

April 1972

A. E. Res. 72-6

A COMPARISON OF WISCONSIN AND NEW YORK DAIRY FARM BUSINESSES

C. D. Kearl

Department of Agricultural Economics
Cornell University Agricultural Experiment Station
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, New York 14850

A COMPARISON OF
WISCONSIN AND NEW YORK
DAIRY FARM BUSINESSES

Although milk from Wisconsin invades the New York markets almost entirely in processed form, the amount of milk produced there (and in other dairy states) and the cost of producing it helps to decide the price that New York dairymen will receive for their milk. Indirectly, it even helps determine how much milk will be produced in New York State. It is well, then, for dairymen in both states to be aware what their competition is thinking and doing.

In Wisconsin in 1970 there were 594 dairymen whose records were summarized and information from them were published.^{1/} In that same year there were 509 New York dairymen whose records supplied information for a New York Dairy Farm Management Summary.^{2/} From these data U. S. Census reports and other studies comparisons can be made to help farmers in each area to better understand their competition.

In order to compare the data from the two reports it was necessary to make some combinations of groups of farms and of cost items. Even then the groups could not be combined to get exactly coinciding herd size intervals. However, the group intervals are near enough for reasonable comparison.

Because the farmers who kept the records did so on a voluntary basis the data can not be said to be representative of dairy farming as a whole in each state. However, the farms in the Wisconsin and New York studies are probably representative of the commercial dairymen and, consequently, the data can show the similarities and differences between the New York dairy farm businesses and their Wisconsin competition.

- 1/ A Business Analysis of Wisconsin Specialized Dairy Farms: A Five-Year (1966-70) Summary, Gayle S. Willett and R. A. Luening, Managing the Farm, Volume IV, No. 3, November 1, 1971, Department of Agricultural Economics, The University of Wisconsin, Madison, Wisconsin.
- 2/ Dairy Farm Management, Business Summary, New York 1970, C. A. Bratton, A.E. Res. 331, August, 1971, Department of Agricultural Economics, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, New York.

Physical Factors

The farms with 55 cows or less in Wisconsin were operated by a very slightly larger labor force than were the similar sized farms in New York (Table 1). They had about the same number of dairy cows but used more cropland.

Table 1. DAIRY FARM FACTORS
Wisconsin and New York, 1970

Item	Wisconsin		New York	
	55 cows or less	More than 55 cows	54 cows or less	More than 54 cows
Number of farms	425	169	248	261
Man equivalent	1.7	2.5	1.5	2.7
Average number of cows	39	77	40	97
Acres of crops	179	312	110	218
Pounds of milk sold per cow	12,132	12,235	12,481	12,751
Tons of hay per acre	3.6	3.8	2.6	2.8
Tons of corn silage per acre	12.4	15.1	14.6	15.4
Bushels of oats per acre	64	65	64	64
Cows per man	23	31	27	36
Cwt of milk sold per farm	4,861	9,528	5,073	11,214
Milk sold per man	285,941	381,120	338,247	415,333
Total capital investment	\$ 81,966	\$159,711	\$ 89,842	\$182,294
Capital investment per cow	\$ 2,111	\$ 2,074	\$ 2,246	\$ 1,879

The production per cow was slightly higher in New York for both the "large" and the "small" farms. Wisconsin farmers had higher hay yields but the New York dairymen had better yields of corn silage. The number of cows per man and the production of milk per man in New York exceeded that for Wisconsin but the differences have to be discounted due to the fact that the Wisconsin farmers cropped more land and, as will be noted later, had more non-milk income.

The farm investment was higher in total for the New York farms but on a per cow basis the differences tended to disappear and the New York "large" farms had lower investment per cow than was found in Wisconsin. The higher investment per cow for the Wisconsin "large" farms is due, at least in part, to the investment in extra land and other facilities not directly related to milk production.

The physical data and investment information for the Wisconsin and New York dairymen indicates that there are differences in the business organizations and resources for commercial dairy farm businesses in the states. New York dairymen had a slight edge for most measures of dairy efficiency but the differences are not so great as to imply that Wisconsin farmers are not in a good competitive position or that New York dairymen have nothing to worry about when they consider their Wisconsin competition. The differences also have to be discounted in consideration of the other activities of the Wisconsin farmers.

Dairy Farm Expenses

The cash expenditures on the Wisconsin and New York farms reflected the differences in systems of dairy farming and location of the two states. There were some similarities and there were some surprises in the comparisons.

