	7,012	7,702		
	Market Livestock & Etc.	937	1,091		
	Total Current Assets	**55,287**	**60,654**		
Non-Current Assets				**Beg. Dollars**	**End Dollars**
	Raised Breeding Livestock	123,801	134,900		
	Purchased Breeding Livestock	25	25	10	290
	Machinery & Equipment	100,513	111,130	30,144	34,840
	Buildings	36,528	35,594	23,710	22,666
	Land & House	211,404	226,396	62,314	62,444
	Other Non-Current Assets	79,439	90,099	17,378	18,852
	Total Non-Current Assets	**551,710**	**598,145**	**133,555**	**139,092**
Total Farm Assets		**606,997**	**658,798**		
Current Liabilities	**Accounts Payable**	1,653	1,747		
	Current Portion of Non-Current Liabilities	12,151	12,733		
	Other Current Liabilities	7,619	7,086		
	Total Current Liabilities	**21,423**	**21,566**		
Non-Current Liabilities					
	Intermediate Liabilities	22,864	22,220		
	Long-Term Liabilities	73,746	69,002		
	Contingent Liabilities	120,977	132,779		
	Total Non-Current Liabilities	**217,587**	**224,001**		
Total Farm Liabilities		**239,009**	**245,567**		
	Non-Farm Assets	10,122	10,389		
	Non-Farm Liabilities	1,865	1,886		

Statement of Equities (Net Worth)

	Beginning	Ending	Change	
Contributed Capital	1,883	1,883	0	
Retained Earnings	192,727	219,975	27,247	* All current assets and raised breeding
Valuation Adjustment	173,377	191,373	17,996	livestock are included in retained earnings.
Total Farm Equities	367,988	413,231	45,243	
Non-Farm Equities	8,257	8,503	246	
Total Equities	**376,245**	**421,734**	**45,489**	

Table 2-6, p. 1

The Average AgFA© Farm Earnings Report for the Bottom Half of Great Lakes Graziers.

The 62 Bottom half of Graziers were sorted by Net Farm Income from Operation(NFIFO) per CWT EQ

Income	2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Income - Basis Adjustments			
Sales of Livestock and Other Items Bought for Resale	0.00	0.00	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	231,904.40	2,539.35	12.98
Raised Non-Breeding Livestock Sales	7,249.85	79.39	0.41
Crop Sales	1,446.03	15.83	0.08
Distributions Received from Cooperatives	593.42	6.50	0.03
Agricultural Program Payments	7,183.16	78.66	0.40
Crop Insurance Proceeds and Certain Disaster Payments	0.00	0.00	0.00
Custom Hire (Machine Work) Income	659.32	7.22	0.04
Other Income, Incl. Tax Credits, Refunds	3,984.92	43.63	0.22
Sale of Purchased Breeding Livestock	12.52	0.14	0.00
Basis in Breeding Livestock Sold	(523.00)	(5.73)	(0.03)
Sale of Raised Breeding Livestock	13,161.55	144.12	0.74
Total Cash Income - Basis Adjustments	**265,672.18**	**2,909.11**	**14.87**
Non-Cash Income			
Change in Raised Crop Inventories	(1,515.62)	(16.60)	(0.08)
Change in Remaining Current Assets	1,517.41	16.62	0.08
Change in Raised Breeding Livestock	1,219.55	13.35	0.07
Total Non-Cash Income	**1,221.34**	**13.37**	**0.07**
Total Income	**266,893.52**	**2,922.48**	**14.94**

Table 2-6, p. 2

The Average AgFA© Farm Earnings Report for the Bottom Half of Great Lakes Graziers. The 62 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ

Expenses		2001	2001	2001
		per Farm	per Head	per CWT EQ
Cash Expense	Cost of Items for Resale	39.16	0.43	0.00
	Breeding Fees	3,006.81	32.92	0.17
	Car and Truck Expenses	637.61	6.98	0.04
	Chemicals	1,833.34	20.08	0.10
	Conservation Expenses	0.00	0.00	0.00
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	7,444.44	81.52	0.42
	Employee Benefits - Dependents	256.37	2.81	0.01
	Employee Benefits - Non-Dependents	180.61	1.98	0.01
	Feed Purchase	60,222.94	659.44	3.37
	Fertilizer and Lime	6,333.52	69.35	0.35
	Freight and Trucking	2,610.95	28.59	0.15
	Gasoline, Fuel, and Oil	5,733.85	62.79	0.32
	Farm Insurance	3,403.87	37.27	0.19
	Mortgage Interest	11,630.69	127.36	0.65
	Other Interest	3,476.19	38.06	0.19
	Labor Hired - Dependents	988.53	10.82	0.06
	Labor Hired - Non-Dependents	25,410.02	278.24	1.42
	Rent/Lease Equipment	334.60	3.66	0.02
	Rent/Lease Other	4,519.08	49.48	0.25
	Repairs and Maintenance	17,320.69	189.66	0.97
	Building and Fence Repairs	750.47	8.22	0.04
	Machinery Repairs	288.27	3.16	0.02
	Seeds and Plants Purchased	2,875.69	31.49	0.16
	Supplies Purchased	6,563.98	71.88	0.37
	Taxes - Other	4,945.74	54.16	0.28
	Utilities	6,828.89	74.78	0.38
	Veterinary Fees and Medicine	6,597.42	72.24	0.37
	Other Farm Expenses	6,054.97	66.30	0.34
	Marketing & Hedging	8,046.56	88.11	0.45
	Other Crop Expenses	399.52	4.37	0.02
	Other Livestock Expenses	8,767.68	96.01	0.49
	Total Cash Expense	**207,502.47**	**2,272.15**	**11.62**
Non-Cash Expenses	Change in Prepaid Expenses	(1,499.07)	(16.41)	(0.08)
	Change in Accounts Payable	(1,049.29)	(11.49)	(0.06)
	Machinery, Equipment and Building Depreciation	25,333.60	277.40	1.42
	Livestock Depreciation	1,698.45	18.60	0.10
	Total Non-Cash Expenses	**24,483.69**	**268.10**	**1.37**
	Total Expenses	**231,986.16**	**2,540.25**	**12.99**
	Net Farm Income From Operations (NFIFO)	34,907.36	382.24	1.95
	Gain (Loss) on Sale of All Farm Capital Assets	4,186.85	45.85	0.23
	Net Farm Income (NFI)	39,094.22	428.08	2.19

Table 2-7, p. 1

The Average AgFA© Cost of Production Report for the Bottom Half of Great Lakes Graziers. The 62 Bottom Half of 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	2001 Cost (tax)	2001 per CWT Sold	2001 per CWT EQ
Total Income	**266,893.52**	**18.96**	**14.94**
Expenses	**2001 Cost (tax)**	**2001 per CWT Sold**	**2001 per CWT EQ**
Basic Cost			
Cost of Items for Resale	39.16	0.00	0.00
Breeding Fees	3,006.81	0.21	0.17
Car and Truck Expenses	637.61	0.05	0.04
Chemicals	1,833.34	0.13	0.10
Conservation Expenses	0.00	0.00	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	7,444.44	0.53	0.42
Feed Purchase	60,222.94	4.28	3.37
Fertilizer and Lime	6,333.52	0.45	0.35
Freight and Trucking	2,610.95	0.19	0.15
Gasoline, Fuel, and Oil	5,733.85	0.41	0.32
Farm Insurance	3,403.87	0.24	0.19
Rent/Lease Equipment	334.60	0.02	0.02
Rent/Lease Other	4,519.08	0.32	0.25
Repairs and Maintenance	17,320.69	1.23	0.97
Building and Fence Repairs	750.47	0.05	0.04
Machinery Repairs	288.27	0.02	0.02
Seeds and Plants Purchased	2,875.69	0.20	0.16
Supplies Purchased	6,563.98	0.47	0.37
Taxes - Other	4,945.74	0.35	0.28
Utilities	6,828.89	0.49	0.38
Veterinary Fees and Medicine	6,597.42	0.47	0.37
Other Farm Expenses	6,054.97	0.43	0.34
Marketing & Hedging	8,046.56	0.57	0.45
Other Crop Expenses	399.52	0.03	0.02
Other Livestock Expenses	8,767.68	0.62	0.49
- Change in Prepaid Expenses	(1,499.07)	(0.11)	(0.08)
Change in Accounts Payable	(1,049.29)	(0.07)	(0.06)
Depreciation on Purchased Breeding Livestock	1,698.45	0.12	0.10
Total Basic Cost	**164,710.14**	**11.70**	**9.22**

Table 2-7, p. 2

The Average AgFA© Cost of Production Report for the Bottom Half of Great Lakes Graziers. The 62 Bottom Half of 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

	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Interest Cost			
Mortgage Interest	11,630.69	0.83	0.65
Other Interest	3,476.19	0.25	0.19
Total Interest Cost	**15,106.89**	**1.07**	**0.85**
Labor Cost			
Employee Benefits - Dependents	256.37	0.02	0.01
Employee Benefits - Non-Dependents	180.61	0.01	0.01
Labor Hired - Dependents	988.53	0.07	0.06
Labor Hired - Non-Dependents	25,410.02	1.80	1.42
Value of Unpaid Labor & Management	36,641.79	2.60	2.05
Total Labor Cost	**63,477.32**	**4.51**	**3.55**
Depreciation & Equity Cost			
Machinery, Equipment, Building Depreciation	25,333.60	1.80	1.42
Interest on Equity Capital	25,992.38	1.85	1.45
Total Depreciation & Equity Cost	**51,325.98**	**3.65**	**2.87**
Total Expenses	**294,620.33**	**20.93**	**16.49**
Total Income - Total Expenses	**(27,726.81)**	**(1.97)**	**(1.55)**
Net Farm Income from Operations (NFIFO) Summary			
Total Allocated Costs	231,986.16	16.48	12.99
Net Farm Income From Operations (NFIFO)	34,907.36	2.48	1.95
Gain (Loss) on Sale of All Farm Capital Assets	4,186.85	0.30	0.23
Net Farm Income (NFI)	39,094.22	2.78	2.19

Table 2-8

The Average AgFA© Financial Measures Report for the Bottom Half of Great Lakes Graziers.
The 62 Bottom Half Graziers were Sorted by Net Farm Income from Operations (NFIFO) per CWT EQ

