Wisconsin Grazing Dairy Profitability Analysis

Preliminary Fifth Year Summary
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Is grazing or conventional dairying more profitable? Many are eagerly awaiting the definitive study to prove that one of the systems is clearly superior in most if not all ways. Not only will we wait a long time for that study, but the expectation for it distracts us from the more important question of –"Which system is best for your family and farm?"

There will never be a study to determine for once and for all and for all conditions that grazing is more or less profitable than conventional dairy farming in the humid part of the US. This is because the "state of the art" allows some practitioners of each strategy to be successful. Secondly, management continues to be the single most important factor determining business success in farming (and in many other businesses too). We can see the evidence of the importance of management everyday.

We are all very aware that many variables affect productive performance, and economic performance is subject to all of these variables plus the added uncertainty of price variability.

We know that grazing is the "conventional" system in New Zealand, Ireland and other places.

Even before the Wisconsin Grazing Dairy Profitability Analysis (WGDPA), we knew that some graziers succeed while others fail (though we lacked the actual farm financial data we desired). We knew the same was true for conventional operations. There have been more studies addressing the economics of grazing than most people realize but all of these studies have limitations, most of which are due to the scarcity of graziers with several years of good data. Graziers in Wis. with several years of good data are quite scarce relative to conventional dairy farmers. The same is true in most other states.

Still, most of these studies and the Wisconsin Grazing Dairy Profitability Analysis confirm the above observations-that Grazing (Management Intensive Rotational Grazing-MIRG) is an economically viable alternative for many Wisconsin farm families.

STUDYING GRAZING PROFITABILITY-METHODS AND DEFINITIONS

The Wisconsin Grazing Dairy Profitability Analysis relies on actual farm financial data to help answer the following questions;

- Is grazing economically viable?
- Where does each system work best?
- What practices make each system most viable?
- How can each system be managed for the benefit of the families operating them?

Gathering actual farm financial data is easier said than done. Most of the participants in the Wisconsin Grazing Dairy Farm Profitability Analysis indicated their willingness to participate by answering yes to a question on a 1994 Survey of Wisconsin Grazing Dairy Farmers. Eighty-four graziers said yes on the survey, but only 45 graziers sent data following a direct one-to-one follow up contact. The numbers of participants have narrowed down as follows;

- 45 graziers provided some financial data.
- 26 graziers provided one year of usable financial data for the first year analysis.
- 25 graziers provided two years of usable financial data for the second year analysis.
- 21 graziers provided three years of usable financial data for the third year analysis.
- 19 graziers provided four years of usable financial data for the fourth year analysis.
- 17 of the original graziers provided five years of usable financial data for the fifth year analysis. Four new farms were added in 1999.

These are rather small numbers to compare and still obtain results that would be representative of the grazing dairy industry of Wisconsin. Consequently, considerable time and effort was devoted to examining the data for accuracy and consistency.

COMPARING THE FIFTH WITH THE PREVIOUS YEARS REPORTS.

The major conclusions in the fourth year report were strengthened with the addition of a fifth year of data. However, one may find small differences when comparing individual numbers from the reports from different years of the WGDPA. This is because 21 farms provided three years of usable data for the third year report and 19 farms provided four years of usable data for the fourth year report. In the fourth year report, all group averages for the first three years were recalculated to include data only from the 19 farms. In the fifth year, two of the "original" 19 farms "dropped out." Four new farms were added to bring the total number of farms back to 21 for 1999. None of the new farms supplied data back to 1995. For this reason plus the ones that follow, **no recalculations of previous years averages was done for the fifth year preliminary report.**

Two of the new herds calve seasonally, but one of the original seasonal calving herds in the WGDPA became non-seasonal at the beginning of 1999. Finally, in 1999 tax depreciation was used on all farms in the WDGPA to make the data more similar to the data from the FFAMIS farms.

The third year report added a direct comparison of the financial data from more conventional Wis. dairy farms to different types of grazing operations. Specifically, selected financial performance measures of types of graziers in the study are compared with several selected measures from the 800 plus "conventional" dairy farms, (ranging in size from 19 to 1300 cows) in the Fox Valley and Lakeshore Farm Management Association (FFAMIS) data sets. These Farm Management Associations are cooperatives which provide a variety of farm financial management services to their member/clients. This data has also been used by Dr. Gary Frank of the U. W. Center for Dairy Profitability to do an annual report titled "Milk Production Costs on Selected Wisconsin Dairy Farms". The final fifth year report of the Wisconsin Grazing Dairy Profitability Analysis will include a similar milk production cost analysis.

The computer system used by the Fox Valley and Lakeshore Farm Management Associations during these five years is known as Farm Financial Analysis and Management Information System (FFAMIS) and the data from these farms will be referred to in this analysis as FFAMIS data or farms.

DEFINITIONS-TYPES OF FARMS

As with conventional farms, "one size does not fit all" in grazing operations. So in addressing the study's questions, it's important to define the kinds of farms being analyzed and compared in this study.

Types of Conventional or Confinement Dairy Farms

The terms conventional and confinement are often used loosely and inter changeably and therefore need to be clarified for the purposes of the WGDPA. For many years, the typical Wisconsin dairy farm housed and milked cows in two story stanchion barns, raised and mechanically harvested most of the feed (including grain) used on the farm and calved and milked cows all year. Most of these farms were about the size that one family could handle without much hired labor. Because cattle on this type of farms are confined to buildings or paved lots most of the time, the term confinement became a popular term to describe them. Since most Wisconsin dairy farms shared these characteristics for many years, the term conventional also became a popular term to describe them. "Traditional confinement" or simply "traditional" are better terms to use to differentiate them from the other farms often referred to as conventional or confinement farms.

Beginning mainly in the 1990s, some Wisconsin farms expanded to much larger sizes and built entirely new facilities including free stall barns, with natural ventilation, milking parlors, etc. They continued to raise and deliver mechanically harvested feed (including grain) to their confined cattle. They continued to calve, and milk year-round.

Most of the labor is hired on such farms and many have 300 or more cows. This type is also often referred to as conventional but is better described as "large modern confinement".

The FFAMIS farms include all types of Wisconsin dairy farms, including a few graziers and large modern confinement farms, but most of the farms in the FFAMIS system are traditional in type. Most referrals in the WGDPA to confinement, conventional, or FFAMIS will be referrals mainly to "traditional" farms.

Types Of Grazing Dairy Farms

To be included in the study, a dairy farm practicing management intensive rotational grazing (MIRG) had to be big enough to potentially support a family in exchange for family labor (this doesn't preclude hired help). Dairy and forage (often grass) are the major enterprises and the dairy cows graze about half of the forage they consume. Pastures are rotated daily in most cases. "Winter" forage is likely to be raised on the farm in a typical year. Grain is likely to be fed in near conventional amounts although grain is less likely to be raised on the farm. Being a low or high input operator alone doesn't eliminate someone from being considered a grazier. Young stock are likely to graze on the farm.

