

UNIVERSITY OF MINNESOTA

DAIRY Initiatives



N E W S L E T T E R

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New Life for Old Buildings

A Smart Move?

KEVIN A. JANNI, Department of Biosystems and Agricultural Engineering, University of Minnesota

Many dairy farmers have buildings they could remodel or recycle to make more useful. Buildings can be remodeled to expand animal capacity and herd size, increase labor efficiency, or improve animal management and care. But is it a smart move? Maybe—or maybe not. Good planning and a critical eye are needed to make sure the remodeling and recycling produces a cost-effective, labor-efficient, and functional building.

The remodeled building must fit the dairy's management plan. Too often, people don't do enough planning before plunging into a remodeling project. They end up with a space that is hard to use or doesn't provide the environment animals need to do well. In these cases the time and money spent on the project were wasted.

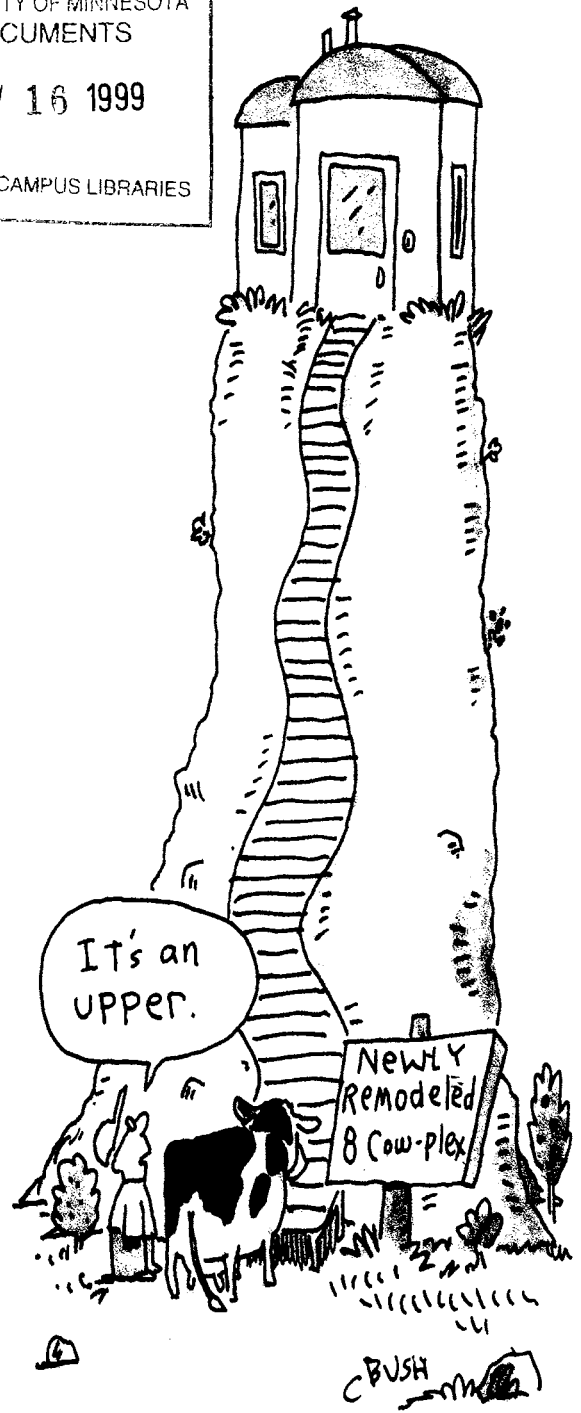
Remodeling and recycling require just as much planning as new construction, if not more. Before remodeling a building, consider its structural soundness, roof condition, and location. Location is important because it affects traffic patterns, natural ventilation, manure management, and other activities. Don't spend money and time on buildings in low or wet areas. Consider how the remodeled building fits into future plans, too.

In the planning stage, think about cow flow to and from the building, manure handling, ventilation in hot and cold weather, labor efficiency, feeding, watering, equipment access, and animal comfort

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New Life for Old Buildings

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The key to successful building remodeling and recycling is planning to ensure that the remodeled building will be efficient and provide a useful space.

(i.e., stall or pen size). All of these factors affect a building's usefulness. An unsolvable problem with one of these factors might make remodeling a bad option. Be careful when accepting compromises for a remodeling project, especially if you plan to use the remodeled building for more than a few years.

Consider costs. One rule of thumb recommends building a new building if the remodeling costs would be two-thirds or more of the cost of a new building. Be wary if remodeling cost estimates are 50 percent or more of the cost of a new building.

There are many examples of remodeling and recycling that produced useful, efficient, and cost-effective spaces:

- Many structurally sound stall barns have been converted to parlors and holding areas.
- Many pole barns, machine sheds, and hay sheds have been converted into freestall barns for cows or heifers. This works when the building is prop-

erly located and has sidewalls 10 to 14 feet high.

- Some producers have converted old two-story stall barns into naturally ventilated barns for young stock by adding inlets and either installing chimneys or removing the haymow floor boards and adding ridge openings.
- Some people have used old corncribs with center alleys as bedded shade and windbreaks for young stock in open lots.

One of the more difficult recycling projects is to convert an old hog barn or chicken house into a calf barn. Such buildings are hard to ventilate properly. Poor ventilation compromises animal health. Also, manure handling and feeding are usually done by hand, making the building labor intensive.

In summary, buildings can be successfully remodeled and recycled into useful spaces after careful planning and evaluation. Remodeling can breathe new life into an underutilized building. The key to successful building remodeling and recycling is planning to ensure that the remodeled building will be efficient and provide a useful space. 🐾

10 Questions to Ask Yourself Now

LEE GROSS, University of Minnesota Extension Service, Stearns County

NOLAN ANDERSEN, University of Wisconsin-Extension, Dane County

MICHELLE WIEGHART, University of Wisconsin-River Falls

The end of this decade presents dairy producers with many opportunities. The following 10 questions are intended to help you identify some of the key issues related to a successful dairy business. A "yes" answer to each of these questions should give you confidence that you have the skills, interests, and resources needed for long-term success in the dairy industry. A "no" response (and, in some cases, a "maybe") indicates challenges to your business that need to be addressed.