		2001	2001	2001
Profitability (Assets at Cost and Cost (Tax) Depreciation)				
	Net Farm Income From Operations	$36,644.97	$401.26	$2.05
	Net Farm Income	$40,831.83	$447.11	$2.29
	Rate of Return on Assets (ROROA)	11.50%	11.50%	11.50%
	Cost (Tax) Depreciation Claimed	*$25,333.60*	*$277.40*	*$1.42*
	Rate of Return on Equity	-7.11 %	-7.11 %	-7.11 %
	Net Profit Margin	7.23 %	7.23 %	7.23 %
Profitability (Assets at Market Value and Economic Depreciation)				
	Net Farm Income From Operations	$52,213.96	$571.74	$2.92
	Net Farm Income	$56,400.81	$617.59	$3.16
	Rate of Return on Assets (ROROA)	4.67 %	4.67 %	4.67 %
	Economic Depreciation Claimed	*$9,764.61*	*$106.92*	*$0.55*
	Rate of Return on Equity	3.80 %	3.80 %	3.80 %
	Net Profit Margin	13.06 %	13.06 %	13.06 %
Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)				
	Asset Turnover (Cost and Tax)	1.590	1.590	1.590
	Asset Turnover (Market Value and Economic)	0.357	0.357	0.357
	Basic Cost (both)*	0.611	0.611	0.611
	Wages Paid (both)*	0.101	0.101	0.101
	Interest Paid (both)	0.057	0.057	0.057
	Economic Depreciation	0.037	0.037	0.037
	Net Farm Income from Operations (Market Value and Economic)	0.196	0.196	0.196
	Cost (Tax) Depreciation	0.095	0.037	0.037
	Net Farm Income from Operations (Cost and Tax)	0.137	0.137	0.137
Repayment Capacity	Capital Replacement & Debt Repayment Capacity	$42,718.07	$467.76	$2.39
	Coverage Margin	$3,788.16	$41.48	$0.21
	Term Debt Coverage Ratio	1.74	1.74	1.74
Liquidity	Net Cash Income	$58,731.87	$643.11	$3.29
	Working Capital	$19,722.56	$215.96	$1.10
	Current Ratio	1.48	1.48	1.48
Solvency (Assets at Market Value)	Beginning Total Farm Assets	$720,540.42	$7,889.92	$40.33
	Beginning Total Farm Liabilities	$223,051.13	$2,442.41	$12.49
	Ending Total Farm Assets	$772,588.79	$8,459.85	$43.25
	Ending Total Farm Liabilities	$230,382.82	$2,522.69	$12.90
	Ending Farm Net Worth	$542,205.97	$5,937.16	$30.35
	Change in Farm Net Worth	$44,716.68	$489.65	$2.50
	Year Ending Farm Debt to Asset Ratio	0.298	0.298	0.298
	Year Ending Farm Equity to Asset Ratio	0.702	0.702	0.702

* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

Table 2-9

The Average AgFA© Balance Sheet for the Bottom Half of Great Lakes Graziers in 2001 Showing the Current Market Values and Historic Cost Values of Assets. The 62 Bottom Half Graziers were sorted by Net Farm Income from Operations (NFIFO) per CWT EQ

		Beg. Dollars	2001	End Dollars		Historic Cost Basis
Current Assets	**Cash Accounts**	7,712		7,102		
	Prepaid Expenses & Purchased Inventories	5,568		7,067		
	Raised Feed Inventories	32,036		30,520		
	Basis in Resale Livestock Purchased	0		0		
	Accounts Receivable	12,222		13,157		
	Market Livestock & Etc.	2,766		3,349		
	Total Current Assets	**60,304**		**61,195**		
Non-Current Assets	**Raised Breeding Livestock**	147,880		149,100	**Beg. Dollars**	**End Dollars**
	Purchased Breeding Livestock	1,161		1,050		
	Machinery & Equipment	108,714		115,310	561	693
	Buildings	30,954		32,837	20,984	22,663
	Land & House	287,031		313,084	16,728	18,296
	Other Non-Current Assets	84,496		100,013	45,189	47,856
	Total Non-Current Assets	**660,237**		**711,394**	17,154	24,015
Total Farm Assets		**720,540**		**772,589**	**100,616**	**113,524**
Current Liabilities	**Accounts Payable**	7,605		6,556		
	Current Portion of Non-Current Liabilities	18,196		23,463		
	Other Current Liabilities	12,607		11,454		
	Total Current Liabilities	**38,407**		**41,473**		
Non-Current Liabilities	**Intermediate Liabilities**	14,359		19,056		
	Long-Term Liabilities	170,285		169,855		
	Contingent Liabilities	160,639		170,927		
	Total Non-Current Liabilities	**345,284**		**359,837**		
Total Farm Liabilities		**383,691**		**401,310**		
	Non-Farm Assets	21,201		22,620		
	Non-Farm Liabilities	4,122		4,485		

Statement of Equities (Net Worth)

	Beginning	Ending	Change	
Contributed Capital	135	1,370	1,235	
Retained Earnings	85,613	92,066	6,452	* All current assets and raised
Valuation Adjustment	251,101	277,843	26,742	breeding livestock are included
Total Farm Equities	336,850	371,279	34,429	in retained earnings.
Non-Farm Equities	17,079	18,135	1,056	
Total Equities	**353,929**	**389,414**	**35,485**	

XIII. Comparing Herds by Size: Less Than 100 Cows vs. More than 100 Cows

The average "large" herd in 2001 has more than three times as many cows, producing about ten percent less milk per cow, and is less profitable on a per cow and a per CWT EQ basis. The average "large" farm does provide many more total dollars of NFIFO per farm. In the basic cost category, the larger herds have a higher cost per CWT EQ for purchased feed, rent, repairs, other farm expenses and depreciation of purchased livestock.

The smaller herds have a combined basic cost per CWT EQ that is $0.31 higher than the larger herds. However, the smaller herds have a $0.79 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 $0.13 per CWT EQ less for interest, $0.70 per CWT EQ less for paid labor and management, but $0.04 more per CWT EQ for depreciation than the large herds.

This accounts for the $0.48 per CWT EQ 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.

Table 3-1

Comparing Herds by Size: More Than 100 vs. Less than 100 / Most Performance Measures Selected from Tables 3-2 to 3-9	**Less than 100 Cows**	**More than 100 Cows**	**2001 Average**
Number of Herds	96	30	126
Number of Cows per Herd	57	173	84
Average Lbs. Milk per Cow	16,145	14,671	15,426
Average Lbs. Milk per Herd	917,335	2,538,523	1,303,333
Average Basic Cost per CWT EQ	$8.72	$8.41	$8.60
Allocated Cost per CWT EQ	$11.45	$11.93	$11.68
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	$2.73	$3.52	$3.08
NFIFO per Cow (without deducting any labor compensation)	869	$864	866
NFIFO per CWT EQ (without deducting any labor compensation)	$4.26	$4.51	$4.39
NFIFO per Farm	$40,057	$99,837	$54,283
NFIFO per Cow	**$705**	**$577**	**$643**
NFIFO per CWT EQ	**$3.49**	**$3.01**	**$3.26**

The larger herds cost of paid labor which is $0.70 per CWT EQ higher, provides the smaller herds much of their advantage in NFIFO per CWT EQ. If all labor expenses were omitted, the larger herd size would have a higher NFIFO per CWT EQ as shown above.

The year 2000 comparison of the "large" versus "small" herds was similar to the 2001 comparison, but the smaller herds had a slightly larger NFIFO/CWT EQ advantage 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 96 Great Lakes Graziers with Less than 100 Cows

Income	2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Income - Basis Adjustments			
Sales of Livestock and Other Items Bought for Resale	8.66	0.15	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	147,779.59	2,600.89	12.86
Raised Non-Breeding Livestock Sales	5,326.01	93.74	0.46
Crop Sales	2,181.73	38.40	0.19
Distributions Received from Cooperatives	581.63	10.24	0.05
Agricultural Program Payments	4,636.91	81.61	0.40
Crop Insurance Proceeds and Certain Disaster Payments	0.00	0.00	0.00
Custom Hire (Machine Work) Income	509.82	8.97	0.04
Other Income, Incl. Tax Credits, Refunds	1,913.81	33.68	0.17
Basis in Breeding Livestock Sold	(478.11)	(8.41)	(0.04)
Sale of Raised Breeding Livestock	7,730.93	136.06	0.67
Total Cash Income - Basis Adjustments	**170,190.97**	**2,995.33**	**14.81**
Non-Cash Income			
Change in Raised Crop Inventories	(953.68)	(16.78)	(0.08)
Change in Remaining Current Assets	120.00	2.11	0.01
Change in Raised Breeding Livestock	2,333.54	41.07	0.20
Total Non-Cash Income	**1,499.86**	**26.40**	**0.13**
Total Income	**171,690.84**	**3,021.73**	**14.94**

Table 3-2, p 2

The Average AgFA© Farm Earnings Report for the 96 Great Lakes Graziers with less than 100 Cows

