ISU Extension View

News from ISU Extension to Iowa Dairy Producers

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Chris Mondak ***Larry Tranel*** ***Dale Thoreson***

Over 400 producers and agri-business personnel attended the 4-State Dairy Nutrition and Management Conference in Dubuque in June. It is amazing how many families are positively impacted by the dairy industry from the operations who produce the milk to the businesses who support them. The Iowa dairy industry can be proud.

One of our new Extension Dairy Team themes is Dairy Business Development. The Chicago Federal Reserve system recently wrote about the needed role of Universities in Economic Development in their regions citing the need to "focus on assisting firms in mature and service industries to use technology better**, i.e., adopt a model similar to that of the old agricultural extension system that linked research and best practices developed at land-grant universities to farmers."**

Thus, our past Extension work has been highly noted in its success, but this is also a charge that as our dairy industry matures and the agri-business service industries develop around and within it, there is still a high and relevant need for Extension to link research and best management practices to better use technology and development management skills.

It is in that spirit that we Extension dairy field specialists operate as we advise on relevant research and technology use and develop management skills in a non-biased, yet cooperative manner with dairy producers and agri-business personnel.

Chris Mondak
ISU Extension Dairy Field Specialist, NW Iowa

Larry Tranel and Dale Thoreson
ISU Extension Dairy Field Specialists, NE Iowa

2006 NE IOWA Pasture Walks

"Transforming Iowa's Dairy Systems"

August 2nd John Palmer, 1-3 pm, Waukon, IA New dairy startup in 2004 with swing parlor, interseeded pastures and new watering system. From Jct Hwy 9 and 51 go 2 miles So 51, turn east to 321 Countryside Drive,

August 25th Dairy Foundation Grazing School, Calmar, IA 10 am – 2:30 pm with a pasture walk. Visit the new swing parlor in old dairy facility with speakers and producer panel. From Calmar go south on 150 1 mile. 563-534-9957 for more information.

October 3rd Chris Riniker, 10:30 am, Strawberry Point, Dairy paddock selection with fall paddock management. Swing parlor also available for viewing and discussion. Hwy 13 S of Elkader to C5X (Emblem Rd, Mederville turnoff) Turn East, go to Mederville, turn right (south) 2.5 miles to 33198 Evergreen road.

October 4th, Northeast Iowa Dairy Foundation, 1-3 pm, Start-up Dairy grazing system, swing parlor and compost barn discussions. One mile south of Calmar on Hwy 150, meeting at old dairy facilities.

Other Iowa Dairy Meetings

Nov 28th and Dec 1st Employee Management Workshops, Jorge Estrada, Souix County and NE Iowa site to be announced, respectively.

Nov 29th Central Plains Association Annual Dairy Business Mtg. Theme: Employee Management.

IOWA STATE UNIVERSITY
University Extension

Helping you become your best.

ISU Extension DAIRY TEAM
"Bringing Profits to Life"

NE Iowa Dairy Extension Field Specialists

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- *Dr. Lee Kilmer*
- *Dr. Leo Timms*

Inside This Issue:

Drying Forage for Hay and Haylage

Dr. Dan Undersander, University of Wisconsin

If we understand and use the biology and physics of forage drying properly, not only does the hay dry faster and have less chance of being rained on, but the total digestible nutrients (TDN) of the harvested forage are higher. As mowing and conditioning equipment has evolved, some of the basic drying principles of forage have slipped by the wayside and we need to review them.

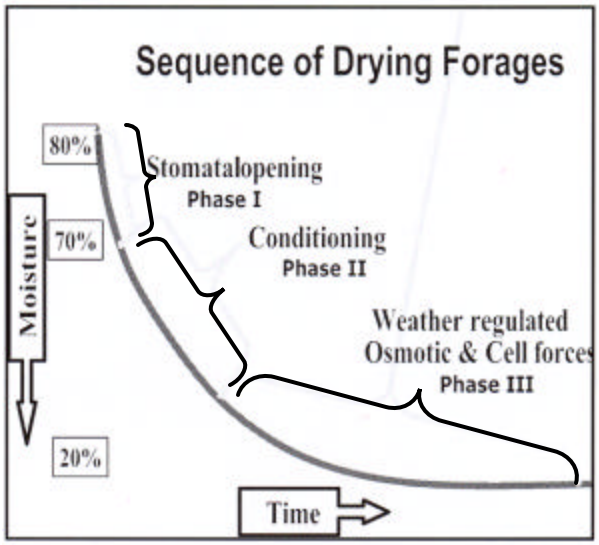
The general pattern of drying forages is shown in the figure at right. When forage is cut, it has a moisture content of 75 to 80 percent depending on the growing conditions. For haylage we want to dry this down to 60 to 65% moisture content and for hay down to 14 to 18% moisture content (lower figures for larger bales).