Apparently New York farmers paid a little higher wages than did those in Wisconsin (Table 2). The Wisconsin feed bills, however, were lower. In part this reflects the difference in location with the Wisconsin dairymen producing more grain and being closer to the grain producers. The amounts of grain purchased and the prices paid for grain would be less for the Wisconsin farmers.

Table 2.

DAIRY FARM EXPENSES PER FARM Wisconsin and New York, 1970

Item	Wisconsin		New York	
	55 cows or less	More than 55 cows	54 cows or less	More than 54 cows
Hired labor	\$ 1,343	\$ 5,032	\$ 1,458	\$ 7,172
Feed purchase	5,109	9,874	8,125	17,274
Machinery repairs	995	1,949	1,280	3,215
Auto (farm share)	293	367	241	246
Gas and oil	990	1,897	889	1,848
Vet and med.	437	885	508	1,139
Other livestock exp.	1,915	3,591	1,715	4,255
Fertilizer and lime	1,315	2,982	1,052	3,130
Seed & other crop exp.	906	1,746	659	1,578
Electricity & Telephone	693	1,292	639	1,245
Taxes & insurance	1,678	3,179	1,484	3,089
Real estate repairs	276	471	744	1,423
Miscellaneous	1,590	4,363	811	2,108
Total cash oper.	\$17,540	\$37,628	\$19,605	\$47,722
Capital purchases	10,548	19,446	9,475	17,818
Total expenses except interest & unpaid labor	\$28,088	\$57,074	\$29,080	\$65,540

Machinery repairs were higher in New York than in Wisconsin but about the same amount was spent on the auto and petroleum supplies. Livestock expenses were higher on the New York "large" farms than on the "large" Wisconsin farms but this was mostly the result of keeping more cows.

The crop expenses tended to be higher for the Wisconsin farmers. This would be expected since they operated more cropland. Quite surprisingly the utilities and taxes and insurance bills were higher for the Wisconsin dairymen. "High New York taxes and insurance costs" do not help to make milk production costs higher in the state, as has been reputed. The miscellaneous expenses were lower per farm in New York, but real estate repair costs were much higher.

Overall New York farmers spent more on operating expenses than did their Wisconsin counterparts.

The Wisconsin farmers made more capital purchases than the New York dairymen but even with these higher outlays, when size groups are compared, the cash outlays were lower for the Wisconsin farms.

Because of the differences in average size of herd for the "large herd" group, 77 cows for Wisconsin and 97 for New York, it is desirable to compare expenses on a per cow basis. These comparisons show similar relationships as previously noted for labor, feed, and equipment costs (Table 3). The relative differences for the large herds were reduced somewhat. The other expenses, however, with the exception of real estate repairs favored the "large" New York dairymen. Altogether, they had the lowest expenses per cow of any group.

Table 3.

DAIRY FARM EXPENSES PER COW
Wisconsin and New York, 1970

Item	Wisconsin		New York	
	55 cows or less	More than 55 cows	54 cows or less	More than 54 cows
Hired labor	\$ 34	\$ 65	\$ 36	\$ 74
Feed purchased	131	128	203	178
Machinery repairs	26	25	32	33
Auto (farm share)	8	5	6	3
Gas and oil	25	25	22	19
Vet and med.	11	11	13	12
Other livestock exp.	49	47	43	44
Fertilizer & lime	34	39	26	32
Seed & other crop exp.	23	23	16	16
Electricity & Telephone	18	17	16	13
Taxes and insurance	43	41	37	32
Real estate repairs	7	6	19	14
Miscellaneous	41	57	21	22
Total cash oper.	\$ 450	\$ 489	\$ 490	\$ 492
Capital purchases	270	253	237	184
Total expense except interest & unpaid labor	\$ 720	\$ 742	\$ 727	\$ 676

Dairy Farm Gross Income

The milk sales for the New York dairymen were higher than for their Wisconsin competitors (Table 4). This was in part due to higher production per cow but was more particularly the result of higher milk prices. The "large" New York dairymen also had a 20 cow herd size advantage.

Table 4.