This exercise will be presented in seminars around Minnesota and Wisconsin this winter. Contact one of the dairy specialists or dairy educators listed on the back of this newsletter for information on upcoming seminars. Resources to help you answer these questions will also be provided at each of the seminars. 🐾

- 1. Do I want to stay in the dairy industry and is dairying my passion?**
- 2. Will staying in the dairy industry provide my family with the lifestyle we desire, including leisure time, income, and satisfaction?**
- 3. Do I have the ability to have an 80-pound tank average?**
- 4. Am I willing to put my equity at continued risk in the dairy industry?**
- 5. In the past five years, was I in the top 20 percent of all dairy farms for profitability?**
- 6. Do I prefer to work with people, computers, and vendors over cows, crops, and machinery?**
- 7. Do I have two acres of land available for every cow and heifer for manure application, or are we willing to move our operation?**
- 8. Will the land around my farm be in ag production five years from now?**
- 9. Am I willing to work with professional ag advisors to supplement my production and management weaknesses?**
- 10. Will the changes I have planned allow for the future growth and transfer of my business to the next owners?**

Milk Marketing Orders & Dairy Compacts

Why the Upper Midwest Concern?

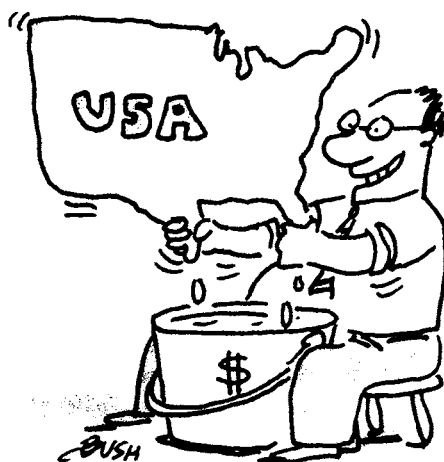
BOB CROPP, Center for Cooperatives, University of Wisconsin–Madison

For almost 10 years, Upper Midwest dairy interests have been pushing for changes in the federal milk marketing order system. Recently there has been major concern over the expansion of dairy compacts. Other regions of the country have not raised similar concerns. What is it with the Upper Midwest?

The Upper Midwest dairy industry depends heavily upon the manufacturing and marketing of dairy products. About 90 percent of milk produced in Wisconsin and Minnesota is used for manufactured dairy products, primarily cheese. The price manufacturing milk plants can pay dairy farmers for milk depends on the prices of the dairy products made and sold. Thus, any milk pricing program that affects the prices of manufactured dairy products affects Upper Midwest producers.

Federal milk marketing orders seek to ensure that consumers have an adequate supply of Grade A milk to drink, encourage orderly marketing, and provide fair prices to dairy farmers. These objectives are accomplished by classified pricing and pooling provisions. Classified pricing sets minimum prices milk plants (called handlers) must pay farmers for milk based on how it is used (class). There are four classes of milk: Class I (beverage), Class II (soft manufactured dairy products), Class III (cheese), and Class IV (nonfat dry milk). The Basic Formula Price (BFP) is used to set the minimum price of Class III milk and moves the Class II and Class I prices. The BFP is an estimate of the average price paid to dairy farmers by Minnesota and Wisconsin manufacturing plants for Grade B milk. The Class IV price is determined under a product price formula.

The pricing controversy has been mainly over the Class I price. In the early



John Bush ©1999

1960s, Eau Claire, Wisconsin, was chosen as the basing point for Class I milk (i.e., a Class I differential would be added to the BFP with distance from Eau Claire). This made sense at the time, because often the southern and southeastern United States were short of Grade A milk for fluid purposes while Wisconsin had enough to share. The differential would partially compensate for the cost to move the milk to where it was needed.

Since the 1960s, regional shifts in milk production and improved transportation have reduced the economic rationale for the differentials. At the same time, the differentials have encouraged milk production in excess of fluid needs in some regions, resulting in an increase in the manufacture of dairy products that compete with those produced in the Upper Midwest and consequently lower milk prices paid to dairy farmers in Minnesota and Wisconsin.

The Federal Agriculture Improvement and Reform Act of 1996 instructed the U.S. Secretary of Agriculture to consider reforming federal milk marketing orders. The Secretary issued a final rule on April 2, 1999. The rule responds to concerns of the Upper Midwest. It flattens the Class I price surface. It also replaces the BFP with true multiple component pricing (MCP)—an improvement over existing MCP programs—and ad-

vance pricing of butterfat for Class I handlers. While the final rule does not go as far as some in the Upper Midwest wanted, it is definitely a move in the right direction. However, regions where Class I differentials are lowered are not happy. The final rule was approved in August. Implementation was scheduled for October 1, but a federal district court judge in Vermont has issued a temporary stay.

The 1996 act also authorized a Northeast Dairy Compact among the six New England states until the federal order reform is implemented. There have been aggressive political attempts to extend and expand the NE Compact and to authorize a Southeast/Southern Compact.

Why are dairy compacts bad for the Upper Midwest? Compacts seek to increase the price paid to dairy farmers within the compact region by setting the Class I price within the compact area higher than the federal order Class I price. Resulting additional milk production and possible lower beverage milk sales due to higher consumer prices for beverage milk means the production of more dairy products. And more dairy products mean lower milk prices paid to Minnesota and Wisconsin farmers.

Why doesn't the Upper Midwest form its own dairy compact? Compacts only increase the price of milk for fluid purposes. Prices cannot be increased in a given region for milk used for manufactured products because these products must compete on a national market. Since only a small percentage of Minnesota and Wisconsin milk is used for fluid purposes, little benefit is gained from increasing Class I prices. ■

Producing for Consumer Markets

NADINE MILLER, Land O'Lakes, Inc.

In the new millennium, milk will be marketed beyond dairy foods. Most milk now goes into the carton, butter, or cheese. In the future, producers' milk will be broken down into what marketers call a "bundle of attributes." The value of producers' milk will be based more than ever on what it contains, where it goes, and what it's used for.

"If you produce a product without an established market, it's easy to end up with an oversupply that's not in demand," says Chris Policinski of Land O'Lakes' dairy foods value-added group. "Getting close to consumers and understanding their needs is more critical than ever when it comes to developing profitable markets for producers' milk."

Three trends, among many, will have an increasing effect on the demand for raw milk:

- **Convenience.** Dual-career families, single parents, and more active lifestyles mean meals on the go and more demand for single serving, portable milk products.
- **Moderation.** The pendulum has swung between lowfat foods and indulging in higher-fat products. Consumers are back to balanced, more healthful eating. Dairy products now range from no-fat sour cream to lowfat milk to full-fat butter.
- **Nutraceuticals.** Components of milk will see more use as ingredients in medicine and cosmetics, according to Mike Fronk, Land O'Lakes vice president of sales and marketing.

