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As we approach year end, feed price issues continue to reduce profit margins. Milk quality concerns have also gotten the attention of dairy producers so check out our **On-Farm Milk Quality Meetings** in NE, SE and NW Iowa **inside**, hopefully on a farm near you.

Employee management continues to surface as area dairy producers continue to ask for more information and assistance on. In response to this need, ISU Extension has scheduled the following **Personnel Management Workshops**:

Clarion Inn, Amana; Feb. 1, 8 and 15;
10:15 am to 3:30 pm; call 641-622-2680 to register

NE Iowa Dairy Foundation, Calmar; Feb. 2, 9 and 16;
10:15 am to 3:30 pm; call 563-382-2949 to register

NW Iowa Community College, Sheldon, Building C, Room 349,; Feb. 15, 22 and Mar 1; 10:15 am to 3:30 pm
Call (712) 737-4230 to register

These Employee Management Workshops for livestock operations are a 3-part series to discuss and learn about improving employee management skills to increase employee satisfaction and productivity. The expected fee is \$30 - \$50 depending upon location.

Lastly, with so much uncertainty as to milk price and feed costs, producers may want to consider **Livestock Gross Margin (LGM) insurance**—see details inside!

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ISU Extension Dairy Field Specialist, NW Iowa

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Edited by: Larry Tranel

ISU Extension Dairy Team
“Bringing Profits to Life”

ISU RESEARCH UPDATE: TEAT HEALTH WORK

by Leo Timms, ISU Extension Dairy Specialist

Some slightly colder temperatures have occurred already and our recent trials on teat health have shown some of these changes happening to teats also (some dryness /cracking). Certainly teat dipping (pre / post) is critical and essential all year round (not just winter). It provides effective sanitation of teats (improved milk quality and lower mastitis risks) as well as the primary means to keep teat tissue healthy and safe.

Iowa State University's Dairy Team is a leader in research that develops, evaluates, and or validates teat end /teat skin health and condition on many new dips and products, working with companies nationally and worldwide. They are the leaders in extension and technology transfer also. The ISU Dairy farm provides the setting (cows, parlor and milkers) where 10- 20 trials are conducted annually. The model developed at ISU is a half udder design where different dips or compounds are applied to half the teats with control dips on the other. Teats are scored intensely (2-3X weekly) by trained students for teat end and teat skin health and condition. This allows the animal as her own control (reduced variability/ increased statistical power) and the ability to find even subtle decreases in teat health and performance.

In 2010, 18 lactating cow trials have been completed evaluating different products and strategies (7 winter teat dips and associated strategies, 5 new liquid lactating cow dips with different germicides, 6 barrier dip trials (2 dips originally researched and co-developed at ISU in final clinical trials). 3 dry cow dip studies were also completed and a 2 dip (new barrier dips), 6 pen, 300 cow study is currently underway assessing teat health and condition, SCC, and clinical mastitis.

Since winter will soon be upon us and decisions on dipping and other strategies arise, below is a graph regarding teat health from a trial last winter looking at a very good all year lactating cow dip (.5% iodine, 5% skin conditioners) vs. a winter type dip (powder). Cows in this trial were housed in curtain sided naturally ventilated free stall barn (cold) but minimal wind exposure (wind chill).

Regardless of dip used, cold weather changes (2/14 and 28) resulted in increased teat cracking. Dips differed in their response during each cold snap. Producers need to realize changes will occur, assess their own farm condition (housing, weather, wind) and be judicious in determining conditions requiring changes to dip products and practices. (Technical reports: <http://www.ans.iastate.edu/report/air/>)

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Want to Insure Your Income Over Feed Costs? Try LGM for Dairy!

by Larry Tranel, ISU Extension Dairy FS, NE/SE Iowa

How would you like to get an insurance payment if milk prices decrease and feed prices increase? The Livestock Gross Margin (LGM) program is an insurance program that does just that—it protects the gross margin between the milk price and the market value of feed.

Even moreso, if the milk price versus feed cost margin increases, you still benefit from the higher margin. Thus, consider this profit margin insurance during unstable milk and feed markets. Both seem to be a constant nowadays.

