

Making Millionaire Model Dairy Producers, Part I

by Dr. Larry Tranel, ISU Extension Dairy Specialist



A view of crossbred cows grazing on a Millionaire Model Dairy Farm

Dairying is often portrayed as a very difficult career to get into for young, beginning producers. And, it is often said there is no money in dairying; dairying is too much work; dairying takes too much capital; you can't graze dairy cows profitably; one can't be profitable with 16,000-18,000 pounds of milk per cow; earning \$25-\$50 per labor hour milking cows is not possible. The list goes on....

Granted, 2009 was a very difficult year for dairy profits with the high feed costs and low milk prices. Yet, there are dairy producers in the Midwest who are making money without too much work and with lower capital requirements, even in years like 2009. Moreover, they are often earning greater than \$25 per labor hour with below average milk production.

In order to better understand this reality, ISU Extension embarked on a Millionaire Model Dairy Farm project, supported by the Leopold Center at ISU. This study followed a beginning dairy producer in remodeling antiquated facilities with labor efficiency and low cost in mind. In addition, the financial situation was analyzed each year to help understand year-to-year growth.



The Millionaire Model Dairy Producer Concept

In 1993, a model dairy farm was devised by this author that could assist young dairy producers become very successful milking 80 cows on 80 acres. Over a 25 year time period using the model, producers aimed to use a combination of labor efficiency, cow comfort, low cost facility, rotational grazing and financial management to garner a \$1 million net worth. Producers following this model became known as a Millionaire Model Dairy Farm.

ISU Extension tracked one of these Millionaire Model Dairy Farms that began operations in 2003. The young producer began planning and signing contracts in the fall of 2002 for a 32 stall barn on 70 acres near Dubuque, IA. The producer and tenant built a swing 10 milking parlor in a lean-to on the stall barn, put 54 freestalls in the old stall barn along with an outside fence-line feed strip and a small manure pit. Much of the land was converted to rotationally grazed pasture. The producer paid half of the improvements and the landlord paid the other half and they split the labor bill as well.

In the following years, 33 cow-tels (single row freestalls pictured below) were added along a cement lane for a total of 87 stalls. A 38'x100' hoop building was erected for calving and dry cows. The costs of most of these improvements were split between landlord and tenant as well.



A single row of 33 cow-tels with 4'x9' stalls built for less than \$300 per stall without labor. Cow-tels are open to the south but somewhat protected by a building 14' to the south. Stalls are sand bedded.

Getting Started and Performing Financially

The producer started out in 2003 as a sharemilker with \$0 net worth, earning 25% of the milk check in return for his labor in year one. In years two and three the producer took ownership of the cows on a note from a private lender. Ninety cows valued at \$1,200 each at that time were purchased in 2003, along with \$15,000 in machinery. The machinery line grew to \$60,150 by 2008. In 2009, the producer only held \$6,668 in debt.

A projected budget was created for the 2003 year but the start-up year was not analyzed. Tables 1 and 2 contain the six years of financial data from years 2004, 2005, 2006, 2007, 2008 and 2009. In addition, the six year average and the per cow average for the six years is included in the columns to the right in the tables.

Yes, there were some good to great milk prices during those six years averaging \$16.72 per hundredweight for milk from crossbred dairy cows with a Jersey and Holstein base. There were also several poor milk price years, especially 2009. The cows produced 15,873 pounds of milk on average. The return to labor after an equity charge was taken out was \$70,791 and ranged from \$11,231 in 2009 to \$134,080 in 2007. The variation was high but on average is above what a young person can often earn, granted they worked hard and took some financial risks.

Thanks to both the grazing and crossbreeding systems, the cull rate averaged under 20% per year which earned the producer an average of \$23,033 in breeding livestock gains per year.

The producer averaged approximately 34 hours of labor per cow thanks to the semi-seasonal calving, the low-cost parlor and the grazing and feeding systems employed on the farm. The low labor cost is also credited to the purchase of much of the feed, rather than growing the crops. Labor earnings ranged from \$3.12 per hour in 2009 to \$44.69 per hour in 2007 and averaged \$27.37 per hour.

