Regional Multi-State Interpretation of Small Farm Financial Data from the Fifth Year Report on 2004 Great Lakes Grazing Network Grazing Dairy Data October 2005

Overview
The data and conclusions of this paper are derived from the report with the above title from a USDA Initiative for Future Agricultural and Food Systems (IFAFS) Grant project #00-52101-9708. Some strengths of this work include standardized data handling and analysis procedures, combined actual farm data of ten states and one province to provide financial benchmarks to help farm families and their communities be successful and sustainable. The main report is also based upon work supported by Smith Lever funds from the Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture. The full report is available at:

http://cdp.wisc.edu/pdf/GLGN%20USDA%202004%20ReportF.pdf

Participating grazing dairy farms must typically obtain 85% or more of gross income from milk sales, or 90% of gross income from dairy livestock sales plus milk sales, harvest over 30% of grazing season forage by grazing and must provide fresh pasture at least once every three days.

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 101 graziers in 2004, 102 in 2003, 103 in 2002, 126 in 2001, and 92 in 2000 (more than 203 farms supplied at least one year of data), mainly from the Great Lakes region, provides some insight into the economics of grazing as a dairy system in the northern U.S.:

• There is a range of profitability amongst graziers. The ratio between the most profitable half and the least profitable half’s Net Farm Income from Operations (NFIFO) per cow and per Hundredweight Equivalent (CWT EQ) was greater in the lower profit years (usually with lower milk prices) than in the higher profit years. For more information, see Fact Sheet #2 of this series.
• The average grazing herd with less than 100 cows had a higher NFIFO per cow and per CWT EQ than the average grazing herd with 100 cows or more. The smallest margin appeared in the 2003 data. For more information, see Fact Sheet #3 of this series.
• Differences between seasonal and non-seasonal calving/milking herds were reviewed. Non-seasonal herds had a large NFIFO per cow and per CWT EQ advantage in 2000 and 2002. The seasonal herds (stop milking at least one day each calendar year) had a large NFIFO per cow and per CWT EQ advantage in 2001 and 2004 and a very small advantage in 2003. Careful examination of the data suggests that achieving a given level of NFIFO per cow or per CWT EQ is more difficult in a seasonal system. The seasonal group had a smaller range of financial performance within a year but experienced more variability of financial performance from year to year. Less than 15 percent of the herds in the data were seasonal. For more information, see Fact Sheet #4 of this series.
• The graziers in the study were economically competitive with confinement herds in the states that had comparable data from both groups. For more information, see Fact Sheet #5 of the series.
• While breed of cattle is a minor factor affecting profitability, the Holstein herds in the data had better financial performance in four years of comparisons with other breeds. For more information, see Fact Sheet #6 of this series.
• The ranking of major cost items is remarkably similar between grazing and confinement herds. For more information, see Fact Sheet #7 and #8, of this series.
• Relatively consistent differences in financial performance between states have appeared in all years. These differences must be considered when interpreting the data.

The study also confirms that accounting methodology and financial standards are important both in the accuracy and in the standardization of comparison values across large geographic areas that involve different combinations of production assets and management skills. In comparing the results of this study with other data, it will help to understand the measures used here but not in all places in the country.
Why the Changes in the Seasonal Calving per Milking Strategy Comparison from 2000 to 2004

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

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

**Comparing the Four Years**
A lot of variability in the financial performance has appeared in the calving strategy comparison in this multi-state data from 2000 to 2004.

The seasonal group had a substantial advantage in NFIFO per cow and per CWT EQ over non-seasonal herds in 2004. As in 2001, the milk price pattern was unusually (unusual compared to many years of price history) favorable to the spring calving per milking strategy.

The 2003 results are somewhat unique in that the NFIFO per cow are nearly the same for seasonal and non-seasonal herds at $462 and $461 respectively. At the same time, the seasonal herds had a noticeable advantage in NFIFO per CWT EQ of $2.58 versus $2.01 in 2003.

In 2002, the non-seasonal herds returned to a nearly two-to-one advantage in NFIFO per cow. The non-seasonal NFIFO per CWT EQ was 34% higher than the seasonal NFIFO per CWT EQ in 2002. This was similar to the results in 2000 where the non-seasonal herds had more than twice the NFIFO per CWT EQ and NFIFO per cow.

However, in the 2001 multi-state data, the seasonal herds had almost 1.5 times the NFIFO per cow and NFIFO per CWT EQ than the non-seasonal herds.

The seasonal herds exhibit a smaller range in NFIFO per cow and per CWT EQ than non-seasonal herds within a given year. In fact, the non-seasonal range was typically at least double the seasonal range. In all years the high and low performances were in non-seasonal herds.

**Looking at Wisconsin Seasonal Calving/Milking to Minimize the Impact of State-to-State Differences**
As explained further in Chapter VI, relatively consistent differences in financial performance between states appeared in all years. Because of these state-to-state differences, it was recognized early in the project that comparing graziers from a higher performing state to confinement from a lower performing state could produce a very different result than obtained when graziers were compared to confinement herds from the same state. Therefore the grazier versus confinement comparison has been made within states.
As explained in Chapter VI, the average Wisconsin grazier consistently had a higher NFIFO per CWT EQ than the average grazier from any other state contributing ten or more observations per year. Wisconsin seasonal graziers also had a higher NFIFO per CWT EQ than multi-state seasonal graziers in three of five years. Most of the other seasonal data came from states that contribute very little non-seasonal data. Since Wisconsin provided a much higher proportion of seasonal data than non-seasonal data, the multi-state seasonal calving/milking financial performance from 2000 to 2004 (and illustrated in Chapters XV and XVI) was enhanced by the state-to-state differences.