Since being able to make the right investment decisions should enhance economic performance, it is useful to categorize graziers in a way to reflect these investment decisions. These categories will be transitional and non- transitional.

Non-Transitional Graziers

A "typical" non- transitional (low capital) grazing operation then is loosely defined for Wisconsin as one in which the assets are more or less ideally suited for grazing and where the livestock harvest about half of the forage consumed in a typical year. The investment (and fixed costs per cow) represented by land, buildings, and equipment is less than in a high capital or transitional grazing operation for several reasons: 1) the decision to graze was probably made simultaneously with the decision to dairy, 2) much of the land may be steeper, stonier or wetter than class I, II or III soil, 3) there is less machinery and/or it's older, 4) there are fewer buildings and are usually older, 5) or if the operation has the land, buildings and equipment that would allow it to be farmed conventionally without much additional investment, the grazier bought it for a discounted price.

Transitional (high capital) Graziers

Any farm with enough land, buildings, equipment and investment to farm conventionally, but also has chosen the grazing practices described above recently enough to have the investment structure of a “conventional” farm is considered a high capital or transitional grazier because it has a foot in both systems. Also important to the definition of this category is that the land, buildings and equipment were not obtined at a discounted price. All transitional graziers in the study operated their farms as traditional confinement systems before switching to MIRG.

The high capital or transitional grazier is more likely to raise and feed grain in larger quantities and is less likely to practice seasonal calving.

Categorizing graziers into these categories still relies heavily on judgment. However, the key difference is that the "ideal" non-transitional grazier has very little invested beyond what is needed for a grazing operation. Therefore their profit potential should be greater than expected for transitional graziers.

Seasonal vs. Non-seasonal Calving

The seasonal calving strategy is an independent practice that is used extensively in combination with MIRG in New Zealand and in some other places, but not so extensively in other places, such as Wisconsin and Argentina. In this study, a herd is not considered seasonal unless 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. Defined as semi-seasonal are those herds that make a serious attempt to "bunch" their calving to one or two times of the year, but don't sacrifice healthy, highly productive animals that don't quite fit that mold. A semi-seasonal calving herd milks at least one cow every day of the year (and many more on most days). Any calving strategy not meeting the preceding seasonal definition is referred to as non-seasonal in this analysis.

Physical Performance Indicators

Appendix one and two provide some physical characteristic information about two (transitional and non-transitional) groups of graziers in the study. Appendix one uses cow and acreage data from 1995, while appendix two uses cow and acreage data from 1998.

The average non-transitional grazier averages fewer years of farming experience but more years of grazing experience. However, if two long time graziers were omitted from this group, the remaining low capital graziers would only average 7.9 years of farming and 3.1 years of grazing at the beginning of the study. This is actually a little bit less grazing time than logged by the transitional group.

The average non-transitional grazier had fewer owned and harvested acres and is less likely to mechanically harvest forage or grow grain.

The non-transitional and transitional graziers harvested 3.3 and 2.34 forage acres per cow respectively, in 1998, and most of them buy some if not all of their grain. This compares with the old thumb rule of needing 3 acres per cow in Wisconsin to provide all the feed needed for a cow and her share of the young stock except for mineral and protein supplement. Only one grazier in the study feeds little or no grain. The FFAMIS farms had 3.27 crop and pasture acres per cow in 1998, down from 3.34 in 1997, 3.5 in 1996, and 3.6 in 1995. Most of the FFAMIS farms grew much of the corn consumed on the farm. Acres used for growing grain were included in the preceding acre per cow numbers for the FFAMIS farms.

The average herd size has increased in all three groups but the FFAMIS herd size average is about twice as large as the non-transitional graziers with the transitional group fitting almost half way in between.

For pounds of milk sold per cow, the average FFAMIS farm was higher than the transitional graziers, for the last three years. The non-transitional graziers were consistently lowest by a large margin. Production per cow increased for the average FFAMIS farm for all five years, but for all grazier groups, production per cow was less in in 1998 than in 1995.

Benchmarks

One of the original purposes of the Wisconsin Grazing Dairy Profitability Analysis was to provide financial benchmarks for graziers. Developing reliable benchmarks requires much information. It's also very important to understand how to use the benchmarks as it is to have the benchmarks. Unfortunately that understanding is seldom gained easily or quickly.

To effectively use benchmarks to project the success of any business including a grazing dairy, its important to have a good understanding of enough benchmarks to project and monitor the relationship of the three major factors of profitability which are;

1. income generation;
2. the control of investment/debt and;
3. the control of operating costs.

Benchmarks can be used to summarize the many important underlying details of a part of a farm business financial situation. They can be used individually as indicators of strengths and weaknesses of a business. They can be used together to assess the overall financial performance of a farm business. To do this effectively, one must have at least a decent understanding of the type of business being analyzed. It's not good enough just to know if a key financial measurement deviates significantly from a benchmark value. One needs to know why it deviates. Not until one knows why it deviates can one accurately

say whether it's a problem or not, and if its a problem, what could or should be done about it.

Never use one benchmark to make important decisions and don't think of benchmarks as absolute values. In other words, no single benchmark will guarantee success or failure. Still, some benchmarks are more important than others are.

Fortunately we have universally reliable values for the two most comprehensive and therefore most important benchmarks, which are the rate of return on assets (ROROA) and rate of return on equity (ROROE).

The benchmark values for ROROA and ROROE are the same for all types of dairy operations--in fact for all businesses. Both should be higher than the rate of inflation and higher than the interest rate one is paying on borrowed money. For those who are debt free, ROROA and ROROE should be higher than inflation and higher than one's opportunity cost.

Two other important features of ROROA and ROROE are that they can be used to compare businesses (farms) of different sizes. Secondly once you calculate one, calculation of the other one is easy.

Performance of Transitional Vs Non-Transitional Graziers Vs FFAMIS Dairy Farms

ROROA values for the average grazier in the study exceeded the interest rate on borrowed money in all years but 1997. The average ROROA for non-transitional graziers was higher than the average ROROA for the transitional graziers in 1995, 1998 and 1999 but not in the other two years. Despite the importance and usefulness of ROROA and ROROE, they are not printed in this preliminary report. This is because asset values in the grazing data are handled differently than asset values for the FFAMIS farms. Even so, all of the income reported for both sets of farms comes from the operation-not from asset appreciation.

Net farm income from operations per cow (NFIFO/cow) is another benchmark that can be used to make "apples to apples" comparisons of financial performance between businesses of different sizes. It also directly measures the impact of two of the three most important components of profitability- 1. operating income and 2. control of operating expense.