The first phase of drying, shown on the graph, is the initial moisture loss from the leaves through the stomates. Stomates are the openings in the leaf surface that allow moisture loss to the air to cool the plant and carbon dioxide uptake from the air as the plant is growing. To get this first 10 to 15% moisture loss rapidly we must keep the stomates open. Stomates open in daylight in daylight and close when in dark and when moisture stress is severe. Cut forage laid in a wide swath maximizes the amount of forage is exposed to sunlight. This keeps the stomates open and encourages rapid drying which is crucial at this stage because plant respiration continues after the plant is cut. Respiration rate is highest at cutting and gradually declines until plant moisture content has fallen below 60%. Therefore rapid initial drying to lose the first 15% moisture will reduce loss of starches and sugars and preserve more total digestible nutrients in the harvested forage. This initial moisture loss is not affected by conditioning.

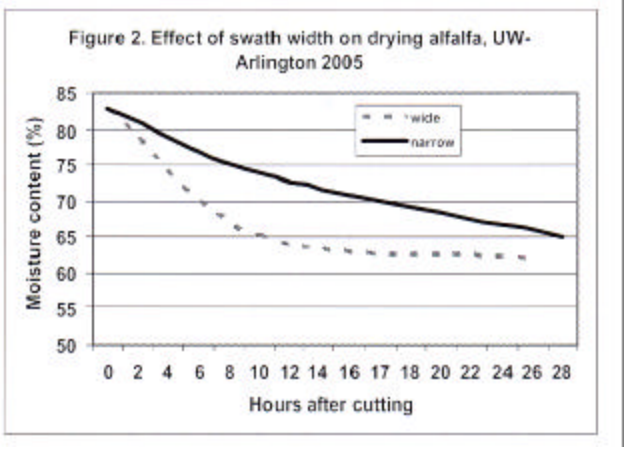
The second phase of drying (II) is moisture loss from both the leaf surface (stomates have closed) and from the stem. At this stage conditioning can help increase drying rate, especially on the lower end.

The final phase of drying (III) is the loss of more tightly held water, particularly from the stems. Conditioning is critical to enhance drying during this phase. Condition to break the stems every two inches allows more opportunities for water loss from the stem since little water loss will occur through the waxy cuticle of the stem.

Understanding these principles will allow us to develop management practices in the field that maximize drying rate and TDN of the harvested forage.

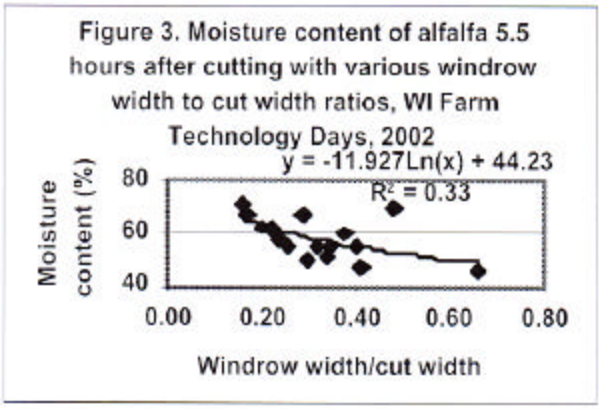


The first concept is that a wide swath immediately after cutting is the single most important factor maximizing initial drying rate and preserving of starches and sugars. In a trial at the UW Arlington Research Station (Figure 2) where alfalfa was put into a wide swath, it reached 65% dry matter in about 10 hours and could be harvested for haylage the same day as cutting. The same forage from the same fields put into a narrow windrow was not ready to be harvested until later the next day! In fact, **a wide swath may be more important than conditioning for haylage**.



