

MILK PRODUCTION COSTS in 2003 on Selected WISCONSIN DAIRY FARMS

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Abstract

The average total cost of milk production in 2003 was \$12.77 which was \$0.27 less than the US Average Milk Price (\$12.50). The total costs of production have exceeded the milk price in eight of the past ten years. Our records show that the average farm had net farm income from operations of \$57,481 (an increase of more than 45% from 2002). The average farm had \$1,090,910 of total assets and net worth of \$692,494 (an increase of \$24,811 from 2002). Asset and net worth values are based on conservative market values.

The four largest cost categories were purchased feed (22%), hired and family labor wages and benefits (11%), building, machinery and equipment depreciation (9%) and farm interest paid (6%).

In this study of 2003 records there were 652 dairy farms averaging 123 cows and 21,346 lbs milk sold per cow. These farms had a basic cost of \$7.70 per hundredweight equivalent (CWT EQ) on income of \$12.50 (U.S. average milk price in 2003).

In the study of 2001 records, 627 dairy farms (averaging 106 cows and 20,454 milk sold per cow) had a basic cost of \$9.03 per hundredweight equivalent (CWT EQ) on income of \$14.94 (U.S. average per hundredweight milk price in 2001). There are now 818 Wisconsin dairy farms in our 2001-year records.² With the addition of 100+ more farms, the basic cost increased only \$0.02 per CWT EQ to \$9.05. The total economic cost of production for fiscal year 2001 was \$15.08 per hundredweight equivalent in the initial study. Subsequently with the addition of 100 farms, the total cost was \$0.14 lower at \$14.94.

In 2000, there were 605 dairy farms included in our cost of production study and the basic cost was \$7.75 per CWT EQ. There are now 869 Wisconsin dairy farms in our 2000-year records. With the addition of 264 more farms, the basic cost decreased only \$0.09 per CWT EQ to \$7.66. The total economic cost of production for fiscal year 2000 was \$13.20 per hundredweight equivalent in the initial study; subsequently, with the addition of 138 farms the total cost is \$0.87 lower at \$12.33.³

Data Source

Lakeshore Farm Management Association, Fox Valley Management Association, Wisconsin County Agents and Wisconsin Technical College System Instructors⁴ originally collected this data. Personnel affiliated with these associations helped individual farm managers reconcile their financial data. Individual farm managers used a number of different manual and computerized record keeping systems to enter the initial financial records, including the Agricultural Accounting and Information Management System (AAIMS©).

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² AgFA@ (Agriculture Financial Advisor) – <http://cdp.wisc.edu>

³ The Center for Dairy Profitability uses an active/real time database AgFA@ for collecting and analyzing data. The number of records will likely increase throughout the year.

⁴ The author wishes to thank members of the Lakeshore and Fox Valley Farm Management Associations, UW-Extension County Agents and WTCS Instructors for their cooperation.

Cost of Production

Using Table 1 you can compare your cost of production figures to those in this study. The “per Cow” or the “per CWT EQ” column will help to identify categories of your expenses that are above average.⁵ For instance, suppose your fuel and oil costs are \$110 per cow -- is this okay? Compare your figure to the same line item on Table 1. If your farm’s cost is NOT at or below the average you should find out why this is occurring and do what you can to decrease the costs in that category.

Results – Per Farm

Table 1 shows the average cost of production in 2003 using three different report bases. They are whole farm, per cow and per hundredweight equivalent (CWT EQ). The costs are broken into 4 different categories. They are: basic costs (similar to the Cost of Goods in non-farm accounting), interest costs, labor costs, and depreciation and equity costs.

Table 1 shows a basic cost of \$2,197 per cow and \$7.70 per CWT EQ. The total income per cow was \$3,565 in 2003. Table 1 shows an economic loss averaging \$9,527 per dairy farm in 2003 as compared to a loss of \$36,354 in 2002 (one of the toughest years in the dairy industry in recent memory). This means that either the farm manager’s labor and management or the equity capital did not receive a market rate in 2003. The cost assigned to the farm manager’s unpaid labor and management was \$32,115 and the opportunity cost of the farm manager’s equity capital was \$34,893. These are non-cash costs; however the cash required for family living costs is not included in farm expenses.

The average costs per CWT EQ for selected expense categories that closely match the expense categories on the Schedule F Federal tax form are shown in Table 1. This table also shows opportunity cost for unpaid labor and management, and interest on equity capital.

Table 1 shows the average per cow costs for all farms in the study. The purchased feed per cow in 2003 was slightly higher than in past years. However it falls within the \$500-\$700 range this category has been in since 1996. Supplies have remained fairly stable at \$105 per cow versus \$101 per cow in 2002, \$104 in 2001 and \$99 per cow in 2000.

Chart 1 shows that interest costs per cow in 2003 were the lowest they have been in eight years. In contrast, paid labor costs increased to \$423 per cow in 2003 representing the highest cost in eight years.

