

# ISU Extension View

## News from ISU Extension to Iowa Dairy Producers

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### Creating Model Dairy Farm Millionaires!

Iowa dairy industry development has a large social and economic impact on our families, our farms, our schools and our local and statewide communities. Each cow generates approximately \$13,000 of economic activity annually so it doesn't take much to multiply that by the number of cows on our farms or in our counties to understand the impact of dairy.

Even so, the many players in the industry have various values and opinions of how best to develop the industry in regards to herd size and operational types.

This issue aims to focus on what is less familiar but can be a very profitable operational type—the low cost, labor efficient, modified seasonal and rotational grazing approach to producing milk in Iowa.

It is being proposed especially as a model for assisting younger dairy producers to get started, but to also focus on a model that can help them become millionaires by age 45-50. Please read on and assist our dairy industry generate new producers.

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ISU Extension Dairy Field Specialist, NW Iowa

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## IOWA STATE UNIVERSITY

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### Upper Midwest Grazing Conference

*“Learn about a very profitable alternative for Iowa”*

The 4-State Extension's Upper Midwest Grazing Conference is coming to the Best Western Midway Hotel, August 2<sup>nd</sup>-4<sup>th</sup>, 2005 in Dubuque, IA. This summer grazing conference will feature speakers from the Upper Midwest and will include farm tours, a trade show and an abundance of networking opportunities for producers and industry personnel.

**Day One Topics:** How I Profit From Grazing Panel; How to Qualify for Your Conservation Security Program Dollars?; Using, Converting and Renovating Crop Ground for Pasture Panel; and Those Darn Thistles.

Joel McNair, editor of GRAZE magazine will set the stage for **Keynoters Dan and Ruth Vosberg** of South Wayne, WI who seasonally milk 150 crossbred cows in a low cost milking and housing system on 320 rolling acres.

**Day Two Topics: Dairy Breakouts:** Parlor Planning Update; Cow Comfort and Feeding Facility Design; and Supplementing Pastures. **Livestock Breakouts:** Pasture Beef Nutrition and Livestock Health Issues on Pasture.

Tours will visit the Russell Brothers and Mike Enschede dairies near Shullsburg, WI and then onto the Terry Beyer/Dennis Hesse Beef Operation near Elizabeth, IL, until early evening.

**Day Three Topics:** How Diverse Should Your Pasture's Be?; Kura Clover—Does it Fit on Your Farm?; and Baleage, Feed Pads, Forage Piles and Cattle Lanes.

Registration is due July 21<sup>st</sup> by mailing \$75 per person (payable to Grant County Extension) with name, address and phone number to Dave Wachter, Grant County Extension, Box 31, Lancaster, WI 53813. Single day registrations are available for \$45 per person per day. After July 21st, registration fees are increased \$15 per person. Tuesday evening meal, Wednesday lunch and bus tour is included. A block of rooms are available at the Best Western Midway Hotel, 3100 Dodge Street by calling 563-557-8000.

To request a registration brochure contact Larry Tranel at 563-583-6496, Ext. 14 or email [tranel@iastate.edu](mailto:tranel@iastate.edu). Brochures can be downloaded from the website at [www.wisc.edu/cias/uppermidwest](http://www.wisc.edu/cias/uppermidwest).

***ISU Extension DAIRY TEAM***  
***“Bringing Profits to Life”***



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- Dr. Leo Timms

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## **Inside This Issue:**

- **Model Dairy Farm Millionaires**
- **Are These Model Farm Profitable**
- **Vision and Mission of Model Producers**
- **Model Debt and Asset Structures**
- **Low Cost, Labor Efficient Facilities**
- **Modified Seasonal Dairying; Crossbred Dairy Cows; and Rotational Grazing**
- **Model Farms Financial Comparisons**

## ***Why Establish Model Dairy Farms?***

It is important for people to aspire towards models and goals they would most like to become. The same is true for beginning as well as established dairy producers to help them attain the industry and quality of life standards where they realistically can and want to be in their dairy operation. Most producers want to be profitable with a good quality of life, which the dairy industry can provide quite well for those producers who can manage cost and income structures relative to risks.

## ***Are These Model Farms Profitable?***

Few recognize the ability of young producers to profit strongly with dairy as a career. For example, families in NE Iowa in 2000 and 2002 garnered approximately \$100,000 net return to labor after an equity charge milking 100-140 cows with low/mediocre milk prices. In 2004, with much higher milk prices, the five model farms averaged \$153,314 net return to labor with a decent quality of life as well. One family, a seasonal dairy achieved \$244,141 net return to labor. Thus, it is possible to milk the dairy industry for high levels of profit.

Though many practices affect profitability, these producers use of a combination of low cost, labor efficient parlor and housing facilities; modified seasonal calving; cross-bred dairy cattle; management intensive grazing; and detailed financial analysis.

