

# DAIRY CONNECTION

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## EDITORIAL

As 2009 comes to an end, I can safely say it was “one for the books.” We had everything from spring and fall flooding to crops still in the field at the end of December. Temperatures were wacky as well, with November much milder than October and a September that saw higher temperatures than June did. Fiscal considerations were frightful and

only now is milk starting to recover from the some of the lowest prices in history (if you correct for inflation). It certainly was not a year for the faint of heart. I guess saying goodbye to 2009, a humbling year of much anxiety and heartache, will not be too difficult. The good news is 2010 will be different and, we hope, better. After all, this is the season of hope.

My hope for you is that you will find time this Christmas season to be with family and friends and write your own Christmas story of greatness. I know I sure appreciate my dairy audience. Merry Christmas, Happy New Year and the best of holidays to you.

Season’s greetings,



J.W. Schroeder

## EDUCATION

### Dairy Cow College 2010

This year’s joint NDSU Extension Service and Midwest Dairy Association education effort, in cooperation with county Extension offices, will feature Steve Watrin, manager of dairy risk management for the Milk Supply Division at Land O’ Lakes Inc. Watrin’s role with Land O’Lakes includes the development and management of producer forward contracting, trading activities with the Chicago Mercantile Exchange and member Web site information. We will conduct a miniworkshop that includes a dairy market outlook and help in formulating a risk management strategy and preparing a marketing plan. In addition, I will address mycotoxins in dairy feeds.

Watch the mail for your flier with all the details, and make sure these dates are on your calendar for Dairy Cow College 2010:

- Feb. 1 ..... Linton
- Feb. 2 ..... New Salem
- Feb. 3 ..... Dickinson
- Feb. 4 ..... Towner
- Feb. 5 ..... Jamestown

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## I-29 Dairy Conference

2010 is the first year that North Dakota has joined the I-29 Dairy Conference, creating a five-state dairy consortium (North Dakota, South Dakota, Nebraska, Iowa and Minnesota) to collaborate on educational efforts. This is the conference's fifth season.



The theme for this conference is Sustaining Our Dairy Families, Farms and Rural Communities. The conference will focus on the dairy family and its business.

This conference will take place at the Ramkota Best Western Hotel in Sioux Falls, S.D. The dates are Jan 21-22. The program will encompass 1½ days and allow plenty of interaction among the audience, sponsors and phenomenal speakers.

By now, you should have received a flier with the details. The program will feature nationally renowned experts. For example, Jolene Brown will have you laughing and celebrating in her keynote address, "When Pigs Fly," and have you riveted to your seat during her workshop "When Family and Business Collide," in which she will cover the important steps to becoming a successful "business first" family.

Other topics and speakers include research lessons about cow welfare from Jan Shearer, Iowa State University; graceful transition strategies from John Baker, an attorney; and analyzing dairy business options by Jim Salfer, University of Minnesota. During the luncheon, we will hear about the National Dairy Initiative's plans for dairy sustainability from Chuck Cruikshank, executive vice president of producer and industry relations for Dairy Management Inc. The conference will culminate with a session on Milk Marketing for the 21st Century: Exploring Options for Sustained Production and Profitability with Ken Bailey, a consultant and broker with FCStone, and Gary Vande, a certified public accountant and a managing partner of Van Bruggen & Vande Vegte. You do not want to miss this one.

So consider this educational offering. I know Sioux Falls is a long way to travel, so we are working on some potential travel arrangements should anyone be interested in attending the conference. If you are interested in a combined transportation effort, let me know with a call or an e-mail. In addition, the Milk Producers of North Dakota will split the cost of registration with any dairy producer from North Dakota who attends this event.

## Going Green in a Black-and-White World

During the technology session of the North Dakota Dairy Convention, many participants suggested they would prefer receiving more of my news via electronic transfer, namely e-mail. To accomplish that, I need your e-mail addresses.

So, if you want to "go green" and start by receiving your next Dairy Connection newsletter via e-mail, simply respond by sending me an e-mail at [jw.schroeder@ndsu.edu](mailto:jw.schroeder@ndsu.edu). If I receive nothing, I will presume you still prefer the hard copy, even if you do have e-mail services. If you would prefer to receive both the snail-mail and the electronic version, you can do that as well; just let me know. Simply send me your delivery preferences stating, "Send my future newsletter via e-mail" or "I would like both hard and electronic copies."