Another emerging market is whey. Once fed to livestock or spread on fields, today whey proteins are processed into ingredients in everything from hot chocolate mix to processed meats. Fronk says, "Milk quality is critical. The amount and quality of proteins in producers' milk affects our whey products and their properties."

Policinski and Fronk suggest producers consider these key market questions:

- How close is your dairy to a milk plant or a major consumer market?
- What's the end use for your milk? Does it go to a cheese plant where kappa casein or B lactoglobulin to improve cheese yields might have additional value? Genetic organizations now test sires for these and other gene markers so producers can select for these traits.
- Does your milk go to a fluid plant that might not want specific enzymes that deteriorate flavor?
- Are there new or specialty market opportunities for your milk or components of your milk?

In the long run, producers who produce the components that consumers want at the lowest cost will be the most profitable. 🐄

The Y2K Bug and You

WAYNE HANSEN, University of Minnesota Extension Service, Redwood County

"Bugs" have been around dairy farms as long as there have been milk cows and farmers. Some bugs, such as rumen bugs, are good. Others, such as bacteria that cause disease, are bad. Today we are facing a new bug, the "millennium bug," also known as Y2K. He could be a nasty little critter. Or, he might be just a small annoyance.

What Is the Y2K Bug?

In the early days of computers, programmers wrote dates as two digits instead of four. When the date rolls from '99 to '00, computers programmed in this way will assume the year is 1900, not 2000. As a result, date-sensitive equipment, such as security systems or feeding systems, may not work properly or could simply stop. Problems may occur on a number of dates, including January 1 and February 29 (leap day).

How Will Y2K Affect My Dairy Farm?

Many of the Y2K problems affecting agriculture will be similar to those faced by other businesses. Others will be unique to farming.

Computer chips pose one of the major Y2K risks on the farm. That's because computer chips are in every part of the home, business, and farm. Here's just a small list of equipment that might contain embedded chips:

- Tractors, scrapers, motorized equipment
- Ventilation equipment
- Feeding and feed-mixing equipment, and electronic scales
- Grain legs containing PLCs that monitor for overheating
- Automatic take-off milking equipment and milk cooling systems
- Security systems

- Fire, smoke, heat alarm systems
- Electrical load controllers

Farms using an older personal computer to control the equipment could have problems. Or if a Real Time Clock (RTC) is present in an embedded chip, there could be a problem even if the clock is not being used. Fortunately, American tractor and vehicle manufacturers designed their own chips, and (according to the manufacturers) they are all Y2K ready.

It is possible that programs or products that do not even use dates in their output will be affected. Many programs query the system clock for routine things, such as timing the tractor's carburetor or the usage time of a conveyor. Any item with a computer chip inside is at risk. The older the chip, the more likely the problem.

If something contains microprocessors, ask the dealer or manufacturer about its Y2K readiness. Have a backup plan in case of malfunction or shortages.

Off-Farm Problems

In addition to possible problems with their own equipment, dairy farms may experience disruptions in the supplies of electricity, feed, fuel, equipment repairs, and milking supplies, and in deliveries to the milk processors. Keep a reasonable supply of fuels, feed, and supplies on hand for potential problem dates. Waiting until the final hour to order could cause spot shortages.

Electrical utilities do not anticipate widespread blackouts, but there may be localized brownouts with reduced power. Farms with high-demand motors or those using load controllers could experience problems. Farms needing a continuous electrical supply (confinement livestock barns with electrical ventilation equipment) or a supply at critical times (milking facilities) should have electrical generators. This is no different than standard preparation for winter storms or other causes of power outages. Be sure generators are hooked up properly by a qualified electrician with an approved transfer

switch.

Both the suppliers and purchasers of agricultural products might have problems. This could cause disruptions in the markets and supply chain.

Contingency Plans

Every dairy farm needs a contingency plan. Ask, "What will I do in case of a certain problem or unexpected change?" Determine where you will most likely have problems. Concentrate on areas critical to your operation first.

What will you do if you are without electrical power? If your feed supplier cannot deliver feed when you need it? If your milk processor can't take delivery when your product is ready? What will you use for alternative systems for feeding, watering, ventilating, and milking?

Make plans to deal with alternative feed sources, delays in marketing, or the loss of a buyer. Contact buyers, processors, and suppliers for information on their Y2K readiness. Remember, even if they are ready, there still exists the remote possibility of a domino effect caused by problems elsewhere in the chain.

Refer to the University of Minnesota Extension fact sheet *Y2K Farm Inventory and Assessment Worksheet* for more information and a guideline to developing a Y2K plan.

In the Office

Ask the manufacturer if your office computer is Y2K ready. If it is not, upgrade or fix it.

Check your office computer software. There are problems with Windows 95 and some versions of 98. Particularly vulnerable are accounting and payroll systems, spreadsheets using dates, and scheduling software such as livestock herd health programs. Some of these are not critical for daily use, allowing repair time if necessary. Check with your vendor if you are hiring this work out.

Make backup copies of all records at regular intervals and prior to testing. Make hard copies of critical documents. Keep paper records of billing and pay-

ments, as well as bank receipts for deposits and withdrawals. Pay close attention to automatic billing and automatic deposits to ensure accuracy.

Other office software such as fax machines and answering machines may not be Y2K ready. Except for legal and tax purposes, this may not be critical.

Conclusions

Treat Y2K like any other unplanned event. Develop a contingency plan for all types of emergencies or unforeseen problems. Be prepared, but don't panic. Panic and hoarding may cause more problems than the immediate effects of Y2K. Don't purchase more inventories than reasonable. Don't wait until the last minute to order supplies or to correct equipment with possible Y2K readiness problems.

Other Y2K Resources

This information is based in part on an Internet site that is a joint project of the Canadian Federation of Agriculture and the Canadian Farm Business Management Council. The site contains information on specific milking equipment and farm equipment. It can be found at <http://www.cfbmc.com/y2k/english/index.html>.

South Dakota State University's agricultural engineering site contains a database of many types of farm equipment and farm software. Visit it at <http://www.abs.sdstate.edu/ecs/home/y2k.html>.

University of Minnesota Extension's Y2K site is at <http://www3.extension.umn.edu/projects/y2k/>.

