DAIRY CONNECTION

Vol. 18, No. 2 June 2008

■ EDITORIAL

During a recent visit to a soybean processing plant, I saw this list pertaining to business startups. I thought it was rather insightful and worth sharing as part of this quarter's newsletter.

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Ten Potential Pitfalls in Starting a New Value-added Cooperative

1. Lack of clearly defined mission
2. Inadequate planning
3. Failure to use good advisers and consultants
4. Lack of member leadership
5. Lack of member communication
6. Inadequate management
7. Failure to identify and minimize risk
8. Overly optimistic assumptions
9. Not enough capital investment
10. Inadequate communications to all stakeholders

– Brent Bostrom of the law firm of Doherty, Rumble and Butler as reported by Allen Gerber, president of the Minnesota Association of Cooperatives

Spring is finally here, I think. More likely is that it will transcend quickly into summer, bringing some immense challenges with the pending low-moisture situation (at this writing). I hope this edition finds you and your family doing well and optimistic that better conditions are ahead.

The summary of the Milk Producers Association of North Dakota dairy convention survey is done. The results in brief said that of the 45 percent of the North Dakota dairy farms that did respond, 78 percent relied on family labor, 80 percent were Grade A producers, 43 percent already belonged to the MPA and 33 percent used Dairy Herd Improvement Association services. In addition, 80 percent had Internet access, but 57 percent preferred to receive their dairy educational materials in hard copy. Thirty-six percent of the respondents said that dairy services were adequately available to their dairy farm.

When asked if they were planning to retire in the next three to five years, 27 percent said yes. Only 16 percent had been to the dairy convention

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in recent years, but 21 percent said they would attend in the future. Of the 259 surveys mailed this last March, 55 were returned, a 21.2 percent return rate. While declarations of success or failure seem to be made on a much lower percentage of the population during this political season, the fact that a segment of our audience is not represented here is apparent. For example, 64 percent and 36 percent of North Dakota dairy farms are Grade A or Manufacturing, respectively. Nonetheless, 20 percent is considered a good proportion of returns for similar surveys.

Have a safe and successful summer.

Regards,

J.W. Schroeder
Extension Dairy Specialist

■ MANAGEMENT

Key Traits of Successful Dairy People

Recently, I had occasion to communicate with a dairy business management service provider. We shared our passion for seeing dairy farms succeed. During his travels, he had formed some observations on key traits of successful dairy operations that I would like to share.

1. **Optimistic:** Operators are openly and enthusiastically optimistic. They loved being a dairy operator and being in the industry. When visiting with any one of these people, coming away with any hint of pessimism would be hard.
2. **Working Manager:** They are comfortable in barn clothes and all were actively involved with a working management position in the barn. I can think of several instances (at different farms) when the producer(s) was asked about nutrition/bookkeeping/accounting and nearly all responded that someone else completed that role because they were busy working with the cows, the young stock, the farming, etc. A key component seemed to be that they depended on outside folks to complete some (or most?) of those important chores. When asked, one producer even responded that he didn't really pay much attention to the actual nutrition. He gave his nutritionist the guidelines for the "what" and "how" he wanted things done, and only required to be informed by a summary of the changes being made and level of progress. One even has the nutritionist give that portion of the tour. As he put it, "the nutritionist knows more about the feeding and feed area than I do."
3. **Totally Cow Focused:** Every successful producer I talked with on this series of tours talked about cow comfort, cow well-being and current herd status. Most talk about recent expansions they completed with emphasis/reasons based upon cow management and numbers. In other words, they wanted to talk about cows or cow management, not farming and crop management.
4. **Definite Growth Mode:** If I recall, four of the six operations we recently visited were planning to add cows and increase by at least 50 percent! One was even going to double to 4,000-plus cows in the next year. Yet another was venturing into an additional new dairy with a group of potato growers with much optimism.
5. **Innovators:** The organic producer aside, I would classify the producers we visited as innovators. A couple of farms had rotary parlors, one had a sand lane and one had a mechanical sand separator, plus they had various specialized equipment around. One even had an on-farm tour business where folks could stop by and view the parlor through a glass wall and visit an ice cream parlor-type of gift shop.

