

Show Me the Money—Model Dairies say “Cha Ching! Cha Ching!”

by Dr. Larry F. Tranel, ISU Extension Dairy Field Specialist, NE/SE Iowa

The Dairy TRANS financial analysis software has been “showing dairy producers the money” since 1993. This tool has been a great asset for analyzing, benchmarking and comparing dairy farms and helping producers aspire to higher levels of profit. By simply using Balance Sheet, Schedule F and Cash Flow information, this program TRANSforms dairy financial data into some very useful management information.

In 2007, five model dairy producers using Dairy TRANS made huge profits in their dairy grazing operations. The net farm income adjusted for inventory averaged \$287,759 with one farm achieving an adjusted net farm income of \$410,673. After an equity charge of 6% for owned capital employed on the farm, the return to labor averaged \$218,629 per farm with the highest farm earning \$301,013 return to labor. These farms were all operated by a husband-wife or father-son management and labor teams. Very minimal outside labor was hired and that labor was not expensed in this summary as a cash expense.

Milk prices in 2007 hit record levels. These five model farms averaged \$20.42 per hundredweight. Thus, for the purpose of this analysis, the averages of the farms were analyzed as well at a \$14 milk price. Net farm incomes, adjusted for inventory would have averaged \$142,796 at \$14 milk. After an equity charge, return to labor would have averaged \$84,512 per farm. The chart on the following page estimates what these farms would have averaged at \$14 milk in the column on the far right.

The average return to labor and management was \$41.35 per hour with a range of \$28.31 to \$48.14 per hour for these farms in 2007. At a \$14 milk price, return to labor and management would have averaged \$15.51. Please note that all labor costs, whether hired or unpaid, were accounted for in the return to labor line item to equalize the farms who hire labor within or outside the family. In addition, interest expense is not included as a cash expense to equalize the farms as well. Thus, all interest and equity charges are included at 6% in the owner’s equity expense line item. This is why return to assets equals return to equity.

Labor hours were estimated at 40 hours per cow. Labor efficiency is a key to success for these farms. Each full time equivalent of labor (FTE) is 3,000 hours. With this in mind, the average number of cows per FTE was 77 cows. Farm #3 was a rented farm with only 70 acres which increased feed purchase expense and decreased labor costs per cow. A very key measure is hundredweights of milk sold per FTE and these farms all sold more than 1 million pounds of milk per FTE laborer with an average for the farms selling 1.3 million pounds of milk per FTE and farm #3 achieving 1.46 million pounds of milk per FTE.

On a per cow basis, milk per cow averaged 16,679 on these crossbred herds with a Holstein-Jersey base. The milk per cow efficiencies illustrate a very profitable level that is considered poor from conventional standards. The productive crop acres per cow average 1.56; the capital costs (depreciation and interest) averaged \$598 per cow; the labor costs per cow averaged \$389; the fixed costs per cow averaged \$770 per cow; and the capital invested per cow averaged \$7,472.

The net farm income per productive crop acre averaged \$1,510 but if milk was only \$14 it would have been \$635 per acre. The pounds of milk produced per crop acre averaged 12,323. These per crop acre efficiencies, in addition to the FTE labor and per cow efficiencies show a highly efficient group of farms. Financially, the rate of return on assets average 23.68% in 2007. If milk was \$14 per hundredweight, the rate of return to assets would have averaged 7.62%. In 2007, the operating profit margin averaged 43.21% and the asset turnover ratio averaged 58.20%. If milk was \$14 per hundredweight, these measures would have been 22.17% and 34%, respectively.

In sum, these farms showed superb profitability with 2007 milk prices. They showed great profitability with milk estimated at \$14 per hundredweight. Dairy producers are encouraged to use these numbers for budgeting new or transitioning grazing operations, but remember the costs of the learning curve. Current producers aspiring to higher levels of profit can use these numbers for benchmarking their operations and goals. Beginning producers looking for budgeting numbers can consult, “Another Beginning Farm Couple Heading to Become a Millionaire Dairy Producer” at the website below.

These same farms were analyzed in 2002 and 2004 with the data presented in a paper, "Who Wants to Be a Millionaire" and that data is available at www.extension.iastate.edu/dubuque/info/dairy+publications.htm.