Many Web sites developed by public agencies and private businesses provide additional information and assistance. Some of these have extensive links to other sites. Many manufacturers have information about the Y2K readiness of their products on their company Web sites. If you don't have Internet access, contact your local library, school, or county Extension office to see if they provide access. 🐄

Don't Waste Your Protein

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College of
Veterinary
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Department of
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Feeding excess protein to dairy cows is expensive and wasteful. Protein or nitrogen fed in excess of requirements for body maintenance, milk production, growth, and reproduction must be excreted. Excretion of excess nitrogen from the body means loss of income and is of environmental concern. Milk urea nitrogen (MUN) is an inexpensive and easily conducted test to help assess protein feeding to dairy cows.

Where MUN Comes From

The crude protein (CP) you feed your cows has three fates:

- It can be broken down by the microorganisms in the rumen to ammonia.
- It can bypass the rumen and be broken down into amino acids and absorbed from the small intestine.
- It can bypass the cow entirely and be excreted in the manure.

Some of the ammonia released in the rumen from CP breakdown can be recaptured by the microorganisms to form bacterial CP. Bacterial CP then leaves the rumen and is digested in the small intestine, the same as the true proteins in feeds that bypass the rumen.

Ammonia not recaptured by the microorganisms is absorbed into the blood, where it is transported to the liver for conversion into urea. Amino acids and other small protein fractions absorbed from the small intestine in excess of requirements are also converted to urea in the liver. Urea is a nontoxic compound for handling excess nitrogen in the body until it can be filtered through the kidney and excreted in the urine.

Urea in the blood, referred to as blood urea nitrogen (BUN), also has three potential fates:

- It can be recycled back to the rumen through saliva and directly through the rumen wall. Because urea is a relatively small molecule and has a high affinity for water, it rapidly flows back into the rumen, where it can be converted into microbial protein.
- It can be removed by the kidney and excreted in the urine. The amount of nitrogen or urea in the urine is directly proportional to the concentration of BUN.

- Because urea has a high affinity for water, as BUN passes through the mammary gland, it readily diffuses into milk to achieve an equal concentration of urea between blood and milk. Milk urea nitrogen (MUN) levels are similar to BUN levels, but usually lag behind peak BUN values by about two hours.

Measuring MUN

Urea can be measured in either blood or milk. However, it's cheaper and easier to collect milk samples than blood samples. Milk samples may be submitted as bulk tank or individual cow samples. The difference is that a bulk tank sample doesn't allow for evaluation of groups fed different rations. Given the relatively low cost of analysis, we recommend that MUN be analyzed for individual cows. MUN may be measured in milk samples routinely collected on DHI test day. Test costs in Minnesota range from 10 to 15 cents per cow, depending on which lab you use and the test method used. Non-DHI samples sent to DHI labs for analysis may cost approximately 45 cents per cow sample (includes butterfat, total protein, and MUN) or \$5.00 for a bulk tank sample (includes butterfat, total protein, and MUN).

Interpreting MUN Results

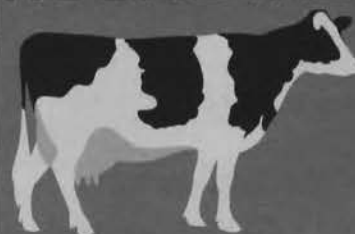
Because MUN levels are affected by a large number of cow-related factors, including age, stage of lactation, health status, water consumption, and dry matter intake, cows fed the same ration often have very different MUN values. For this reason, we recommend you use MUN results from a minimum of 10 cows for diagnosing potential feeding problems. Don't try to draw conclusions from one or just a few cows' MUN values.

There is diurnal (day-to-night) variation in MUN, with p.m. tests often averaging 1 to 2 mg/100 ml higher than a.m. tests. This factor may create considerable test-to-test variation, making it difficult to know when important changes in feeding management have occurred. Test routinely to establish a baseline so you know what is normal variation for the herd.

Herd or group average MUN levels for Holstein, Ayrshire, and Guernsey herds are commonly in the range of 10 to 18 mg/100 ml. Jersey and Brown Swiss breeds tend to run about 2 mg/100 ml higher. New York and Pennsylvania data suggest a herd average target range of 10 to 16 mg/100 ml.

MINNESOTA DAIRY LEADERS ROUNDTABLE

In 1992, dairy farmers, and CEOs of 32 dairy related businesses and organizations made a formal commitment to revitalize Minnesota's dairy industry by forming a structure to unite their effort. That structure is the Dairy Leaders Roundtable. This newsletter highlights Roundtable accomplishments as well as on-going projects and plans.



Dairy leaders thank governor for industry support

"The Eau Claire law is nonsense," said Minnesota Governor Jesse Ventura as he addressed industry representatives attending the mid-September meeting of the Minnesota Dairy Leaders Roundtable.

Ventura urged dairy leaders to remain united in their efforts to achieve equitability within the industry and do away with an outmoded federal milk marketing system based in part on the pricing of milk from Eau Claire, Wis. "We need your voice," said the Governor. "Get everyone you know to write Congress and demand a level playing field."

The Governor thanked the dairy industry representatives attending the meeting for their support of the Minnesota Department of Agriculture and the Ventura administration.

Bill Dropik, representing the Minnesota Milk Producers Association, presented the Governor with a gift of cheese and a miniature model of a cow—thanking him for his sup-

port of the industry. During the summer the Governor testified in Washington, D.C. on behalf of the dairy industry and received nationwide media attention as he took a "milk break" during his testimony.

Attending the Roundtable meeting with the Governor was Commissioner of Agriculture Gene Hugoson, who pro-

vided an update on federal order reform. He noted the state's dairy producers would receive approximately \$10 million a year more for their milk if federal order reform was allowed to proceed. The amount, he said, is about equivalent to \$20 per cow. "That's not a lot, but it's an improvement and it's important."



Minnesota Governor Jesse Ventura holds a "model cow" presented to him by Bill Dropik on behalf of the Minnesota Milk Producers Association.

Minnesota dairy leaders urge Ag officials to consider Idaho environmental program

A proactive environmental regulation and inspection program, coupled with aggressive support for investments in dairying is being credited with stimulating strong industry growth in Idaho. Participants in a recent tour of Idaho's dairy industry came away "impressed" by the attitude and accomplishments of the dairy sector, said Harold Stanislawski, of the Minnesota Department of Agriculture.

