

Making Millionaire Model Dairy Producers, Part III

by Dr. Larry Tranel, ISU Extension Dairy Specialist

ISU Extension's Millionaire Model Dairy Farm Project has inspired beginning and transitioning dairy producers towards more profitable operations. Moreover, this model has proven very successful and has been a great learning experience for the producers, Extension educators and the agri-business personnel working closely with them.

A model beginning dairy producer was the focus of Part I of this series. Defining the financial model and sharing the results of the five Millionaire Model Dairy Farms was the focus of Part II of this series. Describing the reasons for success and production practices of these model dairy farms is the focus of Part III of this series.

In a nutshell, the Millionaire Model Dairy Farms collectively focused on:

- 1) Labor Efficiency
- 2) Cost Effective Parlors and Facilities
- 3) Management Intensive Grazing
- 4) Cross Breeding
- 5) Semi-Seasonal Calving
- 6) Dairy TRANS Financial Analysis

Labor Efficiency is Priority One

Cornell data correlates profitability with labor efficiency. Production per cow needs to be balanced with production per labor unit but there *tends* to be more profit with production per labor unit than production per cow, though both are extremely important to optimize in a dairy operation.

Labor efficiency begins with the cows and the milking parlor. Model farms typically average around 65 cows per full time labor equivalent (FTE) and average around 1.1 million pounds of milk sold per FTE annually. These are great benchmarks.

Wisconsin data gives a 2:1 labor efficiency increase in a parlor over a tie stall barn; a 3:1 labor efficiency in a free stall barn versus a tie stall barn. There is also a 2:1 demonstrated increase in labor efficiency in manure storage over daily manure hauling. And, there seems to be an increase in labor efficiency on a per cow basis with management intensive grazing, crossbred cattle and semi-seasonal calving (maybe not on a per hundredweight of milk basis).

The Millionaire Model Dairy Farm producers increased their realization over time that dairy cows are employees and that more dairy cows put on a tract of land can increase labor efficiencies for that land and labor unit *if* there is a ***labor efficient*** milking parlor, feeding system and housing facility.

Labor efficiency hopefully translates into profits. The 2007 and 2009 data show average returns to labor per FTE laborer of \$124,045 and \$32,397 respectively and labor returns of \$41.35 and \$14.30 per hour respectively. The large difference is due to large milk price differences in the respective years.



A lone teenager milks 65 cows per person per hour in a low-cost TRANS Iowa parlor which serves the goals of labor efficiency and cost effective facilities. Consult website on back page for parlor action videos.

Cost Effective Facilities & TRANS Iowa Parlors

Reducing investment cost per cow is an important goal while keeping cow comfort, dry matter intake and labor efficiency in mind. Housing facilities on the millionaire model dairy farms grew as the herd and equity positions grew. Some started with little housing and even out-wintering but quickly realized the value of well designed housing facilities.

There is a wide range of housing types used, including hoop structures, compost packs and freestalls. The bottom line for cost effective facilities is that cow comfort and dry matter intake is extremely important. Inadequate feeding facilities, lack of fresh air and water and improperly designed freestalls often inhibit milk production and thus profits. Consult publication PM 2040 entitled "Remodeling Your Dairy—Cost Effective Facilities" located on the website listed on the back page.

All of the Millionaire Model Dairy Farms feed with Total (or Partial) Mixed Ration (TMR) and have manure storage. Manure storage also plays into labor efficiency. Daily hauling of manure, as is often done with tie stall barns often take twice the labor as hauling with even short term manure storage.

A most important area for both labor efficiency and cost effective facilities on these farms is a close variation of the TRANS Iowa milking parlor. With low cost, labor efficiency and milker ergonomics in mind, these parlors are often built for \$1,000-\$2,500 per stall in an existing barn which is much cheaper than conventional parlors often at \$5,000-\$15,000.

As mentioned in the introduction, housing, manure and feeding facilities are designed to handle around 65 cows per person and milking parlors are designed to handle around 65 cows per person per hour. Consult publication PM 2033 entitled "Transforming a Milking Parlor at Low Cost" also located on the website listed on the back page.



A TRANS-Iowa Swing 16 parlor designed to milk over 100 cows per hour with 2 people in the pit built for \$2,350 per stall including the parlor equipment.

Management Intensive Grazing Has Benefits

The Millionaire Model Dairy Farms focus on high quality forages as the base of their ration. And, the base of their forage program is management intensive grazing (MIG) which allows these dairy producers to put high quality forage (22% plus protein) in front of the cows for about one-half the cost of conventional stored forages.

