

New York versus Western Canadian Dairy Industry: A Personal Experience

Steve Mason

PRO-DAIRY Program, Cornell University, Batavia NY 14020
Email: bdm27@cornell.edu

■ Take Home Messages

- ▶ With over 7,100 milk shippers and 700,000 cows, New York state produces approximately three times as much milk as the four provinces of western Canada.
- ▶ The productivity of New York Holsteins is similar to those in western Canada. At approximately 90 cows per farm, New York state dairies are, on average, larger than those in western Canada although farm sizes range from less than 10 cows to more than 3,000.
- ▶ The economics of milk production in New York state are very different from those in western Canada. Widely fluctuating milk prices in the US make financial planning a real challenge. Although the Canadian Supply Management system provides price stability, its cost is a requirement for significant investment in quota.

■ Introduction

New York ranks third in total milk production among the American states, after California and Wisconsin. With an annual output of approximately 52 million hectolitres, New York produces about 3 times as much milk as the 4 western provinces combined. Other comparisons are shown in Figure 1.

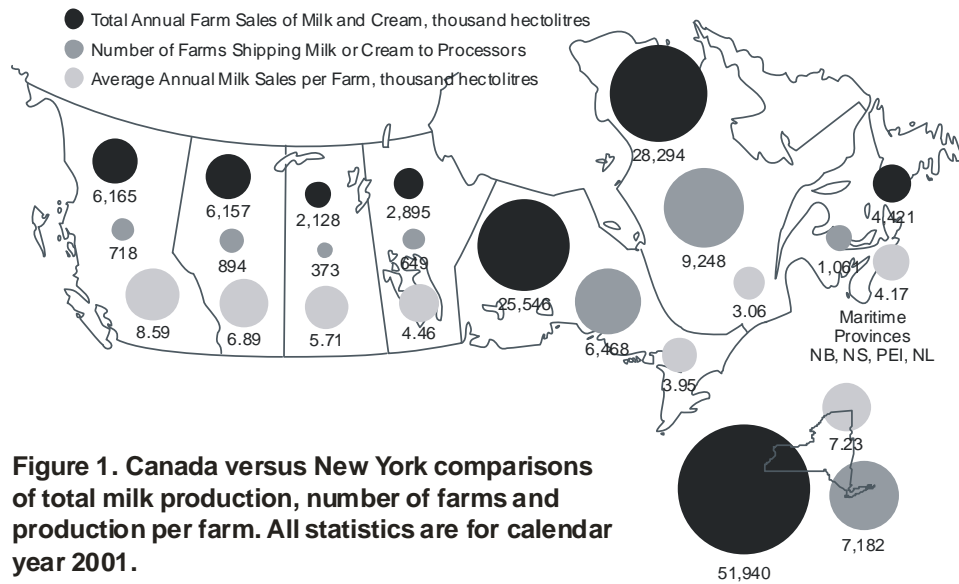


Figure 1. Canada versus New York comparisons of total milk production, number of farms and production per farm. All statistics are for calendar year 2001.

New York had 7,182 milk shippers in 2001. The US Agricultural Census of 1997 recorded 8,732 farms with 700,480 milk cows, the 'average' farm having 80 cows. The size distribution of those farms is shown in Figure 2. The 2002 Census is expected to show an increase in average farm size, likely to around 90 cows per farm. In comparison, 2001 Canadian Census data indicated average dairy farm sizes in BC, Alberta, Saskatchewan and Manitoba of 68, 59, 44 and 50 cows, respectively.

The many farms and larger herd sizes in New York demand a large workforce. With one full time worker employed for approximately every 41 cows, it is estimated that the state employs some 17,000 people in the production of milk. An increasing number of employees are Hispanic. Many of these are temporary residents of the US (both legal and illegal) having their permanent homes in Mexico and other countries in Central and South America.

■ **Cow Productivity**

At 10,752 kg, the average DHI-calculated production of Holstein cows in New York state is lower than the US national average of 11,121 kg. Both figures are 'mature equivalent' 305-day yields standardized for age-parity, calving month, previous days open, and times milked per day. They do not account for the use of somatotropin (bST). Figure 3 illustrates comparative DHI-reported production averages for Holsteins in western Canada, New York and the US. The Canadian figures are also adjusted as described above.