Expenses		**2001**	**2001**	**2001**
Cash Expense		per Farm	per Head	per CWT EQ
	Cost of Items for Resale	25.29	0.45	0.00
	Breeding Fees	2,228.59	39.22	0.19
	Car and Truck Expenses	569.33	10.02	0.05
	Chemicals	1,262.34	22.22	0.11
	Conservation Expenses	22.40	0.39	0.00
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	3,937.01	69.29	0.34
	Employee Benefits - Dependents	165.57	2.91	0.01
	Employee Benefits - Non-Dependents	155.80	2.74	0.01
	Feed Purchase	35,306.54	621.39	3.07
	Fertilizer and Lime	4,021.05	70.77	0.35
	Freight and Trucking	2,158.46	37.99	0.19
	Gasoline, Fuel, and Oil	3,624.41	63.79	0.32
	Farm Insurance	2,433.08	42.82	0.21
	Mortgage Interest	5,176.40	91.10	0.45
	Other Interest	2,138.45	37.64	0.19
	Labor Hired - Dependents	779.33	13.72	0.07
	Labor Hired - Non-Dependents	8,229.69	144.84	0.72
	Rent/Lease Equipment	368.51	6.49	0.03
	Rent/Lease Other	2,921.85	51.42	0.25
	Repairs and Maintenance	9,889.09	174.05	0.86
	Building and Fence Repairs	918.60	16.17	0.08
	Machinery Repairs	228.96	4.03	0.02
	Seeds and Plants Purchased	2,046.67	36.02	0.18
	Supplies Purchased	4,772.31	83.99	0.42
	Taxes - Other	3,035.97	53.43	0.26
	Taxes - Payroll	0.00	0.00	0.00
	Utilities	4,566.80	80.37	0.40
	Veterinary Fees and Medicine	3,785.21	66.62	0.33
	Other Farm Expenses	3,084.64	54.29	0.27
	Marketing & Hedging	5,023.01	88.40	0.44
	Other Crop Expenses	240.14	4.23	0.02
	Other Livestock Expenses	4,713.30	82.95	0.41
	Total Cash Expense	**117,828.79**	**2,073.77**	**10.25**
Non-Cash Expenses	**Change in Prepaid Expenses**	(1,245.37)	(21.92)	(0.11)
	Change in Accounts Payable	(345.86)	(6.09)	(0.03)
	Machinery, Equipment and Building Depreciation	14,787.71	260.26	1.29
	Livestock Depreciation	608.33	10.71	0.05
	Total Non-Cash Expenses	**13,804.81**	**242.96**	**1.20**
	Total Expenses	**131,633.60**	**2,316.73**	**11.45**
	Net Farm Income From Operations (NFIFO)	40,057.23	705.00	3.49
	Gain (Loss) on Sale of All Farm Capital Assets	1,122.65	19.76	0.10
	Net Farm Income (NFI)	41,179.88	724.76	3.58

Table 3-3, p.1

The Average AgFA© Cost of Production Report for the 96 Great Lakes Graziers with Less than 100 Cows.
This Report Shows Basic Costs, Allocated Costs, Total Costs, NFIFO and other Financial Details

Income	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Total Income	**171,690.84**	**18.72**	**14.94**

Expenses	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Basic Cost			
Cost of Items for Resale	25.29	0.00	0.00
Breeding Fees	2,228.59	0.24	0.19
Car and Truck Expenses	569.33	0.06	0.05
Chemicals	1,262.34	0.14	0.11
Conservation Expenses	22.40	0.00	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	3,937.01	0.43	0.34
Feed Purchase	35,306.54	3.85	3.07
Fertilizer and Lime	4,021.05	0.44	0.35
Freight and Trucking	2,158.46	0.24	0.19
Gasoline, Fuel, and Oil	3,624.41	0.40	0.32
Farm Insurance	2,433.08	0.27	0.21
Rent/Lease Equipment	368.51	0.04	0.03
Rent/Lease Other	2,921.85	0.32	0.25
Repairs and Maintenance	9,889.09	1.08	0.86
Building and Fence Repairs	918.60	0.10	0.08
Machinery Repairs	228.96	0.02	0.02
Seeds and Plants Purchased	2,046.67	0.22	0.18
Supplies Purchased	4,772.31	0.52	0.42
Taxes - Other	3,035.97	0.33	0.26
Taxes - Payroll	0.00	0.00	0.00
Utilities	4,566.80	0.50	0.40
Veterinary Fees and Medicine	3,785.21	0.41	0.33
Other Farm Expenses	3,084.64	0.34	0.27
Marketing & Hedging	5,023.01	0.55	0.44
Other Crop Expenses	240.14	0.03	0.02
Other Livestock Expenses	4,713.30	0.51	0.41
- Change in Prepaid Expenses	(1,245.37)	(0.14)	(0.11)
Change in Accounts Payable	(345.86)	(0.04)	(0.03)
Depreciation on Purchased Breeding Livestock	608.33	0.07	0.05
Total Basic Cost	**100,200.65**	**10.92**	**8.72**

Table 3-3, p. 2

The Average AgFA© Cost of Production Report for the 96 Great Lakes Graziers with Less than 100 Cows.
This report shows Basic Costs, Allocated Costs, Total Costs, NFIFO and other Financial Details

	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Interest Cost			
Mortgage Interest	5,176.40	0.56	0.45
Other Interest	2,138.45	0.23	0.19
Total Interest Cost	**7,314.85**	**0.80**	**0.64**
Labor Cost			
Employee Benefits - Dependents	165.57	0.02	0.01
Employee Benefits - Non-Dependents	155.80	0.02	0.01
Labor Hired - Dependents	779.33	0.08	0.07
Labor Hired - Non-Dependents	8,229.69	0.90	0.72
Value of Unpaid Labor & Management	34,692.28	3.78	3.02
Total Labor Cost	**44,022.68**	**4.80**	**3.83**
Depreciation & Equity Cost			
Machinery, Equipment, Building Depreciation	14,787.71	1.61	1.29
Interest on Equity Capital	22,590.02	2.46	1.97
Total Depreciation & Equity Cost	**37,377.73**	**4.07**	**3.25**
Total Expenses	**188,915.91**	**20.59**	**16.44**
Total Income - Total Expenses	**(17,225.07)**	**(1.88)**	**(1.50)**
Net Farm Income from Operations (NFIFO) Summary			
Total Allocated Costs	131,633.60	14.35	11.45
Net Farm Income From Operations (NFIFO)	40,057.23	4.37	3.49
Gain (Loss) on Sale of All Farm Capital Assets	1,122.65	0.12	0.10
Net Farm Income (NFI)	41,179.88	4.49	3.58

Table 3-4

The Average AgFA© Financial Measures Report for the 96 Great Lakes Graziers with less than 100 Cows.

		2001 per Farm	2001 per Cow	2001 per CWT EQ
Profitability (Assets at Cost and Cost (Tax) Depreciation)				
	Net Farm Income From Operations	$40,690.86	$716.15	$3.54
	Net Farm Income	$41,813.50	$735.91	$3.64
	Rate of Return on Assets (ROROA)	9.85%	9.85%	9.85%
	Cost (Tax) Depreciation Claimed	*$14,787.71*	*$260.26*	*$1.29*
	Rate of Return on Equity	21.03 %	21.03 %	21.03 %
	Net Profit Margin	8.41 %	8.41 %	8.41 %
Profitability (Assets at Market Value and Economic Depreciation)				
	Net Farm Income From Operations	$51,273.35	$902.40	$4.46
	Net Farm Income	$52,396.00	$922.16	$4.56
	Rate of Return on Assets (ROROA)	4.43 %	4.43 %	4.43 %
	Economic Depreciation Claimed	*$4,205.22*	*$74.01*	*$0.37*
	Rate of Return on Equity	3.92 %	3.92 %	3.92 %
	Net Profit Margin	14.57 %	14.57 %	14.57 %
Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)				
	Asset Turnover (Cost and Tax)	1.171	1.171	1.171
	Asset Turnover (Market Value and Economic)	0.304	0.304	0.304
	Basic Cost (both)*	0.580	0.580	0.580
	Wages Paid (both)*	0.054	0.054	0.054
	Interest Paid (both)	0.043	0.043	0.043
	Economic Depreciation	0.024	0.024	0.024
	Net Farm Income from Operations (Market Value and Economic)	0.299	0.299	0.299
	Cost (Tax) Depreciation	0.086	0.024	0.024
	Net Farm Income from Operations (Cost and Tax)	0.237	0.237	0.237
Repayment Capacity	Capital Replacement & Debt Repayment Capacity	$35,924.73	$632.27	$3.13
	Coverage Margin	$16,735.41	$294.54	$1.46
	Term Debt Coverage Ratio	2.47	2.47	2.47
Liquidity	Net Cash Income	$52,865.59	$930.43	$4.60
	Working Capital	$22,517.44	$396.30	$1.96
	Current Ratio	2.18	2.18	2.18
Solvency (Assets at Market Value)	Beginning Total Farm Assets	$545,508.77	$9,600.86	$47.47
	Beginning Total Farm Liabilities	$113,505.01	$1,997.67	$9.88
	Ending Total Farm Assets	$583,589.33	$10,271.07	$50.78
	Ending Total Farm Liabilities	$111,992.20	$1,971.04	$9.75
	Ending Farm Net Worth	$471,597.12	$8,300.03	$41.04
	Change in Farm Net Worth	$39,593.36	$696.84	$3.45
	Year Ending Farm Debt to Asset Ratio	0.192	0.192	0.192
	Year Ending Farm Equity to Asset Ratio	0.808	0.808	0.808

* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

Table 3-5

The Average AgFA Balance Sheet for the 96 Great Lakes Graziers in 2001 with less than 100 Cows, Showing Current Market Values and Historic Cost Values in Assets

		Beg. Dollars	2001	End Dollars	Historic Cost Basis	
Current Assets	Cash Accounts	7,470		6,417		
	Prepaid Expenses & Purchased Inventories	5,229		6,474		
	Raised Feed Inventories	21,868		20,915		
	Basis in Resale Livestock Purchased	0		0		
	Accounts Receivable	6,414		6,300		
	Market Livestock & Etc.	1,240		1,474		
	Total Current Assets	**42,221**		**41,580**		
Non-Current Assets	Raised Breeding Livestock	96,160		98,494	Beg. Dollars	End Dollars
	Purchased Breeding Livestock	766		694	337	453
	Machinery & Equipment	81,970		88,212	17,570	20,536
	Buildings	32,465		33,244	14,690	15,572
	Land & House	191,726		207,695	47,091	48,799
	Other Non-Current Assets	100,201		113,670	19,753	24,625
	Total Non-Current Assets	**503,288**		**542,010**	**99,441**	**109,985**
Total Farm Assets		**545,509**		**583,589**		
Current Liabilities	Accounts Payable	2,853		2,507		
	Current Portion of Non-Current Liabilities	10,167		11,409		
	Other Current Liabilities	5,690		5,146		
	Total Current Liabilities	**18,711**		**19,062**		
Non-Current Liabilities	Intermediate Liabilities	7,208		9,411		
	Long-Term Liabilities	87,586		83,519		
	Contingent Liabilities	114,866		122,216		
	Total Non-Current Liabilities	**209,660**		**215,146**		
		228,371		**234,208**		
Total Farm Liabilities						
	Non-Farm Assets	19,094		18,594		
	Non-Farm Liabilities	3,801		4,266		

Statement of Equities (Net Worth)