The importance of a wide swath is supported from drying measurements taken at the Wisconsin Farm Technology Days in 2002 (figure 3) where different mower-conditioners mowed and conditioned strips of alfalfa and put the cut forage in windrow widths of the operators choice. Moisture content of the alfalfa was measured 5.5 hours after mowing. Each point is a different machine that included sickle bar and disc mowers and conditioners with, steel, rubber or combination rollers. Across all mower types and designs, the most significant factor in drying rate was the width of the windrow.

In figure 3, note the one outlying point at 70% moisture content and a windrow width/cut width ratio of 0.48. This shows how much drying can be slowed by improper adjustment of the conditioner.



We used to make wide swaths in the past but have gradually gone to making windrows that are smaller and smaller percentages of the cut area as mowers have increased in size. Generally, as mowers have gotten bigger, the conditioner has stayed the same size, resulting in narrower windrows. There is some variation among makes and models and growers should look for those machines that make the widest swath.

Putting alfalfa into wide swaths (72% of cut width) immediately after cutting results improved quality of alfalfa haylage compared to narrow windrows (25% of cut width) in a study at UW Arlington Research Station in 2005 (Table 1). Alfalfa was mowed with a discbine, conditioned, and forage was sampled two months after ensiling in tubes. The alfalfa from the wide swaths had 2.3% less NDF, and 1.8% more NFC. The NFC difference is both a quality and yield difference as the 1.8% loss in narrow windrows was to respiration where starch is changed to carbon dioxide and lost to the air. The haylage from the wide swath had almost 1% more TDN and more lactic and acetic acid. The higher acid content would indicate less rapid spoilage on feedout and the overall improved forage quality would be expected to result in 300 lbs more milk per acre.

Some are concerned that driving over a swath will increase soil (ash) content in the forage. In table 1, the ash content haylage from wide swath alfalfa was actually less than from narrow windrows. While narrow windrows are not usually driven over, they tend to sag to the ground causing soil to be included with the windrow when it is picked up. Wide swaths tend to lay on top of the cut stubble and stay off the ground. Further driving on the swath can be minimized by driving one wheel on the area between swaths and one near the middle of the swath where cut forage is thinner.

Table 1 Difference in composition of alfalfa haylage made from narrow and wide swaths, UW Arlington, 2005

Factor	Wide	Narrow	Difference
NDF, %	37.8	40.1	-2.3
NFC, %	38.4	36.5	1.8
Ash, %	9.3	9.9	-0.6
TDN, 1X	63.5	62.6	0.9
Lactic acid, %	5.6	4.6	1.0
Acetic Acid, %	2.4	1.9	0.5
Relative Forage Quality	166	151	15

Grasses, especially if no stems are present, must be into a wide swath when cut. When put into a windrow at cutting, the forage will settle together, dry very slowly and be difficult to loosen up to increase drying rate.

Recommendations:
1) Put cut forage into a wide swath at cutting that covers at approximately 70% of the cut area.
2) For Haylage: If drying conditions are good, rake multiple swaths into a windrow just before chopping (usually 5 to 7 hours later).
3) For Hay: if drying conditions are good, merge/rake multiple swaths into a windrow the next morning (when forage is 40 to 60 % moisture) to avoid leaf loss.

Four Things for Milk Quality

According to Mike Maroney, DVM, University of Wisconsin-Extension, dairy producers should think about four things: forestripping, to stimulate milk letdown and examine milk; clip or singe udders to improve udder hygiene; use plastic gloves during milking to reduce bacterial transfer; and keep good mastitis records.

These four things are big differences between herds with high somatic cell count (SCC) and those herds with low SCC. There are other differences, too such as milker training, written routines, single-use towels—among other things.

Yet, data shows forestripping, singed or clipped udder hair, gloves during milking and good records have the biggest statistical differences. Dairy producers who use the big four tend to producer higher quality milk than those who don't.

If you start forestripping, singeing udders, wearing gloves and keeping records, odds are you also do some of the other little things that help reduce SCC and clinical mastitis.

Producer Profile: Robin Marquette

Fayette, Iowa

Robin started dairying with her parents in 1980 on a 50:50 basis. She took over total management of the dairy in 1992. Managed Intensive Rotational Grazing (MIRG) and Seasonal calving were started in 1992. The original dairy was a 52 cow tie-stall barn with a barn cleaner that deposited manure in an earthen basin.