The average milk production costs, with all labor and equity charges included was \$14.03 per hundredweight over the six years. The gross income per hundredweight equivalent was \$16.72 for a net profit per hundredweight of \$3.08 with labor, equity and other costs already accounted for.

The producer averaged 1.2 million pounds of milk sold per Full Time Equivalent (FTE) worker. The producer began with 12,820 pounds of milk sold per acre in 2004 and grew to 24,273 pounds of milk sold per acre in 2009.

The producer began with 13,197 pounds of milk sold per cow in 2004 and grew to 18,468 pounds of milk sold per cow in 2009. Returns to assets averaged 25%. Borrowing money to start operations at 6.5% left a profit of 18.5% for every dollar borrowed.

The operating profit margin averaged 20% and the asset turnover ratio averaged 110%. Granted milk prices were good, but even if milk prices were at the \$14.03 average cost throughout the six years, this producer would still have earned enough to pay for family living and debt service. With all this taken into account, the **Dairy TRANS** financial analysis depicts this beginning producer's financial operations as **SUPERB with a rating of 127%**.



This beginning producer's herd of grazing dairy cows.

The feed budget employed by this 80 cow operation consisted of 70 acres of high quality rented land for legume/grass pasture; 20 acres of corn silage purchased in field; 150 tons of hay purchased; and 292 tons of grain/protein supplements purchased.

The Bottom Line on this Millionaire Model Farm

This dairy increased net worth from \$0 to well over \$300,000 in a seven year period while providing for family living and reducing debt down to below \$7,000. Granted, the producer did receive rental assistance of \$3,000 per year from established fair market value rental rates. But, at the same time, this young producer gave valuable sweat equity to the landlord and helped modernize a small dairy farm.

The producer also benefited \$2,000 per year from a private financier who allowed the producer to begin with limited equity and took a risk. And, although 2009 was tough, the other years were good. But, even when accounting for this assistance and a tough 2009, this producer still made great strides toward becoming a millionaire dairy producer.

Therefore, the millionaire dairy farm model is a realistic model that can be successfully employed, though not all attempts have been successful. Dairy producers and others are encouraged to assist young producers get started for the future of agriculture and the dairy industry in Iowa.

Table 1.