The reference herds I've used for these comments contained 500, 1,200, 1,450, 400, 2,700 and 1,200 cows. Dairy milk production ranged between 72 and 93 pounds per cow per day, excluding the organic producer. All herds were Holstein. About half were sand-bedded. All were surprisingly large crop operators who raised most, if not all, of their forage. Labor was predominantly Hispanic help. All had multiple family members involved as owners. And, all farms were within 50 miles of a very large metropolitan center.

Source: M. Halbakken, Dairy Business Specialist, LOL, Perham, Minn.

■ LABOR

Empower Your People

The "quality" movement in all segments of our economy recognizes that every member of the work force – owners, family members and employees – must succeed in and gain satisfaction from his or her job. Discussions with approximately 50 farm families reinforced this recognition. Following are four points from these discussions:

1. **People want to succeed**
   Managing people can be challenging and frustrating. A fundamental reality – almost all people want to succeed, to be part of a winning team, socially or at work – is easy to forget. Very few employees head to work thinking, "How can I screw up today?" Stories of work force members responding to feedback, training and coaching spoke to this idea.
2. **Positive feedback**
   One assignment is to increase the quantity and quality of positive feedback for the next 21 days. I am amazed at the impact. Here are some of the results:
   - Numerous farms reported their atmosphere or culture changed, creating a more positive, pleasant place for everyone to work.
   - One farm reported the greatest satisfaction came from hearing from employees' spouses on how much the employees appreciated the positive feedback. This underscores the reality that most employees appreciate positive feedback even more than their immediate outward reaction indicates. We aren't good at receiving positive feedback, but that doesn't mean we don't want or appreciate it.
   - Several farms reported employees became more focused on doing a good job and asking for additional responsibilities as a result of more and better positive feedback.
3. **Explain "why?"**
   I frequently have discussed "chalking the field" – providing greater clarity about expected performance, including behaviors – emphasizing the importance of explaining "why?" in addition to the "what?" in policies, tasks and expectations. Discussions revealed numerous instances of employees/family members completing tasks better and more enthusiastically when "why?" was explained. One farm reduced somatic cell counts 100,000, attributing most of the decline to explaining "why" each step in the protocol is important.
4. **Work environment**
   Just as we increase milk production with continually changing technologies, we are improving our understanding of how to best provide employee supervision. Great supervisors create an environment – through direction, encouragement, coaching and support – to enable success, not simply expect compliance. That environment increases job performance and leads to greater job satisfaction.

Take-home messages

Based on what I observed, I am confident you will see excellent results by:

- providing greater positive feedback
- explaining "why" when training, redirecting and coaching

Source: R. Milligan, senior consultant, Dairy Strategies LLC, and professor emeritus, Cornell University, from Midwest Dairy Business, April 2007, p. 27.

■ MILK QUALITY

Successful On-farm Culturing Program

On-farm milk culturing can be an effective way to improve treatment protocols and milk quality. The materials necessary are easily obtained, economical and reasonably straightforward to use with proper training. Information derived from culturing is valuable for its timeliness in identification and treatment of mastitis pathogens, as well as its usefulness in development of control strategies. On-farm culturing programs can decrease antimicrobial use, decrease discarded milk, decrease overall treatment costs and reduce the risk for antimicrobial residues in milk.

A successful on-farm culturing plan has three components. First, and by far the most important, is a well-trained person with an interest in doing

on-farm microbiology. Second, a mechanism for recording culture results and treatment outcomes is necessary. The third key element is a timely review of the results, which leads to an action plan for treatment and prevention.

The most important key to successful on-farm culturing is the commitment of the person who is responsible to see that samples are plated properly, observed and recorded in a timely manner. This is the area where many failures and successes have occurred. Without someone who will plate samples, read and interpret results, and record these results, the entire process of on-farm culturing will be an exercise in futility. However, when a trained, committed person is in charge of culturing, the program can lead to improved treatment protocols and milk quality.

Source: Michigan Dairy Review

Staph. aureus Most Prevalent in U.S.