Millionaire Models 2007	Farm # 1	Farm # 2	Farm # 3	Farm # 4	Farm # 5	Average	Per Cow	Misc	\$14 Milk
	Couple	Couple	Rented	C-Seasonal	Fr. & Son				Same Costs
Productive Crop Acres	215	160	70	320	360	225.00	1.65		
Average Number of Cows	152	121	90	155	165	136.60			
Total Assets on Farm	\$1,323,200	\$1,188,872	\$338,514	\$1,907,779	\$1,239,046	\$1,199,482	\$8,781		
Non-farm Income	\$0	\$0	\$0	\$0	\$0	\$0	\$0.00		
Family Living Expenses	\$45,000	\$30,000	\$24,000	\$45,000	\$60,000	\$40,800	\$298.68		
Capital Purchases	\$26,500	\$46,775	\$14,800	\$100,845	\$118,000	\$61,384	\$449.37		
Ending Cash Flow	\$192,474	\$99,847	\$60,220	\$145,885	\$74,805	\$114,646	Pre-Tax and Interest		-\$975
Ending Cash Flow Ratio	46.50%	30.06%	22.45%	34.50%	12.47%	29.20%			-0.26%
Milk Price	\$19.57	\$19.04	\$20.71	\$22.71	\$20.05	\$20.42			\$14.00
Milk Hundred weight Equiv.	33,231	23,613	16,663	26,187	34,357	26,810	196.27	17,353	lbs
Milk Hundredweights	27,645	20,636	14,587	22,521	28,733	22,824	167.09	15,013	lbs
Milk Sales	\$541,013	\$392,840	\$302,092	\$511,540	\$576,011	\$464,699	\$3,402		\$319,536
Cull Cow Sales ~10-17%	\$7,650	\$9,354	\$6,623	\$5,168	\$21,794	\$10,118	\$74.07		
Calf Sales	\$5,672	\$7,639	\$4,600	\$5,970	\$31,217	\$11,020	\$80.67		
Crop Sales	\$0	\$0	\$0	\$1,800	\$0	\$360	\$2.64		
Other Income	\$52,085	\$22,180	\$2,530	\$43,690	\$41,224	\$32,342	\$236.76		
Total Cash Income	\$606,420	\$432,013	\$315,845	\$568,168	\$670,246	\$518,538	\$3,796	/cwt.eq.	\$373,376
Veterinary, Medicine	\$8,472	\$3,066	\$2,850	\$10,900	\$12,332	\$7,524	\$55.08	\$0.28	
Dairy Supplies	\$21,100	\$16,301	\$12,176	\$15,686	\$18,815	\$16,816	\$123.10	\$0.63	
Breeding Fees	\$650	\$1,000	\$1,388	\$3,878	\$5,030	\$2,389	\$17.49	\$0.09	
Feed Purchased	\$189,715	\$140,506	\$130,849	\$98,591	\$183,366	\$148,605	\$1,087.89	\$5.54	
Repairs	\$28,598	\$9,145	\$6,429	\$12,035	\$20,725	\$15,386	\$112.64	\$0.57	
Seed, Chem, Fert	\$14,473	\$15,667	\$4,350	\$23,417	\$34,178	\$18,417	\$134.82	\$0.69	
Fuel, Gas, and Oil	\$12,637	\$24,262	\$7,721	\$13,339	\$10,907	\$13,773	\$100.83	\$0.51	
Utilities	\$8,290	\$4,308	\$5,137	\$8,331	\$7,900	\$6,793	\$49.73	\$0.25	
Interest Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0.00	\$0.00	w/o interest
Labor Hired	\$0	\$0	\$0	\$0	\$0	\$0	\$0.00	\$0.00	& labor
Rent, Lease and Hire	\$0	\$3,309	\$17,485	\$11,185	\$38,295	\$14,055	\$102.89	\$0.52	
Property Taxes	\$5,912	\$4,435	\$0	\$7,692	\$2,464	\$4,101	\$30.02	\$0.15	
Farm Insurance	\$5,843	\$4,913	\$1,020	\$7,535	\$6,962	\$5,255	\$38.47	\$0.20	
Other Cash Expense	\$11,358	\$8,479	\$7,449	\$17,530	\$39,817	\$16,927	\$123.91	\$0.63	
Total Cash Expense	\$307,048	\$235,391	\$196,854	\$230,119	\$380,791	\$270,041	\$1,977	\$10.07	\$270,041