Chart 1: Interest and Paid Labor Costs per Cow, 1995-2003

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Interest Costs	\$205	\$212	\$218	\$226	\$197	\$207	\$208	\$188	\$185
Paid Labor Costs	\$237	\$300	\$323	\$353	\$366	\$344	\$376	\$411	\$423

Paid labor costs have been steadily increasing over the years. Some of this change is due to larger farms with a higher percentage of paid labor and some of it is due to more dairy farm managers paying their spouse and/or children.

⁵ Frank, Gary G. “Calculating Your Milk Production Costs and Using the Results to Manage Your Expenses.” August 1996. Available on the Center for Dairy Profitability website: <http://cdp.wisc.edu>.

Table 1 – Cost of Production, 2003

Report Basis: Whole Farm, per Head, per Hundredweight Equivalent			
Income	<u>2003</u>	<u>2003</u>	<u>2003</u>
	Economic	per Head	per CWT EQ
Total Income	437,560.62	3,565.06	12.50
Expenses	<u>2003</u>	<u>2003</u>	<u>2003</u>
Basic Cost	Economic	per Head	per CWT EQ
Cost of Items for Resale	98.97	0.81	0.00
Breeding Fees	5,340.38	43.51	0.15
Car and Truck Expenses	1,770.50	14.43	0.05
Chemicals	6,319.12	51.49	0.18
Conservation Expenses	0.30	0.00	0.00
Custom Heifer Raising Expenses	1,636.91	13.34	0.05
Custom Hire (Machine Work)	13,687.12	111.52	0.39
Feed Purchase	85,249.92	694.58	2.44
Fertilizer and Lime	9,940.68	80.99	0.28
Freight and Trucking	4,592.49	37.42	0.13
Gasoline, Fuel, and Oil	9,048.95	73.73	0.26
Farm Insurance	6,029.56	49.13	0.17
Rent/Lease Equipment	2,756.38	22.46	0.08
Rent/Lease Other	15,833.85	129.01	0.45
Repairs and Maintenance	2,309.18	18.81	0.07
Building and Fence Repairs	4,792.24	39.05	0.14
Machinery Repairs	13,419.19	109.33	0.38
Seeds and Plants Purchased	9,168.23	74.70	0.26
Storage and Warehousing	37.17	0.30	0.00
Supplies Purchased	12,883.32	104.97	0.37
Taxes - Other	4,864.24	39.63	0.14
Taxes - Payroll	138.12	1.13	0.00
Utilities	9,495.78	77.37	0.27
Veterinary Fees and Medicine	13,430.79	109.43	0.38
Other Farm Expenses	4,118.00	33.55	0.12
Marketing & Hedging	4,754.69	38.74	0.14
Other Crop Expenses	2,782.34	22.67	0.08
Other Livestock Expenses	18,095.17	147.43	0.52
Change in Prepaid Expenses	-542.31	-4.42	-0.02
Change in Accounts Payable	-210.57	-1.72	-0.01
Depreciation on Purchased Breeding Livestock	7,811.52	63.65	0.22
Total Basic Cost	269,652.23	2,197.01	7.70

Table 1 – Cost of Production in 2003 (cont)

Interest Cost				
	Mortgage Interest	10,343.99	84.28	0.30
	Other Interest	12,357.04	100.68	0.35
	Total Interest Cost	22,701.03	184.96	0.65
Labor Cost				
	Employee Benefits - Dependents	4,508.07	36.73	0.13
	Employee Benefits - Non-Dependents	6,655.53	54.23	0.19
	Labor Hired - Dependents	6,388.62	52.05	0.18
	Labor Hired - Non-Dependents	34,461.95	280.78	0.98
	Value of Unpaid Labor & Management	32,115.03	261.66	0.92
	Total Labor Cost	84,129.20	685.45	2.40
Depreciation & Equity Cost				
	Machinery, Equipment, Building Depreciation	35,712.47	290.97	1.02
	Interest on Equity Capital	34,892.54	284.29	1.00
	Total Depreciation & Equity Cost	70,605.01	575.26	2.02
	Total Expenses	447,087.47	3,642.68	12.77
	Total Income - Total Expenses	-9,526.86	-77.62	-0.27

Table 2 shows the average Net Farm Income in 2003 was \$479 per cow, nearly double what it was in 2002 (\$257 per cow). This is probably due to the high milk price in the latter months of the year. Net Farm Income is total farm income minus all farm expenses except Value of Unpaid Labor and Management and Interest on Equity Capital. Net Farm Income is the return to the farm manager's (and all other) unpaid labor and management plus the return to equity capital.