During 2007, the U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) conducted the "Dairy 2007" study in 17 of the top U.S. dairy-producing states. These states were divided into two regions: west (California, Idaho, New Mexico, Texas and Washington) and east (Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Vermont, Virginia and Wisconsin). Herds were categorized by number of milk cows on hand: small herds (30 to 99 cows), medium herds (100 to 499 cows) and large herds (500-plus cows).

The primary component of the study was a survey to determine dairy cattle health and management practices. An additional component of the study included sampling and culturing bulk tank milk for the contagious mastitis pathogens *Streptococcus agalactiae*, *Staphylococcus aureus* and Mycoplasma.

S. aureus was found on 43 percent of operations and was the most prevalent of the three contagious mastitis pathogens. The study found no significant prevalence differences by herd size or region.

S. agalactiae was isolated from 2.6 percent of operations, with no significant differences in prevalence by herd size or region. Mycoplasma was isolated from 3.2 percent of operations. Prevalence did not differ by region, but did differ by herd size, increasing as herd size increased (bulk tank milk on 1.8 percent of small operations, 4.2 percent of medium operations and 14.4 percent of large operations tested positive for Mycoplasma).

Source: 2008 NMC Annual Meeting Proceedings, p. 170-171 (Lombard et al).

Cleanest Bedding Under the Udder

A primary goal of bedding management is to keep bacteria counts as low as possible where that bedding has contact with the udder. Therefore, the cleanest, least contaminated bedding should be under the cow's udder. The best strategy to accomplish this when using organic bedding is to:

- Remove all used bedding from the back half of the stall each day and replace that bedding with fresh bedding.
- Do not move bedding from the front of the stall to the back of the stall.
- Once each week, remove all the used bedding from the stall.

Ideally, fresh sand bedding should be added to the stall every five to seven days, maintaining a level surface above the height of the curb. Fresh bedding should be placed on the top of the surface. Attempts at "tilling" sand bedding to accomplish leveling may not be wise since the older and more contaminated sand is brought to the surface, allowing higher teat exposure.

Source: 2007 NMC Regional Meeting Proceedings, p. 10-17 (Reneau and Bey).

■ HERD HEALTH

Is That Cow Sick?

Sarah Wagner, D.V.M. and assistant professor in our Department of Animal Sciences at North Dakota State University, recently published some of her research in Hoard's Dairyman. If you haven't seen it yet, here it is. It bears repeating.

Many illnesses in cows occur in the first month after calving and have the potential to affect health, production and breeding throughout the lactation. Because illness in fresh cows is so harmful, many farms have developed protocols or standard operating procedures to ensure prompt treatment of fresh cows when they become ill.

Before treating any cow, however, you must try to make an accurate diagnosis. Every treatment protocol depends on an appropriate diagnostic protocol. Overtreatment, undertreatment and inappropriate treatment cost you money and can harm the cow's health. Ideally, a diagnostic protocol should be sensitive (meaning it identifies all of the affected cows) and specific (meaning it does not suggest that a healthy cow is sick).

No single observation or measurement is likely to identify every sick cow without misidentifying any healthy cows as sick. Consequently, the best approach is to design a protocol with which to evaluate several different measures of cow health. General consensus is that fresh cows should be examined daily for the first 10 days in milk.

Lowered milk production may be a useful way to decide which cows should be examined for evidence of illness. Milk production may begin to drop off several days before you have clear evidence of illness.

In smaller herds and those without daily milk weights, lowered milk production may be detected by an experienced milker palpating the udder for firmness or fullness prior to milking.

In facilities where daily milk weights are available, a drop in milk greater than some maximum acceptable level may be used to select cows for further examination. On larger farms, some type of prescreening of cows for examination, such as based on milk weight drop, is especially beneficial because time and labor will be used more efficiently. Both healthy and sick cows will spend less time waiting to be examined.

What about temps?

Identifying sick cows based on examination of only one factor, such as temperature, will result in a diagnostic protocol that is neither sensitive nor specific. Recent research here at North Dakota State University has determined that healthy fresh cows routinely have rectal temperatures higher than what has been considered a sign of illness in the past. Calling a cow sick based solely on mild elevations in rectal temperature (103 to 104 Fahrenheit or 39.5 to 40 degrees Celsius) will result in overtreatment of fresh cows that are not actually sick. In addition, excluding cows that do not have an elevated temperature from further examination may result in delayed detection of metabolic diseases, such as ketosis and milk fever. These conditions do not cause fever and even may lower rectal temperature.

