Summary of Economic Studies of Organic Dairy Farming in Wisconsin, New England, and Quebec

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March 20, 2006

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.

These stages or categories of organic production are:

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 farms are scarce.

Actual farm financial data from organic dairy farms is still scarce. To date, there are six usable Wisconsin observations in 2000, seven in 2001 and 2002, 12 in 2003 and 11 in 2004. Of these organic farms, one practiced management intensive rotational grazing (MIRG) in 2000, three in 2001 and 2002, eight in 2003 and seven in 2004. All were summarized together as organic.

The Wisconsin organic dairy farms that shared financial data were a fairly experienced group. Two started farming in 1977. Only three started after 1990. The most recent start-up was 1994. The three earliest ones begin receiving organic prices in 1994. Eight began receiving organic prices before 2000 and three since 1999. It is likely that a less experienced group would not perform as well as the group that shared data.

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General Summary Of Observations Of The Economics Of Organic Dairy Farms.

1. Actual farm financial data from organic dairy farms is still scarce.
2. A number of individual farms are achieving financial success with an organic system (the total number of organic farms is still a small percent of the total number of dairy farms in most states).
3. Wisconsin organic price premiums ranged from $2.71 to $6.64/hundredweight (CWT) compared to Wisconsin non-organic graziers and from $3.28 to $6.53/CWT compared to Wisconsin non-organic confinement from 2000-2004 data.
4. The price premium is very important to the economic competitiveness of organic dairy farms.
5. Organic dairy producers receiving organic prices were more competitive with other dairy systems in years that the national average milk price was low.
6. For those farms (we've encountered a few of these) whose routine practices for the past three or more years just happen to meet organic requirements, about the only downside to becoming certified and obtaining organic prices is the cost of and record keeping effort to become certified.
7. The three to five year transition from a "conventional" system to organic is often challenging financially and other ways. We have been trying to measure the long-term financial impact of this transition.
8. In a comparison of 10 Quebec farms transitioning to organic with 22 similar sized non-organic Quebec farms, the transitioning farms did better in the first year, not as good in the third year and about the same in the fifth year.
9. The lbs of milk sold per cow from organic dairy farms was fairly similar from Wisconsin to New England to Quebec. This level was about 70% of the lbs of milk sold per cow by Wisconsin confinement herds. Wisconsin grazing herds sold about 75% of the lbs of milk sold per cow by Wisconsin confinement herds.
10. In 2004, 30 organic dairy farms from Maine and Vermont were not as competitive as
    a. non-organic New England dairy farms
    b. any Wisconsin dairy system
11. In 1999, seven Vermont organic dairy farms were economically competitive with New England non-organic dairy farms.
12. Feed costs were much higher for New England farms than in the corn belt – especially for those which were organic. Organic grain prices are typically twice the price of non-organic grain in the same location. Organic grain prices in New England can easily be double the price of organic grain in Wisconsin. Organic forage prices are typically about 30% more than the price of non-organic forage in the same location.
13. Be careful about comparing a dairy system from one state to a dairy system in another state. The financial performance of Wisconsin organic dairy farms looks dramatically different from the financial performance of New England organic dairy farms.
14. The jury is still out regarding many other economic questions about organic dairy farming. Vermont and Maine plan to collect data again in 2005 and 2006. Economic data from Wisconsin organic dairy farms is increasing.

Additional observations from Some Wisconsin Organic Dairy Farms From 2000 to 2004

In one of five years, the summarized Wisconsin organic farms (ones which received organic prices the entire year) had an advantage in net farm income from operations per hundredweight equivalent (NFIFO/CWT EQ) over the summarized Wisconsin graziers. The organic herds had an advantage of $0.26 in 2002. Wisconsin organic farmers and graziers were tied in NFIFO/CWT EQ in 2003. Wisconsin graziers had an advantage in NFIFO/CWT EQ over Wisconsin organic farms of $0.77 in 2000, $1.93 in 2001 and $0.23 in 2004.