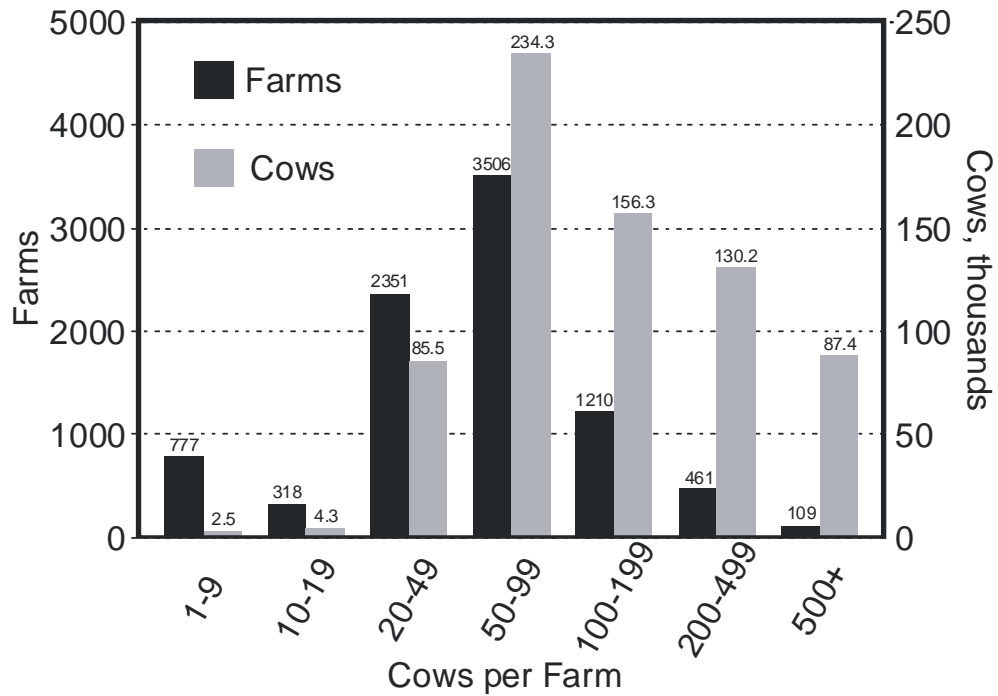


Figure 2. Size Distribution of New York dairy farms, 1997 US Census data.

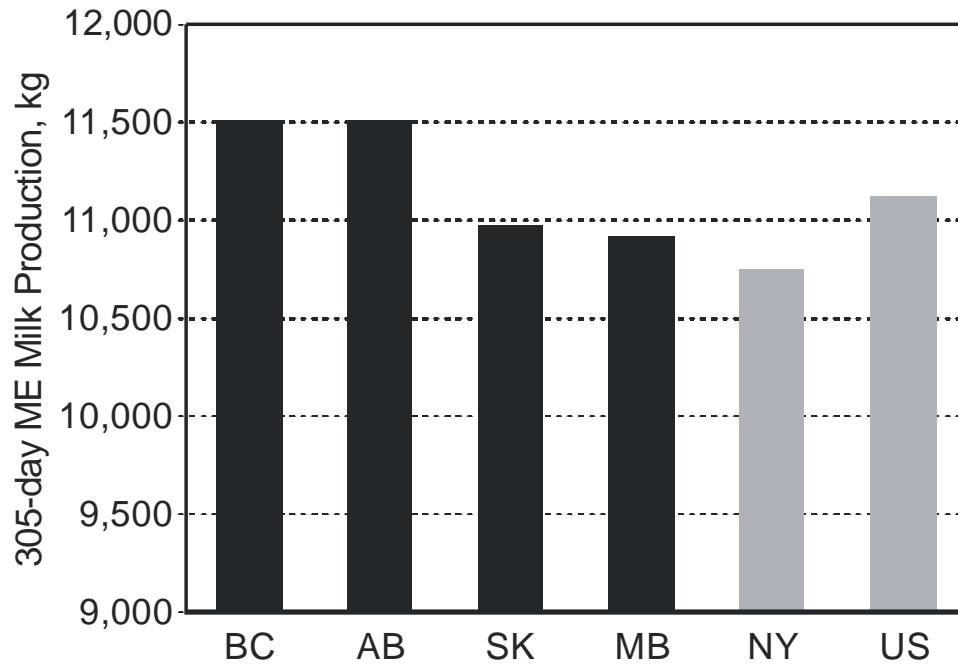


Figure 3. Average 305-day DHI standardized mature equivalent production for Holstein cows in western Canada, New York and the US.