MODEL Grazier # 3	Actual YR2	Actual YR3	Actual YR 4	Actual YR 5	Actual YR 6	Actual YR 7	6 YR Average	2003 Not Included	
Beginning Producer	2004	2005	2006	2007	2008	2009	2004-09	per cow	
Productive Crop Acres	70	70	70	70	70	70	70	0.86	
Average Number of Cows	68	70	77	90	94	92	82		
Total Assets on Farm	\$132,558	\$194,100	\$226,343	\$338,514	\$382,850	\$354,855	\$271,537	\$3,318	
Non-farm Income	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Family Living Expenses	\$30,000	\$30,000	\$18,000	\$24,000	\$24,000	\$25,000	\$25,167	\$308	
Capital Purchases	\$19,600	\$9,000	\$8,400	\$14,800	\$17,350	\$0	\$11,525	\$141	
Ending Cash Flow	\$31,388	-\$9,696	\$12,191	\$44,136	\$9,567	(\$2,236)	\$14,225	Pre-Tax Dollars!!	
Ending Cash Flow Ratio	22.30%	-5.41%	6.44%	15.52%	2.90%	-0.84%	6.82%		
Milk Price	\$18.35	\$15.85	\$13.53	\$20.71	\$19.37	\$12.53	\$16.72		pounds
Milk Hundred weight Equiv	9,383	10,515	15,152	16,663	15,969	22,023	14950.87	182.70	18,270
Milk Hundredweights	8,974	9,934	12,295	14,587	17,342	16,991	13353.83	163.18	16,318
Milk Sales	\$164,669	\$157,498	\$166,407	\$302,092	\$309,299	\$212,821	\$218,798	\$2,674	
Cull Cow Sales ~10-17%	\$2,868	\$2,414	\$4,948	\$6,623	\$12,020	\$9,358	\$6,372	\$78	
Calf Sales	\$3,630	\$4,383	\$6,802	\$4,600	\$2,177	\$1,933	\$3,921	\$48	
Crop Sales	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Other Income	\$1,001	\$2,424	\$2,131	\$2,530	\$12,391	\$26,815	\$7,882	\$96	
Total Cash Income	\$172,168	\$166,719	\$180,288	\$315,845	\$335,887	\$250,927	\$236,972	\$2,896	per cwt eq.
Veterinary, Medicine	\$4,777	\$2,854	\$3,009	\$2,850	\$4,727	\$4,000	\$3,703	\$45	\$0.25
Dairy Supplies	\$6,305	\$9,525	\$10,212	\$12,176	\$12,840	\$9,182	\$10,040	\$123	\$0.67
Breeding Fees	\$2,256	\$1,002	\$1,179	\$1,388	\$1,135	\$1,049	\$1,335	\$16	\$0.09
Feed Purchased	\$47,057	\$58,645	\$70,394	\$130,849	\$147,084	\$145,255	\$99,881	\$1,221	\$6.68
Repairs	\$1,026	\$4,107	\$2,220	\$6,429	\$10,865	\$4,446	\$4,849	\$59	\$0.32
Seed, Chem, Fert	\$180	\$1,397	\$1,683	\$4,350	\$6,500	\$5,223	\$3,222	\$39	\$0.22
Fuel, Gas, and Oil	\$1,748	\$3,380	\$4,932	\$7,721	\$8,432	\$5,972	\$5,364	\$66	\$0.36
Utilities	\$3,498	\$3,527	\$4,676	\$5,137	\$4,922	\$5,975	\$4,622	\$56	\$0.31
Interest Paid	\$3,900	\$5,640	\$4,890	\$3,390	\$1,437		\$3,210	\$39	\$0.21
Labor Hired	\$0	\$12,745	\$12,380	\$12,694	\$14,267	\$15,289	\$11,229	\$137	\$0.75