These five model farms reside in Iowa and Wisconsin and closely resemble a low cost, modified seasonal, labor efficient, profitable grazing model. This model has been continually fine-tuned but the overriding goal was to create millionaire dairy producers within a 20-25 year time frame. In addition, each of the model farms are very cost conscious relative to income generation and analyze their dairy farm financial records annually or bi-annually through the Dairy TRANS 4.0 computerized financial analysis.

## ***What is the Vision and Mission of the Base Model for a Beginning Dairy Producer?***

The dairy millionaire base business begins (Farm #3 of the Model Farms on pages 6-7) with a long term vision and mission, of which an example follows:

- **VISION:** “To achieve long term financial security while conducting our affairs in stewardship of our faith, family, friends and farm.”
- **MISSION:** “To operate a simple, enjoyable dairy operation managed by 1 to 1.5 persons, which provides sufficient income for:

- 1) Living Expenses, so we can enjoy quality of life, without off-farm income.
- 2) Profitable Investment, so we can retire comfortably and assist next generation.
- 3) All Farm Capital, so we can develop our farm more profitably and efficiently.
- 4) All Farm Expenses, so we can remain liquid and solvent during operations.

The long term financial security is based on profitable financial investment in a dairy operation. The 80 cows on 80 acres base model dairy farm begins in a cash rent-buy feed arrangement that uses corn silage purchase contracts and rents dairy facilities and land at going rates. It hopefully ends after a successful career with full farm ownership ready to transfer to another generation.

The dairy operation generates enough income to pay for family living but also generates a good return on assets and equity after labor (family living) expenses to profitably reinvest back into the business (paying down principal). The example dairy farm on pages 8-9 generates an approximate return on assets of 13% and an approximate return of 15% on return on equity based on the following asset and debt levels.

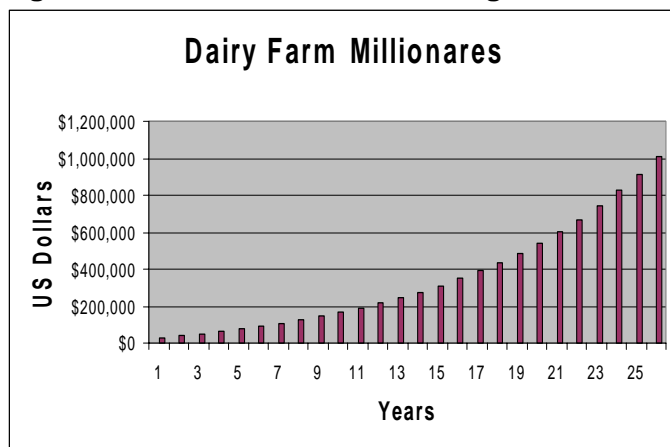


## What is the Model's Debt and Asset Structure?

In order to develop the base business, a Summary Loan Request to borrow \$110,000 for:

- a) Cows, 80 cows at \$1,500 or \$120,000  
(average long term value, not current value)
  - b) Machinery:
    - Tractor \$4,300
    - Skid Steer \$3,600
    - Manure Spreader \$3,000
    - 4 Wheeler \$1,200
    - Rake \$500
    - Haybine \$2,400
    - Total Machinery \$15,000
  - c) Capital Improvements \$5,000  
(rented farm)
- \$140,000
- d) Capital on Hand 30,000 Goal < 80% Borrowed

**Figure 1. Net Worth Growth for Beginner**



Beginning Principal = \$30,000; Annual Deposit = \$7,000; NW ROA = 10%

Annual Deposit of \$7,000 is a function of:  
 \$110,000 @ 5% (ROA=13%-8% Interest) = \$5,500  
 \$30,000 @ 5% (ROE=15%-10% ROA) = \$1,500

The base dairy operation must garner \$30,000 of Net Worth from labor or other arrangement such as "sharemilking"<sup>1</sup> prior to operating the base business in order to obtain a loan. The \$7,000 annual deposit (reinvestment) is a product of a return on assets (ROA) and a Return on Equity (ROE) of 5% higher than lender interest or owner's equity charges. Then, with wise use of credit, a willing dairy farm leasor (until farm ownership is an option), protection against disease and disaster, and cost control measures coupled with dairy farm management skills, the base operation is positioned to earn the desired returns for both labor and investment into the base dairy business. Then, during the 20-30

year time frame, the net worth of the base operation exceeds the \$1 million mark, **thus creating a dairy millionaire family.**

The model farm generates approximately \$43,500 return to labor which is just barely enough return above family living (\$25,000) to make the principal payment before taxes. So, there are two and potentially three cash flow issues early on that need to be addressed. The first issue is if income projections are low or expenses are high causing a problem paying the principal or other expenses.