In the WGDPA, NFIFO/cow for the non-transitional graziers was higher than the NFIFO/cow for the transitional graziers in 1995 and 1998 but not in 1996 and 1997. The FFAMIS (mainly traditional) farms were lower in all four years. Interestingly enough, the NFIFO/cow trends upward for the transitional graziers and downward for the other two groups from 1995 to 1997, before reaching the study's high point for all groups in 1998. For most groups, 1999 financial performance came in a close second to 1999.

The $3433 range from the lowest (-$460) to highest ($2973) NFIFO/cow value from any grazing herd during the five years is astounding especially from a group as small as 19 to 21 farms.

In terms of investment per cow, the transitional graziers had the highest level in two of the first three years and in all years were similar to the FFAMIS farms. The non-transitional graziers had investment levels that were considerably lower, but not as low as most people expect. The high/low range in this measure for the graziers in the study is also large.

The comments made about investment per cow apply to debt per cow with two additions. In looking at the individual grazier's data, it's obvious that the debt level has been influencing profitability much more than investment levels have influenced profitability. The FFAMIS farms consistently had higher debt per cow levels than the transitional graziers. The non-transitional grazier's debt per cow levels was lowest of all. The debt per cow of the seasonal herds increased substantially from 1996 to 1997 and remained at a fairly high level in 1999.

Measuring the Cost of Milk Production in Wisconsin Grazing Dairy Herds

The cost of production is not yet updated beyond the fourth year report. Cost of production is extremely important to any business! But as important as the cost of production is, it must be put into perspective.

Many seem to think the cost of production is the economic bottom line. In fact, the cost of production is at least one step away from the economic bottom line of a business. This becomes a bit easier to understand by examining the three major factors of profitability, which are:

- Control of Investment/Debt
- Control of Operating Expense
- Income Generation

As it is referred to, the cost of production directly deals with operating cost and indirectly deals with investment/debt control. It doesn't deal with the third factor – income generation.

Graziers tend to over focus on controlling cost and investment while non-graziers tend to over focus on income generation.

The most successful managers optimize the interrelationship of all three.

Because all businesses must cover all costs to succeed in the long run, it's important to calculate "total cost." However there are other cost categories that are useful too. Getting more detailed breakdowns below total cost can help determine why costs are high or low. Dr. Gary Frank of the University of Wisconsin Center For Dairy Profitability in his annual (since 1992) cost of milk production on selected Wisconsin dairy farms report has popularized two other cost groupings called "allocated costs" and "basic costs." He compares all three cost groupings on a per cow and per cwt. of milk equivalent sold basis. To make it easy to compare the grazier's cost of

production data with that of conventional farms the following cost measures have been calculated (but not always reported) for some years of the study:

1. Total cost per cwt. milk equivalent sold
2. Total cost per cow
3. Allocated cost per cwt. milk equivalent sold
4. Allocated cost per cow
5. Basic cost per cwt. milk equivalent sold
6. Basic cost per cow

All three cost groupings have pluses and minuses. The following definitions will help understand these pluses and minuses.

Total costs include all cash and non-cash costs including the opportunity cost of unpaid labor, management and equity capital. Another way to describe the opportunity cost is that it is a reasonable reward for the unpaid labor, management and capital supplied by the owning family. The total cost concept is needed to determine the minimum cost required to meet all financial obligations of the business, which includes a satisfactorily reward for the owners' unpaid labor, management and equity capital.

Since many business owners are willing to work for less than the opportunity cost of their labor, management and equity, the allocated cost group becomes useful too.

Traditionally, total cost is divide into fixed and variable cost. While these traditional cost breakdowns are still valid, there are some difficulties associated with comparisons of the financial performance of farms of greatly differing size and type that aren't adequately handled by these traditional measures. Therefore, other measures can be useful.

Total allocated cost equals total cost minus the opportunity cost of unpaid labor, management and capital supplied by the owning family. Since opportunity cost isn't consciously calculated by everyone, allocated cost is often used by default in place of total cost.

Caution must be exercised in comparing the allocated costs of graziers versus FFAMIS farms. Included in the expenses of many of the FFAMIS farms are wages and benefits to dependent family members primarily for tax purposes. Wage and benefit payments made to dependent family members were not included in expenses of grazing farms. So far, its not been possible to determine how much this difference inflates allocated costs of the FFAMIS farms.

Basic cost per hundred weight of milk equivalent sold (hereafter referred to simply as basic cost/cwt.) is another useful measure. Allocated cost minus the cost of interest, depreciation, labor, and management equals basic cost. Another way of saying this is that basic costs are all the cash and non-cash costs except interest, depreciation, labor, and management.

Basic cost is a useful measure for comparing one farm to another because it is not influenced by the farm's debt structure, the amount of paid versus unpaid labor, or the capital consumption claimed (depreciation). The fact that some farms have only unpaid labor while others pay family members or non-family hired help makes it difficult to compare farms fairly on only a total cost basis or on the basis of fixed and variable costs. The costs of interest, depreciation and

management also have characteristics that make direct comparisons difficult. 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 day-to-day expenses (those most affected by daily decisions), its use allows a fairly good look at how well the grazing farms control operating costs compared to more conventional farms.

The difference between the allocated cost and the basic cost provides some indication of the impact of investment/debt control on the cost of production.

The average allocated and basic cost is calculated per cwt. for several groups of graziers for the first three years of the study. (Some of the same computer difficulties that delayed the calculations for the first three years have delayed the 1998 calculations.) When all the graziers in the study are compared with the FFAMIS farms, their basic cost was 95 cents/cwt. less in 1995, 75 cents less in 1996, but only seven cents less in 1997.

Among the graziers, those which are non-seasonal, use DHI or are transitional, tend to have lower basic costs then their opposites in the study for the first three years. Only the seasonal, and the non-transitional, non-DHI group of graziers in 1996 and1997 had higher basic costs than the FFAMIS farms.

Among the graziers, those which are non-seasonal or are non-transitional tend to have lower allocated costs than their opposites. The non-transitional users of DHI had lower allocated costs than non-transitional non-DHI users. When all graziers were divided into users and non-users of DHI, users were lower two out of the first three years. All categories of graziers have lower allocated costs than the FFAMIS farms. When all the graziers in the study are compared with the FFAMIS farms, their allocated cost was $1.81/cwt. less in 1995, $2.25 less in 1996, and $2.05 less in 1997.