**Table 2
Net Farm Income in 2003**

Net Farm Income from Operations (NFIFO)				
	Total Allocated Costs	380,079.90	3,096.73	10.86
	Net Farm Income From Operations (NFIFO)	57,480.71	468.33	1.64
	Gain (Loss) on Sale of All Farm Capital Assets	1,304.89	10.63	0.04
	Net Farm Income (NFI)	58,785.60	478.96	1.68

Net Farm Income is sometimes used as a proxy for the dollars the farm manager has available to pay family living expenses and income and social security taxes. This is fine as a proxy, but is not very accurate because some of the incomes and expenses used to calculate net farm income are non-cash (like depreciation). Also, some wages and benefits deducted as a business expense are paid to family members. In addition, farm managers have other demands on the cash the farm operation generates such as debt repayment and down payments on new capital purchases, so the money available for family living usually is less than Net Farm Income.

Table 3
Milk Production Costs per Farm in 2003

Range in Herd Size	<= 50 Cows	51 to 75	76 to 100	101 to 150	151 to 250	> 250 Cows
Number of Farms	144	204	98	79	52	67
Average Cows per Farm	42	63	87	123	192	482
Milk Sold per Cow (lbs)	18,103	19,881	20,154	21,033	20,532	23,268
Crop Acres per Cow	5.1	5	5.1	4.3	3.1	2.2
Total Crop Acres Farmed	214	315	444	529	595	1060
Cost of Items for Resale	29	191	160	0	52	46
Breeding Fees	1,726	3,000	3,977	5,761	7,210	20,563
Car and Truck Expenses	1,633	1,690	1,830	1,763	1,468	2,511
Chemicals	2,014	4,583	6,647	6,025	8,148	19,208
Custom Heifer Raising Expenses	21	67	583	588	1,391	13,055
Custom Hire (Machine Work)	2,484	6,306	9,708	13,543	18,398	63,339
Feed Purchased	20,783	33,442	50,602	77,040	124,747	415,169
Fertilizer and Lime	4,044	7,632	9,644	15,119	11,622	22,566
Freight and Trucking	1,622	2,280	2,912	4,623	5,236	20,174
Gasoline, Fuel, and Oil	3,557	5,125	7,339	10,265	13,707	30,226
Farm Insurance	2,668	4,164	5,265	6,951	8,885	16,832
Rent/Lease Equipment	551	852	1,561	2,397	5,635	13,447
Rent/Lease Other	3,444	8,514	11,380	19,568	25,593	60,215
Repairs and Maintenance	1,108	1,074	2,449	2,117	1,340	7,802
Building and Fence Repairs	1,929	2,987	4,220	6,349	7,039	14,051
Machinery Repairs	5,232	8,668	11,487	18,431	22,291	36,872
Seeds and Plants Purchased	3,386	6,273	9,243	11,923	13,867	23,596
Supplies Purchased	5,730	7,574	11,685	13,414	20,272	39,977
Taxes	2,562	3,525	4,763	5,303	7,092	13,230
Utilities	3,989	5,949	8,214	10,330	13,640	30,062
Veterinary Fees and Medicine	3,928	5,768	8,613	13,568	17,796	60,956
Marketing & Hedging	1,388	2,169	3,042	4,333	7,061	21,386
Other Farm Expenses	3,788	7,239	11,043	17,943	31,127	150,845
- Change in Prepaid Expenses	(176)	(1,547)	(1,286)	(2,094)	347	3,983
Change in Accounts Payable	35	(128)	172	(1,290)	(1,925)	1,030
Depreciation on Purchased Breeding Livestock	1,432	1,829	3,661	7,757	13,245	42,556
Basic Costs	78,905	129,225	188,913	271,727	385,283	1,143,695
Mortgage Interest	3,056	4,541	7,118	7,681	13,684	49,464
Other Interest	3,169	4,850	7,517	11,768	17,244	59,639
SST & Emp Bens (Dep)	3,787	5,257	5,912	4,802	4,777	1,581
SST & Emp Bens (Non-dep)	559	1,766	2,938	5,914	11,472	37,822
Labor Hired (Dependents)	3,497	6,982	8,831	7,041	7,243	6,051
Labor Hired (Non-dep)	1,947	5,928	11,831	30,900	56,482	214,504
Dpr - Mach, equip, build	11,386	21,969	32,192	36,825	52,090	123,905
Total Allocated Costs	106,306	180,518	265,252	376,659	548,275	1,636,661
Total Farm Incomes	131,002	222,292	314,624	458,032	639,650	1,769,861
NFIFO*	24,696	41,774	49,372	81,373	91,375	133,200
Gain (loss) on sale of all Farm Capital Assets	772	497	802	2,259	1,994	4,120
NFI	25,468	42,271	50,174	83,633	93,370	137,321
NFI + Dependents Labor and Benefits	32,752	54,510	64,916	95,476	105,389	144,952

*Net Farm Income from Operations

Table 3

Results – Per Farm

Table 3 shows the per farm cost of production averages in six herd size categories. Be careful when comparing your farm to Table 3. Even though the table is broken into different herd size categories the herd size range in each category is wide. To assist in your understanding of the entire table, the “Range in Herd Size – 101 to 150” column is used as an example.