	Beginning	Ending	Change
Contributed Capital	1,177	1,975	797
Retained Earnings	123,141	136,092	12,951
Valuation Adjustment	192,820	211,314	18,495
Total Farm Equities	317,138	349,381	32,244
Non-Farm Equities	15,293	14,328	-965
Total Equities	**332,431**	**363,710**	**31,279**

* 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 30 Great Lakes Graziers with More than 100 Cows

Income	2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Income - Basis Adjustments			
Sales of Livestock and Other Items Bought for Resale	0.00	0.00	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	419,870.27	2,426.53	12.66
Raised Non-Breeding Livestock Sales	8,416.53	48.64	0.25
Crop Sales	1,690.87	9.77	0.05
Distributions Received from Cooperatives	950.53	5.49	0.03
Agricultural Program Payments	10,670.63	61.67	0.32
Crop Insurance Proceeds and Certain Disaster Payments	606.17	3.50	0.02
Custom Hire (Machine Work) Income	1,728.77	9.99	0.05
Other Income, Incl. Tax Credits, Refunds	7,192.57	41.57	0.22
Sale of Purchased Breeding Livestock	25.87	0.15	0.00
Basis in Breeding Livestock Sold	(286.67)	(1.66)	(0.01)
Sale of Raised Breeding Livestock	22,204.13	128.32	0.67
Total Cash Income - Basis Adjustments	**473,069.67**	**2,733.98**	**14.26**
Non-Cash Income			
Change in Raised Crop Inventories	770.02	4.45	0.02
Change in Remaining Current Assets	4,012.40	23.19	0.12
Change in Raised Breeding Livestock	17,793.73	102.83	0.54
Total Non-Cash Income	**22,576.15**	**130.47**	**0.68**
Total Income	**495,645.81**	**2,864.45**	**14.94**

Table 3-6, p. 2

The Average AgFA© Farm Earnings Report for the 30 Great Lakes Graziers with More than 100 Cows

Expenses	2001 per Cow	2001 per Head	2001 per CWT EQ
Cash Expense			
Breeding Fees	4,615.17	26.67	0.14
Car and Truck Expenses	192.53	1.11	0.01
Chemicals	3,061.40	17.69	0.09
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	10,962.60	63.36	0.33
Employee Benefits - Dependents	0.00	0.00	0.00
Employee Benefits - Non-Dependents	0.00	0.00	0.00
Feed Purchase	111,169.90	642.48	3.35
Fertilizer and Lime	11,418.87	65.99	0.34
Freight and Trucking	1,401.17	8.10	0.04
Gasoline, Fuel, and Oil	9,316.20	53.84	0.28
Farm Insurance	5,347.13	30.90	0.16
Mortgage Interest	18,753.30	108.38	0.57
Other Interest	6,750.30	39.01	0.20
Labor Hired - Dependents	289.50	1.67	0.01
Labor Hired - Non-Dependents	49,418.03	285.60	1.49
Rent/Lease Equipment	1,480.47	8.56	0.04
Rent/Lease Other	9,009.13	52.07	0.27
Repairs and Maintenance	32,819.80	189.67	0.99
Building and Fence Repairs	1,239.77	7.16	0.04
Seeds and Plants Purchased	4,754.93	27.48	0.14
Supplies Purchased	11,940.67	69.01	0.36
Taxes - Other	7,107.70	41.08	0.21
Utilities	9,470.37	54.73	0.29
Veterinary Fees and Medicine	10,276.60	59.39	0.31
Other Farm Expenses	10,115.00	58.46	0.30
Marketing & Hedging	13,835.00	79.96	0.42
Other Crop Expenses	554.30	3.20	0.02
Other Livestock Expenses	8,256.07	47.71	0.25
Total Cash Expense	**353,555.90**	**2,043.28**	**10.66**
Non-Cash Expenses			
Change in Prepaid Expenses	(4,704.32)	(27.19)	(0.14)
Change in Accounts Payable	(892.93)	(5.16)	(0.03)
Machinery, Equipment and Building Depreciation	41,433.80	239.46	1.25
Livestock Depreciation	6,416.63	37.08	0.19
Total Non-Cash Expenses	**42,253.18**	**244.19**	**1.27**
Total Expenses	**395,809.08**	**2,287.47**	**11.93**
Net Farm Income From Operations (NFIFO)	99,836.73	576.98	3.01
Gain (Loss) on Sale of All Farm Capital Assets	7,236.33	41.82	0.22
Net Farm Income (NFI)	107,073.06	618.80	3.23

Table 3-7, p.1

The Average AgFA© Cost of Production Reports for the 30 Great Lakes Graziers with More than 100 Cows, Showing Basic Costs, Allocated Costs, Total Costs, NFIFO and other Financial Details

Income	**2001** per Farm	**2001** per CWT Sold	**2001** per CWT EQ
Total Income	**495,645.81**	**19.52**	**14.94**
Expenses	**2001** per Farm	**2001** per CWT Sold	**2001** per CWT EQ
Basic Cost			
Breeding Fees	4,615.17	0.18	0.14
Car and Truck Expenses	192.53	0.01	0.01
Chemicals	3,061.40	0.12	0.09
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	10,962.60	0.43	0.33
Feed Purchase	111,169.90	4.38	3.35
Fertilizer and Lime	11,418.87	0.45	0.34
Freight and Trucking	1,401.17	0.06	0.04
Gasoline, Fuel, and Oil	9,316.20	0.37	0.28
Farm Insurance	5,347.13	0.21	0.16
Rent/Lease Equipment	1,480.47	0.06	0.04
Rent/Lease Other	9,009.13	0.35	0.27
Repairs and Maintenance	32,819.80	1.29	0.99
Building and Fence Repairs	1,239.77	0.05	0.04
Seeds and Plants Purchased	4,754.93	0.19	0.14
Supplies Purchased	11,940.67	0.47	0.36
Taxes - Other	7,107.70	0.28	0.21
Utilities	9,470.37	0.37	0.29
Veterinary Fees and Medicine	10,276.60	0.40	0.31
Other Farm Expenses	10,115.00	0.40	0.30
Marketing & Hedging	13,835.00	0.55	0.42
Other Crop Expenses	554.30	0.02	0.02
Other Livestock Expenses	8,256.07	0.33	0.25
- Change in Prepaid Expenses	(4,704.32)	(0.19)	(0.14)
Change in Accounts Payable	(892.93)	(0.04)	(0.03)
Depreciation on Purchased Breeding Livestock	6,416.63	0.25	0.19
Total Basic Cost	**279,164.15**	**11.00**	**8.41**

Table 3-7, p.2

The Average AgFA© Cost of Production Reports for the 30 Great Lakes Graziers with More than 100 Cows, Showing Basic Costs, Allocated Costs, Total Costs, NFIFO and other Financial Details

		2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Interest Cost	**Mortgage Interest**	18,753.30	0.74	0.57
	Other Interest	6,750.30	0.27	0.20
	Total Interest Cost	**25,503.60**	**1.00**	**0.77**
Labor Cost				
	Employee Benefits - Dependents	0.00	0.00	0.00
	Employee Benefits - Non-Dependents	0.00	0.00	0.00
	Labor Hired - Dependents	289.50	0.01	0.01
	Labor Hired - Non-Dependents	49,418.03	1.95	1.49
	Value of Unpaid Labor & Management	39,682.37	1.56	1.20
	Total Labor Cost	**89,389.90**	**3.52**	**2.69**
Depreciation & Equity Cost				
	Machinery, Equipment, Building Depreciation	41,433.80	1.63	1.25
	Interest on Equity Capital	35,930.31	1.42	1.08
	Total Depreciation & Equity Cost	**77,364.11**	**3.05**	**2.33**
	Total Expenses	**471,421.76**	**18.57**	**14.21**
	Total Income - Total Expenses	**24,224.05**	**0.95**	**0.73**
Net Farm Income from Operations (NFIFO) Summary				
	Total Allocated Costs	395,809.08	15.59	11.93
	Net Farm Income From Operations (NFIFO)	99,836.73	3.93	3.01
	Gain (Loss) on Sale of All Farm Capital Assets	7,236.33	0.29	0.22
	Net Farm Income (NFI)	107,073.06	4.22	3.23

Table 3-8

The Average AgFA© Financial Measures Report for the 30 Great Lakes Graziers with More than 100 Cows

	2001 per Farm	2001 per Cow	2001 per CWT EQ
Profitability (Assets at Cost and Cost (Tax) Depreciation)			
Net Farm Income From Operations	$106,253.36	$614.06	$3.20
Net Farm Income	$113,489.70	$655.88	$3.42
Rate of Return on Assets (ROROA)	34.84%	34.84%	34.84%
Cost (Tax) Depreciation Claimed	*$41,433.80*	*$239.46*	*$1.25*
Rate of Return on Equity	-107.06 %	-107.06 %	-107.06 %
Net Profit Margin	20.04 %	20.04 %	20.04 %
Profitability (Assets at Market Value and Economic Depreciation)			
Net Farm Income From Operations	$128,608.07	$743.26	$3.88
Net Farm Income	$135,844.40	$785.08	$4.09
Rate of Return on Assets (ROROA)	11.34 %	11.34 %	11.34 %
Economic Depreciation Claimed	*$19,079.09*	*$110.26*	*$0.58*
Rate of Return on Equity	13.38 %	13.38 %	13.38 %
Net Profit Margin	24.55 %	24.55 %	24.55 %
Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)			
Asset Turnover (Cost and Tax)	1.739	1.739	1.739
Asset Turnover (Market Value and Economic)	0.462	0.462	0.462
Basic Cost (both)*	0.550	0.550	0.550
Wages Paid (both)*	0.100	0.100	0.100
Interest Paid (both)	0.051	0.051	0.051
Economic Depreciation	0.038	0.038	0.038
Net Farm Income from Operations (Market Value and Economic)	0.259	0.259	0.259
Cost (Tax) Depreciation	0.084	0.038	0.038
Net Farm Income from Operations (Cost and Tax)	0.214	0.214	0.214
Repayment Capacity			
Capital Replacement & Debt Repayment Capacity	$114,296.20	$660.54	$3.45
Coverage Margin	$48,903.01	$282.62	$1.47
Term Debt Coverage Ratio	2.48	2.48	2.48
Liquidity			
Net Cash Income	$119,800.43	$692.35	$3.61
Working Capital	$49,272.69	$284.76	$1.49
Current Ratio	1.70	1.70	1.70
Solvency (Assets at Market Value)			
Beginning Total Farm Assets	$1,027,494.39	$5,938.13	$30.97
Beginning Total Farm Liabilities	$349,460.05	$2,019.61	$10.53
Ending Total Farm Assets	$1,117,671.23	$6,459.28	$33.69
Ending Total Farm Liabilities	$358,493.17	$2,071.82	$10.81
Ending Farm Net Worth	$759,178.06	$4,387.47	$22.88
Change in Farm Net Worth	$81,143.72	$468.95	$2.45
Year Ending Farm Debt to Asset Ratio	0.321	0.321	0.321
Year Ending Farm Equity to Asset Ratio	0.679	0.679	0.679

* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

Table 3-9

The Average AgFA© Balance Sheet for the 30 Great Lakes Graziers in 2001 with More than 100 Cows, Showing Current Market Values and Historic Cost Values of Assets

		Beg. Dollars	2001	End Dollars	Histroric Cost Basis	
Current Assets						
	Cash Accounts	19,518		24,019		
	Prepaid Expenses & Purchased Inventories	13,016		17,720		
	Raised Feed Inventories	49,264		50,034		
	Basis in Resale Livestock Purchased	0		0		
	Accounts Receivable	19,128		22,694		
	Market Livestock & Etc.	4,460		4,906		
	Total Current Assets	**105,386**		**119,373**		
Non-Current Assets					**Beg. Dollars**	**End Dollars**
	Raised Breeding Livestock	256,681		274,475		
	Purchased Breeding Livestock	0		0	100	130
	Machinery & Equipment	174,991		190,156	50,294	53,348
	Buildings	37,455		36,697	36,590	34,722
	Land & House	437,038		470,430	75,335	75,335
	Other Non-Current Assets	15,944		26,540	8,953	10,509
	Total Non-Current Assets	**922,109**		**998,298**	**171,271**	**174,044**
Total Farm Assets		**1,027,494**		**1,117,671**		
Current Liabilities	**Accounts Payable**	9,945		9,052		
	Current Portion of Non-Current Liabilities	30,901		38,995		
	Other Current Liabilities	24,261		22,053		
	Total Current Liabilities	**65,107**		**70,100**		
Non-Current Liabilities	**Intermediate Liabilities**	54,802		55,104		
	Long-Term Liabilities	229,552		233,288		
	Contingent Liabilities	220,585		242,514		
	Total Non-Current Liabilities	**504,939**		**530,907**		
Total Farm Liabilities		**570,045**		**601,007**		
	Non-Farm Assets	11,957		11,675		
	Non-Farm Liabilities	1,107		413		

Statement of Equities (Net Worth)

	Beginning	Ending	Change	
Contributed Capital	280	280	0	
Retained Earnings	183,597	209,118	25,521	*All current assets and raised .
Valuation Adjustment	273,572	307,266	33,694	breeding livestock are included
Total Farm Equities	457,449	516,664	59,215	in retained earnings
Non-Farm Equities	10,850	11,262	412	
Total Equities	**468,299**	**527,926**	**59,627**	

XV. Why the Dramatic Change in the Calving Strategy Comparison from 2000 to 2001?

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 (like in New Zealand). 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 many more on most days) **and** make a serious attempt to "bunch" their calving to one or two times of the year, but don't sacrifice healthy, productive animals that don't quite fit that mold. Continuous calving herds distribute calving among most months of the year. Any calving strategy not meeting the seasonal definition is referred to as non-seasonal in this analysis.

In the seasonal versus non-seasonal herd comparison in 2000, the non-seasonal herds had more than twice the NFIFO per CWT EQ and NFIFO per cow. Also, 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. 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 2001 and 2000 multi-state data, and in six previous years of comparing seasonal with non-seasonal herds in Wisconsin data, there were more non-seasonal herds (than total seasonal herds) with NFIFO/Cow and NFIFO/CWT EQ values higher than the average NFIFO/Cow and NFIFO/CWT EQ values for the seasonal herds. The highest of the seasonal performance was still not as high as the highest of the non-seasonal performance in 2001. When all the collected data is 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 do the non-seasonal herds. 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 best seasonal NFIFO per Cow. The highest non-seasonal NFIFO per CWT EQ is 36% higher than the highest seasonal NFIFO per CWT EQ. The lowest NFIFO per cow and NFIFO per CWT EQ among the seasonal herds is much higher than the lowest NFIFO per cow and NFIFO per CWT EQ among the non-seasonal herds in 2001.

Challenge Of Seasonal Calving

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) Breeding cows back at 60 days in milk to maintain the 305-day lactation, (2) Shorten the lactation for cows that were late in breeding back and (3) Cull cows that do not fit the seasonal caving strategy and buying back cows that are due to freshen in the appropriate calving window. Many have tried to achieve this objective once or more times (at great expense) and have decided not to pursue a seasonal system (one in which all the cows are dry at the same time).

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. 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. The twelve new herds tended to be well-established seasonal herds. This group of experienced seasonal graziers understood how to make the seasonal system function efficiently.

Unless both groups were perfectly randomized samples, some variation in comparison results is to be expected due to 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. 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 30 are not totally representative of the larger population that they came from.

The 2001 data was summarized from the seven herds included in the seasonal group summary in 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 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 grazier average. The repeating seasonal herds are quite different from the 12 seasonal herds that are new to the summary. 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 a spring seasonal herd (versus a fall seasonal or non-seasonal herd) than in most if not all earlier years. 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 both years practice spring calving. In 2001, the summarized seasonal herds received a milk price that was $1.19/CWT sold higher than received by the non-seasonal herds. The "seasonal price advantage" in 2000 was $0.54/CWT. 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.

So why does the comparison look so different in 2001? It may not be possible to fully explain the whole difference.

In a few words, the financial performance of the average seasonal grazier 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 grazier 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 emphasizes 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 grazier in the 2001 data that used the seasonal calving strategy had more desirable financial performance than the average non-seasonal herd in 2001, whether NFIFO/cow, NFIFO/CWT EQ or total NFIFO is used as the yardstick. **This is a sharp contrast** to the 2000 comparison and in contrast to multiple years of other calving/milking strategy comparisons. The average grazier in the 2000 data that used the seasonal strategy had substantially less desirable financial performance than the average non-seasonal herd, whether NFIFO/cow, NFIFO/CWT EQ or total NFIFO is used as the yardstick.

Unfortunately for research purposes, less than fifteen percent of the herds in the 2001 summary practice seasonal calving/milking. The average seasonal herd in the 2001 data has about the same number of cows which produce about 78% as much milk per cow as the cows in the non-seasonal herds.

The seasonal herds spent less per CWT EQ for more than half of the basic cost categories compared to the non-seasonal herds. Overall, the seasonal herds spent $1.02 less per CWT EQ for all basic costs in 2001. The seasonal herds also have a combined $0.60 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 average seasonal grazier in 2001 has an advantage of $0.27 per CWT EQ in interest expense, a $0.34 per CWT EQ advantage in paid labor and management expense and a $0.01 disadvantage in depreciation per CWT EQ.

The $0.60 per CWT EQ advantage in the allocated minus basic cost of the seasonal herds plus the seasonal herd's total basic cost advantage of $1.02 per CWT EQ accounts for the $1.62 per CWT EQ advantage that the seasonal herds have in NFIFO per CWT EQ.

If paid labor and management compensation were omitted, the ratio of NFIFO per CWT EQ between the seasonal and non-seasonal herds would narrow as the NFIFO per CWT EQ would increase to $5.46 for the seasonal and to $4.21 for the non-seasonal herds.

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

Table 4-1 2001

2001 Comparing Seasonal with Non-Seasonal Calving/Milking Herds / Most Performance Measures from Tables 4-3 to 4-10	Seasonal	Non-Seasonal	Average
Number of Herds	18	101	126
Number of Cows per Herds	85	84	84
Average Lbs. Milk per Cow	12,270	15,695	15,426
Average Lbs. Milk per Herd	1,044,970	1,325,900	1,303,333
Average Basic Cost per CWT EQ	$7.67	$8.69	$8.60
Allocated Cost per CWT EQ	$10.28	$11.90	$11.68
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	$2.61	$3.21	$3.08
NFIFO per cow (without deducting any labor compensation)	$1,101	$825	$866
NFIFO per CWT EQ (without deducting any labor compensation)	$5.46	$4.21	$4.39
NFIFO per Farm	$73,322	$50,413	$54,283
NFIFO per Cow	**$861**	**$597**	**$643**
NFIFO per CWT EQ	**$4.66**	**$3.04**	**$3.26**

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

Table 4-2 2000

2000 Comparing Seasonal with Non-Seasonal Calving/Milking Herds / Most Performance Measures from Tables 4-3 to 4-10	Seasonal	Non-Seasonal	Average
Number of Herds	7	85	92
Number of Cows per Herds	145	85	90
Average Lbs. Milk per Cow	11,667	17,560	16,836
Average Lbs. Milk per Herd	1,691,715	1,496,401	1,511,264
Average Basic Cost per CWT EQ	$6.73	$7.96	$7.83
Allocated Cost per CWT EQ	$11.46	$10.58	$10.67
Allocated Minus Basic Cost per CWT EQ (Non-Basic Costs)	$4.73	$2.62	$2.84
NFIFO per Cow	**$160**	**$398**	**$395**
NFIFO per CWT EQ	**$0.87**	**$1.75**	**$1.66**
NFIFO per Farm	$23,202	$33,913	$33,098
NFIFO per CWT EQ (without deducting any labor compensation)	$2.20	$2.64	$2.60

The following tables, 4-3 to 4-10, provide more information about the financial performance of the average seasonal and average non-seasonal herd.