When the basic cost margin is subtracted from the allocated cost margin between the average grazier and the FFAMIS farms, the graziers paid $0.86/cwt. less in 1995, $1.50 less in 1996, and $1.98 less in 1997 per cwt. of milk equivalent sold for interest, depreciation, labor and management. Caution must be exercised in comparing the allocated costs of graziers versus FFAMIS farms. Included in the expenses of many of the FFAMIS farms are wages and benefits to dependent family members primarily for tax purposes. Wage and benefit payments made to dependent family members were not included in expenses of grazing farms. So far, its not been possible to determine how much this difference inflates allocated costs of the FFAMIS farms. This is one of the issues that has delayed the completion of cost of production comparisons.

It may be surprising to see that the transitional herds had slightly lower basic costs than the non-transitional herds. This relationship indicates that the amount of investment (while important) may not be as important as what one invests in.

Graziers with higher NFIFO/cow also had lower basic cost/cwt. equivalent of milk sold. This suggests that there is much more to controlling operating costs than just not spending money. Again this suggests that what money is spent on is more important than the amount that is spent.

More details on the individual expense items will be calculated and reported in the final fifth year report.

Economic Impact of Selected "Low Input" Practices Among Low Capital Graziers

Those who promote seasonal calving and non-use of DHI often describe these strategies as low input. Promoters often predict that these practices will enhance profitability because of their "low input" nature. Unfortunately, low input doesn't always mean least cost per unit and least cost per unit doesn't always equal maximum profit.

In addition to having separated all the graziers into non-transitional and transitional groups, the graziers were also separated two other ways to calculate the average financial performance of seasonal vs. non-seasonal calving; and DHI use vs. non-DHI use herds in the study.

It's important to recognize that even four years of data from **19 and a fifth year of data from 21 farms still represents a very small number of observations on which to base solid conclusions**. So when dividing an already small number into even smaller numbers, one must be even more cautious about conclusions. Still in the absence of better information, one can make some comparisons knowing that they fit those specific farms in those specific circumstances.

As luck would have it, all of the graziers in the study, who are fully seasonal in calving strategy, are within the non-transitional category. Five of the eleven non-transitional graziers are fully seasonal. One of the non-transitional graziers became a certified organic producer during the study. This grazier is also fully seasonal. One farm that had been seasonal during the first four years became non-seasonal for 1999. A non-transitional farm new to the WGDPA in 1999 sold organic milk prior to joining the WGDPA, but didn't in 1999. A transitional non-seasonal farm new to the WGDPA in 1999 does sell organic milk. None of the fully seasonal herds use DHI. This is a long way of saying that in this low capital grazier data set, those graziers which are fully seasonal are unlikely to use DHI and are just slightly more likely to be certified organic. They may be the least conventional (conventional in this case being traditional WI confinement dairy) group among the graziers in the data set.

When the study began, there were three non-transitional graziers that were anticipating organic production and one that was selling organic certified milk. The grazier that was certified organic at the beginning of the study only participated in the study for two years. That data is not included in the third and fourth-year reports. It turns out that only one of the other graziers did enter the certified organic market since the study began. Early drafts of the third year report contained comments about certified organic producers, which were made with the understanding that three of the herds in the study did become organic certified (in keeping with earlier discussions it would be appropriate to categorize this organic herd as a transitional organic certified herd for the term of the study.) It's very dangerous to make many conclusions based on two farms, so any comments about organic producers should not be taken as proof of what other organic producers might experience. However, a few comments will follow that are true

comparisons between the two farms in the study which did sell organic milk in 1999 and the other 19.

Among the non-transitional graziers group, those which use DHI, are not fully seasonal, or are not organic certified, have higher NFIFO/Cow than their fellow graziers who follow the alternate practices (Appendix 3 and 4).

The above also holds true when the transitional graziers are brought into all three comparisons, even though the amount of difference decreases in financial performance for the three practices in question.

A careful study of all of these comparisons within the non-transitional group shows that the fully seasonal, non-DHI herds also tend to have substantially more debt per cow despite having a lower investment per cow. When compared to their opposites among all the graziers in the study, these graziers using the "low input" practices had slightly less investment and debt.

While MIRG has provided economic performance to most of the graziers in the study that was competitive with the FFAMIS farms, the graziers in the study using at least one of the “two low input” strategies were less competitive. Only one seasonal herd in the study generated the amount of dollars available for family living in all five years that would satisfy most Wisconsin dairy families. That seasonal herd had about twice as many cows as some of the non-seasonal herds that generated as many or more dollars available for family living.

Ranking the 19 to 21 Graziers by Financial Performance

In the fourth year report, the four year average NFIFO/cow was used to rank the graziers by financial performance. In this fifth year preliminary report when ranking the graziers into a high, middle, and low group based on the 1999 NFIFO/cow, the following observations can be made in comparing the high third with the low third. Most of the following statements also hold true when the graziers are ranked by their five year simple average ROROA.

1. All but two or three of the graziers (in the low group) are generating the amount of dollars for family living that would satisfy many Wisconsin farm families.

2. NFIFO, NFIFO/Cow, NFIFO/Acre, cash income per cow, investment per cow, and pounds of milk sold per cow were substantially higher for the high group. Debt per cow was lower.

3. The margin of difference between the high and low group widened substantially from 1995-1997 for the measures of NFIFO/Cow, debt per cow, and pounds of milk sold per cow, but narrowed in terms of investment per cow. The trend continued through 1999 for NFIFO/cow but not for the other measures.

4. The milk price was slightly higher for the high group for the first four years but not in 1999.

5. The low group had a very slight advantage in dollars of cash expense per cow with the middle group being the highest the first four years. This measurement comparison raises some very serious questions about the fairly common belief among many graziers that the "secret to economic success" via grazing is to control operating costs. Among this group of graziers over a five year period, the difference in operating cost per cow represents a much smaller part of the difference in profitability than is represented by income generation and investment control. A closer look at individual cost components shows that a higher percentage of cash (operating) cost as well as income is spent on interest in the low group.

6. The low group had a few more cows than the higher group in four out of five years.

7. In most of the above comparisons, the middle group was in the middle. The three exceptions occurred in cash expense per cow in which they were usually higher than the other two groups, debt per cow in which their five year average is close to the five year average of the low group and pounds of milk sold per cow in which they were roughly equal to the higher group until 1999. In 1999 they were far below the top group and slightly below the low group in pounds of milk sold per cow.

General Conclusions Drawn From The Wisconsin Dairy Grazing Profitability Analysis;

1. Management intensive rotational grazing (MIRG) is economically competitive, probably at all sizes. In contrast to large modern confinement systems, grazing systems can provide a family with a satisfactory amount of dollars for family living with the size of operation that a single family can operate with their own labor and management. All but two or three of the graziers in the study are generating the amount of dollars for family living that would satisfy most farm families. Graziers in the study also compare quite favorably with "conventional" Wisconsin dairy farms in the FFAMIS record keeping system when using a variety of financial measures.