The price of organic milk is typically higher and more stable than the non-organic milk price. The organic milk price has been on a gradual upward trend while the non-organic price has bounced up and down. Under this price atmosphere, organic financial performance can be expected to be at its relative best in years that the national average milk price is low.

Compared to the average Wisconsin grazing herd, the average Wisconsin organic herd had lower costs all five years in the categories of:

- Purchased feed (advantage ranged from $0.61 to $1.05/CWT EQ).
- Veterinarian and medicine
- Depreciation of purchased livestock
- Chemicals (no surprise here, even though graziers have very low chemical costs)

In contrast, organic herds had higher costs all five years in the categories of:

- Repairs
- Gas, fuel and oil
- Supplies
- Seeds purchased
- Interest

Organic herds had higher costs in four of five years in the categories of:

- Depreciation
- Non-dependent labor
- Custom machine hire

Wisconsin organic dairy farms had an NFIFO/CWT EQ advantage over the average Wisconsin confinement herd from 2000 to 2004. The Wisconsin 51-75 cow and 76-100 confinement groups did have a higher NFIFO/CWT EQ in 2001).

Compared to the average Wisconsin confinement herd, the average Wisconsin organic herd had lower costs all five years in the categories of:

- Purchased feed (advantage ranged from $0.04 to $1.21/CWT EQ).
- Veterinarian and medicine
- Depreciation of purchased livestock
- Chemicals (no surprise here)
- Non-dependant labor

In contrast, organic herds had higher costs all five years in the categories of:

- Repairs
- Gas, fuel and oil
- Supplies
- Depreciation
- Property taxes
- Marketing and hedging
- Seeds purchased (tied 1 year in 5)
- Fertilizer and lime (tied twice)
- Interest (3 of 5 and tied once)

Given the higher market price commanded by organic hay and grain, it might be surprising that Wisconsin organic dairy farms had lower purchased feed costs than any other Wisconsin dairy system.

The higher price of organic hay and grain provides a powerful incentive for organic dairy farmers to raise most of their livestock feed. It appears that most Wisconsin organic dairy farmers raise a high proportion of their feed just as most Wisconsin smaller confinement dairy farms do.

The three smallest Wisconsin confinement (0 to 50, 51-75 76-100 cows) groups had purchased feed costs per CWT EQ that were only slightly higher.

In an attempt to approximate the cost of raising feed plus the cost of purchased feed, the easily measured cost categories of chemicals, custom machine work, fertilizer and lime, gas, fuel, and oil, seeds, and other crop expense were summarized for each group and added to purchased feed cost.

The two largest Wisconsin confinement (150-250 and more than 250 cows) groups actually had lower cropping expenses per CWT EQ than Wisconsin organic dairy farms. Wisconsin graziers were easily lowest of all groups.

After combining the cost of purchased feed and the selected feed raising costs, the Wisconsin organic dairy farms were lowest, followed by the two smallest confinement groups, then by Wisconsin graziers and then by the remaining confinement herds from smallest to largest in size.

Because the CWT EQ method indexes costs to the value of a CWT of milk, the higher milk price received by organic farms also explains part of the organic advantage in purchased feed cost/CWT EQ and overall feed cost/CWT EQ.

Away from the Corn Belt, it appears like it is more difficult for organic dairy producers to raise most of their own grain. The price of organic grain also appears to be much higher the farther away one goes from the Corn Belt.

Interpreted from "Cost and Returns to Organic Dairy Farming in Maine and Vermont for 2004"[2]

About 63 of the 450 dairy farms in Maine and 70 of the 1,250 dairy farms in Vermont received organic milk prices in 2004. New England organic dairy farms typically enjoy a price premium of $6.00-10.00/CWT of milk sold more than Wisconsin non-organic herds and about $3.00-$5.00/CWT of milk sold more than Wisconsin organic herds. In 2004, they averaged $4.90/CWT more than the New England non-organic herds and $3.21 more than Wisconsin organic herds. Both New England groups had similar lbs of milk sold per cow.