This program, sponsored by USDA, uses prices from the Chicago Mercantile Exchange (CME) for milk and the Chicago Board of Trade (CBOT) for corn and soybean prices.

Advantages over Futures and Options Trading?

Convenience: Producers can sign up for LGM-Dairy Insurance 12 times per year and insure all their milk production they expect to market over a rolling 11-month insurance period.

Customization: The LGM-Dairy policy offers more flexibility and can be tailored to any size farm. Futures/options cover fixed amounts of commodities, and those amounts may be too large to be used in the risk management portfolio of some smaller farms.

Bundled Option: While futures/options trading reduces the price risks in milk and feed costs respectively, LGM-Dairy is similar to a bundled option of futures or option contracts, insuring against the losses in the Gross Margins taking into consideration both the price risks in milk and feed costs simultaneously.

No Brokerage Account: Producers do not take any positions on futures and options. Therefore they do not require a brokerage account.

No complex information: Futures and options trading require a thorough understanding and complex information of the trading markets. As an insurance product, LGM-Dairy may be useful to producers who may not be comfortable trading in the futures or options markets.

Guaranteed Pricing: Once LGM-Dairy is priced for a given day, the prices are guaranteed and will not

change for that day. While the futures and options prices are negotiated in the market, LGM prices are determined according to the pricing and basis regulations established by the Risk Management Agency (RMA).

Availability after trading hours: LGM-Dairy is available after normal market trading hours, allowing producers to purchase price coverage at times previously unavailable.

When and How Can You Purchase?

LGM Dairy is available for purchase starting on the last business Friday of the month until 8 pm CDT on Saturday. Starting with December, 2010 contracts, premium will be due after last month of coverage which is a huge benefit as well. At sign-up, producers declare milk production and feed equivalents to insure. Milk production will be certified at contract end. Producers define expected feed use in terms of Corn (energy) and Soybean Meal (protein) equivalents. There is no auditing of feed use.

Allowable declared feed equivalents: (Dec. 2010)

Corn: 0.13 -1.36 bu/cwt of milk

Soybean Meal: 1.61 – 26.00 lb/cwt of milk

Program default feed coefficients can be used:

Corn: 0.5 bu/cwt of milk

Soybean Meal: 4.0 lbs/cwt of milk

The producer chooses the amount of gross margin not covered by insurance (i.e. insurance deductible). The program allows \$0 - \$2.00 as of Dec. 2010. Of course, the higher the deductible, the lower the premium and the producer assumes more risk.

The actual milk and feed prices used are average futures contract settle prices from 1st, 2nd and 3rd days prior to futures contract last trading day. If the Actual Gross Margin is less than the Gross Margin Guarantee (GMG) then an indemnity is paid.

Bottom line is that this LGM program for dairy is much simpler, less complicated, cheaper and protects the income over feed cost margin well. Producers are highly encouraged to consider its use.

For more information on LGM, please follow the links:

http://future.aae.wisc.edu/lgm_dairy.html

<http://www.rma.usda.gov/livestock>

<http://www.uwex.edu/ces/dairymgt/dairy.cfm>

This article adapted from Dr. Brian Gould, UW-Extension, Ag Lender's Presentation, Dec. 9, 2010.

A Winter Calf's Needs

by Jenn Bentley, ISU Dairy Specialist, NE Iowa

I am a Holstein calf weighing about 90 pounds. I came into this world in the middle of December on a cold, blustery day. Luckily, my caretaker made sure I dried off quickly by drying me off with a blanket and putting me in a warming box for a few hours. She then fed me a whole gallon of high-quality colostrum that was warmed to about 105 degrees.

After about a day of nurturing, I had to face reality. She was moving me outside, which is way beyond by thermoneutral zone of 50-80 degrees if I'm less than 1 month old! This might mean that the milk I receive will not be available for growth or support of my immune system, but will have to be used to maintain my body temperature! At 0 degrees, if I only receive 1 pound of milk replacer, I could burn up my body fat reserves in about 18 hours.

I also hope she remembers I am still too young to eat 1-2 pounds of calf starter and so I have to rely on milk as sole source of energy and protein for a few weeks. How will I ever gain weight? But wait, she is keeping me out of the wind, that will help.