2. The MIRG system is more economically flexible than the confinement system. Someone who invests in a well planned grazing operation will likely be able to recover most of their investment, if a few years later they decide to switch to a confinement system or quit farming entirely. In contrast, if you invest "from scratch" into a new confinement system, and decide to change or quit in a few years, you will be lucky to recover half of what you invested in that confinement system.

3. MIRG is a system in which a significant amount of the forage consumed by the cows is harvested by the cows to reduce harvesting costs and enhance forage quality. This is the major difference between grazing farms in this study versus many "confinement" or "conventional" farms in Wisconsin.

4. MIRG can be done with or without other practices and technologies such as seasonal calving, milking parlors, TMRS, etc. Fully seasonal is shutting down milking facilities at least one day each year (hopefully much more than a day to make it worth the effort to be seasonal.)

5. MIRG is not a reduced management system; it's a different management system.

6. Making the right investment decisions always enhances profitability. Still, a number of graziers have transitioned from "conventional" systems quickly and successfully. A "traditional small Wisconsin dairy farm" with average or better management has a good chance of improving financial performance by judicious adoption of a MIRG system. Many graziers are showing that some of the old infrastructure (barns, silos, etc.) that may be considered obsolete by "large modern confinement standards" can be valuable tools in a MIRG system if acquired at "discounted" prices.

7. Although many graziers are financially competitive at production levels that are lower than often found in other systems, they may be even more competitive if they don't sacrifice production because cost and investment savings aren't automatically created when production is reduced. Herds transitioning from another system may not be able to afford much of a production decline.

8. The graziers which are most successful financially are those who focus on optimizing the three factors of profit, more than worrying about whether or not they fit a specific stereotype or system. The three factors of profit are, income generation, operating expense control and investment control.

9. Wisconsin graziers tend to emphasize operating cost and investment control out of proportion with income generation just as traditional Wisconsin dairy farms tend to emphasize income generation out of proportion with operating cost and investment control. Either tendency can be just a different road to the same dismal place. Spending money carefully helps profitability more than just not spending.

10. The graziers with the best financial performance had just slightly higher operating expenses per cow, more investment per cow and much more income per cow, than the low group. The ability to generate income is the main factor separating the top group of graziers from the bottom group in the study.

11. Low input is not the same as low cost per unit of output. The graziers with the lowest cost per cwt. of milk sold, use large quantities of inputs such as fertilizer and grain as long as the income they generate from those inputs is greater than their cost.

12. Graziers in the study who are fully seasonal, or who don't use DHI have had, (over a five year period), less desirable financial performance than their opposites, whether NFIFO/acre, NFIFO/cow, NFIFO/cwt. equivalent of milk sold, NFIFO/farm, or

ROROA is used as the yardstick. To have the same number of dollars available for family living, the herds that practiced seasonal calving needed twice as many cows as needed by the non-seasonal graziers but about the same number of cows required by the traditional confinement herds which the graziers are compared to.

13. There is no single measurement that tells enough about a business to make good important comparisons or decisions without additional information from other measures. Several measures are needed to accurately judge the financial performance of any business, but under Wisconsin conditions, dividing by cows is usually more useful than dividing by acres.

Acknowledgement

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Data updated to include 19 farms Dec. 1, 1999

Appendix 1 - Comparing Selected Characteristics of Two Types of Graziers in the Wisconsin Dairy Grazing Profit Study, using 1995 Acre and Cow Data. DRAFT

	Low Capital Graziers		High Capital Graziers		All Graziers with 4 Years Data	
	# of farms	% of farms	# of farms	% of farms	# of farms	% of farms
Number of Graziers	9	47	10	53	19	100
Calve All Year	3	33	4	40	7	37
Calve Semi-Seasonally	2	22	6	60	8	42
Calve Seasonally	4	45	0	0	4	21
Average Number of Cows for Three Years	45.6	na	61.9	na	54.2	0
All Holstein Herds	3	33	7	70	10	52
Herds with no Holsteins	2	22	0	0	2	11
Organic Producers	0	0	0	0	0	0
Use DHI	3	33	6	60	9	47
Farming Experience and Acres refer to 1995						
	Years		Years		Years	
Average Years of Farming Experience	12.44	na	16.5	na	16.5	0
Average Years of Grazing Experience	6.56	na	4.9	na	4.9	0
	#	Acres or %	#	Acres or %	#	Acres or %
Ave. # of Acres Owned	0	139.8	0	196	0	169.4
Farms Owning Land	8	89%	10	100%	18	95%
Ave. # of Acres Rented	0	48.3	0	49.8	0	49.1
Farms Renting Land	6	67%	6	60%	12	64%
Ave. # of Acres Tillable (Even if Pastured)	0	135	0	177.6	0	157.4
Ave. # of Acres Forage Harvested Mechanically	8	32.3	10	30.5	18	31.4
Ave. # of Acres Pastured	0	104.4	0	124.5	0	76.8
Ave # of Farms Growing Small Grain for Forage	0	0%		8.30%	1	5%
Ave. # of Acres of Small Grain/ Farm in Group	0	0	0	2	0	1.1
Number of Farms Growing Corn Silage	2	22%	4	40%	6	32%
Average Acres of Corn Silage/Farm in Group	0	1.7	0	14.5	0	8.4
Average Total Forage Acres Harvested	0	136.44	0	171.5	0	154.9
Number of Farms Growing Corn Grain	1	11%	3	30%	4	21%
Average Number of Acres Corn Grain /Farm in Group	0	8.3	0	9.1	0	8.7
Number of Farms Growing Soybeans	0	0	2	20%	2	11%
Average Acres Soybeans Grown/Farm in Group	0	0	0	3.5	0	1.8
Number of Farms Harvesting Small Grain	1	11%	4	40%	5	26%
Average Acres Small Grain	0	4	0	6.6	0	5.4
Number of Farms with Non-Forage Harvested Acres	1	11%	4	40%	5	26%
Average Total Non-Forage Acres Harvested	0	12.3	0	19.2	0	15.9
Average Total Acres Harvested	0	148.8	0	190.7	0	0
Average Forage Acres Harvested/Cow	0	3.2	0	3	0	3.1
Average Non-Forage Acres Harvested/Cow	0	0.3	0	0.4	0	0.3
Average Total Acres Harvested/Cow	0	3.5	0	3.4	0	3.4

Data updated to include 19 farms Dec. 1, 1999

Appendix 2 - Comparing Selected Characteristics of Two Types of Graziers in the Wisconsin Dairy