With that kind of price advantage, some might expect New England organic herds to be economically competitive with other dairy systems including those in Wisconsin.

Researchers at the University of Maine and the University of Vermont with funding from a USDA grant collected farm financial data from 30 organic dairy farms in their states in 2004. The average organic herd in that study had 48 cows and sold 14,354 lbs milk per cow. All were judged to be practicing MIRG.

The average organic performance in the report was converted to cost per hundredweight equivalent (CWT EQ) at the U. W. Center for Dairy Profitability. Not only were the New England organic herds not economically competitive with New England non-organic herds, their NFIFO/CWT EQ was lower than the NFIFO/CWT EQ for Wisconsin organic herds, graziers and for all confinement herd sizes in the 2004 Wisconsin Milk Production Cost report. Revenue from milk sales barely exceeded allocated expenses. Other farm income and non-farm income were needed to provide for family living expenses on the New England organic dairy farms in 2004.

If the New England organic group were a state group in the Great Lakes Grazing Network project, they would be last by a margin of $0.91 NFIFO/CWT EQ in 2004. Because the organic milk price has been on an upward trend and non-organic producers received record prices in 2004, it is likely that New England organic dairy farms would be more economically competitive in years of lower non-organic milk prices.

The higher cost of paid labor and purchased feed nullified much of the milk price advantage New England organic producers had over non-organic producers. The following comments are quoted from the researchers report. The cwt sold numbers in the following quote were left in original form instead of being converted to the CWT EQ method used in Wisconsin.

The two most important cost centers in organic and non-organic dairy production are purchased feed and hired labor. These two cost centers account for 50% of the annual cost of producing organic

[2] Dalton, Timothy J., Lisa A. Bragg, Rick Kersbergen, Robert Parsons, Glenn Rogers, Dennis Kauppila, Qingbin Wang. "Cost and Returns to Organic Dairy Farming in Maine and Vermont for 2004. University of Maine. November 2005.

milk. Higher feed and hired labor costs account for 84% of the price premium ($4.90/cwt) paid to organic producers.

Purchased feed

Overall, the 48 cow organic farm spent $49,416 for purchased feed during 2004 which translates to $1,003/cow or approximately $7.24/cwt of milk produced. This was $298/cow ($p<0.01$) and $2.66/cwt ($p<0.01$) more than non-organic producers in Maine. Organic feeding practices were significantly more expensive than non-organic practices. Higher feed cost was the largest and most important difference between organic and non-organic production. The additional expense of feeding organic dairy cows is equal to 54% of the price differential received for organic milk.

Labor

The report states *In organic dairy production, the majority of farm labor is provided by the family. On average 5,042 hours of family labor were used on organic farms which converts to approximately 113 hrs/cow or 0.89 hrs/cwt of milk produced. These numbers are not significantly different from those of non-organic farmers.*

It continues on to say *The quantity and cost of hired labor per cow and per cwt of milk produced are significantly higher for organic production.* And that *This additional cost is equivalent to 30% of the price differential between organic and non-organic milk.*

However, one of the authors in a more recent conversation said there was no statistically significant difference in labor amounts or labor costs between organic and non-organic dairy farms in Vermont and Maine.

Feed costs were much higher for New England farms than in the corn belt – especially for those which were organic. Organic grain prices are typically twice the price of non-organic grain in the same location. Organic forage prices are typically about 30% more than the price of non-organic forage in the same location.

Purchased feed costs are extremely high in New England (organic about double the price of organic feed in Wisconsin) and offsets much of the substantial milk price premium enjoyed by New England organic dairy farms.

Relatively consistent differences in financial performance between states have appeared in all years in the Great Lakes Grazing Network Dairy Grazing Farms Financial Summary with Wisconsin and Ontario having the most desirable performance and the Eastern states having the least desirable performance.