Second, we have a taxable income issue that is highly variable due to family structure and is difficult to predict. And third, years one and two have the cash drain for necessary replacements in the operation until the producers' own heifers come into milk. The base analysis is a fully operating dairy in year three complete with own replacements. These issues point to a reality where even profitable operations may have difficulty starting up under present asset/cashflow lending requirements.

Thus, assistance from beginning farmer loan programs, and other family, community, government or industry support "**may be**" needed. Profit and business based lending versus cash flow and asset lending requirements is an issue for many new and transitioning dairy producers.

Even so, with the difficulties in start-up dairies but also coupled with other situations involved with dairy farm investing, three of the five model farms report being able to attain the \$1 million dollar net worth mark within the early 15-20 year ranges of this time frame due to land, cattle and other investment decisions over and above the base dairy business.

## 2004 Update of Model Grazing Farms

The consistent and profitable success of these model dairy grazing farms serve as a source of learning and inspiration for those new and transitioning dairy producers wanting to achieve their farming dream for profit and quality of life in a dairy production career.

The financial comparisons of these model farms follow. A Dairy TRANS Analysis of the start-up dairy operation is also included, after a discussion of issues each of these models uses for success.

**"Yes, Dairying in Iowa Can Be Very Profitable"**

## Issue One: Low Cost, Labor Efficient Facilities

The traditional stantion or tie-stall barn is not a labor efficient means of milking cows. Milking efficiency tends to double (2:1 ratio) as producers move from stall barn milking to pit parlor milking while feeding efficiency tends to increase up to five-fold (5:1 ratio) from stall barn feeding to freestall feeding when doubling herd size. Due to the reduced labor needs of pastured dairy cows, sizeable labor efficiencies can be gained in pasture based systems (2:1 ratio) due to less mechanical feed harvest and manure handling needed. Non-daily manure hauling also increases labor efficiency (2:1 ratio).

So, yes, depending how the operation is set-up, we have producers able to milk 80 cows for much higher profit rather than milk 40 cows with the same labor.

The priorities of the low cost facilities are the same as high cost facilities. **Cow comfort** is "priority one" realizing shortcomings in cow comfort can be a most costly mistake as cows make milk best when lying down. **Dry matter intake** is "priority two" as proper feed bunk design, feed quality and type, lighting, ventilation and good quality and quantity of water means profit as each pound of dry matter intake above maintenance is worth 2-2.5 pounds of milk. **Labor Efficiency** is "priority three" so if operations don't flow well labor-wise, identify and eliminate bottlenecks in facilities and management.

Remodeling dairy barns to a parlor and holding area has made sense to many producers. With limited financial resources available, it is recommended to spend available resources on cow comfort, dry matter intake and labor efficiency priorities first. Typically, this means putting necessary financial resources towards a well designed remodeled shed of some sort or a new freestall barn because that is where the cows spend most of their time.

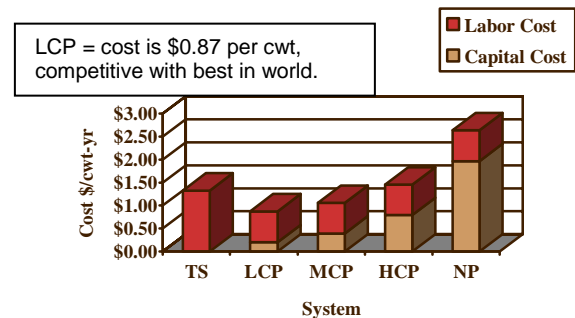
Although many producers are very successfully converting tie stall barns into a milking parlor, not all tie stall barn make good remodeling projects. But, there are many advantages to consider this option:

- The milk house system is already in place adjacent to the parlor and cost savings could allow proper investment in freestalls without sacrificing cow flow and efficiency.
- Swing units can be employed initially by using present 2" line double-looped with 2% slope to incorporate a swing eight parlor.
- Most stall barns are sized for a swing 8-16 parlor with holding area for 80-120 cow herd.

- The payback of a parlor in labor savings (time and back/knee bends) can be rapid. Some low cost parlors have less total costs (\$800/stall) than other have in annual costs with paybacks in less than one year, making it cost effective even if only for 3-5 years in a transition phase.

It is important for aspiring dairy farm millionaires to invest wisely in the most productive assets early in the career. Thus, the milking system is to be considered wisely. With all costs considered, aspiring producers may not be able to afford milking in a stall barn early in their career due to labor inefficiencies in both milking and feeding, due to the often hidden cost of not being able to milk more cows and the physical strain of stall barn milking. However, short term cash flow may also prevent cow purchase or parlor construction. Producers might best not invest in a medium or high cost parlor either due to financial risk relative to return.

A low-cost parlor built in an existing building might be the most cost-effective and labor efficient means of milking the cows, depending on relative housing options, as depicted by the graph below.