And look, my bed is full of clean, dry, deep bedded straw that will insulate me from the cold. She is also putting on this cute little jacket, I hope I can wear this for a few weeks until I start eating enough to gain weight and develop my immune system.

There are several feeding options my caretaker could do to increase my energy this winter:

1. She could find a milk replacer with a higher fat level (22-24%).
2. If the farm has access to a pasteurizer, I could be fed pasteurized waste milk that may include higher energy milk from transition cows.
3. A fat supplement could be added to increase calorie content, but she needs to be careful with this. No more than 4 ounces a day, otherwise I will not eat my calf starter and my rumen development will slow down.
4. She could increase the amount of liquid milk replacer volume by 25-50%. (Currently I am getting 2 quarts at each feeding. An extra 1-2 pints would be great!)

5. How about feeding me 3 times a day? An extra ½ -1 bottle in the middle of the day will go a long ways, especially if I'm under 3 weeks of age.
6. The amount of powder being mixed could be increased by 25-50% while still diluting in the same volume of water. (She would need to be careful not to exceed 20% solids)

And of course, none of these options will work if she doesn't offer me water! I know the buckets freeze, but if she could just get me some lukewarm water in between milk feedings, I would start eating starter sooner and my rumen would develop faster. I definitely would be a healthier, livelier calf. I'm sure she will talk with my nutritionist and veterinarian on these different feeding options and choose one that best suits me and the other girls in this barn.

"Tired Cows" Can Hurt Your Repro Program

by Ron Lenth, Bremer County

Reproductive success is heavily impacted by cow comfort and facility design. In the list below are the suggested freestall time allocations (per 24 hour period) for high producing cows;

Lying.....12 hours
Eating.....5 hours
Milking.....3 hours (or less)
Lockups....1.5 hours (or less)
Social behavior...1.5 hours
Drinking....1 hour

We can't forget how cow comfort impacts reproductive performance. What percent of your cows are lying in your freestalls 1-2 hours after milking and ration delivery/pushup? Comfortable cows prefer to lay down and ruminate as opposed to standing. High level of cows standing in stalls time are also sending you a message to reevaluate your neck rail height, lunging space/brisket board, or bedding conditions. Watch cattle on pasture and see how long they spend lying down and ruminating.

"Tired cows" lead to reduced heat and decreased heat detection and pregnancies. This can lead to fewer pregnancies leading to cow purchases; milk staler cows; cull open cows and reduce herd size. You can see stress in their walking and locomotion steps. Take time to check your herd and see if you have comfortable or "tired" cows. Listen to them.

Evaluating the 2010 Corn Silage Crop

by Lee Kilmer, ISU Extension Dairy Nutritionist

Wow! What a difference a year makes. Last fall, the main concern was about the corn crop maturing before the first killing frost, while this year the crop matured early and fast. Consequently, the fall harvest started early and thanks to great weather conditions proceeded quickly. In fact, the warmer than normal fall allowed the crop to dry down in the field, reducing the need for additional drying in the bins.

However, a down side is that the corn crop matured so quickly that the starch digestibilities are lower than normal. Typical starch digestibility is in the 60% range, but this year is closer to 50%. This means that this year's corn silage will not feed as well as last years. Throw in corn prices that are higher than last year and dairy producers are facing another challenging year from a feed cost standpoint.

Consequently, all dairy producers should not only sample their corn and corn silage to run the usual analyses, they should also request a starch digestibility. If less of the starch will be utilized by the animal, then the cows will benefit from additional energy being added to their diet to replace this unavailable starch.

Processing the corn silage and finely grinding the corn will help but will not compensate entirely. Given the higher prices for corn, the most economical solution in most cases is to add some sugar to the ration in the form of molasses. A half pound or pound of molasses could easily result in an additional 3-4 lb of milk.

Key feeding strategies really don't change, they just increase in importance.

- Feeding high quality forages is still the first step to maximizing the spread between feed costs and milk income (profit). Feeding more corn silage, more low lignin forages, and more forages higher in neutral detergent fiber digestibility will increase the nutrients available from forages, and forages are the least expensive source of required nutrients.
- Determine if starch levels are optimum and if it is being utilized efficiently. Test both feedstuffs and manure for starch. Ration starch levels can be reduced to 20-22% with high quality forages, supplemental sugar, and inclusion of an ionophore. If fecal starch levels exceed 5-7%, then it's not being utilized effectively in the cow.