	Low Capital Graziers		High Capital Graziers		All Graziers with 4 Years Data	
	# of farms	% of farms	# of farms	% of farms	# of farms	% of farms
Number of Graziers	9	47	10	53	19	100
Calve All Year	3	33	4	40	7	37
Calve Semi-Seasonally	2	22	6	60	8	42
Calve Seasonally	4	44	0	0	4	21
Average Number of Cows for Three Years	47.5	na	64.5	na	56.4	0
All Holstein Herds	3	33	7	70	10	52
Herds with no Holsteins	3	33	0	0	3	16
Organic Producers	1	11	0	0	1	5
Use DHI	3	33	6	60	9	47
Farming Experience and Acres refer to 1995						
	Years		Years		Years	
Average Years of Farming Experience	16.44	na	24.2	na	20.53	0
Average Years of Grazing Experience	10.56	na	7.4	na	8.89	0
	#	Acres or %	#	Acres or %	#	Acres or %
Ave. # of Acres Owned	0	168.7	0	194.8	0	182.4
Farms Owning Land	9	100%	10	100%	19	100%
Ave. # of Acres Rented	0	62.6	0	38.1	0	49.7
Farms Renting Land	6	67%	8	80%	13	68%
Ave. # of Acres Tillable (Even if Pastured)	0	158.4	0	181.5	0	170.5
Ave. # of Acres Forage Harvested Mechanically	8	47.8	10	66.1	18	57.4
Ave. # of Acres Pastured	0	117.8	0	42.6	0	78.3
Ave # of Farms Growing Small Grain for Forage	2	22%	0	0	2	11%
Ave. # of Acres of Small Grain/ Farm in Group	0	5.1	0	0	0	2.6
Number of Farms Growing Corn Silage	2	22%	4	40%	6	32%
Average Acres of Corn Silage/Farm in Group	0	5.33	0	11.3	0	8.5
Average Total Forage Acres Harvested	0	176.4	0	169.6	0	172.8
Number of Farms Growing Corn Grain	1	11%	4	40%	5	26%
Average Number of Acres Corn Grain /Farm in Group	0	9.1	0	17.3	0	13.4
Number of Farms Growing Soybeans	0	0	1	10%	1	5%
Average Acres Soybeans Grown/Farm in Group	0	0	0	1.7	0	0.9
Number of Farms Harvesting Small Grain	1	11%	1	10%	2	11%
Average Acres Small Grain	0	3	0	2	0	2.5
Number of Farms with Non-Forage Harvested Acres	1	11%	4	40%	5	26%
Average Total Non-Forage Acres Harvested	0	12.1	0	21	0	16.8
Average Total Acres Harvested	0	188.6	0	190.6	0	189.6
Average Forage Acres Harvested/Cow	0	3.33	0	2.34	0	2.74
Average Non-Forage Acres Harvested/Cow	0	0.23	0	0.29	0	0.26
Average Total Acres Harvested/Cow	0	3.56	0	2.63	0	3

Appendix Three -- Comparing Financial Performance of Two Types of Graziers and Conventional Farms. DRAFT

NFIFO = Net Farm Income from Operations
FFAMIS = Farm Financial Analysis and Management Information System which is the name of the computer system used by the Fox Valley and Lakeshore Farm Management Associations. There are data from 620 to 978 farms, ranging in size from 19 to 1300 cows, on the FFAMIS system. *FFAMIS values for NFIFO and NFIFO/Cow adjusted to comply with grazing study procedures.

	Average of 9 Non-Transitional	Average of 10 Transitional Graziers	Average of 19 Graziers	FFAMIS	Highest Among 19 Graziers	Lowest Among 19 Graziers
1999 Number of Graziers	11	10				
$NFIFO						
1995	39,210	42,809	41,104	38500*	97,450	-4,444
1996	34,382	50,349	42,786	43899*	109,707	-11,504
1997	30,030	52,355	41,780	46122*	105,595	-2,827
1998	56,539	76,500	67,045	86572*	109,675	7,746
1999	60,905	69,435	62,110	69859*	177,484	-6,724
$NFIFO/ Forage Acre Harvested						
1995	276	251	262		425	-30
1999	308	360	331		864	-45
$NFIFO/Cow						
1995	910	756	819	505?*	1662	-178
1996	737	788	768	527*	1832	-460
1997	637	802	737	483*	1535	-113
1998	1,066	837	1,059	834*	2593	310
4 Yr.Ave.	837	850	846	587*	1905	-110
1999	861	906	874	782*	2973	-147
Cash Income/Cow						
1995	2234	2706	2,514		3269	957
1996	2304	2952	2,695		3575	928
1997	2060	2756	2,482		3303	913
1998	2505	3066	2,844		4061	1027
1999	2504	2967	2,723		3963	801
Allocated Cost/Cow						
1995	1582	2208	1,954		2651	942
1996	1584	2201	1,956	2869	2651	975
1997	1472	2230	1,932	2813	2930	984
1998				2946		
1999				2977		
Allocated Cost/Cwt. Eq. Milk Sold						
1995	8.18	9.71	9.15	10.96	14.52	7.03
1996	10.1	10.71	10.51	12.76	28.02	7.87
1997	8.97	10.13	9.75	11.8	16.88	7.24
1998				12.42		
1999				11.79		
Basic Cost/Cwt. Eq. Milk Sold						
1995	6.71	6.8	6.90	7.85	9.62	5.22
1996	8.08	7.96	7.79	8.55	14.7	5.71
1997	7.42	8.96	7.34	7.41	11.29	4.88
1998				8.23		
1999				7.72		
Invest/Cow						
1995	4,601	7,154	6,116	7223	11,395	1,457
1996	4,484	6,800	5,881	7630	9,928	2,723
1997	5,063	7,071	6,280	6752	9,487	3,438
1998	4,864	6,477	5,837	7291	9,973	3,561
1999	4,482	6,379	5,378		9,758	2,724
Debt/Cow						
1995	1,370	2,478	2,027	2507	4,846	0
1996	1,314	2,435	1,990	2604	4,900	0
1997	1,757	2,571	2,251	2748	5,386	0
1998	1,636	2,301	2,037	2849	4,364	0
1999	1,654	2,183	1,964		4,418	0
Number of Cows						
1995	43.10	56.6	50.2	76	104	25
1996	46.70	63.9	55.7	84	130	25
1997	47.10	65.3	56.7	92.5	132	25
1998	53.1	72.6	63.3	99.5	128.5	25
1999	71.60	70.5	71.1	96.8	187	23
Lbs Milk/Cow						
1995	15,429	18,581	17,043	18436	23,702	5,960
1996	13,733	17,360	15,769	18493	23,508	4,802
1997	13,684	17,543	16,200	19057	24,000	6,000
1998	14,176	17,584	16,231	20198	24,890	6,720
1999	14,352	16,742	15,481	20210	24,354	5,087
Annual Simple Average Milk Price						
1995	13.60	13.22	13.4	12.94	15.43	11.41
1996	15.40	14.79	15.08	15.09	17.46	13.33
1997	14.11	13.18	13.26	14.23	15.56	12.24
1998	16.13	15.36	15.72	15.49	18.81	12.14
4 Year Ave.	14.62	14.14	14.36	14.54	16.28	12.28
1999	15.56	14.9	15.25	14.76	18.85	11.97