"What we saw is an environment where regulations and re-investments are working together to build an industry that is focused on growth—and likely will take Minnesota's number five ranking (as a dairy state) away from us sometime next summer," said Stanislawski. Ag Commissioner Gene Hugoson, also a participant on the tour, told Minnesota Dairy Leader Roundtable participants the Idaho model demonstrated the benefits of strong leadership from a governor's office combined with a cooperative spirit among regulatory agencies. "Our goal should be to help producers stay in business and profit from their business."

Roundtable participants at the September 13 meeting actively discussed Minnesota's regulatory environment, its complexity, the difficulty in securing answers to questions and the daunting permit process to change or expand an operation.

Following this discussion,

Roundtable participants approved a resolution stating: "The Dairy Leader Roundtable supports and encourages the Minnesota Department of Agriculture to take the lead with other state agencies and the governor's office to vigorously investigate and consider implementation of dairy-farm environmental regulations using the Idaho model as a working basis."

Roundtable considers new funding program

Seeking ways to stimulate funding for programs sponsored by the Minnesota Dairy Leaders Roundtable, a sponsorship proposal was presented to participants at the Roundtable's September meeting.

Doris Mold, Minnesota Agri-Women, and chair the Roundtable's funding committee discussed a proposal that would permit participating organizations to sponsor an issue of the newsletter, or a



Joe Conlin, veteran Roundtable leader and participant, was recognized in September for his years of service to Minnesota's dairy industry and his contributions to the development and growth of the Roundtable. Conlin recently retired from the University of Minnesota.

dairy education seminar, or the banquet at the Minnesota Dairy Extravaganza. These and other potential sponsorship opportunities would help fund dairy programs. The Roundtable will review the proposal at its meeting on December 6.

Legislative Coalition considers priorities for 2000 state session

Participants on the Roundtable's legislation coalition have met to discuss key issues and their priority for support during Minnesota's 2000 legislative session.

Reporting on the issues identified thus far, Lori Weaver, Minnesota Association of Cooperatives, noted 14 separate items and said the coalition was in the process of ranking their priority.

The issues identified thus far include:

- Need for a one-stop shop for dairy permits and/or compliance issues
- Expansion of funding for Johnes' disease control
- Support for continued/increased funding for pseudorabies control
- Support for veterinary diagnostic lab
- Support for "farmer networking"
- Support for dairy diagnostic teams with new funding for early planning grants
- Support delay of implementation of livestock rules
- Clarify Right to Farm law
- Oppose inappropriate animal abuse legislation

- Ensure ag credits continues as a portion of property tax
- Funding for ag waste systems
- Funding for education programs on use of dairy risk management tools
- Funding for additional University of Minnesota dairy positions
- Oppose action at the state level to regulate volume premiums

Milk production increases; market share declines

Reporting production results for the first half of the year, Mark Pochardt, Minnesota Department of Agriculture, told Roundtable participants there was some good news and not-so-good news.

Through June, year-to-date milk production is up 2.8% in comparison with the same period in 1998. However, the state's percentage share of the national milk market declined slightly for the first six months of 1999. It now stands at 5.87%, down from 5.91% at the end of June 1998.

The Roundtable's goal is get the state back to its national share level of 6.8%—the percentage held by the state earlier in the decade.

Pochardt reported the number of dairy farms in Minnesota stood at 8,467 in September 1999, down 509 from one year ago.

1999-2000 MINNESOTA DAIRY MANAGEMENT CLASSES

The University of Minnesota Extension Service is again offering a series of classes dealing with the issues most important to Minnesota's dairy producers. More than 1,200 dairy owners, managers, and employees attended classes in the past 18 months. Classes will be offered in these areas:

BASIC DAIRY NUTRITION

This workshop is designed to help participants understand dairy nutrition principles, understand the latest information on feeding dairy cattle, and management practices to achieve optimum milk production. Topics include Digestive Tract Physiology and Function, Dry Matter Intake, Nutrient Metabolism, Understanding Proper Use of Feed Stuff, Nutrient Requirements, and Dairy Cattle Life Cycle Nutrition.

DAIRY FEEDING SYSTEMS

This workshop is designed to help farmers and employees who feed dairy cattle to understand feedstuff management, feed delivery, and evaluating the results to achieve maximum performance, health, and production. Activities will take place both in the classroom and on the farm. Practical information participants will learn includes particle sizing, manure scoring, and visual evaluation of silage for quality.

DAIRY LABOR MANAGEMENT

This series of four classes will help you learn how to work well with your family members and employees. Topics include Designing the Job to Fit Your Needs, Finding and Hiring the Right Employees, Who's the Leader?, Training and Motivating for Success, Communicating: A Two-Way Street, and Putting It All Together. Taxes, legal issues, writing an employee handbook, and many other issues are covered in detail in this class.

MILKER TRAINING

This class provides an understanding of the milking procedure as it relates to cow physiology, milking machine design, sanitation, udder health, and milker techniques. As part of the class, participants will visit a farm to critique the milking procedure and apply the lessons they have learned.

TRANSITION COW MANAGEMENT

This class covers in detail the management needs of dairy cows as they make the critical transition from the dry period back into production. Topics covered include physiological changes, disease, nutrition, and monitoring of the transition period.

Instructors are from the University of Minnesota, technical and community colleges, dairy farms, and industry. Classes will be offered at various locations throughout the state. Most production classes include both on-farm and classroom time. Most classes are also structured to allow attendance between morning and evening milkings.

For more information, contact one of the extension specialists or specialized dairy extension educators on the back page of this newsletter.

The Minnesota Dairy Management Training Program is a partnership of:
 Minnesota Job Skills Partnership, University of Minnesota Extension Service
 First District Association, Ridgewater College, St. Cloud Technical College
 Minnesota Department of Agriculture

Questions?