### 18,000 lbs milk, \$10/hour labor, 120 cows

- Tie Stall (TS)
  - \$35,040/year labor
- Low Cost Remodeled Parlor (LCP)
  - \$25,000-capital (\$4,250 annual)
  - \$14,600/year labor
- Medium Cost Remodeled Parlor (MCP)
  - \$50,000-capital (\$8,500 annual)
  - \$14,600/year labor
- High Cost Remodeled Parlor (HCP)
  - \$100,000-capital (\$17,000 annual)
  - \$14,600/year labor
- New Parlor
  - \$250,000 (\$42,500 annual) (NP)
  - \$14,600/year labor

When transitioning out of stall barn milking, which few producers ever regret, one needs creativity for adapting or locating facilities for the housing of dairy cows, especially when coupled with a rotational grazing system. Extension dairy specialists are very willing to visit farms to assess financial, grazing, housing and parlor facility options.

## Issue 2: Modified Seasonal Calving

A 1995 UW-Extension economic model concluded “pasture based, year-round calving and pasture based, seasonal spring calving systems increased both profit and returns to labor over confinement, year-round calving systems.” In practice though, grazing financial data reports lower total income from the completely seasonal herds on average (though not all), while the modified seasonal herds are included with the average grazing data, so unable to differentiate.

Four of the model farms take a modified approach to seasonal calving in that the aim is for the majority of cows (50-90%) to calve in the March-June time period with a secondary aim of calving the rest in the September-October time period. One model farm (#4) does not milk for one month during the winter and typically calves over 80% of cows in a 6 week window. The seasonal and modified seasonal approach captures grouped labor and management efficiencies, especially in feeding and breeding.

The major issue for seasonality of dairy production has not been lower prices during the spring flush, but the difficulty in getting the cows to calve within the same time period each year. The success of getting this done has been a serious challenge and continues to be so. A major reason why the model farms have implemented cross-breeding programs has been due to the reproductive benefits that hybrid vigor provides, in an effort to remain in a modified seasonal system.

## Issue 3: Cross-Bred Dairy Cattle

The five model farms have all taken the approach to cross-breed their dairy herd, mostly with a Holstein, Jersey or Holstein-Jersey cross for the base with other breeds as well creating a lot of variability amongst the herds. These producers all remark on the benefit of the crosses in reducing culling rates while improving reproduction and maintaining acceptable levels of production. This is an area that needs considerable improvement for long term genetic gains. Research on cross-bred cattle and development of long term cross-breeding plans to realize hybrid vigor in a three or four way cross is direly needed.

Very preliminary data on certain crosses reveals about a 6.5% increase in production of combined fat and protein on certain crosses while increasing longevity, health and reproductive traits 10%. The average cull rate on the five models farms ranges from 10%-17%. This low cull rate contributes greatly to profitability by means of herd growth or addition non-cull cattle sales for these herds. These economic benefits are significant to overall profitability of the model farms.

## Issue 4: Management Intensive Grazing

Labor efficiency is not only an important function of dairy facilities but also an important function of feeding programs. A very labor and cost effective means of feeding dairy cows and heifers is through the use of management intensive grazing. Studies suggest that quality pasture reduces input costs and increases net returns. Benefits cited include: 1) increased yield and quality of forage 2) decreased purchased feed 3) decreased equipment and fuel 4) decreased manure handling and bedding 5) better animal health and 6) reduced labor to feed or harvest the forage. The cost-effectiveness is also true for raising heifers and for pasturing on great quality, high priced Iowa cropland.

An economic model concludes, “with all the variables and potential returns taken into account, rotationally grazed pastures have potential on many dairy farms as the cheapest way to get high quality feed into the dairy cow.” Data from the Great Lakes states, plus Iowa and Missouri confirms the typical profit advantage of the rotationally grazed pasture systems even with less milk production per cow. The average confinement operation produced over 20,000 pounds of milk per cow while the average grazing herd produced about 16,000 pounds per cow. Yet, in spite of the lower production, net profit was still higher for the graziers in all three years of the study. And, some of these operations are on high priced cropland.

A wide variety of grazing management strategies are employed with regard to species, grazing technique, etc. However, all five model farms would be considered serious rotational graziers meaning that the dairy cows typically would see a fresh break of high quality pasture after each milking.

A major area of recognition for each of these model farms is not to expect the dairy cows, especially the larger breed cows, to effectively consume all forage dry matter during the 7-8 month pasture season. Typically, three to six pounds of forage dry matter are supplemented by means of corn silage, dry hay, haylage or baleage. A typical level of corn silage grown tends to be 1/3<sup>rd</sup> acre of corn silage grown or purchased per cow. The total number of acres on these model farms range from one to about two acres.

Thus, all five model farms focus mainly on pasture and other forage production, leaving the production and delivery of most grain and other supplement to other producers or agri-business.

***“Rotational Grazing—A High Profit Alternative”***