- By-product feedstuffs still represent feed savings opportunities. Distillers grains and wet brewers grains are potential protein substitutes, while corn gluten feed, soy hulls, wheat midds and molasses can provide energy.
- Finally, enlist the services of a competent nutritionist to formulate your ration on a computer using one of the newer modeling programs. The days of balancing a ration on the back of a feed tag are long gone. Fine tuning protein based on amino acid and rumen microbial production can reduce feed costs while optimizing animal health and performance.

NE Iowa Extension Dairy Days, 2011

ISU Extension Dairy Days in NE and SE Iowa have become a great annual opportunity to bring new research, technologies and discussions to improve dairy farm profitability. In 2011, our topics will be along these lines depending on location:

- **Manure management—Keeping it Out of the Creek** by Angie Reick-Hinz
- **Forage Quality Production & Management** by Brian Lang
- **Economics of Feed Decisions and Feed Substitutes** by Lee Kilmer
- **Looking at New Technology and New Management Practices** by Jenn Bentley
- **Livestock Gross Margin—Profit Insurance for Dairy Producers** by Larry Tranel
- **Quality Assurance for Dairy Beef Sales** by VDPAM Staff

Dairy Days will happen at these locations:

Tues. January 18, KC Hall, Elma
Wed. January 19, Dairy Center, Calmar
Thurs. January 20, Civic Center, Waverly
Mon. Jan 31 Davis County Extension, Bloomfield
Tues. Feb. 1 Chamber Meeting Room, Kalona
Mon. Feb. 14 Neumann's Bar & Grill, Holy Cross
Tues. Feb. 15 American Legion Hall, Ryan

All programs will run from 10 am-3pm. Cost: \$10 with vouchers available from various agri-business.

Human-Cow interactions

by Marcia Endres, Extension Dairy Scientist, MN

Farm animals are often subjected to aversive handling, which can result in them becoming fearful of humans. Fear of people can reduce animal well-being and possibly milk production, and increase the risk of injury to both animals and handlers. Research on the topic of human-animal interaction and its relationship to productivity and health is limited.

Studies conducted in Australia by Hemsworth's group indicated that 20% of the variation in milk production among dairies was due to cow handling. They investigated the relationships between the behavioral response to humans and the milk production of cows at 31 commercial dairy farms.

They found that several cow behaviors that are indicative of fear of humans were moderately or highly correlated with milk yield and composition. In farms where milk yield was low, cows showed less approach to the researcher in the standard fear test than at farms where milk yield was higher. Observations from the study indicated that where restlessness was high, productivity was low. Restlessness, which they measured by the number of flinch, step and kick responses, is indicative of stress.

If animals become fearful of humans due to inadequate handling, they may experience acute or even chronic stress in the presence of humans. Stress can lead to immune suppression, which can affect health of the animals. Inadequate human-cow interactions can create a cycle of low animal productivity and disease.

Hemsworth demonstrated that human interventions at commercial dairy farms appeared to improve cow performance at those farms. Farms where the intervention treatment was used had a significant increase in milk yield. The intervention consisted in modification of key herdsman/worker beliefs and behaviors towards cows and provision of reinforcement. The authors concluded that these interventions could contribute to overall improvement in productivity in the dairy industry. It is suggested that cow handling training sessions be implemented at dairy operations.

Negative behaviors by handlers include hits, slaps, tail twist, shouting, and fast speed of movement, whereas positive behaviors include stroking,

rubbing, hand resting on the animals back or flank, and slow and deliberate movement and talking.

When handling cattle, it is important to understand that cows interpret sights and sounds in a different way than humans. Studies have shown that cattle have panoramic vision of 330 degrees and have a blind spot directly in the back of their heads. However, they have poor depth perception and cannot focus quickly on close objects. Cows usually lower their heads to look at something because their vertical vision is only about 60 degrees (compared to 140 degrees in humans). They will also walk slowly in unfamiliar environments.