This set of state-to-state differences also seems to be important when comparing the financial performance of Wisconsin organic dairy farms with New England organic dairy farms.

An Economic Comparison of Organic and Conventional Dairy Production, And Estimations On The Cost Of Transitioning To Organic Production[3]

The Northeast Organic Farming Association of Vermont's Dairy Technical Assistance Program with funds from Ben & Jerry's, CROPP Cooperative, Horizon, USDA Sustainable Agriculture Research and Education Grant, Yankee Farm Credit, persuaded seven Vermont certified organic dairy farms to supply income, expense and balance sheet information from 1999. These organic farms were compared to 182 Vermont non-organic farms collected by Yankee Farm Credit System located in Springfield, Massachusetts.

[3] McCrory, Lisa. "An Economic Comparison of Organic and Conventional Dairy Production, and Estimations on the Cost of Transitioning to Organic Production." Northeast Organic Farming Association of Vermont's Dairy Technical Assistance Program. May 2001.

The organic herds were all considered to be graziers. Five were Jersey herds and another was a mixture of Jerseys and Holsteins. Herd size ranged from 30 to 75 with an average herd size of 46 with an average milk price of $22.83. The average non-organic herd size was 65 with an average milk price of $15.01. The organic herds sold 13,261 lbs of milk per cow versus 18,729 for the non-organic herds. The organic herds averaged net farm income of $1,012 per cow versus $849 for non-organic. Gross income per cow was remarkably close between the two groups. However, expenses per cow were lower for the organic group. The organic farms had lower expenses for chemicals, fertilizer and lime, milk hauling, interest, labor repairs, seeds, taxes and veterinary and medicine. Feed and crop raising costs were considerably higher for the organic farms than for the non-organic group.

Many of the results of this study are opposite of the results shown by 2004 organic data from Vermont and Maine discussed above.

Interpreted from: "Productivity and Profitability of Organic Dairy Farms in Quebec"[4]

Laval University in Quebec compared 10 Quebec organic dairy farms with 22 similar sized non-organic dairy farms. The organic farms started transitioning from conventional to organic in 1989 and all were certifiable organic in 1995. The "organic farms" did not receive organic prices until after the study ended. Production and economic data was collected from all farms from 1990 through 1995. The average organic herd had 42.5 cows in the first year and 48.1 in the fifth year. The average non-organic herd had 35.9 cows in the first year and 41.3 in the fifth year.

Here are a few conclusions drawn by Kriegl from that study:

1. The study found little difference in profitability from the pre-transition stage to the first year of receiving organic prices.
2. Although the report provides little detail about the transition period, it does say that the third year in the transitional stage was difficult for the organic farms and the first year in the transition was the easiest.
3. The study found little difference in financial performance between the organic and conventional farms in 1995. This is a bit surprising because none of the organic farms receive organic price premiums during the study including year five when all the organic farms were certified.
4. "Milk yield per cow and labor efficiency were decreased by the transition to organic farming."
5. "Good conventional dairy farmers who chose to go organic became good organic dairy farmers."
6. "Data suggest that while the organic mode of production is associated with a decline in productivity, profitability on organic dairy farms can be maintained.
7. Profit was measured in this study as net income per farm. Compared to using net income per cow or per CWT EQ, total net income favored the larger farms (the organic ones in this case) in comparing profitability. If profit had been measured as per cow or per CWT EQ, the organic farms' performance would have been a bit less than the non-organic performance instead of nearly equal at most points in the study. However, measuring profitability per cow or per CWT EQ would not likely change the researchers' conclusion that transitioning to organic didn't make much change in their financial performance **relative** to non–organic farms.

[4] Paillat, N., G. Allard, and D. Pellerin. "Productivity and Profitability of Organic Dairy Farms in Quebec." Poster. Universite Laval.