Regional Multi-State Interpretation of Small Farm Financial Data from the Fourth Year Report on 2003 Great Lakes Grazing Network Grazing Dairy Data April 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/Great% 20Lakes.htm**.

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 102 graziers in 2003, 103 in 2002, 126 in 2001, and 92 in 2000, most 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 most profitable half had an advantage of $2.48 in Net Farm Income From Operations per Hundredweight Equivalent (NFIFO/CWT EQ) over the least profitable half. This result is similar to the three previous years, but the difference between the higher and lower profit herds was greater in the years with lower milk prices. 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 more than 100 cows. The $0.24 advantage in NFIFO/CWT EQ for the smaller herds was a result of a $0.74 per CWT EQ advantage in the cost of paid labor. This result is similar to the three previous years. For more information, see Fact Sheet #3 of this series.

- 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 (stops milking at least one day each calendar year) system. The average seasonal herd had a smaller range of financial performance within a year, but experienced more variability of financial performance from year to year. Seasonal herds had a slight advantage in NFIFO/Cow and per CWT EQ in 2003 and a large advantage in 2001. The non-seasonal herds had nearly a two-to-one advantage in NFIFO/Cow and per CWT EQ in 2000 and 2002.

- The graziers in the study were economically competitive with confinement herds in the states that had comparable data from both groups in four consecutive years. For more information, see Fact Sheet #5 in the series.

- While breed of cattle is a minor factor affecting profitability, the Holstein herds in the data had better financial performance in three years of comparisons. For more information, see Fact Sheet #6 of this series.

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.

Explanation of Changes in the Seasonal Calving/Milking Strategy Comparison from 2000 to 2003

Defined

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

Challenge of Seasonal Calving/Milking

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

Comparing the Four Years

A lot of variability has appeared in the calving strategy comparison in this multi-state data from 2000 to 2003. The 2003 results were somewhat unique in that the NFIFO/Cow were 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/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/Cow. The non-seasonal NFIFO/CWT EQ was 34% higher than the seasonal NFIFO/CWT EQ in 2002. This was similar to the results in 2000 when 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 is typically at least double the seasonal range. In all years the high and low performances were in non-seasonal herds.

State-to-State Differences

Wisconsin has contributed less than half of the seasonal data but more than any other state. Most of the other seasonal data comes from states that contribute very little non-seasonal data. This could cause state-to-state differences (see Chapter VI) to influence the calving strategy results. Therefore, it is useful to compare the Wisconsin calving strategy comparison in these years to the multi-state comparison.

Comparing seasonal with non-seasonal herds from 1995 to 2000 in Wisconsin data, the non-seasonal herds generated an average of about twice as much NFIFO/Cow compared to seasonal herds.

From 2000 through 2002, the multi-state and Wisconsin comparisons were very similar in trend but in 2001, Wisconsin seasonal herds had just slightly higher NFIFO per Cow and NFIFO per CWT EQ than the non-seasonal

herds. In 2003, the 38 Wisconsin non-seasonal herds had a $36 NFIFO/ Cow and $0.11 NFIFO/CWT EQ advantage over the five Wisconsin seasonal herds.

 In four years of multi-state data and nine years of Wisconsin data, no seasonal herd has attained the NFIFO/Cow or NFIFO/CWT EQ levels achieved by the highest performing non-seasonal herds, including 2001, a year in which (as explained later) the milk price pattern was extremely favorable for seasonal herds. When all the collected data are considered, it is more likely a non-seasonal herd will perform better than a seasonal herd in terms of economic profitability (NFIFO/Cow and NFIFO/CWT EQ).

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

 The number of summarized <u>seasonal</u> farms changed from 7 in 2000 to 18 in 2001 to 13 in 2002 and 14 in 2003. Of all the seasonal herds summarized in 2001, twice as many were new to the summary than were repeats from 2000. Since one of the seasonal herds in 2000 became semi-seasonal in 2001, twelve of the seasonal herds summarized in 2001 were not part of the 2000 seasonal summary. Many of the twelve new herds were well-established seasonal herds. This group of experienced seasonal graziers made their seasonal system function efficiently in 2001.

 Of the 13 seasonal herds included in the 2002 summary, 10 were included in 2001 and two were included in 2000. The 10 seasonal herds repeating from 2001 are among the more experienced seasonal graziers that have participated in the study.

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

 As one way of seeing the impact of herd turnover on the seasonal results, the 2001 data was summarized from the seven herds included in the seasonal group summary in 2001 and 2000. The 2001 results from this group were noticeably below average at $429 NFIFO/Cow and $2.40 NFIFO/CWT EQ. The 12 new seasonal herds had an average NFIFO/Cow of $983 and an average NFIFO of $5.32/CWT EQ in 2001.

 The 2001 milk price pattern was more favorable for spring seasonal herds than for non-seasonal herds. There was an unusual pattern of higher prices in the spring months. The typical milk price pattern has higher milk prices in September, October and November. Milk prices in 2001 were lowest in January, February, November and December – the months of lowest milk output for most spring seasonal herds. All of the seasonal herds summarized in all years practice spring calving. In 2001, the summarized seasonal herds received a milk price that was $1.36/CWT sold higher than received by the non-seasonal herds. In 2001, the Wisconsin seasonal herds averaged a milk price that was $2.75/CWT higher than the Wisconsin non-seasonal herds. The multi-state "seasonal price advantage" has 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 in the five previous years ranged from $1.07 to -$0.58.

 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 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/Many Performance	Seasonal				Non-Seasonal			
	2000	2001	2002	2003	2000	2001	2002	2003
Number of Herds	7	18	13	14	85	101	90	88
Number of Cows per Herd	145	85	141	143	85	84	78	79
Average Lbs. Milk per Cow	11,667	12,270	11,044	11,528	17,560	15,695	16,454	16,494
Average Lbs. Milk per Herd	1,691,715	1,044,970	1,560,561	1,645,234	1,496,401	1,325,900	1,283,544	1,296,821
Group Average Mailbox Milk Price	$13.70	$17.50	$13.05	$14.45	$13.06	$16.14	$13.85	$14.38
U.S. All Milk Price (used to calculate CWT EQ)*	$12.33	$14.94	$12.15	$12.50	$12.33	$14.94	$12.15	$12.50
Average Basic Cost per CWT EQ	$6.73	$7.67	$8.02	$7.57	$7.96	$8.69	$7.69	$7.84
Allocated Cost per CWT EQ	$11.46	$10.28	$10.83	$9.92	$10.58	$11.90	$10.38	$10.49
Non-Basic Cost per CWT EQ (Allocated Minus Basic)	$4.73	$2.61	$2.81	$2.35	$2.62	$3.21	$2.69	$2.65
NFIFO per Cow (without deducting any labor compensation)	$404	$1,101	$381	$609	$602	$825	$683	$687
NFIFO per CWT EQ (without deducting any labor compensation)	$2.20	$5.46	$2.36	$3.40	$2.64	$4.21	$2.89	$2.99
NFIFO per Farm	$23,202	$73,322	$30,061	$65,921	$33,913	$50,413	$32,686	$36,264
NFIFO per Cow	**$160**	**$861**	**$213**	**$462**	**$398**	**$597**	**$419**	**$461**
NFIFO per CWT EQ	**$0.87**	**$4.66**	**$1.32**	**$2.58**	**$1.75**	**$3.04**	**$1.77**	**$2.01**

*See Chapters IX and X of the full report for more information about CWT EQ and cost categories. http://cdp.wisc.edu/Great%20Lakes.htm