Table 4-3, p. 1

The Average AgFA© Farm Earnings Report for the 18 Seasonal Great Lakes Graziers
(Stop Milking Herd at Least One Day Each Year)

Income	2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Income - Basis Adjustments			
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	182,995.33	2,148.67	11.64
Raised Non-Breeding Livestock Sales	5,765.17	67.69	0.37
Crop Sales	3,208.39	37.67	0.20
Distributions Received from Cooperatives	574.11	6.74	0.04
Agricultural Program Payments	4,419.67	51.89	0.28
Custom Hire (Machine Work) Income	1,418.56	16.66	0.09
Other Income, Incl. Tax Credits, Refunds	6,122.44	71.89	0.39
Basis in Breeding Livestock Sold	(127.78)	(1.50)	(0.01)
Sale of Raised Breeding Livestock	13,742.72	161.36	0.87
Total Cash Income - Basis Adjustments	**218,118.61**	**2,561.08**	**13.88**
Non-Cash Income			
Change in Raised Crop Inventories	402.46	4.73	0.03
Change in Remaining Current Assets	828.33	9.73	0.05
Change in Raised Breeding Livestock	15,494.00	181.93	0.99
Total Non-Cash Income	**16,724.79**	**196.38**	**1.06**
Total Income	**234,843.40**	**2,757.46**	**14.94**

Table 4-3, p. 2
The Average AgFA© Farm Earnings Report for the 18 Seasonal Great Lakes Graziers
(Stop Milking Herd at Least One Day Each Year)

Expenses		2001 Cost (tax)	2001 per Head	2001 per CWT EQ
Cash Expense				
	Breeding Fees	2,209.50	25.94	0.14
	Car and Truck Expenses	72.28	0.85	0.00
	Chemicals	1,796.33	21.09	0.11
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	2,684.72	31.52	0.17
	Employee Benefits - Dependents	0.00	0.00	0.00
	Employee Benefits - Non-Dependents	0.00	0.00	0.00
	Feed Purchase	48,880.39	573.94	3.11
	Fertilizer and Lime	5,270.39	61.88	0.34
	Freight and Trucking	711.00	8.35	0.05
	Gasoline, Fuel, and Oil	3,668.78	43.08	0.23
	Farm Insurance	2,689.44	31.58	0.17
	Mortgage Interest	4,857.83	57.04	0.31
	Other Interest	3,062.00	35.95	0.19
	Labor Hired - Dependents	0.00	0.00	0.00
	Labor Hired - Non-Dependents	12,609.67	148.06	0.80
	Rent/Lease Equipment	945.00	11.10	0.06
	Rent/Lease Other	2,760.94	32.42	0.18
	Repairs and Maintenance	13,227.61	155.31	0.84
	Building and Fence Repairs	825.56	9.69	0.05
	Seeds and Plants Purchased	1,821.11	21.38	0.12
	Supplies Purchased	7,516.44	88.26	0.48
	Taxes - Other	3,413.39	40.08	0.22
	Utilities	4,796.89	56.32	0.31
	Veterinary Fees and Medicine	4,400.22	51.67	0.28
	Other Farm Expenses	4,211.39	49.45	0.27
	Marketing & Hedging	6,524.17	76.60	0.42
	Other Crop Expenses	0.00	0.00	0.00
	Other Livestock Expenses	1,448.56	17.01	0.09
	Total Cash Expense	**140,403.61**	**1,648.57**	**8.93**
Non-Cash Expenses				
	Change in Prepaid Expenses	(4,513.80)	(53.00)	(0.29)
	Change in Accounts Payable	(648.44)	(7.61)	(0.04)
	Machinery, Equipment and Building Depreciation	20,496.78	240.67	1.30
	Livestock Depreciation	5,783.06	67.90	0.37
	Total Non-Cash Expenses	**21,117.58**	**247.96**	**1.34**
	Total Expenses	**161,521.20**	**1,896.53**	**10.28**
	Net Farm Income From Operations (NFIFO)	73,322.20	860.93	4.66
	Gain (Loss) on Sale of All Farm Capital Assets	877.28	10.30	0.06
	Net Farm Income (NFI)	74,199.48	871.23	4.72

Table 4-4, p.1

The Average AgFA© Cost of Production Report for the 18 Seasonal Great Lakes Graziers
(Stop Milking Herd at Least One Day Each Year)

Income		**2001** per Farm	**2001** per CWT Sold	**2001** per CWT EQ
	Total Income	**234,843.40**	**22.47**	**14.94**
Expenses		**2001** per Farm	**2001** per CWT Sold	**2001** per CWT EQ
Basic Cost	**Breeding Fees**	2,209.50	0.21	0.14
	Car and Truck Expenses	72.28	0.01	0.00
	Chemicals	1,796.33	0.17	0.11
	Custom Heifer Raising Expenses	0.00	0.00	0.00
	Custom Hire (Machine Work)	2,684.72	0.26	0.17
	Feed Purchase	48,880.39	4.68	3.11
	Fertilizer and Lime	5,270.39	0.50	0.34
	Freight and Trucking	711.00	0.07	0.05
	Gasoline, Fuel, and Oil	3,668.78	0.35	0.23
	Farm Insurance	2,689.44	0.26	0.17
	Rent/Lease Equipment	945.00	0.09	0.06
	Rent/Lease Other	2,760.94	0.26	0.18
	Repairs and Maintenance	13,227.61	1.27	0.84
	Building and Fence Repairs	825.56	0.08	0.05
	Seeds and Plants Purchased	1,821.11	0.17	0.12
	Supplies Purchased	7,516.44	0.72	0.48
	Taxes - Other	3,413.39	0.33	0.22
	Utilities	4,796.89	0.46	0.31
	Veterinary Fees and Medicine	4,400.22	0.42	0.28
	Other Farm Expenses	4,211.39	0.40	0.27
	Marketing & Hedging	6,524.17	0.62	0.42
	Other Crop Expenses	0.00	0.00	0.00
	Other Livestock Expenses	1,448.56	0.14	0.09
	Change in Prepaid Expenses	(4,513.80)	(0.43)	(0.29)
	Change in Accounts Payable	(648.44)	(0.06)	(0.04)
	Depreciation on Purchased Breeding Livestock	5,783.06	0.55	0.37
	Total Basic Cost	**120,494.92**	**11.53**	**7.67**

Table 4-4, p.2

The Average AgFA© Cost of Production Report for the 18 Seasonal Great Lakes Graziers
(Stop Milking Herd at Least One Day Each Year)

	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Interest Cost			
Mortgage Interest	4,857.83	0.46	0.31
Other Interest	3,062.00	0.29	0.19
Total Interest Cost	**7,919.83**	**0.76**	**0.50**
Labor Cost			
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	12,609.67	1.21	0.80
Value of Unpaid Labor & Management	34,703.44	3.32	2.21
Total Labor Cost	**47,313.11**	**4.53**	**3.01**
Depreciation & Equity Cost			
Machinery, Equipment, Building Depreciation	20,496.78	1.96	1.30
Interest on Equity Capital	24,068.22	2.30	1.53
Total Depreciation & Equity Cost	**44,565.00**	**4.26**	**2.84**
Total Expenses	**220,292.86**	**21.08**	**14.01**
Total Income - Total Expenses	**14,550.54**	**1.39**	**0.93**
Net Farm Income from Operations (NFIFO) Summary			
Total Allocated Costs	161,521.20	15.46	10.28
Net Farm Income From Operations (NFIFO)	73,322.20	7.02	4.66
Gain (Loss) on Sale of All Farm Capital Assets	877.28	0.08	0.06
Net Farm Income (NFI)	74,199.48	7.10	4.72

Table 4-5

The Average AgFA© Financial Measures Report for the 18 Seasonal Great Lakes Graziers.

	2001 per farm	2001 per cow	2001 per CWT EQ
Profitability (Assets at Cost and Cost (Tax) Depreciation)			
Net Farm Income From Operations	$79,105.26	$928.83	$5.03
Net Farm Income	$79,982.54	$939.13	$5.09
Rate of Return on Assets (ROROA)	31.48%	31.48%	31.48%
Cost (Tax) Depreciation Claimed	*$20,496.78*	*$240.67*	*$1.30*
Rate of Return on Equity	129.02 %	129.02 %	129.02 %
Net Profit Margin	22.65 %	22.65 %	22.65 %
Profitability (Assets at Market Value and Economic Depreciation)			
Net Farm Income From Operations	$92,190.04	$1,082.47	$5.86
Net Farm Income	$93,067.32	$1,092.77	$5.92
Rate of Return on Assets (ROROA)	10.77 %	10.77 %	10.77 %
Economic Depreciation Claimed	*$7,412.00*	*$87.03*	*$0.47*
Rate of Return on Equity	12.12 %	12.12 %	12.12 %
Net Profit Margin	28.22 %	28.22 %	28.22 %
Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)			
Asset Turnover (Cost and Tax)	1.390	1.390	1.390
Asset Turnover (Market Value and Economic)	0.382	0.382	0.382
Basic Cost (both)*	0.488	0.488	0.488
Wages Paid (both)*	0.054	0.054	0.054
Interest Paid (both)	0.034	0.034	0.034
Economic Depreciation	0.032	0.032	0.032
Net Farm Income from Operations (Market Value and Economic)	0.393	0.393	0.393
Cost (Tax) Depreciation	0.087	0.032	0.032
Net Farm Income from Operations (Cost and Tax)	0.337	0.337	0.337
Repayment Capacity			
Capital Replacement & Debt Repayment Capacity	$80,306.76	$942.94	$5.11
Coverage Margin	$55,792.80	$655.10	$3.55
Term Debt Coverage Ratio	3.48	3.48	3.48
Liquidity Net Cash Income	$77,842.78	$914.01	$4.95
Working Capital	$31,709.09	$372.32	$2.02
Current Ratio	2.62	2.62	2.62
Solvency (Assets at Market Value)			
Beginning Total Farm Assets	$575,631.33	$6,758.88	$36.62
Beginning Total Farm Liabilities	$135,282.20	$1,588.44	$8.61
Ending Total Farm Assets	$654,902.55	$7,689.66	$41.66
Ending Total Farm Liabilities	$132,523.00	$1,556.04	$8.43
Ending Farm Net Worth	$522,379.55	$6,133.62	$33.23
Change in Farm Net Worth	$82,030.41	$963.18	$5.22
Year Ending Farm Debt to Asset Ratio	0.202	0.202	0.202
Year Ending Farm Equity to Asset Ratio	0.798	0.798	0.798

* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

Table 4-6

The Average AgFA© Balance Sheet for the 18 Seasonal Great Lakes Graziers 2001
Showing the Current Market Values and Historic Cost Values of Assets
(Stop Milking Herd at Least One Day Eeach Year)