If you have questions about regulations, permits or other dairy development issues you can get advice toll-free from an Agricultural Development Specialist, Minnesota Department of Agriculture. Call
1-800-967-AGRI (2474)

Calendar of Events

Educational opportunities open to all producers and other professionals in the dairy industry

OCTOBER 1999

28 & 29 Milker School, Northwest Minnesota. Contact: Vince Crary 218-563-2465

NOVEMBER

Nov 4, 9, 16 Dairy Labor Management, (last 3 sessions of Oct 26 4-part & series), Melrose, MN. Contact: Pat Kearney 320-231-7890 or Lee Gross 320-255-6169

9 & 16 Transition Cow Workshop, Mahanomen, MN. Contact: Vince Crary 218-563-2465 or Harouna Maiga 218-847-3141

10 & 17 Transition Cow Workshop, Thief River Falls, MN. Contact: Vince Crary 218-563-2465 or Harouna Maiga 218-847-3141

DECEMBER

1 & 2 4-State Extension Dairy Personnel Management Workshop, LaCrosse, WI. Contact: Jim Endress 815-233-3214

1, 15 & 29 Dairy Nutrition Basics, Rice, MN. Contact: Jim Salfer 320-255-6169

6 Minnesota Dairy Leaders Roundtable Meeting, Sheraton Inn Midway, St. Paul, MN. Contact: Ed Frederick 507-835-3422

7 Minnesota Dairy Advisors Annual Meeting, St. Cloud, MN. Contact: Nancy Iverson 612-420-4552

Dec 7, 14, 21 & Jan 4 Dairy Labor Management, (4-part series), Hutchinson, MN. Contact: Pat Kearney 320-231-7890 or Lee Gross 320-255-6169

8 Dairy Expo, Holiday Inn, St. Cloud, MN. Contact: Jim Salfer 320-255-6169 or Lee Gross 320-255-6169

8 & 9 Milker School, Cannon Falls, MN. Contact: Neil Broadwater 507-457-6440 or Chuck Schwartau 651-385-3100

JANUARY 2000

4 Dairy Labor Management, (last session of Dec 7, 14 & 21 4-part series), Hutchinson, MN. Contact: Pat Kearney 320-231-7890 or Lee Gross 320-255-6169

4, 11, 18 & 25 Dairy Labor Management, (4-part series), Austin/ Dexter, MN. Contact: Chuck Schwartau 651-385-3100 or Lee Gross 320-255-6169

11 & 12 Forage Conference, Hinckley, MN. Contact: Betty Schiefelbein 651-436-3930

11, 18, & 25 Basic Dairy Nutrition, Pipestone, MN. Contact: Philip Berg 507-825-6715

12, 19 & 26 Basic Dairy Nutrition, Ortonville, MN. Contact: Dave Weinand 605-688-5488 or Jim Salfer 320-255-6169

13 Northwest Minnesota Dairy Day, Crookston, MN. Contact: George Marx 218-281-8606

14 Nutrition Monitoring, Hillcrest-Albany, MN. Contact: Jim Salfer 320-255-6169

14 & 21 Dairy Labor Management, (2-day follow-up to 4-State Extension, Dairy Personnel Management Workshop), Rushford, MN. Contact: Chuck Schwartau 651-385-3100

27 Becker/ Otter Tail Dairy Day, Perham, MN. Contact: Harouna Maiga 218-847-3141

FEBRUARY

PROPOSED 4-State Dairy Management Seminar: Cows in Transition
DATES Sioux Center, IA

Feb 1 Contact: Lee Kilmer 515-294-2116

Feb 2 New Ulm, MN. Contact: Wayne Schoper 507-794-7993

Feb 3 Rochester, MN. Contact: Neil Broadwater 507-457-6440

1, 8, 15 & 22 Dairy Labor Management, (4-part series). Paynesville, MN. Contact: Pat Kearney 320-231-7890 or Lee Gross 320-255-6169

8 & 15 Feeder School, Ellendale, MN. Contact: Neil Broadwater 507-457-6440 or Hugh Chester-Jones 507-835-3620

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Look for us on the Web:

<http://www.animal.agri.umn.edu/dairy/DairyCalendar.htm>

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While these averages may be used as a reference for interpreting MUN values, it should be understood that the MUN value for optimum milk production and health of an animal has not been defined. Dairy producers and their nutrition advisors should establish a baseline for their herd and monitor changes in MUN to determine if feeding changes have occurred or problems exist.

Ways to use MUN

Use MUN to assess the amount of protein in the diet. A high MUN value may mean you're feeding more protein than the cows require for their production level.

If the amount of protein fed is correct, a high MUN value could mean you're feeding excess rumen degradable protein—urea, soybean meal, alfalfa haylage, or other readily degradable sources of protein. Replace some of the highly degradable rumen protein feeds with a slower or less degradable protein source.

A third option is to evaluate the amount of rumen degradable carbohydrate sources in relation to degradable protein sources. If the rumen bacteria do not have a readily available source of carbohydrate when ammonia is being produced from the breakdown of feed proteins, the bacteria will not be

efficient at capturing ammonia and converting it into bacterial protein.

Another use of MUN is to evaluate the amount of urinary nitrogen (UN) being excreted. Maryland researchers found the amount of UN can be predicted from MUN by the following formula:

$$UN \text{ (grams/day)} = 12.54 \times MUN$$

For example, if MUN is 16 mg/100 ml, cows are excreting $12.54 \times 16 = 200$ grams of nitrogen/day or 1,254 grams of crude protein (200×6.25). A cow producing 80 pounds of milk requires about 3,650 grams of crude protein per day, so at this level about 34 percent of the protein consumed is being excreted in the urine. If MUN were decreased to 13, only 28 percent of the diet protein would be excreted each day.

Summary

Single MUN tests are relatively useless in solving feeding problems. Establish a MUN baseline over four to six months and evaluate changes in relation to the baseline values. If conducted routinely, and if a good baseline level for MUN has been established in the herd, MUN tests may be a management tool to improve protein utilization efficiency in dairy cows, decreasing feed costs and nitrogen excretion. 🐄

Top Tips for Controlling Costs

WHO KNOWS BEST what a dairy farmer can do to keep costs down? A dairy farmer who's done it, that's who!

If you're on the Internet, you can share your tips and learn what works for others through the new "Producer Tips" page that's part of Minnesota's online dairy network, www.minnlink.org. To submit a tip, e-mail it to support@minnlink.org. To review tips, simply go to the Web site and click on "Producer Tips."

If you're not on the Internet, send your ideas to *Dairy Initiatives Newsletter* (see address on back page) and we will add them to the page for you. We will also share a few of the top tips in the next issue of *Dairy Initiatives Newsletter*.

MinnLink is a resource for Minnesota dairy farmers and other dairy industry personnel created with support from the Dairy Leaders Roundtable, the Dairy Council of the Upper Midwest, and the Central Minnesota Dairy Advisory Team. It offers dozens of links to Web sites for dairy-related news, education, government information, weather, databases, and much more. Check it out!