DAIRY FARM GROSS INCOME PER FARM
Wisconsin and New York, 1970

Item	Wisconsin		New York	
	55 cows or less	More than 55 cows	54 cows or less	More than 54 cows
Milk sales	\$25,591	\$50,063	\$30,550	\$68,781
Livestock sales	4,556	8,966	3,162	6,993
Other receipts	3,692	8,018	1,225	2,310
Total cash	\$33,839	\$67,047	\$34,937	\$78,084
Inventory increase	<u>7,240</u>	<u>11,238</u>	<u>6,506</u>	<u>12,162</u>
Total farm receipts	\$41,079	\$78,285	\$41,443	\$90,246

For the livestock and crop sales the reverse is true. The larger acreage of the Wisconsin farms enabled the operators to sell more livestock and crops. These receipts tended to equalize the income for the New York and Wisconsin "small herd" groups. The total receipts per farm for the "large herd" groups still favored the New York farm businesses. However, the New York dairymen in this size group kept 20 more cows than did the Wisconsin "large herd" group.

Dairy Farm Income and Family Labor Income

Overall the net incomes to dairymen in Wisconsin and New York were surprisingly similar. When the farm expenses were deducted from the farm gross incomes, with appropriate adjustments for changes in the capital investments and an allowance was made for interest on the farm capital, the average family labor incomes for the New York "small" farms averaged \$6,074 (Table 6). The Wisconsin "small" farmers made family labor incomes which were almost \$1,200 greater than the New York "small" dairymen, but both were well below the New York or Wisconsin "large farm" family labor income average.

Table 6. DAIRY FARM INCOME AND LABOR INCOME PER FARM
 Wisconsin and New York, 1970

Item	Wisconsin		New York	
	55 cows or less	More than 55 cows	54 cows or less	More than 54 cows
Total farm gross income	\$41,079	\$78,285	\$41,443	\$90,246
Total farm expenses (excl. interest & unpaid labor)	28,088	57,074	29,080	65,540
Farm Income	\$12,991	\$21,211	\$12,363	\$24,706
Interest on capital at 7 percent	\$ 5,738	\$11,180	\$ 6,289	\$12,761
Return to operator & family labor	\$ 7,253	\$10,031	\$ 6,074	\$11,945

The "large" New York dairy farms returned their operators an average family labor income of \$11,945 or about \$1,900 more than was received by the similar group in Wisconsin. The 20 cow advantage in herd size for the New York farmers added to their profits.

If the farm expenses, farm income and family labor income are determined on a per cow basis, the largest returns are for the small herds in both New York and Wisconsin with the Wisconsin "small" farmers faring much the better of the two (Table 7). The lowest family labor incomes per cow were on the "large" New York farms.

It is obvious that the "large" farms did not have economies of scale which enabled them to have high returns and/or low costs per cow. In both New York and Wisconsin the "large farm" family labor incomes were lower on a per cow basis. However, as the farm data shows, the larger number of cows enabled total labor incomes per operator on the "large" farms to be much greater than for the "small" businesses.

Table 7. DAIRY FARM INCOME AND LABOR INCOME PER COW
 Wisconsin and New York, 1970

Item	Wisconsin		New York	
	55 cows or less	More than 55 cows	54 cows or less	More than 54 cows
Total farm gross income	\$ 1,053	\$ 1,017	\$ 1,036	\$ 930
Total farm expenses (excl. interest and unpaid labor)	720	742	727	676
Farm Income	\$ 333	\$ 275	\$ 309	\$ 254
Interest on Capital	147	145	157	131
Return to operator & family labor	\$ 186	\$ 130	\$ 152	\$ 123

Costs of Producing Milk

One way of estimating the cost of producing milk on specialized dairy farms is to add to the cash expenditures (capital and non-capital), (1) adjustments for capital increases or decreases, (2) an imputed interest charge and (3) a value for the unpaid labor and management. From this total is subtracted the amount of all income except milk on the assumption that the cost of producing these "by-products" was about equal to their value. The remaining cost of production is divided by the number of hundredweights of milk which were sold to get the cost per hundredweight.

Using this method, the cost of production on the "small" farms in Wisconsin about equaled the price of the milk. In New York the "small" farm cost exceeded the price by 21 cents (Table 8).

Table 8.