Robin milks cows alone so she became quite concerned with her safety, especially when adapting 2 year olds to milking. Her desire was to use a milking parlor that would allow her to milk about 50 plus cows per hour and to do that in a manner that would not threaten her safety and would also be less damaging to her knees and back.

In February 2006 she began the process of remodeling the tie-stall barn into a double 10 to 12 parallel parlor, holding pen and leaving a portion of the barn for special need cows.

Her parallel parlor is custom built by Fitzgerald Surge in Elkader. It involves a very unique brisket rail that drops into a narrow gutter so the cows walk over it as they exit. When the brisket rail is in the "up" position the narrow gutter acts as a drain line to clean the cow platform. Waste water from the parlor clean-up is joined into the old gutter cleaner system and ends up in the earthen basin.

Now Robin, milking alone, averages about 40 cows per hour for the entire milking process. The kick rail, designed from the University of Wisconsin "Low-Cost Milking Parlor" pamphlet, keeps her from getting kicked if she has an unruly heifer. The time spent milking is also shorter allowing cows more time in the pasture.

When asked how she was getting along with the new parlor Robin's response was "I love it"!

by Dale Thoreson, ISU Extension Dairy/Beef and Forages Field Specialist

Are Your Cows Lying Down?

Adapted from Jim Salfer, University of Minnesota Extension

Overall, research data shows we can boost milk production over 2 lbs per cow per day for every hour of increased lying time from a minimal (7 hours per day) to a recommended 14 hours per day.

***Estimated milk response related to increased lying time, using minimal 7 hours to recommended 14 hours of lying time per cow per day.**

Benefit	Response
Increase blood flow to udder	1.5-2.2 lbs/day
Increased rumination	up to 2 lbs/day
Less hoof stress and lameness	3 lbs/day
Less fatigue stress	2 lbs/day
Greater feed intake	4.8 lbs/day

*Results from Dr. Rick Grant, Miner Institute, 2005.

Thus, comfortable stalls should be inviting to use with adequate lunge space for rising and soft cushion for lying. Avoid overcrowding and excessive time away from eating and lying. Holding area and herd health activities can limit lying time.

Fresh Advice on Fresh Cows

By Mike Maroney, DVM, UW Dairy Science

One of our favorite recommendations is to take a California Mastitis Test (CMT) of every cow that freshens. Routine use of the CMT is one of the best ways to improve milk quality, reduce bulk tank somatic cell counts, and reduce clinical cases of mastitis.

The CMT detects sub-clinical mastitis. Sub-clinical mastitis is the mastitis you can't see that raises the SCC in the bulk tank and often develops into clinical mastitis for individual cows. When you apply the CMT to fresh cows, you find out early which animals are contributing to bulk tank SCC levels and those most likely to get clinically ill.

Perform the CMT about three days after freshening. That's when you're screening for residues and handling the cow as she transitions into the full milking string. Squirt milk from each quarter into the CMT cups, add an equal amount of the reagent, swirl and watch. If the mix thickens, you have identified an infected quarter.

Once you have identified infected quarters, collect a sample for culture. The CMT can't tell you which mastitis pathogen you're facing but the culturing will. When you know the nature of the mastitis challenge, you can make informed decisions about proper treatments and management practices.

Use of the CMT is a simple, inexpensive, and effective means for identifying infected quarters and helping you focus on the proper approach to milk quality management. For more information, check out http://www.uwex.edu/milkquality/ .

More Updates on Dairy Crossbreeding

by Ken Bolton, Extension Dairy/Livestock Agent
Jefferson County, Wisconsin

Interest in crossbreeding dairy cows has grown over the last few years. Frustration with the Holstein breed and its declining fertility, calving ease, general vigor and length of productive life has led some enterprising producers to crossbreeding in the hope of gaining hybrid vigor. Hybrid vigor/heterosis is defined as the change expected from the resulting cross as compared to the average of the parents. Although conventional wisdom developed several decades ago from university research indicated minimal hybrid vigor for milk production, fairly significant heterosis was recorded for many livability traits.