Once I have received your e-mail address, I will conduct an e-mail survey of further options.

## ■ CALVES AND HEIFERS

### Calves Can Handle Moderate Cold

According to research published in the December Journal of Dairy Science, calves with adequate nutrition can handle sustained exposure to moderately cold temperatures of about 40 degrees Fahrenheit. The researchers compared calf growth, health and select metabolic and immunologic responses for calves that were 3 to 10 days old at the beginning of the experiment. The results from these calves were compared with similarly aged calves housed in temperatures that averaged about 60 F.

The study found that pre-ruminant calves provided with adequate nutrition exhibited a remarkable ability to adapt to long-term exposure to cold. When compared with calves housed in warmer temperatures, the cold-environment calves had comparable growth rates. This probably was due to increased starter-grain intake. Immune responses for the cold-environment calves also were unaffected. In addition, with the exception of a modest increase in respiratory scores, the health of cold-stressed calves was comparable to that of dairy calves in the warmer environment. Scour scores, days scouring and electrolyte cost were unaffected by environmental temperature.

## ■ NUTRITION

### Ten Reasons to Make Forage First in the Ration

1. **Provide protein** – Legume forages can provide up to 75 percent of the protein needed by lactating dairy cows; corn silage can provide up to 25 percent.
2. **Provide fiber** – Forages are often the only source of fiber in a cow's diet. Fiber is essential to slow the passage of feed, thereby increasing the amount of nutrients that the cow can absorb from the feed.
3. **Maximize intake** – Forages stimulate cud chewing and rumination, which improve the cow's appetite. Some nonforage sources of fiber actually reduce intake.
4. **Provide energy** – Forages are also an important source of energy – especially corn silage, which can provide up to 50 percent of the energy needed in a cow's diet. Alfalfa silage can provide up to 40 percent.
5. **Minimize acidosis** – Acidosis occurs when excessive volatile fatty acid production in the rumen causes cows to go off feed. Adequate forage and fiber greatly stimulate rumination (cud chewing), which buffers acids in the rumen.
6. **Designed for rumen** – Cows were designed to eat forages. With their rumens working as fermentation vats, cows turn plants and byproducts that we cannot eat into foods we can consume.
7. **Minimize laminitis** – Many times when cows develop acidosis, they also develop laminitis. Adequate fiber in the diet greatly reduces both acidosis and laminitis.
8. **Reduce feed costs** – Forages are an economical source of protein, energy and fiber because these nutrients are more expensive when purchased as concentrates.
9. **Good for soil** – With their deep roots and permanent ground cover, perennial forages help hold soil in place. They also increase the organic matter in soil, and legumes add nitrogen to the soil.
10. **Sustainable** – Perennial forages help protect the environment because they reduce surface water runoff and leaching of nutrients, they require less fertilizer and they cover the soil year-round.

*Source: U.S. Dairy Forage Research Center*

### Potential Effects of Corn Mold on Dairy Cattle

Signs of mycotoxin in dairy cattle include rumen disorders and reduced microbial digestion, loose manure, reduced dry-matter intake, a decline in fertility, hormonal-like changes such as udder development (estrogenic effects), weight loss and immune suppression in which cattle do not respond to disease challenges. Milk production and milk components may be reduced in some cases. High mold and yeast counts have been associated with

hemorrhagic bowel syndrome in dairy cattle, although a direct link remains unclear. Negative health effects of moldy feed may be difficult to diagnose because mycotoxins residues are not easily detected in the cow and symptoms are often nonspecific and may be the result of a series of events or opportunistic diseases. Feeding high-energy diets with insufficient dietary fiber (acidotic conditions) may result in greater risk than normal due to reduced fiber digestibility and immune challenges.

Feeding strategies to minimize the impact of molds, yeasts and mycotoxins in corn and corn silage include:

- Ruminants can degrade some of the mycotoxins contained in feed. Diluting contaminated feed with good, clean forages and grains will help minimize or negate any mycotoxin effects.
- Focus on good-quality management of corn silage and high-moisture corn in storage. Manage faces of silage, and keep air exposure to feed at a minimum until fed.
- Manage moisture in bins in which dry corn and grains are stored.
- Test feeds for mold, yeast and mycotoxins. Knowledge gained through analysis will help producers, nutritionists and veterinarians determine how to best manage and feed low-quality, contaminated feeds.
- General analysis data from commercial labs on mold, yeast and mycotoxin in feeds is useful but limited by the quality of the sample that is collected. Do not rely on someone else's test; test your own feeds for these contaminants.
- Avoid feeding poor-quality and contaminated feed to animals that are susceptible to stress, including, transition cows, high-producing cows and young stock.
- Monitor all feeds, both homegrown and purchased, for mycotoxins, molds and yeasts.
- Consider using feed additives that improve feed intake and digestibility.
- Ensure micronutrient, vitamin and antioxidant requirements are met or exceeded when feeding out-of-condition feeds.
- Optimize management of high-moisture corn and other feeds at feeding whether in a total mixed ration (TMR) or as individual feeds by:
  - Minimizing the time feeds are removed from storage until they are fed.
  - Feeding fresh feeds daily or more frequently. Feeding smaller amounts more frequently is better than feeding one large amount once.
  - Considering adding a TMR saver or propionic acid-based preservative to the TMR to prolong bunk life and minimize mold growth.

- Managing the faces of bags, bunkers and even upright silos for maximum feed removal each day, but minimum exposure to air. Close bags and oxygen-limiting silos between feedings.

Corn with visible molds does not necessarily have mycotoxins. The presence of mycotoxins can be determined only by laboratory testing. The NDSU Veterinary Toxicology Lab may do mycotoxin analysis on corn ears or grain. A full mycotoxin screen for North Dakota residents is \$90, individual toxin tests cost \$30 and a trichothecene screen for 17 mycotoxins costs \$55. The NDSU Veterinary Toxicology Lab may be reached at (701) 231-8307. Its Web site is [www.vdl.ndsu.edu](http://www.vdl.ndsu.edu).

Do not guess whether your feed has mycotoxins; have it tested. The following are mycotoxin risk levels for dairy cattle, expressed on a total ration, dry-matter basis:

- DON (vommitoxin) – less than 5 to 6 parts per million (ppm)
- Fumonisin – less than 25 ppm million
- T-2 toxin – less than 100 to 200 parts per billion
- Zearfalenone – less than 300 parts per billion
- Aflatoxin – less than 20 parts per billion

## ■ FERTILITY

### Blood Pregnancy Test

BioPRYN is a commercially available cattle pregnancy test that measures the pregnancy-specific protein B (PSPB) in the blood. PSPB is produced by the placenta and is present in the blood of a pregnant heifer or cow early after breeding until after calving. Wait to take blood for this test for 30 days or more after the animal is bred, 32 days or more after embryo transfer and more than 90 days after the previous calving so the PSPB from the previous pregnancy is gone.

The test is very accurate in determining pregnancy when used correctly and reasonably accurate in determining which heifers and cows are not pregnant. The no-pregnancy determination is not as accurate mainly because of embryo losses (the animal was pregnant, so has some PSPB in the blood).

BioPRYN is sold by Bio Tracking, Moscow, Idaho, (208) 882-9736. Detailed information can be found at [biotracking@biotracking.com](mailto:biotracking@biotracking.com). A Bio Tracking affiliate is in Bedford, Ind.: Bedford Veterinary Labs, (888) 488-9858.

The total cost of the test varies depending on the number of samples submitted; lab location; and the costs of supplies, blood sampling and shipping. The lab in Bedford, Ind., charges \$2.40 per test for 26 or more samples,

\$3.15 per test for 11 to 25 samples and \$5.15 per test for one to 10 samples. Supplies are less than \$1 per sample. Most producers utilize on-farm personnel to take the blood samples, and the U.S. Postal Service ships the samples.

*Source: Kentucky Dairy Notes, November 2009*

## ■ HEALTH

### Nutrition's Role in Mammary Gland Development

The risk that a cow will develop mastitis is largely a function of the pathogen load at the teat end and the cow's ability to prevent a bacterial infection from becoming established in the mammary gland.

Nutrition can have significant effects on the cow's immune system, thereby affecting infection rate and severity of mastitis. The immune system has high requirements for specific nutrients, and when these nutrients are not provided in adequate amounts, immune function may suffer.