Among the 228 farms enrolled in the 2001 New York Dairy Farm Business Summary (DFBS), only 4 percent of those with less than 100 cows milked more frequently than twice per day (2X). As herd size increased, the percent of herds milking more than 2X increased. Farms with 100 to 200 cows reported 11 percent of the herds milking more often than 2X, the 200-299 cow herds reported 50 percent, 300-399 cow herds reported 59 percent, 400-599 cow herds reported 87 percent, and the 600 cow and larger herds reported 89 percent exceeding the 2X milking frequency.

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. Twenty-four percent of New York DFBS herds with less than 100 cows reported using bST sometime during 2001 compared with 60 percent of the farms with 100 to 299 cows and 85 percent of the farms with 300 cows and more.

Larger farms sold more milk per cow and per worker, as shown in Table 1.

Table 1. Cows, workers and milk sold by farms enrolled in New York Dairy Farm Business Summary.

Farm Size Category cows	Average number of cows	Average number of workers	Milk Sold	
			per cow kg	per worker hL
under 50	39	1.8	7,523	1,615
50 to 74	62	2.4	8,057	2,065
75 to 99	87	3.1	8,472	2,338
100 to 149	126	4.0	8,497	2,628
150 to 199	163	5.4	9,187	2,683
200 to 299	248	6.3	9,549	3,638
300 to 399	344	8.2	9,757	3,989
400 to 599	484	11.0	10,201	4,381
600 and over	1,016	20.4	10,448	5,059

■ Milk Production Economics

The primary difference between milk production in New York state versus western Canada relates to marketing systems and milk prices. Canada's Supply Management system provides relatively stable milk prices. In western Canada, fluid milk (Class 1) prices are determined by formulas which account for changes to input costs and other prevailing economic factors. Industrial milk prices are indexed annually by the Canadian Dairy Commission, recently increasing at slightly above the current rate of inflation. In the US, producer milk prices are also determined by formula, but the primary inputs to that formula are the current wholesale market prices for industrial dairy products, determined through a monthly survey conducted by the US Department of Agriculture's National Agricultural Statistics Service. Figure 4 illustrates the increasingly wide price fluctuations experienced by New York producers, compared with those in Alberta.

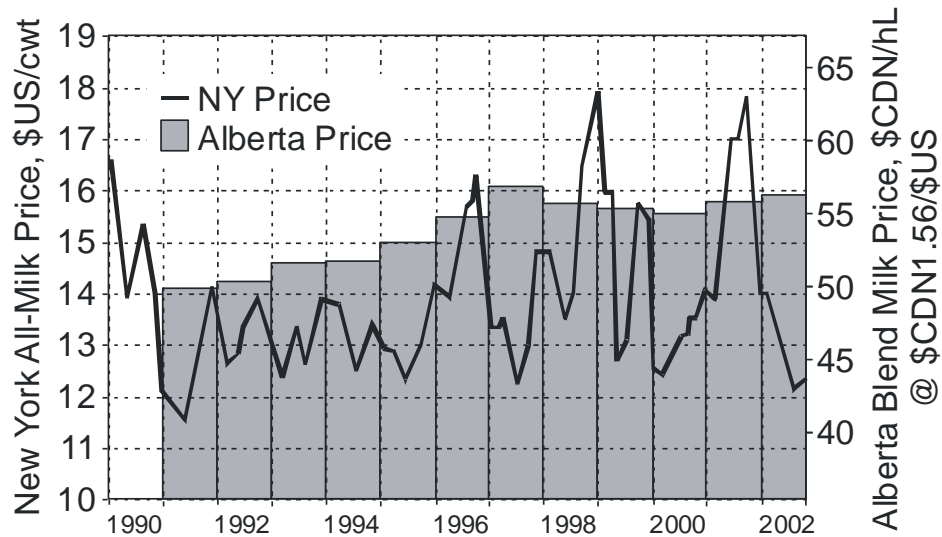


Figure 4. New York versus Alberta historical milk prices.