Dairy Grazing is governed by five Golden Rules:

- 1) **Keep the pasture vegetative** and growing between 4"-14". When grazed lower, the plants need to draw heavily on root reserves for re-growth. It takes longer to grow from 1" to 4" and the plants growing points are often around the 4" mark for many species and not to be grazed off. Once plants are greater than 4", more energy from the sun, rather than the roots, assists very rapid plant growth up until around the 12"-14" inch mark where the plant growth begins to slow as it begins to develop seed heads to reproduce.
- 2) **Graze the pasture quickly** with 12 hour breaks in milking herds to maintain forage quality and not allow regrowth to be grazed as that further depletes root reserves.
- 3) **Rest the stand** to allow time for regrowth that may be 12-18 days in the spring and 30-45 days in late summer. Late summer rest periods are crucial to maintain sward health and reduce weed seed competition.
- 4) **Be flexible** as each grazing event and each season is different. Permanent fixed paddock systems are often the wrong size for variations of the grazing season. Use available temporary fencing technology.
- 5) **Feed those cows** as there is no such thing as free milk. Profits are turned by working on the "margin over body maintenance" meaning it takes a lot of feed to maintain a cow. Each additional 5 lbs. of grain can provide enough nutrients to support an additional 10 lbs. of milk and often results in a 3:1 return per each dollar spent.

Other issues of concern are that modern cows can only intake about 22-28 pounds of dry matter from pasture so producers need to add grain and forage supplement. A good thumb rule is a pound of grain for each 3.5-4 lbs. of milk produced. Adding 3-6 lbs. dry matter corn silage or hay supplement is common on higher profit farms in addition to grain and mineral supplementation. Cows on pasture are limited in that in less than eight hours, a cow needs to take about 27,000 bites to intake enough dry matter and will normally not graze longer to take more bites. So, each bite needs to be a mouthful.

Based on personal and research experience, low to no grain programs are not advised in our present dairy systems. Low milk production level herds tend to have high maintenance costs per cow relative to higher producing herds that for those same cow maintenance costs, may production 50-100% more.

Pasture based dairies can also achieve good milk production results. Below is a typical ration in early summer, late summer and winter for a Holstein herd with a **Rolling Herd Average of 24,159**; Milk 3.53% and 852 lbs. Fat; and 3.05% and 737 lbs. Protein.

Date	6/23/03	9/03/03	12/21/03
# Cows	82	77	73
<u>TMR Mix</u>			
Corn Silage	1280	1330	1360
Corn	1640*	1700*	1660 HMC
Cotton	410	400	360
Hay	250	310	310
Rst SB	80	80	200
Pasture	#	#	0
Haylage	350	1330	3000
Mineral Mix*	-	-	80
Milk Lbs	78	74	71
Fat %	3.3	3.3	3.7
Protein %	3.02	2.90	3.07

Another producer with **RHA of 21,977 Mil, 3.6% Fat and 3.0% P at 191 Days in milk** shares his feed costs during a moderate feed price year:

- 10 lbs grain mix X .082 = \$.82
 - 24 lbs corn silage X .0125 = \$.30
 - 8 lbs hay X .035 = \$.28
 - Pasture (20 lbs Dry Matter/day) = \$.69
- Total feed costs/day \$2.09**

\$2.09 / 61.2 lbs milk/cow/day = \$3.41/cwt. feed cost

During the grazing season, it is imperative to balance energy needs and not overfeed protein.

The energy content of grass tends to be quite variable through the season and lower in mid-summer. Understanding pasture quality, especially energy is important for not only milk yield, but also for reproduction as energy content of pastures tends to be lowest during June (breeding season).

Degradable protein is often not limiting as it is often in excess of 22%. Rumen undegradable protein can be an issue without added sources. Thus, sampling pastures for well balanced rations is a common practice among Millionaire Model Dairy Farms.



Stockpiled reed canarygrass for very late fall grazing that tested over 24% crude protein.

Feed quality and quantity is controlled by use of effective temporary and permanent fencing along with good lane and watering systems. For more information regarding Dairy Grazing Systems, please consult the website listed on the back page.



This pasture supported 1.8 heifers at 1.8 pounds gain per heifer/day or 3.24 pounds gain per acre. Over 240 days this equaled 778 lbs gain per acre valued at \$1.00 per pound of gain or \$778 per acre minus expenses of labor, fencing and 1.5 lbs feed supplement per head/day.