Cows should be given enough time to move and walk at their own pace without being rushed. Cows can hear well and don't like very high, screeching sounds. Hitting or yelling can create a lot of fear and stress. Cows are prey animals and feel safer in a crowd, so they can be nervous when alone.

We need to avoid situations that can create fear in cows, and use every opportunity for positive human contact, starting at a young age. The two fundamental rules for working with cows are slow and quiet. By following these rules, the job will be done faster with the least amount of stress to the cows. We should all be known for 'loving' our animals and that includes treating them with care and respect.

How Are Interactions With Your Most Important Employees—The Cows?

by Chuck Schwartau, University of Minnesota Extension

When talking about employer/employee relations, the topic of interaction frequently comes up. These discussions are usually centered on people, but they don't normally consider the most valuable employees on the farm - the cows. What is communicated to **them** by way of your actions or those of your employees?

Several studies around the world have attempted to make solid correlations between cow handling procedures, cow behavior, health and productivity. The results are mixed, but some findings that make sense and have prompted others to study further.

Seabrook (1972) reported "some significant associations between the personality of the stockperson and milk production" as "cows in highest yielding herds were the most willing to return

from pasture and enter the milking shed and were less restless in the presence of the stockperson."

Rushen et al (Journal of Dairy Science, 1999) reported that compared to a control milking group, the presence of a gentle handler did not change milk yield or residual milk. The presence of an **aversive** handler (*handling techniques showing a dislike of the animals*) increased residual milk by 70%. Some cows seemed better able to differentiate between gentle and aversive handlers. Their conclusion was that 'care should be taken to not invoke fear in cows and ensure that the people responsible for the cows find the least aversive means of handling them.'

Hemsworth et al (American Society of Animal Science, 2000) identified a significant correlation between negative handling techniques and the proportion of cows conceiving at first insemination. This accounted for only 14% of the variation, but it still seemed to be a factor worth noting.

A brief summation of those studies would suggest gentle handling may not increase productivity, but forceful, aggressive handling may very well decrease productivity and breeding response.

Can a cow be handled too much and/or too gently? The answer appears to be "Maybe." Breuer et al (2000) found a negative correlation between gentle handling and the approachability of cows in some of their study herds. In those same herds, however, there was a positive relationship toward conception rates.

If you ask producers who have present or former show ring cows in their herds, they might also use a term like "halter dumb" for those cows who seem to be less than cooperative when trying to move them around. They have become too accustomed to human handling and control. Fortunately, in most herds they are a minority!

What does this all mean to you as a producer?

The studies found that employees who were more aggressive toward animals were also identified during interviews and attitude tests to be less interested in livestock, or even had an aversion to animals. They may have taken the job simply because it was a job, not because they wanted to work with cows.

Attempts to gauge a prospective employee's attitude toward cattle may give you some indicator of how they will act around and handle cattle as employees.

How employees feel about the animals is also likely to affect how observant they are of abnormal conditions of the animals. If one doesn't really care much about cows, how likely are they to note an animal that is sore on its feet, isn't eating well, or whose milk production is decreased significantly at any given milking? If cows are able to sense humans who are rough handlers of livestock, this will also affect how cows come into milking parlors and how well the cows respond to normal milking preparation, even if proper protocols are followed.

What can you do to provide a calmer atmosphere for the animals that at least optimizes their cooperation in the barn and encourages milk let down? Here are suggested strategies from the National Milk Harvesting Centre (Victoria, Australia) to reduce the fear cows have of humans:

1. Reduce excessive noise, such as banging gates and shouting.
2. Reduce negative interactions (prods, sticks, etc.) and use positive interactions (low voice, gentle taps, etc.) more frequently.
3. Examine routine habits when handling cows and remove actions that could induce fear.
4. Minimize or remove negative or painful procedures from the parlor and perform them elsewhere in the dairy.
5. Use solid panels to screen off unfamiliar procedures.
6. Keep the dairy routine consistent and allow cows time to learn new changes on the farm.
7. Move cattle as a group, rather than individually to decrease fear associated with handling.