There were 79 herds in the data set that had more than 100 cows and less than 151 cows. Those herds averaged 123 cows and sold an average of 21,033 pounds of milk per cow. They had an average of 4.3 crop acres per cow and farmed 529 acres of cropland.

The average amount of purchased feed was \$77,040 per farm. In addition, they paid \$6,025 for crop chemicals, \$15,119 for fertilizer, \$26,898 for repairs, and \$13,568 for vet & medicine. These are nearly identical to the costs in 2002. Then purchased feed was \$69,577 per farm, \$6,534 for crop chemicals, \$11,533 for fertilizer, \$23,773 for repairs, and \$11,708 for vet & medicine.

In 2003, there was a decrease in prepaid expenses of \$2,094 and an increase in accounts payable of \$1,290. This totals \$3,384 in per farm costs that were paid out of cash in a previous year or will have to be paid out of cash in a future year.

Total Basic Costs, for the 101 to 150 herd size farms was \$271,727 in 2003. Costs in previous years were 259,697 in 2002; \$253,450 in 2001 and \$232,125 per farm in 2000.

In addition to Basic Costs, this group of farms had \$37,941 in paid labor costs (\$7,041 to dependents and \$30,900 to non-dependents). This is approximately \$1200 more than in 2001 and less was paid to dependents (\$662), therefore non-dependents received approximately \$1,900 more in 2003.

Social Security Taxes plus Benefits equaled \$10,716 (\$4802 to dependents and \$5,914 to non-dependents) in 2003 versus 11,482 in 2002. This amount reverses the trend from 2000-2001 where the benefits portion of an agricultural employee’s package increased roughly 20 percent. There was also \$19,449 (\$7,681 plus \$11,768) of interest expense. This is a decrease of approximately \$1,600 from 2002. In 2003, \$44,582 of depreciation was claimed. Some of that depreciation (\$7,757) was on taken on purchased livestock.

The Total Allocated Costs in 2003 were \$376,659. This is comparable to \$367,974 in 2002 and \$354,575 per farm in 2000. The Total Income per farm was \$458,032 in 2003, an increase of \$50,000 from 2002 and almost 100,000 more than 2001 (\$375,163). The Net Farm Income from Operations (NFIFO) in 2003 was \$81,373 which is significantly higher than in 2002 (\$37,817). The total return to the owner-operator-manager’s (and family’s) labor, management and equity capital is the last line in Table 3. It has the amount paid to dependents added to the NFI.

When comparing NFIFO in 2003 to those in 2002, all farm sizes had an increase. Most were close to doubling. The small herd size (< 50 cows) increased by “only” 50 percent (roughly \$8,000). The “51-75” category leads all farms by increasing their NFIFO by more than two and half times (\$41,774 in 2003 vs. \$15,796 in 2002). The largest farms, those with herd sizes in excess of 250 cows, increased their NFIFO by 45% (\$74,000).

Table 4
Milk Production Costs per Cow in 2003

Range in Herd Size	<=50 Cows	51 to 75	76 to 100	101 to 150	151 to 250	> 250 Cows
Number of Farms	144	204	98	79	52	67
Total Number of Cows	6,048	12,852	8,526	9,717	9,984	32,294
Average Cows per Farm	42	63	87	123	192	482
Milk Sold per Cow (lbs)	18,103	19,881	20,154	21,033	20,532	23,268
Dairy Livestock Sales Per Cow	252.0	268.0	245.0	209.0	201.0	207.0
Crop Acres per Cow	5.1	5.0	5.1	4.3	3.1	2.2
Cost of Items for Resale	1	3	2	0	0	0
Breeding Fees	42	48	45	47	38	43
Car and Truck Expenses	39	27	21	14	8	5
Chemicals	49	73	76	49	43	40
Custom Heifer Raising Expenses	1	1	7	5	7	27
Custom Hire (Machine Work)	60	101	111	110	96	131
Feed Purchased	501	534	578	626	651	861
Fertilizer and Lime	97	122	110	123	61	47
Freight and Trucking	39	36	33	38	27	42
Gasoline, Fuel, and Oil	86	82	84	83	72	63
Farm Insurance	64	66	60	56	46	35
Rent/Lease Equipment	13	14	18	19	29	28
Rent/Lease Other	83	136	130	159	134	125
Repairs and Maintenance	27	17	28	17	7	16
Building and Fence Repairs	46	48	48	52	37	29
Machinery Repairs	126	138	131	150	116	76
Seeds and Plants Purchased	82	100	106	97	72	49
Supplies Purchased	138	121	134	109	106	83
Taxes	62	56	54	43	37	27
Utilities	96	95	94	84	71	62
Veterinary Fees and Medicine	95	92	98	110	93	126
Marketing & Hedging	33	35	35	35	37	44
Other Farm Expenses	91	116	126	146	162	313
- Change in Prepaid Expenses	(4)	(25)	(15)	(17)	2	8
Change in Accounts Payable	1	(2)	2	(10)	(10)	2
Depreciation on Purchased Breeding Livestock	35	29	42	63	69	88
Basic Costs	1,901	2,063	2,159	2,208	2,010	2,371
Mortgage Interest	74	72	81	62	71	103
Other Interest	76	77	86	96	90	124
SST & Emp Bens (Dep)	91	84	68	39	25	3
SST & Emp Bens (Non-dep)	13	28	34	48	60	78
Labor Hired (Dependents)	84	111	101	57	38	13
Labor Hired (Non-dep)	47	95	135	251	295	445
Dpr - Mach, equip, build	274	351	368	299	272	257
Total Allocated Costs	2,561	2,882	3,032	3,060	2,860	3,393
Total Farm Incomes	3,156	3,549	3,596	3,721	3,337	3,669
NFIFO*	595	667	564	661	477	276
Gain (loss) on sale of all Farm Capital Assets	19	8	9	18	10	9
NFI	614	675	573	679	487	285