Appendix Four -- Comparing Financial Performance of 9 Non-Transitional Graziers Separated by Use of Two Other Management Practices. DRAFT

NFIFO = Net Farm Income from Operations
FFAMIS = Farm Financial Analysis and Management Information System which is the name of the computer system used by the Fox Valley and Lakeshore Farm Management Associations. There are data from 620 to 978 farms, ranging in size from 19 to 1300 cows, on the FFAMIS system. *FFAMIS values for NFIFO and NFIFO/Cow adjusted to comply with grazing study procedures.

	Average of 5 Non Seasonal Non-Transitional Graziers	Average of 4 Seasonal Non-Transitional Graziers	Average of 3 DHI LC Graziers	Average of 6 Non DHI Non-Transitional Graziers	Average of 9 Non-Transitional Graziers	FFAMIS
1999 Number of Graziers	6	5			11	
$NFIFO						
1995	42,617	34,951	46,045	35,792	39,210	38500*
1996	42,817	23,839	48,831	27,158	34,382	43899*
1997	37,754	20,375	44,035	23,028	30,030	46122*
1998	67,501	42,837	75,058	47,280	56,539	86572*
1999	57,581	64,569			60,905	69,859
$NFIFO/ Forage Acre Harvested						
1995	269	288	328	251	276	
1999	350	272			308	
4 Yr. Ave. (98 A.)	285	162	362	175	227	
$ NFIFO/Cow						
1995	1,039	764	1,212	784	910	5057*
1996	1,015	456	1,221	543	737	527*
1997	890	384	1,092	456	637	483*
1998	1,527	668	1,831	800	1,066	834*
4 Yr. Ave.	1,118	568	1,339	646	837	587*
1999	1,372	604			851	782*
Cash Income/Cow						
1995	2532	1902	2575	2093	2234	
1996	2769	1835	2733	2132	2304	
1997	2409	1711	2510	1880	2060	
1998	2930	2139	3169	2275	2505	
1999	2929	2303			2504	
Allocated Cost/Cow						
1995	1744	1401	1680	1542	1582	
1996	1735	1432	1673	1549	1584	2869
1997	1687	1257	1620	1413	1472	2813
1998						2946
1999						2977
Allocated Cost/Cwt. Eq. Milk Sold						
1995	8.04	8.38	7.39	8.6	9.15	10.96
1996	9.33	11.22	8.57	10.94	10.51	12.76
1997	8.7	9.35	7.92	9.55	9.75	11.8
1998						12.42
1999						11.79
Basic Cost/Cwt Eq. Milk So						
1995	6.63	6.84	6.14	7.01	6.9	7.85
1996	7.7	8.64	7.03	8.66	7.79	8.55
1997	7	8.03	6.53	7.91	7.34	7.41
1998						8.23
1999						7.72
Invest/Cow						
1995	5,142	3,995	6,552	3,787	4,601	7223
1996	5,066	3,895	6,392	3,720	4,484	7630
1997	5,297	4,829	6,523	4,480	5,063	6752
1998	5,358	4,439	6,774	4,201	4,864	7291
1999	5,712	4,184			4,482	
Debt/Cow						
1995	1,163	1,602	1,145	1,463	1,370	2507
1996	1,061	1,568	1,211	1,355	1,314	2604
1997	1,024	2,490	946	2,081	1,757	2748
1998	926	2,248	987	1,861	1,636	2849
1999	462	2,217			1,654	
Number of Cows/Farm						
1995	41.00	45.80	38.00	45.70	43.10	76
1996	42.20	52.30	40.00	50.00	46.70	84
1997	42.40	53.00	40.33	50.50	47.10	92.5
1998	44.4	64.1	41	59.1	53.1	99.5
1999	42.7	106.90			71.60	96.8
Lbs Milk/Cow						
1995	17,624	12,832	17,157	14,618	15,364	18436
1996	16,709	10,616	16,412	12,583	13,677	18493
1997	16,408	10,959	16,666	12,493	13,684	19057
1998	17,009	11,735	17,800	12,919	14,176	20198
1999	17,106	16,348			14,352	20210
Annual Simple Ave. Milk Price						
1995	13.25	14.04	13.56	13.62	13.60	12.94
1996	15.13	15.73	15.42	15.39	15.40	15.09
1997	13.07	13.68	13.33	13.34		14.23
1998	15.65	16.73	16.29	16.05	16.13	15.49
4 Year Ave	14.28	15.04	14.65	14.60	14.62	14.54
1999	13.27	15.92			15.56	14.76

Appendix Five -- Comparing Financial Performance of 19 Graziers when Separated For Calving Practice, and DHI Use. DRAFT

NFIFO = Net Farm Income from Operations. *FFAMIS values for NFIFO and NFIFO/Cow adjusted to comply with grazing study procedures.