COSTS OF PRODUCING MILK
Wisconsin and New York, 1970

Item	Wisconsin		New York	
	55 cows or less	More than 55 cows	54 cows or less	More than 54 cows
Farm expenses	\$28,088	\$57,074	\$29,080	\$65,540
Interest @ 7%	5,738	11,180	6,289	12,761
Operator's labor	5,400	5,400	5,400	5,400
Operator's management (5% of cash income)	1,692	3,352	1,747	3,900
Total Farm Cost	\$40,918	\$77,006	\$42,516	\$87,601
Less Non-milk income	<u>15,488</u>	<u>28,222</u>	<u>10,893</u>	<u>21,465</u>
Cost of milk	\$25,430	\$48,784	\$31,623	\$66,136
Cost per cwt	\$ 5.23	\$ 5.12	\$ 6.23	\$ 5.90
Price per cwt	<u>5.26</u>	<u>5.25</u>	<u>6.02</u>	<u>6.13</u>
Profit per cwt	\$.03	\$.13	\$- .21	\$.23

The "large" farms in Wisconsin and New York were more successful. In Wisconsin the price exceeded the cost by 13 cents and in New York there was a 23 cent overage. It should be remembered that in each case the farmer was paid for his labor and management.

Size of Herd

Farmers adjust their businesses to the economic conditions which they meet. Among other things herd size is influenced by relative profitableness and alternative opportunities. In recent years there has been rapid adjustment in numbers of herds and herd size in New York State (Table 9).

Table 9. CHANGES IN NUMBER OF DAIRY FARMS BY SIZE OF HERD*
New York State, 1960 and 1971**

Cows per farm	Number of farms		Change between 1960 and 1971	
	1960	1971**	Number	Percent
Under 20	12,620	2,500	-10,120	- 80
20 - 29	11,020	3,300	- 7,720	- 70
30 - 39	8,040	5,200	- 2,840	- 35
40 - 49	4,420	4,425	+ 5	0
50 - 59	1,980	2,200	+ 220	+ 11
60 - 99	1,720	2,500	+ 780	+ 45
100 - 149	260	475	+ 215	+ 83
150 - 199	80	250	+ 170	+212
200 and over	<u>40</u>	<u>150</u>	<u>+ 110</u>	<u>+275</u>
Total	40,180	21,000	-19,180	- 48

* Cornell Producer Panel of Dairymen

** Estimated for 1971

Source: New York Economic Handbook 1972, Department of Agricultural Economics, A.E. Ext. 602, December, 1971.

In 1960 of the 40,180 dairy farms in New York only about 10 percent had 50 cows or more. According to estimates based on this same source of data there were 21,000 dairy farms in New York 11 years later. Of these 27 percent had 50 cows or more.

The U. S. Census of Agriculture for 1969 supported these data. In New York in 1969 the Census showed 25 percent of the New York dairy farms as having 50 cows or more (Table 10). On these farms were kept 46 percent of the 890,321 dairy cows in the State.

Table 10. NUMBER OF FARMS AND COWS ON FARMS WITH MILK COWS
Wisconsin and New York, 1969

Herd Size	Farms*			Cows	
	Number	Percent		Number	Percent
			New York		
1 - 19	3,936	17		41,943	5
20 - 49	13,085	58		440,551	49
50 - 99	4,858	22		306,346	34
100 or more	<u>742</u>	<u>3</u>		<u>101,481</u>	<u>12</u>
Total	22,621	100		890,321	100
			Wisconsin		
1 - 19	15,197	26		190,077	11
20 - 49	37,087	64		1,156,694	68
50 - 99	5,258	9		318,048	19
100 or more	<u>322</u>	<u>1</u>		<u>43,460</u>	<u>2</u>
Total	57,864	100		1,708,279	100

* With \$2,500 or more in receipts

Source: U. S. Census, 1969.

Of the Wisconsin dairy farms in the 1969 Census there were 90 percent having less than 50 cows. This percentage was about the same as that for New York nine years earlier. On the 10 percent of the farms with 50 cows or more there were 20 percent of the dairy cows of the State.

Size adjustment in Wisconsin will come slower than in New York. The "small" dairy farms as shown by the data in Tables 6, 7, and 8 are somewhat better off than the "small" New York farmers and might be somewhat less inclined to add cows. Furthermore, both the "large" and "small" farms in Wisconsin had activities other than dairying which produced sizable amounts of income. Both of these conditions would tend to slow down the rate at which dairymen in Wisconsin increased their herd sizes. However, as is the case in New York there are profit advantages in Wisconsin in having larger dairy herds. Consequently, in both New York and Wisconsin dairymen will expand their herd sizes with a tendency for Wisconsin farmers to lag in the changes.