Add to these strategies a training program for employees that emphasize how their interactions with the cows can affect productivity, which affects the farm's bottom line. None of this can guarantee more milk in the tank or money in the bank, but if some of these procedures make the cows easier to handle and create less stress among the employees and managers of a farm, isn't that of value as well?

Pleasant working conditions go a long way toward satisfied employees - whether they have two legs or four.

Attention Dairy Producers and Professionals!

Milk Quality ON-FARM Workshops

A REFRESHER Session on the KEY PRINCIPLES behind good herd management practices that lead to cow health & milk quality



Leo Timms, ISU Extension Dairy Specialist, and other udder health experts will start the discussion at the first of 5 stations located throughout the farm.

Station topics: (Key Principles)

Station 1- Know your cows. Which ones tip the SCC scale balance?
Station 2- Milking center
Station 3- Lactating cow housing
Station 4 - Dry cows and heifers
Station 5- Making decisions on problem cows; Sum up key management principles

NW Iowa Sites—RSVP phone call appreciated • 712-737-4230 or cmondak@iastate.edu

- Nov. 29 **Fordyce Family Farms** • 11:30 a.m. - 3 p.m. (Lunch 11:30-noon) 5244 10th Ave. • Aurelia
- Nov. 30 **Snuttjer Dairy Farm** • 12:45 p.m.-3:45 p.m. (Coffee, milk, donuts) 3377 220th • Doon
- Dec. 1 **Nyhof Dairy, Inc** • 12:45 p.m.-3:45 p.m. (Coffee, milk, donuts) 3426 390th • Sioux Center
- Dec. 2 **Janssen Dairy Farm** • 12:45 p.m.-3:45 p.m. (Coffee, milk, donuts) 54751 290th • Gilmore City
- Dec. 3 **Fertig Dairy Farm** • 11:45 a.m. - 3:30 p.m. (Lunch 11:45-12:15) 2217 390th • Wall Lake

NE/SE Iowa Sites—No RSVP needed, info at 563-583-6496 or tranel@iastate.edu

- Dec. 6 **Tim and Joan Goedken**, 2856 Quarter Road, Hopkinton, IA 12:30 pm – 3:00 pm
- Dec. 7 **Mike Deutmeyer**, 21710 Clear Creek Road, Holy Cross, IA, 12:30 pm – 3:00 pm
- Dec. 8 **Ervin Lambright**, 15294 215th St., Bloomfield, IA, 1:00 pm – 3:30 pm
- Dec. 9 **Schema Holsteins, Marlin Bontrager**, 1881 John Wash Road, Kalona, IA 1:00 pm – 3:30 pm

NE Iowa Sites—RSVP at 563-382-2949 or jbentley@iastate.edu

- Dec. 14 **Randy & Lisa Hanson**, 1689 182nd Street, Decorah
- Dec. 15 **Whittle Farms, LLC**, 12547 Bush Rd., Volga
- Dec. 16 **Greg & Debbi Conger**, 4229 Walnut Avenue, Riceville
- Dec. 17 **Phil & Carol Uhlenhopp**, 14823 S Avenue, Sumner

NE Site Schedule:

Lunch 11:00-11:30 am
Sessions Run 11:30 am – 2:00 pm

ISU Extension greatly appreciates the dairy owners who have provided their farm as a workshop host site. Thanks also to the dairy professionals who contributed time, resources and talents to the planning and implementation.

IOWA STATE UNIVERSITY
University Extension

Healthy People. Healthy Environments. Healthy Economies.

Return to the Roots of Stewardship and Common Sense

as printed in Progressive Dairyman

The general public is increasingly concerned about air and water quality, especially as it relates to manure management. In response, governing bodies pass laws and regulatory agencies develop regulations that livestock farmers are forced to follow. Sometimes these regulations are simply common sense, sometimes they are needed, and sometimes the regulations do everything in the name of protecting air quality and water quality – but actually accomplish nothing.

This process will not change, but we can take a different approach to be more successful in addressing air and water quality concerns. This approach requires livestock producers to return to their roots of stewardship and common sense and not just doing something because a regulation requires it to be done or there is no regulation, so they think they can proceed in any manner that best favors their goals.