(👉 www.minnlink.org 👈)

Bulk Tank Testing

Why and How

Mastitis is a silent thief. It can rob you of much-needed profits before you even know you have a problem. Bulk tank cultures offer a quick and relatively inexpensive way to detect problems early so you can resolve them before they make big trouble for you.

Why Test?

Bulk tank testing tells you about the bacteria in milk. The kinds and amounts of bacteria provide clues as to how you can reduce or prevent mastitis problems:

Bacteria Type	Source	Solution
<i>Strep. ag.</i>	infected udders	use separate towels to wash/dry; use teat dip; treat dry cows
<i>Staph. aureus</i>	infected udder,	use separate towels to wash/dry; use teat dip; treat dry cows; cull chronically infected cows; establish milking order
<i>Non-ag. Strep.</i>	environment	keep barn and lot cleaner; milk only clean, dry cows; avoid air leaks and liner slips; change bedding often
<i>Coliforms</i>	environment	keep barn and lot cleaner; milk only clean, dry cows; avoid air leaks and liner slips; change bedding often; keep cows standing an hour or two after milking
<i>Staph. epi.</i>	skin, bedding	improve teat dipping and cow prep; change bedding more often

How to Test

To get the most out of your bulk tank sampling program, follow these suggestions:

1. Take samples for four to five days in a row.
2. Agitate the tank before sampling.
3. Take sample with a sterile syringe and needle or vial. Sample from the top of the tank to avoid contamination from the outlet valve. If this is impossible in your situation, allow a gallon or



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Get Out of the Rut

IS MUD A PROBLEM in your livestock areas during spring thaw and wet weather? The solution may be geotextile fabrics. These polypropylene fabrics are installed below the surface of the soil in lanes and other high traffic areas to increase stability and reduce mud trouble.

You can learn more about geotextiles and how they can help you in MidWest Plan Service's new publication, *Using All-Weather Geotextile Lanes and Pads*. To obtain a copy, send a check payable to the University of Minnesota for \$4 per single copy plus 6.5 percent sales tax for Minnesota residences to: Biosystems and Agricultural Engineering Department, University of Minnesota, Attn: MWPS, 219 BioAgEng Bldg., 1390 Eckles Ave., St. Paul, MN 55108. Ask for Publication AED-45. For additional information, call 612/625-9733.

two of milk to flow through before you take the sample.

4. Freeze the sample immediately and pack it so that it will stay frozen until it reaches the diagnostic laboratory.
5. If results really don't mesh with the rest of what you know or think about your herd, you may want to redo the test later or sample individual cows with high somatic cell counts to provide further information. 🐄

The Minnesota Veterinary Diagnostic Laboratory offers mastitis testing kits. The kits include sample vials, a gel ice pack, an instruction sheet, and submission forms. To obtain a kit or for more information, contact your veterinarian or the Laboratory for Udder Health, 800/605-8787 (mastlab@tc.umn.edu).

Understanding Milk Protein

**JIM LINN, Department of Animal Science,
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The value of milk is based on its composition. This is not only true from the producer side, but the consumer side as well. Consumers are looking for milk that's nutritious, has good flavor, and is low in fat. Protein is a component that can contribute flavor and nutrition without increasing the fat or calorie content of milk. This article will look at a few ways the protein content of milk can be increased.

Kinds of Protein

Milk protein, like feed protein, consists of both true proteins (proteins composed of amino acids) and nonprotein nitrogen (NPN) compounds. Both true protein and NPN are included in the total or crude protein. This distinction between true and total protein in milk is important, because only about 94 percent of the total protein in milk is true protein. The other 6 percent is in NPN compounds such as milk urea nitrogen. The NPN compounds benefit neither consumers nor the processing industry, since cheese yields are related to the true protein in milk and not the total protein.

If you haven't experienced it yet, you most likely will see a drop in your milk protein reported from the milk plant. The reason is that, with passage of the new federal order reform, milk protein will no longer be reported as total protein, but as true protein (Total minus NPN). This will decrease the typical milk protein value by about 0.18 and 0.2 percent units in most herds. Instead of a 3.2 percent protein test, the new value based on true protein will be 3.0 percent.

Increasing True Milk Protein

It's important to distinguish between increasing true milk protein percent and increasing yield. Any increase in milk with no decrease in protein percent will increase milk protein yield. Likewise, any increase in milk protein percent with equal or increased milk yield will increase milk protein yield. This distinction is important because you are, and will continue to be, paid for milk on yield or amount of components produced and not percentage of the component in the milk. Ideally, you want both milk yield and protein percent to increase. The points below refer to ways you can increase milk protein percentages.

Consider Genetics. Jerseys and Guernseys tend to have a higher true milk protein percent than other breeds. Thus, ge-

netic selection will have a big influence on the percentage of true protein in milk.

Aim for Quality. Somatic cell count above 350,000 can increase the total protein percent, but lowers true protein. Mastitis lowers the true protein in milk by decreasing casein, the largest single true protein fraction found in milk, and increasing NPN compounds. Also, any tissue damage caused by infections adds NPN.

Think Young. First-lactation heifers may have a slightly higher true milk protein percent. This may be due to lower incidence of or exposure to mastitis compared to older cows.

Keep Cool. Heat stress tends to reduce true milk protein as well as milk fat percent.


Watch the Diet. Nutrition can change true milk protein slightly (0.1 to 0.3 percent units). To increase true milk protein percent, you can increase the amount of nonfiber carbohydrates (NFC) in the diet by adding more grain (corn or barley) or increasing the availability of NFC through grain processing (fine grinding, steam flaking). However, high NFC levels in the diet depress milk fat percent and can cause acidosis problems. You need to balance enough NFC for good milk and milk protein production with enough fiber to maintain an acceptable milk fat percent.

Adding fat to the diet generally decreases milk protein percent but increases milk yield. In most situations, the increase in milk yield is equal to or greater than the decrease in milk protein percent, resulting in an increase in total protein yield.

Increasing the amount of crude protein in the diet will not increase milk protein percent. Increasing the amount of rumen undegradable protein (RUP) in the diet may increase milk protein percent if the correct balance of amino acids becomes available to the mammary gland. Supplementation of rumen-protected methionine and lysine has been shown in some studies to increase true milk protein percent. A lysine:methionine ratio of about 3:1 as either the percent of metabolizable protein in the diet or as percent of essential amino acids is recommended as the desired ratio for optimum milk protein percent and yield.