Contrary to past documentation recent research, although limited, has documented 5-7% heterosis potential for milk production. In addition advantages for fertility as measured by length of calving interval, calf survival and lower culling advantages have also been documented in the range of 7.5 to 15% for each trait. The limited recent research information has come from USDA (DHIA), the University of Minnesota and field data from commercial dairy herds in California. The University of Wisconsin has a trial underway in the very early stages.

USDA is reporting increases in heterosis for SCS of 0.02 units, Productive life of 0.3 months and for Daughter Pregnancy Rate of 1.8% on average for crossbreds over Holsteins. They also report estimates of about $200 in hybrid vigor for net lifetime profit such that Jersey-Holstein and Brown Swiss-Holstein crosses can exceed pure Holsteins by $113 and $79 per cow, respectively, in a cheese yield market.

However, the University of Minnesota with the longest running research trial to evaluate crossbreeding has produced slightly different initial results. When comparing the performance of F1 Jersey X Holstein with straight Holstein cows, combined fat and protein yield for the crossbred cows was 3.5% below the straightbreds with no difference in feed efficiency as defined by combined fat and protein yield divided by dry matter intake. Early data from the UW-Madison trial compares ¾ Holstein-¼ Jersey calves to straight Holstein calves. The crossbreds are more vigorous and have greater immunity to calfhood diseases but are also much more variable in body weight and age at puberty.

The field data from California summarized by University of Minnesota researchers compared Normande-Holstein, Montbeliarde-Holstein and Scandinavian Red-Holstein cows to Holstein cows. Crossbreds excelled over Holsteins in survival rate during first lactation, calving ease/stillbirth and days open during first lactation. Holsteins outperformed crossbreds in combined fat and protein production by 2.2 to 8.6% per lactation, with Scandinavian Red and Montbeliarde crosses ranking second and third, respectively.

Dr. Kent Weigel, UW-Extension Dairy Geneticist has reached the following conclusions from the above information. Calving ease, stillbirths, female fertility, milk composition and longevity can be improved with crossbreeding, but these improvements will come at the expense of milk volume. Variation between animals is the enemy

especially in second and later generations. He recommends that producers who crossbreed their cows select bulls from breeds with large cow populations and efficient sire selection programs. Crossbreeding is not a substitute for genetic selection; top AI sires should be chosen from each breed.

So we have some early research results on production and health traits. What effect does all this have on profitability? Since we don't yet have economic field data, Dr. Bruce Jones developed an economic model to factor all of the pluses and minuses into returns over the lifetime of the cow. Considering a milk pay price for Holstein milk of $12.56 and $14.64 for Jersey milk /cwt, returns per lactation for the Jersey are $180.85, for the Holstein $217.50 and for the Jersey-Holstein the return is predicted right in the middle at $199.17. Past work has clarified that high component milk is most competitive during periods of low milk price. This is a very interesting model to perform the "what if" scenarios and is available for your use if interested.

The bottom line on crossbreeding likely will not be known for some time to come. Early results are like most, somewhat erratic and conflicting. Perhaps about all that can be concluded so far is consistent with Dr. Weigel's conclusions above. Crossbreeding likely improves health, reproduction and livability traits even though milk production and profit per animal may be lowered. Profit isn't everything, and some differences in labor or management "headaches" may not show up in the bottom line. If your quality of life improves enough to offset a modest decline in income, crossbreeding maybe for you. The real challenge seems to be what to do after the first cross is made to maintain heterosis and avoid variability. Time will tell.

Article reprinted by permission from Jefferson County Cowscope Newsletter. Author: Ken Bolton, University of Wisconsin-Extension Dairy & Livestock Agent

BREED AVERAGE MERIT AND HETEROSIS, USDA ANIMAL IMPROVEMENT PROGRAMS LABORATORY, 2005

Breed	Net Merit	Cheese Merit	Fluid Merit
Ayrshire	-$255	-$235	-$364
Brown Swiss	-$178	-$128	-$404
Guernsey	-$381	-$346	-$559
Jersey	-$153	-$93	-$433
M. Shorthorn	-$446	-$431	-$537
Holstein	0	0	0
Heterosis	+$197	+$207	+$163

Farmer Wisdom

"I have cut corners and cut corners and cut corners and cut corners, until I found myself running around in circles."