Net Cash Income	\$299,372	\$196,622	\$118,991	\$338,049	\$289,455	\$248,498	\$1,819	\$9.27	\$103,335
Inventory Change	\$33,850	\$65,290	\$44,235	\$72,624	(\$19,693)	\$39,261	\$287.42	\$1.46	\$39,461
Net Farm Income	\$333,222	\$261,912	\$163,226	\$410,673	\$269,762	\$287,759	\$2,107	\$10.73	\$142,796
Equity@ 6%	\$77,581	\$67,970	\$18,817	\$109,660	\$71,620	\$69,130	\$506	\$2.58	\$58,284
Return to Labor	\$255,641	\$193,942	\$144,409	\$301,013	\$198,142	\$218,629	\$1,601	\$8.15	\$84,512
Number of Cows per FTE Labor.....	76	81	90	69	71	77			75
Cwts. of Milk Sold per FTE Labor.....	13,823	13,757	14,587	10,009	12,314	12,898			
Pounds of Milk Sold per Cow.....	18,188	17,054	16,208	14,530	17,414	16,679			
Productive Crop Acres per Cow.....	1.41	1.32	0.78	2.10	2.18	1.56			
Capital Cost per Cow.....	\$589	\$698	\$242	\$872	\$589	\$598			
All Labor Costs per Cow.....	\$395	\$372	\$333	\$419	\$424	\$389			
Fixed Cost per Cow (DIRTI)	\$855	\$851	\$325	\$1,048	\$771	\$770			
Capital Invested per Cow.....	\$7,869	\$8,436	\$3,135	\$11,110	\$6,808	\$7,472			
Net Farm Income per Crop Acre.....	\$1,550	\$1,637	\$2,332	\$1,283	\$749	\$1,510			\$635
Lbs. Milk Produced per Crop Acre.....	12,858	12,897	20,838	7,038	7,981	12,323			
Depreciation COST	\$50,000	\$50,000	\$20,000	\$50,000	\$30,000	\$40,000	\$292.83	\$1.49	
Depreciation FM Value	\$12,000	\$16,500	\$3,000	\$25,550	\$25,500	\$16,510	\$120.86	\$0.62	
Unpaid Labor Cost	\$60,000	\$45,000	\$30,000	\$65,000	\$70,000	\$54,000	\$395.31	\$2.01	
Unpaid Labor Hours	6,000	4,500	3,000	6,750	7,000	5,450	40 hrs/cow		
Labor Full Time Equivalents	2.00	1.50	1.00	2.25	2.33	1.82	Total Labor		
Labor Earnings Per Hour	\$42.61	\$43.10	\$48.14	\$44.59	\$28.31	\$41.35			\$15.51
Gross Income per Cwt. Eq.	\$19.57	\$19.04	\$20.71	\$22.71	\$20.05	\$20.42			\$14.00
Gross Expense per Cwt. Eq.	\$13.68	\$12.73	\$13.84	\$13.70	\$16.31	\$14.05			\$12.93
Net Income per cwt.	\$5.89	\$6.31	\$6.87	\$9.01	\$3.74	\$6.36			\$1.07
**Net Farm Income From Operations	\$333,222	\$261,912	\$163,226	\$410,673	\$269,762	\$287,759	DAIRY TRANS 4.0		\$142,796
**Rate of Return on Assets.....	21.13%	19.15%	42.48%	18.91%	16.74%	23.68%	563-583-6496		7.62%
**Rate of Return on Equity.....	21.13%	19.15%	42.48%	18.91%	16.74%	23.68%			7.62%
**Operating Profit Margin.....	42.01%	48.25%	38.61%	58.11%	29.05%	43.21%			22.17%
**Asset Turnover Ratio.....	50%	40%	110%	33%	58%	58.20%	Model Graziers 2008		34.00%
Dairy TRANS Profit Status is.....	SUPERB!	SUPERB!	SUPERB!	SUPERB!	SUPERB!	SUPERB!	UNIVERSITY		GREAT!
Dairy TRANS Performance Rating	130.00%	121.00%	191.00%	115.00%	113.00%	134.00%	Cooperative Extension		82%