*Net Farm Income from Operations

Table 4

Results – Per Cow

Table 4 is divided into six herd size categories for 2003 and shows per cow averages. The 67 farms in the “>250 cows” category have more than three times as many total cows than the 79 farms in the “101 to 150” category. Also, the 67 farms in the “>250 cows” category have almost 5 times as many total cows as the 144 farms in the “≤50 cows” category.

Table 4 shows that the larger farms (based on cow numbers) have fewer crop acres per cow. However, larger farms have higher purchased feed costs per cow (\$861 versus \$501 for the smallest size category). Larger farms also have much higher “Other Expenses” per cow, \$313 versus \$92. “Other Expenses” includes a “miscellaneous livestock expense” category that accounts for about \$259 of this cost (versus \$21 on the smallest farms). This could be related to BST use as other data has suggested that larger farms use BST on a higher percentage of their herd. The larger herds also spent \$27 per cow for custom heifer raising versus \$7.26 for the 151-250 herd size. All other herd sizes had much lower custom heifer raising costs.

The largest herd size category had an accounts payable increase of \$2.14 per cow. This coupled with a decrease in prepaid expenses of \$8 leads to a \$10 per cow shift of the “cash outflow” to other years.

Basic Costs/cow in the largest herd size category exceeded the Basic Costs in the smallest category by \$469 per cow (\$2,371 versus \$1,901). This amount appeared to be narrowing in 2000 as the difference had fallen to only \$335 per cow, but it widened again in 2001 and 2002. This difference is largely due to purchased feed cost, miscellaneous livestock expenses and livestock depreciation. As you move from the smallest herd-size category to the largest, livestock depreciation per cow more than doubles (\$35 to \$88). Notice also that the interest paid per cow has a noticeable increase in the larger herd sizes.

The paid labor costs per cow increases from \$318 (84 + 28 + 111 + 95) in the “51 to 75” category to \$539 (3 + 78 + 13 + 445) in the “>250 cows” category. In 2002, the values were \$316 and \$525, for those two herd size categories respectively.

Total Allocated Costs per cow are \$511 (\$3,393 minus \$2,882) higher in the largest farm size category than in the “51 to 75” size category.