Crossbred Field Data from California

Les Hansen, Brad Heins, and Tony Seykora, University of Minnesota

First Lactation 305-day Production (2X), by Breed of Cow				
	Holstein	Normande x Holstein	Montbeliarde x Holstein	Scandinavian Red x Holstein
Milk (lb)	21,511 lb	18,806 lb	20,197 lb	20,461 lb
Fat (lb)	763 lb	703 lb	736 lb	750 lb
Protein (lb)	673 lb	610 lb	646 lb	655 lb
Deviation from Holstein for Combined Fat + Protein		-8.6%	-3.8%	-2.2%

Producer Profile: The Brockshus Dairy, Ocheyedan, IA—Sibley County

by Chris Mondak, ISU Extension Dairy Field Specialist

Growth is occurring in the NW dairy community in several ways, including young farmers starting up, and out-of-state or out-of-country dairy families relocating to the area. But the most predominant form of dairy growth activity in NW Iowa is happening within the group of our existing dairy producers. Collectively, the small to moderate scale expansion of existing herds is making a significant contribution to dairy growth in this region. This article features the Brockshus Dairy, focusing on the steps this family operation has taken to achieve growth, good milk production and milk quality, and satisfactory quality of life for family and employees.

Why and how did this farm expand?

In the 1990s, owners Bruce and Sue decided to explore ways to expand their 60 cow herd to 340 cows in order to bring in sons Jason and Travis. To plan for this major financial and management change, they did a business plan & financial feasibility study, and the whole family attended an Extension farm management program called "Strategic Advantage." In this program, each family member identified interest and strength areas, allowing the family to better divide responsibilities and work load according to each person's natural talents. As this has played out, Bruce is the main herdsman; Sue is book-keeper, record-keeper, and calf feeder; son Travis focuses on machinery and feed mixing-delivery; and son Jason focuses on employee training, scheduling, and youngstock management.

Expansion utilized existing facilities plus phased in new barn facilities

The Brockshus considered putting in a pit parlor, but opted instead to modify an existing stanchion barn into a 12-stall step-up parlor. Bruce credits Sue for "master-minding" a design plan that was very workable. The result is a step-up milking center that milks 80 cows an hour, is very worker friendly, and serves the owners' preference to have good cow visibility in order to better evaluate overall herd health each day, 3 times/day. The money saved on a completely new parlor building was channeled into building a new curtain wall free-stall barn that features headlocks for labor efficiency, a bedded pack for close-up cows, and a fan-sprinkler set-up that achieves excellent heat abatement. Even in the long-standing heat and humidity of this summer, milk production is holding at 84 lbs/cow, and SCC in the 200,000 range.

Phased Growth Slow but Effective

The Brochshus followed a slower, phased-in growth plan rather than a total one-time expansion. This allowed time to build herd size internally, thus avoiding higher costs of purchased cows. Costs for capital expenditures for freestall barn and concrete manure structure were also scheduled out. Perhaps most importantly, the family concedes that the slower growth pace allowed the family crew to adjust to new herd and business management tasks and styles, and allowed them time to lay the management groundwork to bring in part-time employees to do the bulk of milking chores (they hire 8 part-time workers.)

Are there other "Secrets" to their success?

First and foremost, say the Brockshuses, the reason their farm is successful is because they are doing the work and living the life they **want** to live. To them, the way they run the farm is an expression of their values. It is not just a job – it IS a lifestyle, albeit one that must still adhere to smart business decisions.

Secondly, the Brockshus family credits their employees. They hire in local persons who have these key attitudes: a willingness to learn, an ability to work calmly with the cows, and a willingness to work according to the farm's protocols. As the employee manager, Jason has written protocols for all key tasks, and takes time over the course of one month to gradually train in a new person. Additionally COMMUNICATION is KING on this farm. Workers on each shift know to write down observations on cows, then transfer notes to the computer at end of the shift. In this way, the herd owners have updated, recorded information 3 times/day on cow/herd issues. Employee meetings and family meetings are part of the culture on this farm. Birthdays are recognized, and Jason works to accommodate schedule change requests. Workers are encouraged to ask questions, and ask for help; family members sleep with the cell phone nearby. Their creed is to encourage calls, and to treat the worker with respect and appreciation for caring and trying to do a good job.

Finally, family members are part of the work crew, but can't do it all. As an employee realizes the importance of his/her role in the whole scheme of the farm, they realize they are needed. The family reports that their crew is very reliable and dependable; scheduling and turn-over problems are not issues on this farm.