Most producers know the benefits and challenges of using manure as a crop nutrient source. However, in the everyday challenges of farming, they sometimes forget to apply the basic principles of stewardship to these benefits and challenges.

Stewardship means a lot of things to many people, but in terms of manure management, stewardship is the responsibility to collect, transport and land-apply manure to meet crop needs for nutrients while minimizing impacts on resources, all while using the best management practices available. Following best management practices is the key to good stewardship and requires employing all of these practices to meet stewardship objectives. These best management practices apply to all operations, whether there are 5,000 dairy cows or 15 cows.

Soil sampling

First and foremost, manure is a valuable source of many of the nutrients needed for crop production. Manure, like any commercial fertilizer, should only be applied in the amounts needed to supplement the nutrients already present in the soil to provide only the amount needed by the crop. This requires taking soil samples at least once every four years or as required by state regulations.

Manure nutrient analysis

The same applies for manure samples. Using book values for manure is not acceptable in this day when feeding inputs are changing constantly. Collect manure samples according to your state's guidelines, have them analyzed and keep a record of the data so you can determine not only if things have changed over time, but why the nutrient analyses may have changed. Manure sample analysis may also provide an indication as to the availability of the nutrients.

Manure application

Manure application includes everything from determining the correct application rate, to managing uniformity of application, to choosing the best method of application. Schedule time prior to your primary manure application season to calibrate application equipment, check equipment for good working order and make changes in application to address uniformity across the field.

Application is not only about getting on the right rate but making sure that rate is uniformly applied across the field. Manure application should also address having the appropriate application method to reduce erosion potential, reduce odors and conserve nutrients. Make sure you are using the best available equipment to meet your needs. Follow all required setback or separation distances for land application.

Article continues on next page →

Diagnostic tests

Several tests exist that help producers manage nutrients. These include the late-season nitrate test, cornstalk nitrate test, N-sensing and others. These diagnostic tests will not tell you how much nutrient to apply, but will give you an indication of nutrient supply to the crop. These tests differ by state so consult your University Extension office to determine which tests work best in your state.

The Phosphorus Index

Many states have adopted the use of a Phosphorus Index, and this tool varies widely from state to state. In many cases, it is possible to use this tool not only as an index of risk of losing phosphorus from fields, but may be used as a predictor of fields with greater potential loss for phosphorus. If we know which fields might be more subject to phosphorus loss, we may be better able to manage manure by changing application practices, changing the rate or incorporating new or more conservation practices to reduce loss of phosphorus.

Conservation practices

In many places, the implementation of conservation practices may be the single biggest factor in preventing nutrient loss from fields. Take time to review your conservation practices or to implement conservation practices on your farm. Conservation practices include buffers, contour strips, reduced tillage, terraces and many other practices. Often one practice is not enough, but used in combination with other conservation practices and stewardship practices, they can help reduce nutrient run-off from fields.

Adequate storage

Adequate manure storage on a dairy farm is often a big challenge. Herd sizes often increase with no increase to the manure storage capacity, or storage is lacking due to the expensive nature of designing and building adequate storage. The days of letting manure run off of the outdoor lot into the environment are over. Tough choices will have to be made about operations and the need to add

storage, expand storage, move the dairy and stay in business. Many states have cost-share dollars available to assist with building storage. Explore those opportunities in your state. Develop a long-term plan to address storage and begin working towards that goal.

Management (storage, animal housing, application)

Best management practices are key here as well. Manage storage to keep manure in the storage facility (conserve nutrients) until land application. Manage animal housing to improve manure handling and collection. Manage application to reduce the potential for runoff of nutrients. Watch the weather. If rainfall is predicted or it's windy, wait until another day to apply manure. Employ practices across storage, housing and application that will reduce or mitigate odors.

Recordkeeping

No one really likes to keep records because it takes time, is cumbersome and if there are regulations to follow, it can be very tedious. One agency may want one set of records and another agency a different set of records. Records don't really contribute to the bottom line, but they are invaluable in proving that you are managing manure to the best extent possible. Records may be required for regulations, but in reality they should also be supporting your financial analysis on your farm and providing an indication of places where improvements can be made.

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**Wishing Everyone:
Happy Thanksgiving!
Merry Christmas!
Happy New Year!**