Table 5
Milk Production Cost per CWT EQ in 2003

Range in Herd Size	≤50 Cows	51 to 75	76 to 100	101 to 150	151 to 250	> 250 Cows
Number of Farms	144	204	98	79	52	67
Total Number of Cows	6,048	12,852	8,526	9,717	9,984	32,294
Average Cows per Farm	42	63	87	123	192	482
Milk Sold per Cow (lbs)	18,103	19,881	20,154	21,033	20,532	23,268
Crop Acres per Cow	5.1	5.0	5.1	4.3	3.1	2.2
Cost of Items for Resale	0.00	0.01	0.01	0.00	0.00	0.00
Breeding Fees	0.16	0.17	0.16	0.16	0.14	0.15
Car and Truck Expenses	0.16	0.10	0.07	0.05	0.03	0.02
Chemicals	0.19	0.26	0.26	0.16	0.16	0.14
Custom Heifer Raising Expenses	0.00	0.00	0.02	0.02	0.03	0.09
Custom Hire (Machine Work)	0.24	0.35	0.39	0.37	0.36	0.45
Feed Purchase	1.98	1.88	2.01	2.10	2.44	2.93
Fertilizer and Lime	0.39	0.43	0.38	0.41	0.23	0.16
Freight and Trucking	0.15	0.13	0.12	0.13	0.10	0.14
Gasoline, Fuel, and Oil	0.34	0.29	0.29	0.28	0.27	0.21
Farm Insurance	0.25	0.23	0.21	0.19	0.17	0.12
Rent/Lease Equipment	0.05	0.05	0.06	0.07	0.11	0.09
Rent/Lease Other	0.33	0.48	0.45	0.53	0.50	0.43
Repairs and Maintenance	0.11	0.06	0.10	0.06	0.03	0.06
Building and Fence Repairs	0.18	0.17	0.17	0.17	0.14	0.10
Machinery Repairs	0.50	0.49	0.46	0.50	0.44	0.26
Seeds and Plants Purchased	0.32	0.35	0.37	0.33	0.27	0.17
Supplies Purchased	0.55	0.43	0.46	0.37	0.40	0.28
Taxes	0.24	0.20	0.19	0.14	0.14	0.09
Utilities	0.38	0.33	0.33	0.28	0.27	0.21
Veterinary Fees and Medicine	0.37	0.32	0.34	0.37	0.35	0.43
Marketing & Hedging	0.13	0.12	0.12	0.12	0.14	0.15
Other Farm Expenses	0.36	0.41	0.44	0.49	0.61	1.07
- Change in Prepaid Expenses	(0.02)	(0.09)	(0.05)	(0.06)	0.01	0.03
Change in Accounts Payable	0.00	(0.01)	0.01	(0.04)	(0.04)	0.01
Depreciation on Purchased Breeding Livestock	0.14	0.10	0.15	0.21	0.26	0.30
Basic Costs	7.53	7.27	7.51	7.42	7.53	8.08
Mortgage Interest	0.29	0.26	0.28	0.21	0.27	0.35
Other Interest	0.30	0.27	0.30	0.32	0.34	0.42
SST & Emp Bens (Dep)	0.36	0.30	0.23	0.13	0.09	0.01
SST & Emp Bens (Non-dep)	0.05	0.10	0.12	0.16	0.22	0.27
Labor Hired (Dependents)	0.33	0.39	0.35	0.19	0.14	0.04
Labor Hired (Non-dep)	0.19	0.33	0.47	0.84	1.10	1.51
Dpr - Mach, equip, build	1.09	1.24	1.28	1.00	1.02	0.88
Total Allocated Costs	10.14	10.15	10.54	10.28	10.71	11.56
Total Farm Incomes	12.50	12.50	12.50	12.50	12.50	12.50
NFIFO*	2.36	2.35	1.96	2.22	1.79	0.94
Gain (loss) on sale of all Farm Capital Assets	0.07	0.03	0.03	0.06	0.04	0.03
NFI	2.43	2.38	1.99	2.28	1.82	0.97

*Net Farm Income from Operations

Table 5

Results – Per CWT EQ

Table 5 shows the cost of milk per CWT EQ for six herd size ranges. Purchased feed costs increased by \$0.95 (\$1.98 versus \$2.93) per CWT EQ as herd sizes increase from the smallest to the largest. This is partially offset by a decrease in Fertilizer & Lime (-\$0.23), Gasoline, Fuel and Oil (-\$0.13), Machinery Repairs (-\$0.37), and Plants and Seed Purchased (-\$0.15).

Veterinary & Medicine costs were approximately 34 percent higher per CWT EQ in herds over 250 cows versus herds of 51 to 75 cows. Other Expenses increased by \$0.80 per CWT EQ from the smallest to the largest herd size groups. It is presumed this is the cost of BST.

The “51 to 75” farms have the lowest Basic Costs per CWT EQ (\$7.27). The difference from highest to lowest in Basic Costs per CWT EQ among farm size groups is \$0.81 versus \$0.61 (2002). Livestock depreciation was only \$0.14 per CWT EQ in the smallest herd size group but \$0.26 and \$0.30 per CWT EQ in the two largest herd-size categories.

Paid labor costs per CWT EQ ranged from \$0.93 to \$1.83 as you move from the smallest to the largest herd-size group. Labor costs paid to non-dependents per CWT EQ ranged from \$0.24 to \$1.78, showing that most of the paid labor on small farms is to dependents (family members).

The “< = 50 cows” had the highest NFIFO per CWT EQ in 2003 at \$2.36, a penny higher than the “51 to 75” cow farms. They are followed by the “101 to 150” cow farms, “76 to 100” and “151 to 250” cow farms in that order. The largest herd size group had the lowest NFIFO per CWT EQ at \$0.94. The smallest herd size “< = 50 cows” also had the highest NFIFO in 2002, followed by the “51 to 75” cow farms. The “51 to 75” cow farms had the highest NFIFO per CWT EQ in previous years.

The largest herd size “> 250 cows” had the lowest NFIFO per CWT EQ in all years of our study. However, when the amount paid to family members is added to the total NFIFO, the largest herd size had an average of \$145,000 for family living (including the return to equity capital) as compared to \$32,752 for the smallest herd size.