So, You Want to Transition Your Dairy Herd to Cash Grain Crops?

Should you keep milking cows as you are? Can and should you transition to a more profitable dairy system? Or, should you switch to cash grain production or another livestock enterprise or should you rent or sell the farm?

The Iowa economy and Iowa soils know too well the trend of fewer dairies, less livestock, less forage acres and more cash grain. This trend results in less economic activity in rural communities and an increased loss of our soil resources. While considering the transition, there are two major factors to consider--the potential profitability and the desired quality of life of dairying versus other enterprises.

It is difficult to make comparisons between dairy and cash grain enterprises because grain budgets are expressed on a per acre basis while dairy budgets on a per cow basis. But, comparisons can be compared by using net returns to labor.

A comparison can be made using ISU Extension's Model Dairy Farm data with an approximated $650 net return to labor per dairy cow (after equity charge and with a milk price of $13.25) and an estimated net return to labor per corn acre of $27 (after equity charge, with 180 bu. at $2.40 per bu. price). Net returns to labor of $650 per dairy cow and $27 net returns to labor per corn acre are important to show labor returns for a dairy cow are actually 24.1 times greater than an acre of corn. Reduce the corn price to 2.20 per bushel and one experiences negative returns to labor that only unrealistic economies of scale or very low opportunity costs can overcome.

However, labor costs per dairy cow are approximated at $470 per cow and labor costs per corn acre are approximated at $27 per acre (same as net return above) meaning that true labor costs are 17.4 times greater for a dairy cow relative to an acre of corn. So, using net returns to labor (includes additional profit) or just labor costs yields a different scenario.

So, a full-time labor equivalent can milk approximately 60 cows for a net return to labor of $650 per cow or with a labor cost of $470 per cow. The net return to labor equivalent would be 1,446 acres of corn (60 cows x 24.1 acres) and the net cost of labor equivalent would be 1,044 acres (60 cows x 17.4 acres). Thus, depending how one compares, it would take between 1,044 and 1,446 corn acres to equal the net return to labor and net cost of labor, relative to a dairy operation.

Transitioning Your Dairy Herd Another Model Dairy System?

The same analysis can be made for dairies earning $300 net return to labor per cow versus a dairy earning $650 net return to labor per cow. Thus, it takes 2.1 times more cows at a $300 net return per cow to earn the same net income as the producer earning $650 net return to labor per cow. The range of returns to labor per cow can vary widely.

This example Iowa dairy averages between 16,500 and 20,000 lbs of milk per cow with a $13.25 milk price, milking 120 cows and generating a net return to labor of approximately $78,000. The lower profit dairy would have to milk 252 cows to attain the same net return to labor. This is intriguing that there can be more profit at times with fewer cows and even less production per cow, depending on the management.

Transitioning Your Dairy to Another Type of Livestock?

Dairy goats, dairy heifers, dairy steers, beef cows, beef stockers, sheep are all options to also consider. Each enterprise has a potential net return to labor. For example, a well-managed dairy goat operation might return to labor $150 per doe. Relative to the 60 dairy cows at $650 per cow, 260 dairy goats would be the net equivalent.

How Many Cows, Acres or Livestock Can You Practically Manage?

Granted, some producers may not be able to handle 60 cows per person, but others are handling 80 cows per person. Can one person handle the 1,044-1,446 acres of corn and do so on a timely basis; or the 252 dairy cows and manage the hired labor; or the 260 dairy goats kidding in the spring?

Thus, there are limitations but also variations in net returns to labor amongst and within enterprises. So, when considering a transition out of or to another dairy system, carefully consider the options, costs and net returns to labor very carefully.

ISU Extension Fact Sheet, LT-0605 by Larry Tranel, ISU Extension Dairy Field Specialist, 2006.

Managed Grazing Can Improve Profits and Quality of Life—That's a Fact!!

Since 1989, this former Wisconsin Extension Agent, now Iowa Extension Dairy Field Specialist has witnessed considerable change in dairy culture. Dairy grazing went from near 0% of producers in Wisconsin using managed grazing to 7% in 1993 to 23% in 2002, according to findings published in **"Grazing in the Dairy State"**, UW-Madison, 2006. The publication has serious implications for further developing the Iowa dairy industry and improving the profits and quality of life for average Iowa producers. It is called managed grazing.