Here are three "take home" messages on how to improve mammary gland health:

1. Feed and manage late-lactation and dry cows to maintain proper body condition. Avoid a large decrease in feed intake around parturition and a large loss in body condition score (BCS) during early lactation. Normal, healthy cows lose 0.25 to 0.5 BCS unit in early lactation. Management and dietary practices that can help reduce excessive body condition loss include: a) Preventing cows from becoming too diet based on less digestible feeds so the rumen gets full before overconsuming energy, b) Avoiding a large decrease in dry-matter intake (DMI) during the pre-partum period and providing adequate bunk space and stalls for pre-fresh cows, c) Promoting a rapid increase in energy intake post-calving, which usually requires a rapid increase in DMI. Feeding a well-balanced diet based on high-quality forage, which contains moderate fiber (about 30 percent neutral detergent fiber), starch (22 to 25 percent) and less than 5 percent total fat, improves DMI. Overcrowding fresh cows also restricts their intake.
2. Prevent hypocalcemia via proper mineral nutrition for dry cows. Cows with milk fever are much more likely to get clinical mastitis than cows without milk fever. Calcium is needed for muscle contractions. If experiencing hypocalcemia, cows' teat sphincters may not contract as quickly or completely, increasing the risk for bacterial invasion. Cows with milk fever have higher concentrations of plasma cortisol than normal cows, and cortisol suppresses immune function.

*Health section continues after USDA insert*

In addition, the calcium status of monocytes is impaired in cows with milk fever, reducing the ability of the monocyte to function properly.

3. Feed adequate, but not excessive, amounts of trace minerals and vitamins. Selenium and vitamin E are especially supplementation during the pre-fresh period. Other key nutrients include vitamin A, beta carotene, copper and zinc.

*Source: 2009 NMC Regional Meeting Proceedings, p 44-52 (Weiss)*

## **Johne's Disease Update**

If one or more animals have been culled from a herd for unresponsive chronic diarrhea combined with reduced milk production and thin condition, then Johne's disease could be the problem. See the insert from the U.S. Department of Agriculture Animal and Plant Health Inspection Service's Veterinary Services for the latest summary on Johne's disease. If you want to find out more on what you can do, contact your designated Johne's coordinator, Jesse Vollmer, doctor of veterinary medicine with the North Dakota Department of Agriculture, at [jlvollmer@nd.gov](mailto:jlvollmer@nd.gov) or call (701) 328-2655.

*For more information, see the Johne's Disease newsletter inserted in this issue.*

## ■ **MILK QUALITY**

### **Preventing Unclean Flavor Problems in Milk**

Some farm milk samples have an unpleasant, dirty aftertaste. This problem often occurs during winter. Frequently it is an absorbed flavor, like silage. Usually cows breathe air with a barny odor and transfer it to the milk.

Dust, dirt and manure can cause an unclean flavor of milk. Cows and their surroundings must be kept clean. Milking equipment that has not been cleaned and sanitized properly may be a factor.

Washing a cow's udder with water and failing to dry it is one of the primary causes of unclean flavors. Be sure excess moisture is removed.

In a small- to average-sized herd, a few animals with ketosis will cause an unclean flavor. This odor and taste is objectionable.

Follow these suggestions to prevent unclean flavor problems in milk:

1. Keep floors, walls and ceilings of milking and housing areas reasonably clean.
2. Provide adequate ventilation to eliminate stale odors.
3. Clip hair from the udder, teats and flanks of milk cows.

4. Provide adequately bedded stalls so that cows may lie down.
5. Wash udder and teats with a sanitizer solution and dry prior to attaching milker units.
6. Clean and sanitize all milk-handling equipment between uses.
7. In some circumstances, withholding milk from ketotic cows may be necessary.

*Source: Troubleshooting milk flavor problems, Penn State University, DAS02-39*

## ■ **MANAGEMENT**

### **Do Not Spread Disease: Hand-washing and Common Sense Protect Family and Employees**

If you have spent much of your life on a dairy, you probably know something about preventing the spread of animal-to-human diseases. You also likely have acquired some type of immunity to these zoonotic diseases.

However, chances are good that many of your employees do not understand the risk of disease transmission or how to prevent it. Moreover, employees without previous livestock exposure may not have immunity to zoonotic disease, leaving them more at risk.

Salmonella is perhaps the most common and dangerous of the zoonotic diseases that can spread from animals to humans, says Larry Collar, producer quality assurance manager with California Dairies Inc.

"Studies indicate Salmonella bacteria is found nearly everywhere in cattle environments," Collar says. "It can survive for long periods in cattle hosts that display no outward symptoms of carrying bacteria."

Other zoonotic diseases that are cause for concern are brucellosis, cryptosporidiosis, listeriosis and tuberculosis.