Basic Cost of Production per Hundredweight Equivalent

Cost of Production per Unit Calculation Method Used

This study uses the “Cost per Unit of Equivalent Production” method to calculate the cost of producing milk. Using this method, the cost of milk production can be compared directly to the price of milk. This method also permits the calculation of cost per hundredweight equivalent on individual expense items.⁶

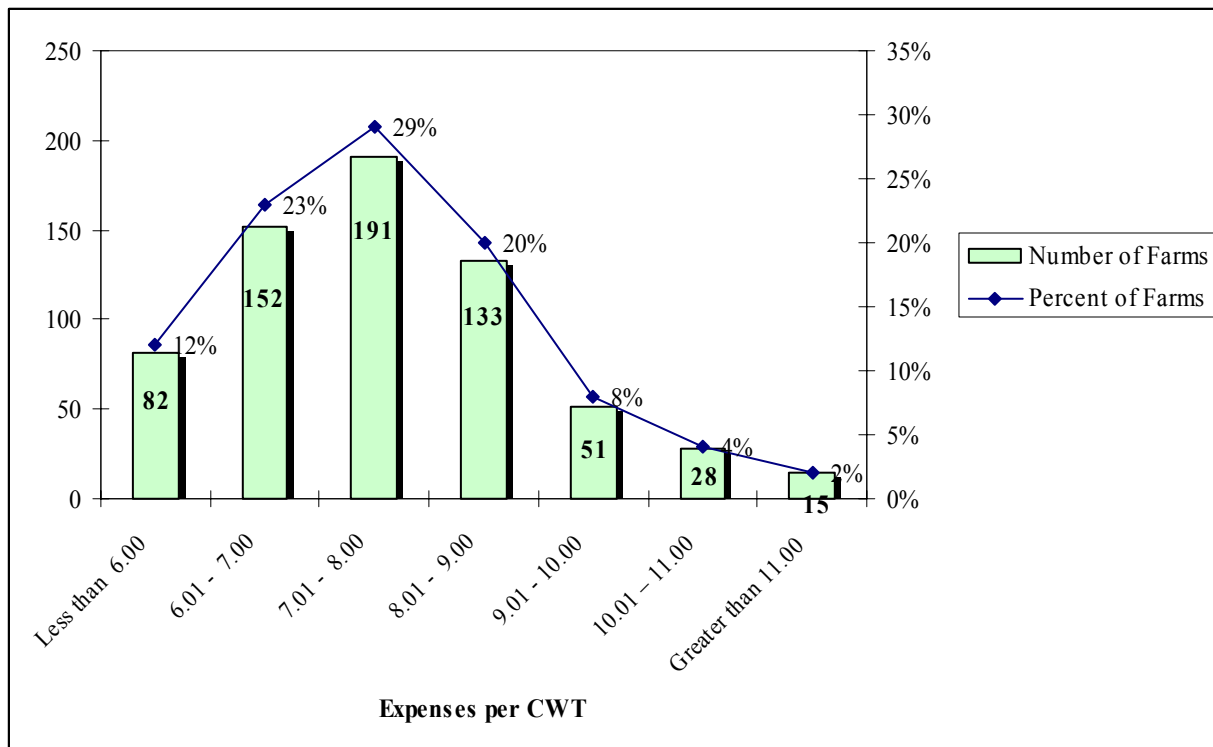
"Total Allocated Expenses" are Total Expenses minus Value of Unpaid Labor and Management minus Return to Equity. "Basic Costs" are Total Allocated Expenses minus Interest Paid, all Wages and Benefits Paid, and Non-Livestock Depreciation expenses. Basic Cost is a useful measure when comparing one farm to another because it is not influenced by the milk's composition, price premiums, farm's debt structure, and the amount of paid versus unpaid labor or the capital consumption claimed (depreciation).

An average Basic Cost of \$7.70 in 2003 per CWT EQ was calculated by summing the total basic costs on all farms and dividing by the total number of CWT EQ produced. Sixty-five percent of farms had a basic cost of \$8.00 per CWT EQ or less. This is comparable to 2002 at 59%. However, it is an increase from the 30 percent

⁶ Frank, Gary G. “Cost of Production versus Cost of Production.” July 1988. Available on the Center for Dairy Profitability website: <http://cdp.wisc.edu>

who had basic costs of \$8.00 or less in 2001. Graph 1 shows selected ranges of basic costs. It shows the number and percent of farms in each range.

Graph 1
Number of Herds in Basic Cost Production Ranges, 2003



*Percent column may not add to 100 due to rounding.