But, **Norm the Naysayer says**: I talked to my feed guy and banker and they say grazing isn't as profitable!

Response: It is hard to for many of us in the dairy industry to believe or want to believe that **graziers in Wisconsin earn similar household incomes as stored feed operators with half the number of cows**, have less debt, and are more satisfied with their overall quality of life than other types of dairy farmers.

Furthermore, **ISU Extension's Model Farm data shows Iowa and Wisconsin grazing farms with net farm incomes of $100,000 - $244,000 with 120 to 150 cows after 5% equity charges already subtracted out.** These operations are run by single farm families. A smaller grazing operation of 70 cows earned similar net returns to labor ranging from $650-$1,261 per cow based on 2002 and 2004 milk prices, respectively.

But, **Norm the Naysayer says:** If I graze I will lose milk production per cow and I cannot afford that!

Snapshot of Wisconsin Dairy Farms, 2003

Table 1.	**Grazing**	**Stored Feed**
Acres	245	426
Milk cows	48	108
Milk per cow/year	17,500 lbs.	20,700 lbs.
Household income*	$35-49,000	$35-49,000

*Graziers reported 5-8% of household income above from non-farm sources while stored feed operations report 11-14% of above household income from non-farm sources.

Response: In 2002, Wisconsin graziers reported an average of 17,500 pounds of milk per cow compared to 20,700 pounds by stored feed farms. However, **grazier's average cost of production was lower, yielding more profit per cow and per hundredweight of milk than their stored feed counterparts.** Again, in terms of profit they earned similar incomes with half as many cows. ISU Extension's Model farm data shows very profitable results with like levels of milk production. Utility, vet and other costs tend to be less as well. **Cull rates ranged from 10-17% on model farms in 2004.**

But, **Norm the Naysayer says:** I can't take high-priced land and use it for pasture. My neighbors will laugh.

Response: Create your own pasture budgets versus corn and soybeans. Forage and pasture budgets tend to be as or more profitable, (except for corn silage). Consider cows as employees. Instead of cutting, raking, harvesting, storing and feeding out the feed, you employ your cows to do so and they haul their manure as well.

But, **Norm the Naysayer says:** My family and facilities can't handle more cows.

Response: ISU Extension's Model Farm data shows labor efficiencies at 71 cows per full time person of 3,000 hours per year. Over 1.15 million pounds of milk was sold per full time person in 2004. Each farm consulted with this author regarding facilities relative to housing and milking efficiency. In each case, innovative and low-cost methods were employed to implement a milking parlor and alternative housing. Several model producers report less work and more profit with the added cows in the grazing and parlor system.

But, **Norm the Naysayer says:** I don't like grazing and I ain't gonna change.

Response: Fine, but realize graziers are more likely to report being "very satisfied" with their lifestyle than other dairy farmers. Whether it is less machinery operation, working more with nature or the increased profit, **graziers tend to be a more satisfied group of producers** and often report how grazing is more "family friendly" with children working in the operation. **Environmental stewardship also plays a part** for some graziers, using less fuel for tillage, harvesting, and feeding while conserving soil resources.

Imagine: A dairy farm operated by a husband a wife in 2004, milked 149 cross-bred cows at 14,490 lbs of milk per cow with less than $6,000 hired labor. Their net farm income was $310,236. After an equity charge of $66,095, they netted a $244,141 return to labor on a seasonal dairy. Their milk price in 2004 was $20.79.

Beginner models milking 80 cows on 80 acres of pasture are available **creating dairy millionaires in 25 years** using low-cost, labor efficient grazing systems.

In Summary, dairy grazing is a very profitable alternative to stored feeds for developing dairy in Iowa. Model farms have proven its success. The financial, environmental and quality of life impacts are positive. The learning curve and adaptation time is real but attainable and forgiving. ISU Extension dairy specialists are available to analyze your individual farm situation. Model farm data is available to help imaginations and give producers inspiration for becoming dairy millionaires.

ISU FACT Sheet 06-03 by Larry F. Tranel, Dairy Field Specialist, Iowa State University Extension, who in part, instigated the profitable trend toward grazing in Wisconsin as an Extension Agent from 1990-1999.