	Beg. Dollars	End Dollars	Historic Cost Basis	
Current Assets				
Cash Accounts	9,501	11,700		
Prepaid Expenses & Purchased Inventories	9,462	13,976		
Raised Feed Inventories	17,775	18,177		
Basis in Resale Livestock Purchased	0	0		
Accounts Receivable	3,472	4,737		
Market Livestock & Etc.	3,134	2,697		
Total Current Assets	**43,344**	**51,288**		
Non-Current Assets			**Beg. Dollars**	**End Dollars**
Raised Breeding Livestock	120,829	136,323		
Purchased Breeding Livestock	0	0	0	0
Machinery & Equipment	66,082	81,283	14,704	20,163
Buildings	25,247	25,825	28,985	26,222
Land & House	291,191	325,527	61,809	61,298
Other Non-Current Assets	28,938	34,656	15,074	15,107
Total Non-Current Assets	**532,287**	**603,615**	**120,572**	**122,790**
Total Farm Assets	**575,631**	**654,903**		
Current Liabilities				
Accounts Payable	1,980	1,332		
Current Portion of Non-Current Liabilities	17,451	16,362		
Other Current Liabilities	4,955	1,885		
Total Current Liabilities	**24,386**	**19,579**		
Non-Current Liabilities				
Intermediate Liabilities	25,233	21,570		
Long-Term Liabilities	85,663	91,374		
Contingent Liabilities	116,581	136,171		
Total Non-Current Liabilities	**227,477**	**249,116**		
Total Farm Liabilities	**251,863**	**268,694**		
Non-Farm Assets	3,734	3,843		
Non-Farm Liabilities	2,433	3,282		

Statement of Equities (Net Worth)

	Beginning	Ending	Change	
Contributed Capital	6,744	6,744	0	
Retained Earnings	142,719	171,133	28,414	*All current assets and raised
Valuation Adjustment	174,305	208,331	34,026	breeding livestock are
Total Farm Equities	323,768	386,208	62,440	included in retained earnings.
Non-Farm Equities	1,300	561	-740	
Total Equities	**325,069**	**386,769**	**61,700**	

Table 4-7, p. 1

The Averag AgFA Farm Earnings Report for the 101 Non-Seasonal Great Lakes Graziers

Income	2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Income - Basis Adjustments			
Sales of Livestock and Other Items Bought for Resale	8.23	0.10	0.00
Basis in Resale Livestock Sold	0.00	0.00	0.00
Animal Product Sales	214,027.32	2,533.43	12.90
Raised Non-Breeding Livestock Sales	6,303.87	74.62	0.38
Crop Sales	1,773.23	20.99	0.11
Distributions Received from Cooperatives	732.85	8.67	0.04
Agricultural Program Payments	6,077.83	71.94	0.37
Crop Insurance Proceeds and Certain Disaster Payments	180.05	2.13	0.01
Custom Hire (Machine Work) Income	587.11	6.95	0.04
Other Income, Incl. Tax Credits, Refunds	2,548.36	30.16	0.15
Sale of Purchased Breeding Livestock	7.68	0.09	0.00
Basis in Breeding Livestock Sold	(516.82)	(6.12)	(0.03)
Sale of Raised Breeding Livestock	10,848.35	128.41	0.65
Total Cash Income - Basis Adjustments	**242,578.05**	**2,871.39**	**14.62**
Non-Cash Income			
Change in Raised Crop Inventories	(648.33)	(7.67)	(0.04)
Change in Remaining Current Assets	1,612.50	19.09	0.10
Change in Raised Breeding Livestock	4,312.02	51.04	0.26
Total Non-Cash Income	**5,276.19**	**62.45**	**0.32**
Total Income	**247,854.25**	**2,933.84**	**14.94**

Table 4-7, p. 2

The Average AgFA Farm Earnings Report for the 101 Non-Seasonal Great Lakes Graziers

Expenses	2001 per Farm	2001 per Head	2001 per CWT EQ
Cash Expense			
Cost of Items for Resale	24.04	0.28	0.00
Breeding Fees	2,779.28	32.90	0.17
Car and Truck Expenses	585.45	6.93	0.04
Chemicals	1,500.05	17.76	0.09
Conservation Expenses	21.29	0.25	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	6,269.58	74.21	0.38
Employee Benefits - Dependents	157.38	1.86	0.01
Employee Benefits - Non-Dependents	148.09	1.75	0.01
Feed Purchase	52,695.95	623.76	3.18
Fertilizer and Lime	5,783.26	68.46	0.35
Freight and Trucking	2,341.08	27.71	0.14
Gasoline, Fuel, and Oil	5,003.47	59.23	0.30
Farm Insurance	3,133.40	37.09	0.19
Mortgage Interest	9,204.48	108.95	0.55
Other Interest	3,491.92	41.33	0.21
Labor Hired - Dependents	826.74	9.79	0.05
Labor Hired - Non-Dependents	18,190.05	215.31	1.10
Rent/Lease Equipment	621.59	7.36	0.04
Rent/Lease Other	4,262.17	50.45	0.26
Repairs and Maintenance	15,408.65	182.39	0.93
Building and Fence Repairs	1,094.24	12.95	0.07
Machinery Repairs	217.62	2.58	0.01
Seeds and Plants Purchased	2,816.17	33.33	0.17
Supplies Purchased	6,270.75	74.23	0.38
Taxes - Other	3,991.81	47.25	0.24
Taxes - Payroll	0.00	0.00	0.00
Utilities	5,668.58	67.10	0.34
Veterinary Fees and Medicine	5,372.91	63.60	0.32
Other Farm Expenses	4,950.67	58.60	0.30
Marketing & Hedging	6,889.59	81.55	0.42
Other Crop Expenses	392.89	4.65	0.02
Other Livestock Expenses	6,093.25	72.13	0.37
Total Cash Expense	**176,206.42**	**2,085.75**	**10.62**
Non-Cash Expenses			
Change in Prepaid Expenses	(1,374.94)	(16.28)	(0.08)
Change in Accounts Payable	(140.73)	(1.67)	(0.01)
Machinery, Equipment and Building Depreciation	21,333.15	252.52	1.29
Livestock Depreciation	1,416.57	16.77	0.09
Total Non-Cash Expenses	**21,234.05**	**251.35**	**1.28**
Total Expenses	**197,440.47**	**2,337.09**	**11.90**
Net Farm Income From Operations (NFIFO)	50,413.78	596.75	3.04
Gain (Loss) on Sale of All Farm Capital Assets	3,025.56	35.81	0.18
Net Farm Income (NFI)	53,439.34	632.56	3.22

Table 4-8, p. 1

The Average AgFA Cost of Production Report for the 101 Non-Seasonal Great Lakes Graziers
Showing Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details

Income	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Total Income	**247,854.25**	**18.69**	**14.94**

Expenses	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Basic Cost			
Cost of Items for Resale	24.04	0.00	0.00
Breeding Fees	2,779.28	0.21	0.17
Car and Truck Expenses	585.45	0.04	0.04
Chemicals	1,500.05	0.11	0.09
Conservation Expenses	21.29	0.00	0.00
Custom Heifer Raising Expenses	0.00	0.00	0.00
Custom Hire (Machine Work)	6,269.58	0.47	0.38
Feed Purchase	52,695.95	3.97	3.18
Fertilizer and Lime	5,783.26	0.44	0.35
Freight and Trucking	2,341.08	0.18	0.14
Gasoline, Fuel, and Oil	5,003.47	0.38	0.30
Farm Insurance	3,133.40	0.24	0.19
Rent/Lease Equipment	621.59	0.05	0.04
Rent/Lease Other	4,262.17	0.32	0.26
Repairs and Maintenance	15,408.65	1.16	0.93
Building and Fence Repairs	1,094.24	0.08	0.07
Machinery Repairs	217.62	0.02	0.01
Seeds and Plants Purchased	2,816.17	0.21	0.17
Supplies Purchased	6,270.75	0.47	0.38
Taxes - Other	3,991.81	0.30	0.24
Taxes - Payroll	0.00	0.00	0.00
Utilities	5,668.58	0.43	0.34
Veterinary Fees and Medicine	5,372.91	0.41	0.32
Other Farm Expenses	4,950.67	0.37	0.30
Marketing & Hedging	6,889.59	0.52	0.42
Other Crop Expenses	392.89	0.03	0.02
Other Livestock Expenses	6,093.25	0.46	0.37
Change in Prepaid Expenses	(1,374.94)	(0.10)	(0.08)
Change in Accounts Payable	(140.73)	(0.01)	(0.01)
Depreciation on Purchased Breeding Livestock	1,416.57	0.11	0.09
Total Basic Cost	**144,088.66**	**10.87**	**8.69**

Table 4-8, p. 2

The Average AgFA Cost of Production Report for the 101 Non-Seasonal Great Lakes Graziers, Showing Basic Costs, Allocated Costs, Total Costs, NFIFO and Other Financial Details

	2001 per Farm	2001 per CWT Sold	2001 per CWT EQ
Interest Cost			
Mortgage Interest	9,204.48	0.69	0.55
Other Interest	3,491.92	0.26	0.21
Total Interest Cost	**12,696.40**	**0.96**	**0.77**
Labor Cost			
Employee Benefits - Dependents	157.38	0.01	0.01
Employee Benefits - Non-Dependents	148.09	0.01	0.01
Labor Hired - Dependents	826.74	0.06	0.05
Labor Hired - Non-Dependents	18,190.05	1.37	1.10
Value of Unpaid Labor & Management	35,937.70	2.71	2.17
Total Labor Cost	**55,259.96**	**4.17**	**3.33**
Depreciation & Equity Cost			
Machinery, Equipment, Building Depreciation	21,333.15	1.61	1.29
Interest on Equity Capital	26,493.87	2.00	1.60
Total Depreciation & Equity Cost	**47,827.02**	**3.61**	**2.88**
Total Expenses	**259,872.04**	**19.60**	**15.66**
Total Income - Total Expenses	**(12,017.80)**	**(0.91)**	**(0.72)**
Net Farm Income from Operations (NFIFO) Summary			
Total Allocated Costs	197,440.47	14.89	11.90
Net Farm Income From Operations (NFIFO)	50,413.78	3.80	3.04
Gain (Loss) on Sale of All Farm Capital Assets	3,025.56	0.23	0.18
Net Farm Income (NFI)	53,439.34	4.03	3.22