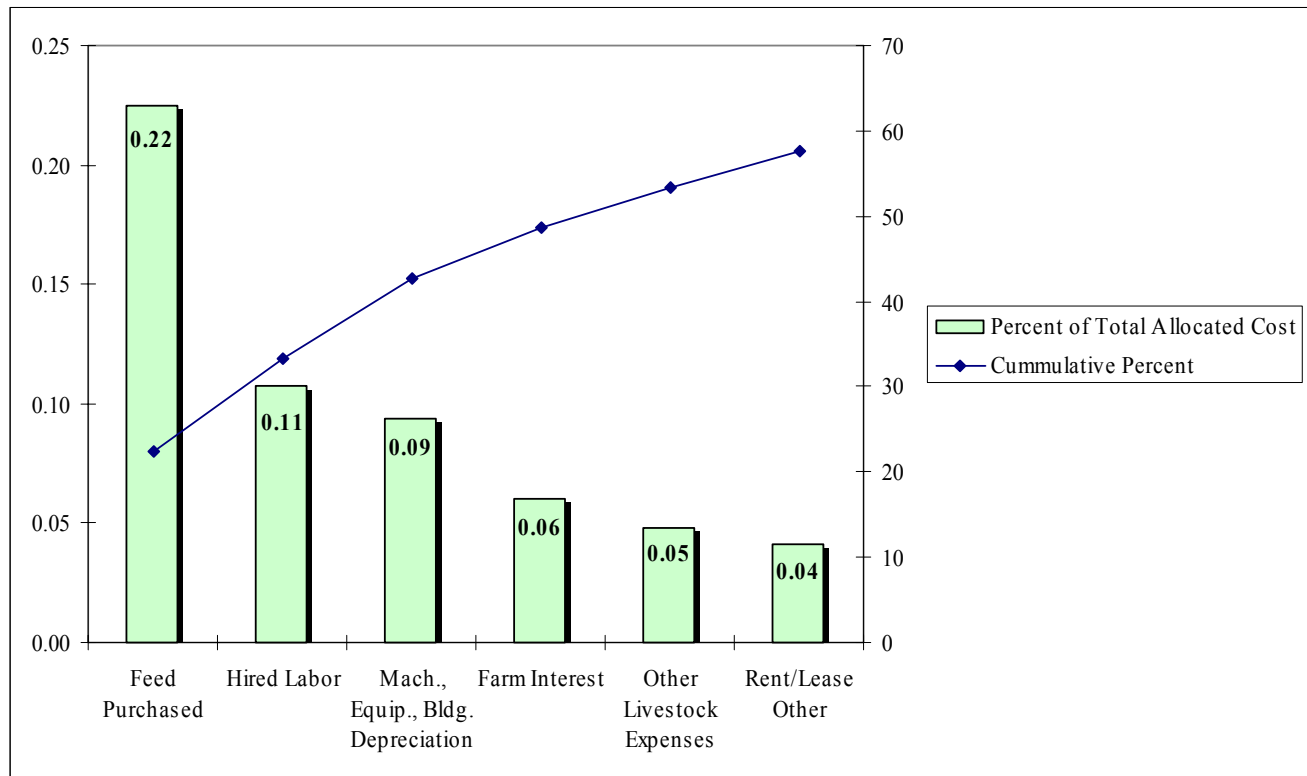
The \$7.70 average basic cost means that the average farmer in this study had \$4.80 (US average milk price in 2003 (\$12.50) minus basic expenses of \$7.70 per CWT EQ) of income available per CWT EQ to use for other costs. This is a slight increase from \$4.24 in 2002. Other costs are items such as hired labor, scheduled principal and interest payments, a down payment when purchasing assets, and/or a family living draw.

Focusing on the largest cost categories is an important tactic in controlling costs. Graph 2 identifies the six highest cost categories for the average Wisconsin dairy farm in 2003.

Graph 2 shows that Feed Purchased and Hired Labor are the highest contributors to total costs and deserve the farm manager's attention.

Hired Labor includes that paid to dependent family members. Compensation to dependent family members makes up 21 percent of this cost. One of these six categories (Other Livestock Expenses) is a "catch all" category. What hired labor contains will vary widely from farm to farm. Consequently, this category may require more study than the others to apply cost cutting tactics.

Graph 2 Cost and Investment Control



Conclusions

The average herd size in our study group of farms was 123 cows. The milk sold per cow averaged 21,299 pounds. The average herd size in 2002 was 117 and the average milk sold per cow was 20,870.

In comparison, the total economic cost of production per hundredweight equivalent of milk was \$0.27 more than the US average milk price in 2003. This signifies that Wisconsin dairy farmers had an economic loss of \$0.27 for each CWT EQ they produced. In 2002, the total economic cost of production was \$1.15 more than the US average milk price. In the last decade, only in two years (1998 and 1999) did the milk price exceed total economic costs.

Purchased feed costs still remain the largest cost item. Purchased feed costs per cow ranged from the highest \$695 (2003) to a low of \$518 (2000). Purchased feed costs per CWT EQ ranged from \$2.44 (2003) to \$2.11 in 2002.

Total allocated expenses per cow in 2003 averaged \$3097 which is a slight increase from 2002 (\$3,061), it was \$3,053 in 2000. The return to the farmer's (and family's) unpaid labor, management, and equity capital (Net Farm Income from Operations (NFIFO)) was \$468 per cow in 2003. This figure is double of what it was in 2002 (\$230) which was considerably less than previous years.

Chart 2: NFIFO per Cow, 1998-2003

	1998	1999	2000	2001	2002	2003
NFIFO per Cow	\$716	\$657	\$296	\$520	\$230	\$468