Are Crossbred Dairy Cows a Deal or No Deal?

The answer “depends” on many variables. If one wants to maximize milk production per cow then the answer is “no deal” as purebred Holsteins produce around 7-10% more milk per cow than crossbred counterparts. If one wants to maximize combined fat and protein per cow the answer is less clear.

But, all the Millionaire Model Dairy Farms are using crossbreeding with the goal of cows that need less feed maintenance and herd health maintenance along with better reproduction and longevity. Three breed crosses are most advised and retain 86% of F¹ heterosis. The following data gives credence to their decision as does an average cull rate between 10%-20% on each of the farms over time.

A Minnesota study of seven herds in California showed survival or longevity improvement. With all crossbreds, 2.6% died or were culled before 1st milk test. With purebred Holsteins, 8.7% died or culled before 1st milk test. For death or cull losses through 305 days, the Holsteins were 15.9% and the Crossbreds were less than half that at 7.4%.

Pluses and Minuses of Crossbreeding

Swedish Red & Montbeliarde crosses, CA & MN

- A. + Reduced Dystocia
- B. + Reduced stillbirth incidence
- C. = Milk, Fat and Protein
- D. + Decreased days open

Other crossbreeding research data:

- E. + Calving ease (Jersey x Holstein)
- F. ~ = Components (Jersey x Holstein)
- G. + Fertility (Jersey x Holstein)
- H. – Udder (Jersey x Holstein) too deep especially at 3rd lactation and greater
- I. + Herd life

There are many other variables to account for in the decision. For example, crossbreds can recognize an estimated 6% reduction in dry matter intake with equal feed efficiency compared to pure Holsteins. This 6% dry matter intake reduction (Holstein-Jersey cross) may equate to about three pounds of dry matter per cow per day or about .65 ton of dry matter per cow per year.

The cost per cow of feed savings is only about \$75 which can compensate for 625 pounds of \$12/cwt milk or 3% of the milk lost versus pure Holsteins. Thus, some of the lost milk is recovered in feed cost savings. Economic values also need to be put on other traits. So, crossbreeding can be a real deal.



Crossbred cows with a Jersey-Holstein base grazing on a Millionaire Model Dairy Farm. European breeds make up the 3-4 way cross every other generation.

Semi-Seasonal Calving of the Dairy Herd

Though there were several variations of seasonality with calving employed on these Millionaire Model Dairy Farms, all the farms over time targeted around 2/3rds of the cows calving in the spring, starting in late February or March. The remaining 1/3rd or so would be targeted for September and October. The second main goal became to not calve in July and August or late December, January and early February.

One very profitable model dairy farm at one point was milking once-a-day (can only do with Jersey based herds) from Thanksgiving through December 23rd and then completely drying off the herd until calving started in February. This herd was able to get over 80% of the cows bred in a 6 week window. Thus, this producer demonstrated that seasonal herds are possible but a Wisconsin study has shown them to be less profitable relative to year-round milking on a whole farm basis but potentially more profitable on a per hour of labor basis.

Dairy TRANS Financial Analysis

Millionaire Model Dairy Farms have shared that part of their success has been due to the financial planning and benchmarking thanks to an annual financial analysis done by this author. By simply using Schedule F data and an accurate beginning and ending net worth statement, a Dairy TRANS analysis identified strengths and weaknesses to help the dairies attain higher financial performance. Consult ISU Extension Publication LT-105, 2009 “Managing Dairy Farm Finances” on the website below for more financial/benchmarking information.

Making Millionaire Model Dairy Farms

There is demonstrated opportunity in dairy farming for producers to profit with good quality of life. . These Millionaire Model Dairy Farms have proven their ability to not just survive, but to thrive, even despite very tough years such as 2009 and others.

Controlling costs and understanding profitability were paramount in their success. In the end, their focus was: 1) Labor Efficiency; 2) Cost Effective Parlors and Facilities; 3) Management Intensive Grazing; 4) Cross Breeding; 5) Semi-Seasonal Calving; and 6) Dairy TRANS Financial Analysis.

Please know not all attempts using this model have been successful. Some dairies using a traditional confinement model have demonstrated comparative profit levels during this same time frame. New and transitioning producers should realize both models can be roads to success. However, the Millionaire Model Dairy Farms may be an easier and lower risk means to attaining financial and quality of life goals.



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



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