While the fluid milk price formulas used in western Canada account for the cost of feed (in Alberta's formula, feed costs account for 35% of the composite index), no such linkage is present in the US. As a result, the relationship between feed cost and milk price is widely variable. The commonly used measure of this relationship is the Milk-Feed Price Ratio shown in Figure 5. This ratio is simply the number of pounds of 16% protein mixed dairy feed (corn-51 pounds, soybeans-8 pounds, alfalfa hay-41 pounds) equal in value to one pound of the all-milk price. Literally, the number of pounds of feed that can be purchased per pound of milk produced.

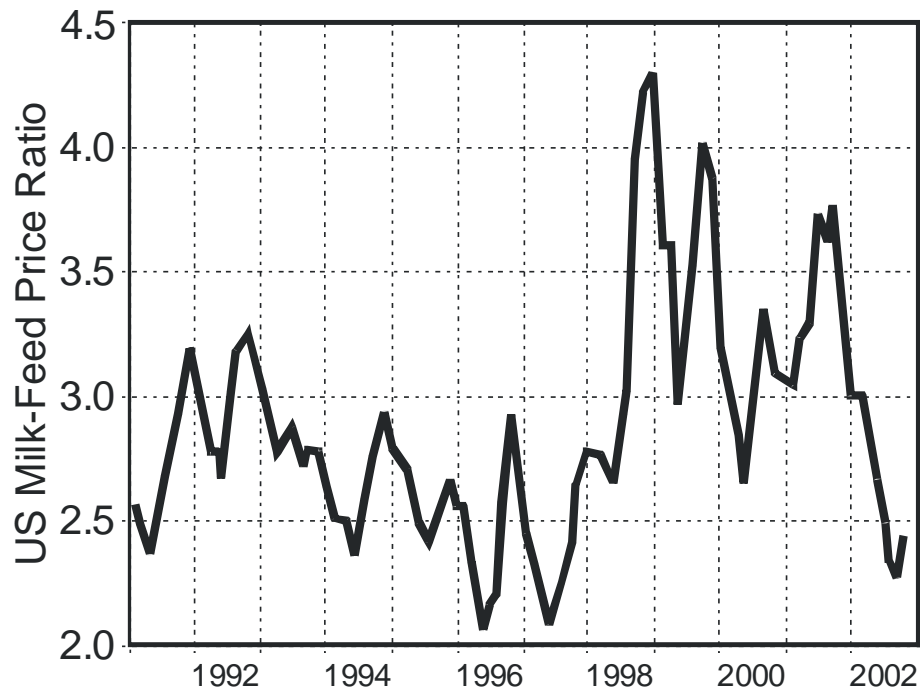


Figure 5. The US Milk-Feed Price Ratio.

The New York Dairy Farm Business Summary (DFBS) referred to above is compiled annually by Cornell University, based on the records of cooperating producers. Year 2001 summary statistics were calculated from data contributed by 228 farms. Alberta's annual Dairy Cost Study summarizes similar data. Sixty-two farms contributed data for the 2001 Study. These two studies provide a basis for comparing production economics in New York versus western Canada. However, it must be realized that direct comparisons between the figures reported in the two summaries can be misleading. Cost, revenue and investment categories may not be defined identically and the assumption that a simple exchange rate calculation expresses the buying power of the two currencies (US and Canadian dollars) in their respective locales is incorrect. However, expression of relative values provides a reasonable basis of comparison.

Table 2 compares important characteristics of the average farms described in the respective 2001 business studies. The average farm in the New York study was significantly larger, production per cow was higher and worker productivity was slightly lower. As expected, capital invested in productive assets was higher in the larger New York farm. However, when quota investment required for the Alberta farm is considered, total capital investment in the two farms is

very similar. Contribution margin (the difference between gross income and total variable costs) was significantly higher for the New York farm. However, it should be recognized (see Table 4) that New York milk prices in 2001 reached historic highs. Had they remained at the 2000 level, contribution margin would have reached only \$CDN 208,762, reflecting the volatility of US milk prices and their effects on profitability.

Table 2. New York versus Alberta, 2001 business study average farm characteristics.