	15 Non Seasonal Graziers	4 Seasonal Graziers	9 DHI Graziers	10 Non DHI Graziers	Average of 19 Graziers	FFAMIS
1999						
Number of Graziers	16	5			21	
$NFIFO						
1995	42,745	34,951	52,896	30,492	41,104	38500*
1996	47,838	23,839	60,362	26,967	42,786	43899*
1997	47,488	20,375	56,625	28,420	41,780	46122*
1998	73,500	42,837	86,697	49,358	67,045	86572*
1999					62,110	69859*
$NFIFO/Forage Acre Harvested						
1995	255	288	303	216	262	
1999	356	272			331	
$NFIFO/ Cow						
1995	832	764	905	712	819	505?*
1996	844	456	922	574	768	527*
1997	823	384	862	584	737	483*
1998	1,165	668	1,253	850	1,059	834*
4 Yr. Ave. (98 A.)	916	568	986	680	846	587*
1999	1,024	604			874	782*
$ NFIFO/Cwt. Eq. Milk Sold						
1995	$ 3.70	$ 4.51				
1996	$ 4.21	$ 3.57				
1997	$ 3.85	$ 2.86				
Cash Income/Cow						
1995	2660	1902	2800	2163	2,514	
1996	2907	1835	3013	2296	2,695	
1997	2671	1711	2776	2124	2,482	
1998	3035	2139	3231	2429	2,844	
1999	6044	4184			2,723	
Allocated Cost/Cow						
1995	2085	1401	2168	1691	1,954	
1996	2085	1432	2155	1704	1,956	2869
1997	2097	1257	2162	1653	1,932	2813
1998					1,777	2946
1999					1,657	2977
Allocated Cost/Cwt. Eq. Milk Sold						
1995	9.28	8.38	9.18	9.10	9.15	10.96
1996	10.4	11.22	10.26	10.92	10.51	12.76
1997	9.81	9.35	9.85	9.61	9.75	11.8
1998						12.42
1999						11.79
Basic Cost/Cwt Eq. Milk						
1995	6.91	6.84	6.61	7.34	6.90	7.85
1996	7.66	8.64	7.41	8.43	7.79	8.55
1997	7.23	8.03	6.95	7.94	7.34	7.41
1998						8.23
1999						7.72
Invest/Cow						
1995	6,619	3,995	6,743	5,346	6,116	7223
1996	6,369	3,895	6,425	5,200	5,881	7630
1997	6,636	4,829	6,701	5,769	6,280	6752
1998	6,215	4,439	6,468	5,159	5,837	7291
1999	6,044	4,184			5,378	
Debt/Cow						
1995	2,128	1,602	2,132	1,898	2,027	2507
1996	2,094	1,568	2,100	1,853	1,990	2604
1997	2,192	2,490	2,083	2,455	2,251	2748
1998	1,979	2,248	1,946	2,134	2,037	2849
1999	1,729	2,217			1,964	
Numbers of Cows						
1995	51.4	45.8	58.4	42.8	50.2	76
1996	56.7	52.3	65.4	47.0	55.7	84
1997	57.7	53.0	65.7	48.6	56.7	92.5
1998	63.1	64.1	69.2	58.2	63.3	99.5
1999	60.0	106.9			71.1	96.8
Lbs. Milk Sold/Cow						
1995	18,043	12,832	18,813	14,869	17,043	18436
1996	17,036	10,616	17,138	13,428	15,769	18493
1997	17,485	10,959	18,002	14,010	16,200	19057
1998	17,449	11,753	18,430	13,873	16,231	20198
1999	16,838	13,048			15,481	20210
Annual Ave.Milk Price						
1995	13.23	14.04	13.38	13.42	13.4	12.94
1996	14.9	15.73	15.12	15.04	15.08	15.09
1997	13.14	13.68	13.38	13.15	13.26	14.23
1998	15.45	16.73	15.87	15.59	15.72	15.49
4 Yr. Ave.	14.18	15.04	14.44	14.30	14.36	14.54
1999	15.04	15.92			15.25	14.76

Appendix Six -- Comparing Financial Performance of 19 Graziers when Separated Into Top, Middle and Bottom Third, years 1995-1998 Ranked by Four Year Average NFIFO/Cow. 1999 ranked by 1999 NFIFO/Cow. DRAFT

NFIFO = Net Farm Income from Operations. *FFAMIS values for NFIFO and NFIFO/Cow adjusted to comply with grazing study procedures.

1999 Number of Grazers		7	7	7	21
$NFIFO		Top (6)	Middle (6)	Bottom (7)	Average of 19 Graziers	FFAMIS
	1995	47,179	43,464	33,874	41,104	38500*
	1996	69,158	46,949	16,612	42,786	43899*
	1997	57,708	47,334	23,367	41,780	46122*
	1998	92,980	67,583	44,353	67,045	86572*
	1999	101,474	47,559	37,296	62,110	69859*
$NFIFO/Forage Acre Harvested						
	1995	280	248	302	262	
	1999	516	253	210	331	
4 Yr. Ave. (98 A.)		392	313	229	278	
$NFIFO/ Cow						
	1995	963	790	719	819	505?*
	1996	1,334	761	308	768	527*
	1997	1,128	740	424	737	483*
	1998	1,777	956	668	1,059	834*
4 yr. Ave.		1,300	812	529	846	587*
	1999	1,528	765	441	874	782*
Cash Income/Cow						
	1995	2,867	2,566	2,148	2,514	
	1996	3,411	2,739	2,064	2,695	
	1997	2,904	2,497	2,130	2,482	
	1998	3,502	2,765	2,471	2,844	
	1999	3,274	2,432	2,504	2,723	
Cash Expense/Cow						
	1995	1,832	1,898	1,607	1,954	
	1996	2,023	1,898	1,528	1,956	2869
	1997	1,717	1,842	1,712	1,932	2813
	1998	1,777	1,821	1,738		2946
	1999	1,612	1,565	1,761		2977
Allocated Cost/Cwt. Eq. Milk Sold						
	1995	8.86	9.18	9.41	9.15	10.96
	1996	8.90	10.51	12.80	10.51	12.76
	1997	8.82	9.78	10.65	9.75	11.8
	1998					12.42
	1999					11.79
Basic Cost/Cwt Eq. Milk Sold						
	1995	6.69	7.00	7.00	6.90	7.85
	1996	6.93	7.73	9.10	7.79	8.55
	1997	6.44	7.42	8.13	7.34	7.41
	1998					8.23
	1999					7.72
Invest/ Cow						
	1995	7,182	5,728	5,554	6,116	7223
	1996	6,892	5,535	5,389	5,881	7630
	1997	7,195	5,818	6,012	6,280	6752
	1998	7,097	5,486	5,305	5,837	7291
	1999	6,501	4,576	5,086	5,378	
Debt/Cow						
	1995	782	2,955	2,208	2,027	2507
	1996	638	2,745	2,364	1,990	2604
	1997	507	2,804	3,087	2,251	2748
	1998	445	2,517	2,673	2,037	2849
	1999	900	1,987	2,631	1,964	
Numbers of Cows						
	1995	49.0	55.0	47.1	50.2	76
	1996	51.8	61.7	54.0	55.7	84
	1997	51.2	64.0	55.1	56.7	92.5
	1998	52.3	70.7	66.4	63.3	99.5
	1999	66.4	62.1	84.6	71.1	96.8
Lbs. Milk Sold/Cow						
	1995	18,513	17,965	14,813	17,043	18436
	1996	18,942	16,498	12,445	15,769	18493
	1997	18,840	16,226	14,076	16,200	19057
	1998	19,399	16,321	14,010	16,231	20198
	1999	186,000	13,125	14,763	15,481	20210
Annual Ave.Milk Price						
	1995	13.63	13.22	13.36	13.4	12.94
	1996	15.44	14.88	14.94	15.08	15.09
	1997	13.42	13.17	13.19	13.26	14.23
	1998	15.96	15.52	15.7	15.72	15.49
4 Year Ave.		14.61	14.20	14.30	14.36	14.54
	1999	14.99	16.4	14.35	15.25	14.76