Rent, Lease and Hire	\$16,864	\$15,906	\$14,409	\$17,485	\$21,901	\$24,817	\$18,564	\$227	\$1.24
Property Taxes	\$0	\$0	\$0	\$0	\$4,283	\$0	\$714	\$9	\$0.05
Farm Insurance	\$965	\$978	\$978	\$1,020	\$1,020	\$1,484	\$1,074	\$13	\$0.07
Other Cash Expense	\$6,504	\$5,150	\$8,835	\$7,449	\$20,527	\$11,437	\$9,984	\$122	\$0.67
Total Cash Expense	\$91,180	\$124,856	\$139,797	\$212,938	\$259,939	\$234,129	\$177,140	\$2,165	\$11.85
Net Cash Income	\$80,988	\$41,863	\$40,491	\$102,907	\$75,947	\$16,798	\$59,832	\$731	\$4.00
Inventory Change	\$9,472	\$26,095	\$21,385	\$44,235	\$17,459	\$8,384	\$21,172	\$259	\$1.42
Net Farm Income	\$90,460	\$67,958	\$61,876	\$147,142	\$93,406	\$25,182	\$81,004	\$990	\$5.42
Equity@	\$7,081	\$3,880	\$11,196	\$13,063	\$16,997	\$13,951	\$11,028	\$135	\$0.74
Return to Labor	\$83,379	\$64,078	\$55,570	\$134,080	\$76,408	\$11,231	\$70,791	\$865	\$4.73
Inventory Adjustments--Feed	\$0	-\$804	\$4,785	-\$265	\$728	(\$3,575)	\$145	\$2	\$0.01
Supplies and Other	-\$28	\$0	\$0	\$0	\$0	\$0	-\$5	\$0	\$0.00
Breeding Livestock	\$19,900	\$24,800	\$20,000	\$29,500	\$15,500	\$28,500	\$23,033	\$281	\$1.54
Income Change	\$19,872	\$23,995	\$24,785	\$29,235	\$16,228	\$24,925	\$23,173	\$283	\$1.55
Prepaid Expenses	-\$4,000	\$0	\$0	\$20,000	\$2,231	(\$12,341)	\$982	\$12	\$0.07
Accounts Payable	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0.00
Machinery & Equipment	\$10,000	\$10,100	\$5,000	\$11,800	\$16,350	(\$3,000)	\$8,375	\$102	\$0.56
Land and Buildings	\$800	\$0	\$0	(\$2,000)	\$0	(\$1,200)	-\$400	-\$5	-\$0.03
Other Adjustments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0.00
Expense Change	-\$6,800	(\$10,100)	(\$5,000)	(\$29,800)	(\$18,581)	\$16,541	-\$8,957	-\$109	-\$0.60
Capital Purchases Minus Sales Ac	\$19,600	\$8,000	\$8,400	\$14,800	\$17,350	\$0	\$11,358	\$139	\$0.76
Depreciation COST	\$11,813	\$12,000	\$18,013	\$20,153	\$21,750	\$0	\$13,955	\$171	\$0.93
Depreciation FM Value	\$1,800	\$2,200	\$3,000	\$3,000	\$4,000	\$4,200	\$3,033	\$37	\$0.20
Unpaid Labor Cost	\$30,000	\$25,000	\$25,000	\$30,000	\$40,000	\$40,000	\$31,667	\$387	\$2.12
Unpaid Labor Hours	2,400	1,820	2,200	3,000	3,600	3,600	2770.00	34 hrs/cow	
Labor Full Time Equivalent:	0.80	0.80	1.00	1.00	1.50	1.50	1.10		
Labor Earnings Per Hour	\$34.74	\$35.21	\$25.26	\$44.69	\$21.22	\$3.12	\$27.37		