Table 4-9

The Average AgFA© Financial Measures Report for 101 Non-Seasonal Great Lakes Graziers

	2001 per Farm	2001 per Cow	2001 per CWT EQ
Profitability (Assets at Cost and Cost (Tax) Depreciation)			
Net Farm Income From Operations	$51,854.39	$613.80	$3.13
Net Farm Income	$54,879.96	$649.61	$3.31
Rate of Return on Assets (ROROA)	17.06%	17.06%	17.06%
Cost (Tax) Depreciation Claimed	*$21,333.15*	*$252.52*	*$1.29*
Rate of Return on Equity	240.77 %	240.77 %	240.77 %
Net Profit Margin	12.77 %	12.77 %	12.76 %
Profitability (Assets at Market Value and Economic Depreciation)			
Net Farm Income From Operations	$65,485.81	$775.15	$3.95
Net Farm Income	$68,511.37	$810.97	$4.13
Rate of Return on Assets (ROROA)	6.40 %	6.40 %	6.40 %
Economic Depreciation Claimed	*$7,701.74*	*$91.17*	*$0.46*
Rate of Return on Equity	6.15 %	6.15 %	6.15 %
Net Profit Margin	18.26 %	18.26 %	18.26 %
Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)			
Asset Turnover (Cost and Tax)	1.336	1.336	1.336
Asset Turnover (Market Value and Economic)	0.350	0.350	0.350
Basic Cost (both)*	0.576	0.576	0.576
Wages Paid (both)*	0.078	0.078	0.078
Interest Paid (both)	0.051	0.051	0.051
Economic Depreciation	0.031	0.031	0.031
Net Farm Income from Operations (Market Value and Economic)	0.264	0.264	0.264
Cost (Tax) Depreciation	0.086	0.031	0.031
Net Farm Income from Operations (Cost and Tax)	0.209	0.209	0.209
Repayment Capacity			
Capital Replacement & Debt Repayment Capacity	$50,739.81	$600.60	$3.06
Coverage Margin	$19,175.80	$226.98	$1.16
Term Debt Coverage Ratio	2.29	2.29	2.29
Liquidity			
Net Cash Income	$66,912.50	$792.04	$4.03
Working Capital	$23,144.08	$273.96	$1.40
Current Ratio	1.68	1.68	1.68
Solvency (Assets at Market Value)			
Beginning Total Farm Assets	$685,172.97	$8,110.36	$41.30
Beginning Total Farm Liabilities	$176,914.57	$2,094.13	$10.66
Ending Total Farm Assets	$729,780.54	$8,638.38	$43.99
Ending Total Farm Liabilities	$178,284.08	$2,110.34	$10.75
Ending Farm Net Worth	$551,496.46	$6,528.04	$33.24
Change in Farm Net Worth	$43,238.07	$511.81	$2.61
Year Ending Farm Debt to Asset Ratio	0.244	0.244	0.244
Year Ending Farm Equity to Asset Ratio	0.756	0.756	0.756

* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

Table 4-10

The Average AgFA Balance Sheet for the 101 Non-Seasonal Great Lakes Graziers in 2001
Showing the Current Market Values and Historic Cost Values of Assets

	Beg. Dollars	2001	End Dollars	Historic Cost Basis	
Current Assets					
Cash Accounts	7,820		6,910		
Prepaid Expenses & Purchased Inventories	6,482		7,857		
Raised Feed Inventories	30,202		29,554		
Basis in Resale Livestock Purchased	0		0		
Accounts Receivable	9,175		10,355		
Market Livestock & Etc.	1,944		2,377		
Total Current Assets	**55,624**		**57,053**		
Non-Current Assets				**Beg. Dollars**	**End Dollars**
Raised Breeding Livestock	136,080		140,392		
Purchased Breeding Livestock	728		659	350	469
Machinery & Equipment	110,505		117,791	29,019	31,772
Buildings	37,484		37,896	19,665	20,442
Land & House	250,829		267,335	56,121	57,836
Other Non-Current Assets	93,924		108,654	18,748	23,835
Total Non-Current Assets	**629,549**		**672,727**	**123,903**	**134,353**
Total Farm Assets	**685,173**		**729,781**		
Current Liabilities					
Accounts Payable	4,883		4,742		
Current Portion of Non-Current Liabilities	14,971		18,505		
Other Current Liabilities	11,194		10,662		
Total Current Liabilities	**31,047**		**33,909**		
Non-Current Liabilities					
Intermediate Liabilities	18,632		21,469		
Long-Term Liabilities	127,236		122,906		
Contingent Liabilities	145,240		154,391		
Total Non-Current Liabilities	**291,107**		**298,766**		
Total Farm Liabilities	**322,154**		**332,675**		
Non-Farm Assets	20,835		20,108		
Non-Farm Liabilities	3,508		3,592		

Statement of Equities (Net Worth)

	Beginning	Ending	Change
Contributed Capital	0	758	758
Retained Earnings	138,692	152,756	14,064
Valuation Adjustment	224,326	243,591	19,265
Total Farm Equities	363,019	397,106	34,087
Non-Farm Equities	17,327	16,516	-811
Total Equities	**380,346**	**413,622**	**33,276**

*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 grazier 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 would narrow from $2.31 (4.48 – 2.17) to $1.27 (5.02 – 3.75) if all (paid and unpaid) 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.

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 2001

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 Herds	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
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
NFIFO Per Cow	**842**	**520**	**549**	**508**
NFIFO Per CWT EQ	**4.48**	**2.17**	**2.68**	**2.05**

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 5-2 below. Also, graziers have a higher NFIFO per CWT EQ.

Table 5-2 also shows the grazier'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 5.2

Comparing The Financial Performance of Graziers to Confinement Dairy Herds in Two Participating States in 2000

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 Herds	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
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
NFIFO Per Cow	**617**	**296**	**315**	**181**
NFIFO Per CWT EQ	**3.44**	**1.20**	**1.38**	**0.65**

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 grazier, in both states, were more profitable than their confinement counterparts in 2001 and 2000 in spite of lower production per cow.

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

Graziers are keenly interested in breeding the ideal grazing dairy cow. Also, graziers are more likely than non-graziers to raise a breed of cattle that is other than Holstein. Therefore, data in this project has 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 all or almost the entire herd are of one of the above breeds.

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

1) Crossbred implies a herd consisting mainly of cows that are the genetic result of a deliberately planned crossbreeding program.
2) 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."

3) Other implies a herd consisting primarily of a "pure breed" other than the seven major dairy breeds listed as a choice above.

There are not enough herds from most breeds to make any meaningful comparisons. 70 of the herds are identified as Holstein. Of the 54 herds that are not categorized as Holstein, 19 are called mixed, 10 are Jersey, five are crossbred, three are Ayshires, and one each of Brown Swiss and Dutch Belted. 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 that can be done with this group of data is to compare Holstein with not Holstein herds for a couple years before trying to propose conclusions.

XIV. 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. Seven of the 126 herds submitting usable data in 2001 are certified organic and sold milk to an organic market. Four of the organic herds are from one state. The other three are from another state. One of the organic herds was not grazing intensively in 2001. One year of data from this number of organic herds is insufficient to make creditable judgments, and only selected numbers will be printed from organic herds.

The average grazing organic herd is smaller, produces fewer pounds of milk per cow and per farm then the average grazing herd in 2001. Despite these differences, each organic herd is generating enough NFIFO 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 $19.31 in 2001 compared to $16.31 for the average grazier.

Appendix 1

The Agriculture Financial Advisor (AgFA©) 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© are similar to attributes of other farm financial computer programs.

In addition, AgFA© 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© 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©, 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[1]	$ 12,143	_____
3.	Change[2] in Feed Inventory	-$ 4,127	_____
4.	Change[2] 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[3] Use $14.94 when calculating 2001 cost of production.	$ 12.86	_____
8.	Hundredweight Equivalents (CWT EQ) of Milk Produced **Critical Value**[4] (On this worksheet, divide line 6 by line 7)	11,250	_____
9.	Total Schedule F Expenses (Schedule F, line 35)	$122,521	_____
10.	Change[2] in Accounts Payable	$ 1,543	_____
11.	Change[2] 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[5] (On this worksheet, line 16 divided by line 8)	$7.68	_____ Goal <= $8.00
18.	Total $'s available for other costs[6] (On this worksheet, line 6 minus line 16)	$58,311	_____
19.	Basic Cost Margin per COW	$1,166	_____

(On this worksheet, divide line 18 by average number of cows, both milking and dry, in herd.)
Goal => $1,200

20. Total Allocated Costs per CWT EQ $10.92 _____
(On this worksheet, divide line 12 by line 8)

21. Total $ available to cover unallocated costs[7] $21,825 _____
(On this worksheet, (line 7 minus line 20) times line 8)

22. Unpaid labor & management charge per CWT EQ $1.98 _____
(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.)

23. Total Allocated plus unpaid labor & management $12.90 _____
(On this worksheet, add lines 20 and 22.) Goal <= line 7

The footnotes are on the back of this page.

Footnotes

[1] 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.

[2] 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.

[3] 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 and $14.94 (est.) in 1990 - 2001, 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.

[4] 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.

5 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, and $7.75 in 1992-2000, 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.

[6] 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.

[7] 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 <u>not</u> 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).

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Appendix 4

Selected Acronyms, Definitions and Terms

AgFA©- Agricultural Financial Advisor©

CCC - Commodity Credit Corporation

CMV - Current Market Value Asset Valuation Method

COP - Cost of Production

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 many other variables for analysis purposes.

GLGN - Great Lakes Grazing Network

HC - Historic Cost asset valuation method

IFAS - 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.

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: Rate of Return on Assets = Return on Farm Assets/ Average Farm Investment, where: Return on Farm Assets = Net Farm Income + Farm Interest – Value of Operator's Labor & Management and Average Farm Investment = (Beginning Total Farm Assets + 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: Rate of Return on Equity = Return Farm Equity / Average Farm Net Worth, where: Return on Farm Equity = Net Farm Income – Value of Operator's Labor & Management, and Average Farm Net Worth = (Beginning Farm Net Worth + Ending Farm Net Worth) / 2.

Seasonal calving/milking- A calving 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.

USDA - United States Department of Agriculture