Feed additives (buffers, yeasts, B vitamins) will not affect milk protein percent.

Summary

In summary, increasing milk protein percent along with increasing milk yield will result in the greatest economic benefit to the dairy. 

Healthy Individuals = Successful Businesses

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Have you come to the end of a long day and still felt guilty about not working harder and longer? Have you felt guilty about not spending more time with your family and friends but still kept working? Have you worked long hours but wondered whether you were making any progress?

If any or all of these are common in your life, ask yourself if you feel that your life is in balance. Most dairy farmers believe their work is a seven-day-a-week, 365-day-a-year job. The health of those cows is critical to business productivity, but so is your health and that of your family. Research shows that those of us whose lives are in balance are healthier, and healthy individuals are more productive in their businesses. Time for regeneration (refueling your energy level) is important to your health. Vacations are a vital way to refuel, reduce stress, and energize family unity.

Maybe you've heard a story like this: "My dad always bragged that he didn't take a day off in 50 years. But after Mom died, he regretted that they never took that trip she dreamed of. He told me to be sure to get away with my family. I took his advice—and I'm glad I did."

The Three Rs

Finding the balance between work and family begins with three Rs: recognize, reflect, and respond. To move toward a balance, you must:

- **recognize** the need to establish a healthy balance between work and family
- **reflect** and plan to create alternatives for making it happen
- **respond** and act to make it a reality

Recognize the Need

Different individuals find balance in different ways. What one does to regenerate energy levels and reduce work stress differs for each person. It may mean developing a hobby, getting more exercise, involving yourself in school activities of your children, finding time alone as a couple, socializing with family or friends, or taking a vacation.

In times of rapid change, as farmers are currently experiencing, an unconscious voice often kicks in to say that there just isn't time for these activities. There is an unstated belief that if only one works harder, then problems will go away and things will get better.

But it doesn't work that way. Not only do they not get better, the stress resulting from the long hours and unsolved problems starts to pile up. That pile-up often comes not just from the business but from the family as well, because there is little to no time remaining for the

family.

In order to focus, this article will concentrate on the need for vacations. You probably can think of a hundred reasons why you shouldn't take a vacation. Here are some reasons you should:

- to rediscover your spouse and children
- to gain a clearer perspective on the business
- to create memories with your family that last a lifetime
- to catch up on lost sleep
- to develop confidence that this can be done again
- to reduce stress by focusing your energies on something else
- to discover how other people live

Reducing the stress of everyday business life can reduce the potential for farm accidents, improve communication with family members and employees, increase creative problem solving, and improve your long-term health.

Reflect and Plan

Where should you go on vacation? When should you go? Who should go? Just as a business plan is needed to make your business a success, a vacation will



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only become reality if concrete planning goes into it. Scientists have found that there are big differences between the genders and the generations with regard to time away from the farm, so communication ahead of time is crucial.

If you haven't taken vacations before, don't think of them in "all-or-none" terms. Perhaps start with an overnight away from the farm. That might lead to a weekend and gradually work up to a week or more.

Think ahead about what might need to happen to manage the farm work differently.

- Will you need to hire someone? If so, do a trial run ahead of time so you can train, observe, and supervise. We often expect those we hire to meet our standards without giving them proper explanations and directions.
- Is it possible with advanced communication and concrete planning to trade with neighboring families or with other members of the business?
- Vacations are sometimes a tool to give greater responsibilities to teenage children or employees who have earned additional responsibility on a short-term basis.
- Consult with others in the industry about different ways to manage the business workload to create time for a vacation.

Talk to other dairy farmers who take time away from the operation. They will often express that they wished they had done it before and are planning for the next time. A farmer in his 40s with a 50-cow herd talks about what it takes for them to plan for vacations.

"Yes, it's very hard for us to take vacations, financially and logistically. But we are committed to doing it because it helps keep us balanced, and aware that the farm isn't the only thing in life. We have a lot of togetherness ON the farm; taking a vacation is a different kind of togetherness. We make a lot of sacrifices to take vacations."

Respond and Act

Often part of the stress release of vacations is in the excitement and process of planning what to do. Remember, a vacation doesn't always have to cost a lot, particularly if you plan well or it is a short vacation.

Plan for contingencies if something goes wrong on the farm while you are gone. But remember that no matter how much you plan, something unforeseen may occur. When you return, assess with the team you left behind what other problem-solving alternatives might be used next time you are gone.

A change in behavior doesn't occur without first being open to the possibility, talking about it, and then believing it will happen. There is a correlation between healthy individuals and successful businesses. Research indicates that individuals who take time away from work are better family members and better business people.

A 50-year-old farmer with a 300-cow herd talked about how they viewed the barriers to taking a vacation this way: "Every time we've taken a vacation, my husband feels better physically and

mentally when we return. He's rested and upbeat. But that also makes it hard to come back sometimes because we know what the workload is going to be like. What stops us from planning vacations isn't money, or people to fill in—because we have those, at least for the moment. It's this notion that we are indispensable, and no one else can do things quite as well when we're gone. Once we get beyond that, it's no problem!"

Information and communication along with problem solving through shared decision making (among business members, with employees, and with agribusiness personnel) are critical factors for viable farm operations today. To do this well, you need energy—physical, mental, and emotional. Taking vacations creates a larger pool of energy from which to build a successful business.

Recognize that vacations are important for maintaining your overall health and for the successful operation of your business. Reflect and plan now to create alternatives that allow that to happen. But, most of all, respond and act to make it become a reality in the near future. 🐄

Don't Forget the Mini-Breaks!

VACATIONS ARE IMPORTANT for maintaining balance between work and other activities. Also important is developing habits that relieve the stress of work and create quality time away from work and with your family and friends. Research shows that HOW you spend time with your family is at least as important as HOW MUCH time you spend. Try some of the following:

- **Schedule time during the day when all family members are together. Talk about the day. Ask each person to share one or two positives from their day—a new friend, an accomplishment, something learned, an exciting experience with an old friend.**
- **Go for a walk. Don't look for weeds in the corn or problems with the beans. Listen to a bird sing, watch a butterfly flit by, marvel at a beautiful flower or the quiet of the countryside.**
- **Read something you enjoy. You need not spend a long time. A chapter or a few pages a day really add up. A short period of reading or reflection is very important to many very successful people.**



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DAIRY Initiatives

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