Table 2.

MODEL Grazer # 3	Actual YR2	Actual YR3	Actual YR 4	Actual YR 5	Actual YR 6	Actual YR 7	6 YR Average	2003 Not Included
Beginning Producer	2004	2005	2006	2007	2008	2009	2004-09	per cow
Gross Income per Cwt. Eq.	\$18.35	\$15.85	\$13.53	\$20.71	\$19.37	\$12.53	\$16.72	
Gross Expense per Cwt. Eq.	\$13.31	\$12.61	\$12.61	\$14.46	\$17.37	\$13.83	\$14.03	
Net Income per cwt.	\$5.04	\$3.25	\$3.25	\$6.25	\$2.00	(\$1.31)	\$3.08	
Cash Income--	\$172,168	\$166,719	\$180,288	\$315,845	\$335,887	\$250,927	\$236,972	\$2,896
Adjusted Income	\$22,272	\$23,995	\$24,785	\$29,235	\$16,228	\$24,925	\$23,573	\$288
Total Income	\$194,440	\$190,714	\$205,073	\$345,080	\$352,114	\$275,852	\$260,546	\$3,184
Cash Costs	\$91,180	\$124,856	\$139,797	\$212,938	\$259,939	\$234,129	\$177,140	\$2,165
Adjusted Costs	\$12,800	(\$2,100)	\$3,400	(\$15,000)	(\$1,231)	\$16,541	\$2,402	\$29
Overhead Costs	\$37,081	\$28,880	\$31,306	\$43,063	\$56,997	\$53,951	\$41,880	\$512
Total Costs	\$141,061	\$151,636	\$174,503	\$241,001	\$315,706	\$304,621	\$221,421	\$2,706
RETURN OVER COSTS	\$53,379	\$39,078	\$30,570	\$104,080	\$36,408	(\$28,769)	\$39,124	\$478
Adj. Gross Return per FTE Labor.....	\$240,051	\$238,393	\$205,073	\$345,080	\$234,743	\$183,901	\$241,207	
Return to All Labor per FTE Labor..	\$104,224	\$96,029	\$67,950	\$146,774	\$60,450	\$17,680	\$82,184	
Number of Cows per FTE Labor.....	85	88	77	90	63	61	77	
Cwts. of Milk Sold per FTE Labor...	11,217	12,418	12,295	14,587	10,646	11,327	12,082	
Pounds of Milk Sold per Cow.....	13,197	14,192	15,968	16,208	16,988	18,468	15,837	
Productive Crop Acres per Cow.....	1.00	1.0	0.9	0.8	0.7	0.8	0.86	
Capital Cost per Cow.....	\$129	\$167	\$184	\$216	\$239	\$197	\$189	
All Labor Costs per Cow.....	\$441	\$539	\$485	\$474	\$577	\$601	\$520	
Fixed Cost per Cow (DIRTI)	\$158	\$240	\$226	\$299	\$411	\$262	\$266	
Capital Invested per Cow.....	\$1,593	\$2,408	\$2,394	\$3,135	\$3,380	\$3,335	\$2,708	
Net Farm Income per Crop Acre.....	\$1,292	\$971	\$884	\$2,102	\$1,334	\$360	\$1,157	
Lbs. Milk Produced per Crop Acre...	12,820	14,192	17,564	20,838	22,813	24,273	18,750	
Adj. Gross Cash Income/Crop Acre	\$2,778	\$2,724	\$2,930	\$4,930	\$5,030	\$3,941	\$3,722	
Machinery Investment/Crop Acre	\$170	\$314	\$421	\$541	\$743	\$838	\$504	
Fuel, Gas and Oil Cost/Crop Acre...	\$25	\$48	\$70	\$110	\$120	\$85	\$77	
Repair Cost per Crop Acre.....	\$15	\$59	\$32	\$92	\$155	\$64	\$69	
Fert/Chem/Seed Cost/Crop Acre...	\$3	\$20	\$24	\$62	\$93	\$75	\$46	
Livestock over Total Investment %	80%	83%	75%	72%	69%	67%	74%	
Cash Exp./Cash Inc.w/o Labor&Int.	53%	64%	68%	62%	73%	87%	68%	
All Labor as Percent of Total Costs	21%	25%	21%	18%	17%	18%	20%	Model Graziers 2010
Fixed Cost as Percent of Total Cost	8%	11%	10%	11%	12%	8%	10%	generated by
**Net Farm Income From Operat	\$90,460	\$67,958	\$61,876	\$147,142	\$93,406	\$25,182	\$81,004	DAIRY TRANS 4.4
**Rate of Return on Assets.....	51.23%	27.45%	20.15%	38.43%	15.20%	-4.21%	25%	563-583-6496
**Rate of Return on Equity.....	51.23%	55.36%	29.24%	44.84%	15.71%	-4.25%	32%	
**Operating Profit Margin.....	31.09%	25.48%	20.37%	34.93%	15.58%	-5.37%	20%	
**Asset Turnover Ratio.....	165%	108%	99%	110%	98%	78%	110%	Model Graziers 2010
**Operating Expense Ratio.....	53%	60%	66%	56%	72%	89%	66%	by Dr. Larry F. Tranel
**Depreciation Expense Ratio.....	1%	1%	1%	1%	1%	2%	1%	Dairy Field Specialist
**Net Farm Income Ratio.....	0%	3%	30%	43%	27%	9%	19%	e- tranel@iastate.edu
Estimated % Interest Paid	6.0%	7.6%	6.0%	6.5%	6.9%	0.0%	6%	
Dairy TRANS Profit Status is...	SUPERB!	SUPERB!	SUPERB!	SUPERB!	SUPERB!	Poor	SUPERB!	IOWA STATE UNIVERSITY
Dairy TRANS Performance Ratir	219.00%	101.00%	124.00%	179.00%	107.00%	30.00%	127%	Cooperative Extension



The Millionaire Model Dairy Farm Project was designed by Dr. Larry Tranel, ISU Extension Dairy Specialist, NE/SE Iowa.

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