"It's important to remember that zoonotic disease transmission can occur without animals showing obvious signs of illness," says Danelle Bickett-Weddle, associate director of the Center for Food Security and Public Health at Iowa State University.

To protect your family and employees and reduce the disease transmission risk:

- Make hand washing with soap and hot water a compulsive habit. By washing your hands after handling animals, the risk of exposure decreases because you remove the infectious agent.
- Wear personal protective equipment such as disposable gloves, booties and coveralls when handling known sick

cows. If assisting with calving, wear waterproof outerwear and rectal sleeves to limit exposure.

- Control the amount of dust generated in animal housing areas. Large amounts of dust can damage the protective cells in the respiratory tract and let in contaminated particles that can cause disease. Wear a mask to avoid inhaling contaminated particles when scraping a corral lot, assisting with calving or using a power washer to clean animal areas.
- Do not store medication for treating sick animals and employee food or drink in the same refrigerator.
- Do not take home soiled clothing that might infect family members. Launder clothing on the farm or seal it in a garbage bag and place it into a washing machine at home. Change coveralls once contaminated.
- Eat only those milk products that are pasteurized. Raw milk can be contaminated with harmful bacteria and cause serious infection, according to the Centers for Disease Control and Prevention (CDC). From 1993 to 2006, the CDC received reports of 1,505 illnesses, 185 hospitalizations and two deaths resulting from raw-milk consumption. Because not all foodborne illnesses are reported, the actual numbers are likely greater.
- Keep an eye on those with compromised immune systems. Changes in health status and the normal aging process can weaken the immune system. In addition, children under age 5, pregnant women, chemotherapy patients and people with chronic diseases such as diabetes are more vulnerable to zoonotic diseases.

*Source: C. Merlo, Dairy Today, p.24*

## ■ EMPLOYEES

### Take Stock in Employee Management

Your dairy is your stock portfolio. Therefore, you need to hire and manage people who will help your investment succeed. To do this, Tom Wall, president of Language Links LLC, suggests you focus on these five areas:

- Organize your systems, strategies, policies and procedures. This includes a new hire kit, organizational chart, set pay scales, performance evaluations, employee manual, job descriptions, standard operating procedures and written warning procedures.
- Practice frequent formal and informal communication. This is more than speaking the same language. It is team maintenance.
- Connect with your people. This means developing respect and trust between you and your team.
- Manage and lead your team. As a manager, you must focus on the execution of the work on your dairy. To lead, you need to create and develop teamwork.

- Reward performance. Make sure you connect job descriptions with employee evaluations and your pay scale.

You must do all five steps for success, says Wall.

“One is not more important than the other.”

## ■ ENVIRONMENT

### Make Manure Pay

Cows make manure. You can't change that, but better management might allow you to reduce the amount of manure made and its composition. In addition, that can go a long way in reducing the hassle of manure management on many dairy farms. Kevin Erb, with the University of Wisconsin's Environmental Resource Center, showed these points at a World Dairy Expo educational seminar:

- Increasing the silage component of rations from 50 percent of the forage dry matter to 60 percent can reduce manure by four pounds per cow per day.
- Leaving a garden hose run in your parlor for an extra two minutes per day can add a tremendous volume of water to your manure pit during the course of a year, requiring \$100 to \$220 in extra hauling.
- Avoiding stop signs on your hauling routes will save three to five minutes for each stop sign avoided. Driving an extra mile may be more time efficient if you can avoid a stop sign, Erb says, because these minor delays add to labor costs significantly.
- Work with neighboring farms to trade fields to shorten hauling distances. Saving two miles in distance can save up to 10 hours in application time and labor for a 20-acre parcel, not to mention expenditures for fuel and wear on equipment.
- Incorporate manure into soil within three days of application. After three days, nitrogen losses can be 3 pounds per 1,000 gallons of manure. If you are applying 10,000 gallons per acre, that is a loss of \$12 to \$24 per acre in fertilizer value, depending on nitrogen prices.
- The use of compost barns also can decrease manure volumes by 10 to 15 percent because no rainwater is added to the manure storage and the composting process drives off moisture.

*Source: AgWeb.com*

## ■ BUSINESS

### Importance of Keeping Accurate Records

Running a successful business is all about identifying weaknesses and improving on them to stay ahead of the competition. Keeping this competitive advantage is the key to becoming a successful business that is able to survive

and expand. The dairy industry is no exception. The top dairy producers identify their weaknesses, improve on them, increase milk yield and receive incentive bonuses for low somatic cell count without sacrificing the well-being of the animals in the herd. These leaders in the industry have been able to accomplish such success by maintaining and utilizing accurate and timely records.