Wisconsin and multi-state seasonal herds had an advantage over non-seasonal herds in 2001 and 2004, but the Wisconsin seasonal herds’ advantage over Wisconsin non-seasonal herds was much smaller. In 2003, the Wisconsin seasonal herds had a small disadvantage over non-seasonal herds in contrast to a small advantage for multi-state seasonal herds over multi-state non-seasonal herds. Wisconsin and multi-state seasonal herds had a disadvantage in 2000 and 2002. The Wisconsin seasonal advantage was smaller than the multi-state advantage in 2002.

Comparing Wisconsin seasonal with Wisconsin non-seasonal herds from 1995 to 2004, the non-seasonal herds had higher NFIFO per CWT EQ in seven of ten and higher NFIFO per cow in eight of ten years compared to seasonal herds.

In five years of multi-state data and ten years of Wisconsin data, no seasonal herd has attained the NFIFO per cow or NFIFO per CWT EQ levels achieved by the highest performing non-seasonal herds, including 2004 and 2001, years in which (as explained later) the milk price pattern was extremely favorable for seasonal herds. When all the evidence is considered, it appears more likely that a non-seasonal herd will perform better than a seasonal herd in terms of economic profitability (NFIFO per cow and NFIFO per CWT EQ).

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

The number of summarized seasonal farms changed from 7 in 2000 to 18 in 2001 to 13 in 2002, 14 in 2003 and 12 in 2004. Of all the seasonal herds summarized in 2001, twice as many were new to the summary than were repeats from 2000. Many of the twelve new herds were well-established seasonal herds. This group of experienced seasonal graziers made their seasonal system function efficiently in 2001.

Of the 27 seasonal herds submitting data, 18 have been a part of the Prograsstinators, a multi-state grazing network that deliberately examines the actual farm financial performance of its members. Their interest in financial performance is an important reason for their inclusion in this project. A high percent of the Prograsstinator members have practiced seasonal calving/milking for a number of years.

Because farms entered and left the study during the five years, some variation in comparison results is to be expected. Primarily because the sharing of farm financial data is a voluntary act, data is not collected via a random selection procedure. It is difficult to know if one year had 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 may not be representative of the larger population that they came from.

The milk price pattern in 2004 and 2001 was more favorable for spring seasonal herds than for non-seasonal herds. There was an unusual pattern of higher prices in the spring months. The typical milk price pattern has higher milk prices in September, October and November. Milk prices in 2004 and 2001 were lowest in January, February, November and December – months of low milk output for most spring seasonal herds. All of the seasonal herds summarized in all years practice spring calving. In 2001, the summarized seasonal herds received a milk price that was $1.36 per CWT higher than received by the non-seasonal herds. In 2001, the Wisconsin seasonal herds averaged a milk price that was $2.75 per CWT higher than the Wisconsin non-seasonal herds. In 2004, the annual average milk price advantage for the seasonal herds over the non-seasonal herds was $1.64 in the multi-state data and $2.60 in the Wisconsin data. The multi-state “seasonal price advantage” ranged from $0.64 to -$0.80 in the other three years. The pattern in Wisconsin was similar with a range of -$0.30 to $1.61 in the other three years. The “seasonal price advantage” for Wisconsin seasonal herds from 1995 to 1999 ranged from $1.07 to -$0.58. Seasonal herds are less likely to have Holsteins but the data shows that price differences between calving per milking strategies was less influenced by breed than by price pattern.
In a few words, the financial performance of the average seasonal grazier in the 2001 and 2004 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.

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

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<tr>
<td>Number of Herds</td>
<td>7</td>
<td>18</td>
<td>13</td>
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<td>Number of Cows per Herd</td>
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<tr>
<td>Average Lbs. Milk per Cow</td>
<td>11,667</td>
<td>12,270</td>
<td>11,044</td>
<td>11,528</td>
<td>11,727</td>
<td>17,560</td>
<td>15,695</td>
<td>16,454</td>
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<td>Average Lbs. Milk per Herd</td>
<td>1,691,715</td>
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<td>1,560,561</td>
<td>1,645,234</td>
<td>1,230,137</td>
<td>1,496,401</td>
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<td>U.S. All Milk Price (used to calculate CWT EQ)*</td>
<td>$12.33</td>
<td>$14.94</td>
<td>$12.15</td>
<td>$12.50</td>
<td>$16.10</td>
<td>$12.33</td>
<td>$14.94</td>
<td>$12.15</td>
<td>$12.50</td>
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<tr>
<td>Average Basic Cost per CWT EQ</td>
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<td>Non-Basic Cost per CWT EQ (Allocated Minus Basic)</td>
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<td>$2.61</td>
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<td>$2.26</td>
<td>$2.62</td>
<td>$3.21</td>
<td>$2.69</td>
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<td>NFIFO per Cow (if all labor was unpaid)</td>
<td>$404</td>
<td>$1,101</td>
<td>$381</td>
<td>$609</td>
<td>$1,038</td>
<td>$602</td>
<td>$825</td>
<td>$683</td>
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<td>NFIFO per CWT EQ (if all labor was unpaid)</td>
<td>$2.20</td>
<td>$5.46</td>
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<td>NFIFO per Farm</td>
<td>$23,202</td>
<td>$73,322</td>
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<td>NFIFO per Cow</td>
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<td>$861</td>
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<td>NFIFO per CWT EQ</td>
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*See Chapters IX and X of the full report for more information about CWT EQ and cost categories. [Http://cdp.wisc.edu](http://cdp.wisc.edu)