	New York	Alberta
Number of cows	277	101
Milk sold per cow, hL	9,584	9,079
Worker equivalents	6.72	2.20
Cows per worker	41	46
Total Investment, \$CDN	2,846,374	1,030,905
including quota		2,831,805
Contribution margin, \$CDN	232,509	156,568

Table 3 expands upon the comparison of capital investments in the two business study average farms. Here investments are expressed on a per cow basis, demonstrating striking similarities between the comparative values for productive assets. Quota almost triples the investment per cow in the Alberta analysis.

Table 3. New York versus Alberta farm capital investment, 2001.

	New York	Alberta
	\$CDN/cow	
Land & Buildings	4,703	6,003
Machinery & Equipment	1,877	1,714
Dairy Livestock	3,696	2,490
Total Capital Investment	10,276	10,207
including Quota		28,038

Table 4 compares New York milk prices and variable costs of milk production with those in Alberta over the past decade, expressed in Canadian dollars per hectolitre. Differences represent values similar in concept to a contribution margin, without accounting for sources of revenue which are not directly related to milk production (e.g. crop and/or livestock sales, pool adjustments,

government payments). These have not been included because they would confound comparison of milk production economics between the two locales. Likewise, inclusion of capital cost items would contribute little to the comparison. However, one non-milk US revenue item is of particular interest. For the average New York DFBS farm, government payments in 2001 amounted to \$CDN 24,595. The average Alberta Cost Study farm received \$624 from government, the final payments of the federal milk subsidy program.

Milk prices, variable costs and the difference between these values are very similar except for the greater variability in differences between variable costs and milk prices in New York which is primarily a reflection of more volatile milk prices.

Table 4. New York versus Alberta milk prices and variable milk production costs.

	New York			Alberta		
	Milk Price	Variable Costs	Difference	Milk Price	Variable Costs	Difference
	\$CDN per hectolitre					
1992	48.04	37.46	10.58	49.85	39.04	10.81
1993	46.48	36.54	9.94	50.41	39.33	11.08
1994	47.54	37.46	10.08	51.03	38.53	12.50
1995	46.09	37.21	8.88	52.31	40.03	12.28
1996	52.99	42.91	10.08	52.52	41.99	10.53
1997	48.29	42.06	6.23	54.32	45.78	8.54
1998	55.18	41.07	14.11	54.65	45.74	8.91
1999	52.74	40.08	12.66	54.45	42.91	11.54
2000	47.33	40.36	6.97	55.15	44.17	10.98
2001	56.21	42.34	13.87	54.47	43.82	10.65
Avg	50.09	39.75	10.34	52.92	42.13	10.78

■ **Summary**

If you had 2.8 million Canadian dollars to invest, you could consider the purchase of a New York dairy farm with 277 cows or an Alberta farm with 101 cows and quota. The New York farm would require you to manage 4.5 more employees as well as the additional cows and larger operation. In addition, you would have to be prepared to manage the risk imposed by widely varying milk prices. The reward for this extra burden of management would be an additional \$CDN 75,000 in contribution margin.

■ References

- Brand, P. (2002) Canadian Dairy Network. personal communication.
- Heikkila, R. and P. Van Biert. (2002) The Dairy Cost Study: Economics of Milk Production in Alberta. Alberta Agriculture, Food and Rural Development.
- Holstein State and National Standardized Lactation Averages, 2001. USDA ARS Animal Improvement Programs Laboratory
- Knoblauch, W. and L.D. Putnam. (2002a) Dairy Farm Business Summary – New York, 2001. Department of Applied Economics and Management, Cornell University.
- Knoblauch, W. and L.D. Putnam. (2002b) Chapter 8. Dairy Farm Management *in* New York Economic Handbook 2003. Department of Applied Economics and Management, Cornell University.
- New York State Department of Agriculture and Markets, Dairy Statistics
- Statistics Canada. (2002a) The Dairy Review Cat. No. 23-001.
- Statistics Canada. (2002b) 2001 Census of Agriculture, Cattle and Calves, Provinces.
- Stephenson, M.W. (2002) Chapter 7. Dairy Markets and Policy *in* New York Economic Handbook 2003. Department of Applied Economics and Management, Cornell University.
- US Census of Agriculture, 1997. volume 1 part 32 chapter 2 table 14. US Department of Agriculture.