Keeping accurate and timely records is important because it can allow a farmer to monitor business performance and make the necessary adjustments to correct any bottlenecks that may adversely affect production and profitability. Which records should a dairy manager keep? On the production side, the obvious choices are things such as Dairy Herd Improvement Association records and dairy herd management software, such as PC Dart or Dairy Comp 305. Records such as these allow the farmers to see how their farms are doing productionwise right down to the level of a single cow.

Production records, however, tell only part of the story; maintaining key financial statements also is important. Some of these key statements are the balance sheet, income statement, cash flow statement, and the sources and uses of funds statement. If these statements are maintained properly and all data is kept current, they provide information to derive financial ratios that allow a person to see how a business is doing regardless of size.

Now that you know which records to keep, this is the time to figure out what to do with them. Using the records above, one can do an Annual Business Performance Analysis, which gives a farmer a big-picture overview of his or her farm, according to Bradley J. Hilty, senior Extension associate, Penn State University.

The first step to doing this performance analysis is to take the five key financial areas, which are profitability, liquidity, solvency, financial efficiency and capital efficiency, and calculate the ratios for each area (see Table 1).

**Table 1. Five key financial benchmarks.**

Financial Ratio	What it Measures	Formula	Goal
Return on assets	Profitability	(Net farm income from operations + interest expense – family living expenses)/total assets	8-10%
Current ratio	Liquidity	Current assets/current liabilities	1 or higher
Percent equity	Solvency	Assets – liabilities/total assets	50-60%
Operating expense ratio	Financial efficiency	(Total expenses – interest – depreciation)/total income	Less than 70%
Asset turnover ratio	Capital efficiency	Gross income/total assets	0.6

**Table 2. Five key production benchmarks.**

Production Area	What It Measures	Goal
Production	Milk per cow per day	80-85 pounds/cow/day
Herd lactation and reproductive status	Days in milk	170-185 days
Reproductive performance	Pregnancy rate	Greater than 20%
Udder health	Somatic cell count	Less than 200,000
Overall cow management	Cull rate	25-35%

**Table 3. Management benchmarks.**

Management Area	What To Measure	Goal
Feed	Feed cost per hundredweight (cwt) of milk	<\$6.00
Labor	Milk sold per worker (lbs.)	1,000,000
Investment	Investment per cow	\$6,500-\$7,500
Debt	Debt per cow	Expanding – \$4,000-\$4,500 Not expanding – \$2,500
Total cost of production (includes family labor and return to owner/operator labor)	Total cost per cwt of milk	\$13.50 (when calculated without including milk interest expense)

North Dakota State University  
Agriculture Communication  
NDSU Dept. 7070  
P.O. Box 6050  
Fargo, ND 58108-6050

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Once these numbers are derived, you can compare the numbers from your calculated ratios to the standard industry benchmarks. If your numbers are lower than the standard benchmarks, you have a problem.

This is good progress, but the financial ratios only tell you that you have a problem, not how to fix it. Next, you must consider how these financial benchmarks relate to the five key production areas, which are milk production, days in milk (herd lactation and reproductive status), reproductive performance, udder health and overall cow management (see Table 2). After calculating numbers from these areas for your farm, you must compare them to the standard industry benchmarks. If your production numbers are outside these benchmarks, you know in which area of the farm that these problems are found.

This leads us to the third step of the performance analysis, which is analyzing management areas of the farm. The five key areas to look at are feed, labor,

investment, debt and total cost of production (see Table 3). Calculating the cost of these five areas and comparing them to the industry benchmarks can tell you exactly where the problem is. The only catch to this method is that it only can tell you what the problem is, not how to completely fix it. This is where you need to work with your consultants (nutritionist, veterinarian, banker, etc.) to improve management in the problem areas.

As you can see, keeping timely and accurate records is part of running a successful dairy farm. If all numbers are kept properly and *used* to their full potential, a farm can thrive because no problem will go overlooked and you can pinpoint exactly where that problem is. Remember that by keeping good records and using them, your dairy business can survive the tough times and prosper through the good times.

*Source: Analyzing Your Dairy Business: A Systemic Approach to Using Benchmarks by Brad Hilty, Peter Tozer, Jeffrey Hyde*