Because milk production and rectal temperature are not reliable indicators of illness in fresh cows when used alone, the most useful diagnostic protocols involve several different measurements and observations. Other items that are examined commonly include eye position (normal or sunken), ear temperature, alertness and posture, locomotion score, palpation of the udder for pain and swelling, presence and odor of vaginal discharge, heart and rumen sounds, presence or absence of the sound of a displaced abomasum, and a urine ketone test.

To streamline the examination, you may not want to include all these items. Consult your veterinarian when you put together a diagnostic protocol. Also consider you herd's health history to tailor the examination to the problems that have been seen on your farm most commonly.

Be practical

A protocol that is too brief may fail to find some sick cows due to lack of appropriate examinations

or tests. On the other hand, a protocol that is too long or complex is likely to be done inconsistently, incompletely or not at all.

The fact remains that you simply have no substitute for careful observation and examination of fresh cows. Even a well-designed diagnostic protocol will be useless in the hands of a person who is not interested or motivated to find sick cows. The examiner must be patient and detail-oriented, and the process should be as simple as possible while still being sufficiently complete.

At NDSU, cows are examined by veterinary technology students using a checklist. The items for examination are listed and observations entered as numbers, check marks or by circling the appropriate response. See the table.

You can save money and avoid accumulating a lot of paper by laminating several copies of the examination form and having the examiner complete it with a dry-erase marker. You can develop a spreadsheet or use a dairy records program to enter abnormal exam results so that they are not forgotten or overlooked.

Cow Examination Sheet Cow number _____

Date _____ Time _____ Examiner _____

Attitude (circle one)	Alert	Quiet	Depressed
Gait (circle one)	No Lameness	Lameness	
Eyes (circle one)	Sunken	Normal	
Ear temperature (circle one)	Warm	Moderate	Cool

Heart rate in beats per minute
(listen for 15 seconds, multiply by 4) _____

Rumen contractions per minute (listen for 1 minute) _____

Rectal temperature (wait at least 1 minute) _____

Udder appearance/palpation	Abnormal	Normal	
Vulva	No discharge	Discharge no bad smell	Discharge bad smelling

Body Condition Score _____

Urine Ketones _____

Description of abnormal findings listed above or not on this list:

_____

_____

_____

A proper diagnostic protocol will make your treatment protocol more effective and economical. You may want to examine all fresh cows using a complete diagnostic protocol, providing cows will not be made to stand for long periods and the labor is available. Otherwise, some cows may be selected for further examination based on observations of those working with the herd or evidence of lowered production. Diagnostic protocols always should be designed in consultation with your veterinarian. Even the most well-designed protocols will not eliminate the need for veterinary examination of sick cows. However, properly designed and implemented protocols will enable accurate detection and appropriate treatment of illness as early as possible during the critical period of early lactation.

Source: S. Wagner, D.V.M. – NDSU Animal Sciences Department

■ CALVES

Prevent Calves from Sucking

Amid busy spring schedules, you may not have had the time to read your Hoard's Dairyman. Ken Nordlund's veterinary column had this response to a Midwest producer who asked, "What can I do to prevent calves from sucking?"

You have ways to help prevent the problem. Quite a lot of research has been done on the problem in the last 10 years, much in Europe.

Researchers characterize the behavior as "non-nutritive sucking" when the calf sucks at parts of the pen, such as pipes or gates; "cross-sucking" when the calf sucks at body parts of other calves, such as ears, mouth and umbilical area; and "intersucking" when the calf sucks at the udder region of another calf. It can lead to "milk-stealing" if it persists into adulthood. The behavior can lead to unwanted effects, such as hair loss and inflammation of the sucked parts of calves, as well as udder injury and mastitis in cows.

Calves raised in individual pens usually are limited to non-nutritive and cross-sucking, but calves raised in group pens potentially can show all three forms. Usually, the problem is limited to a small percentage of calves, but in some herds, more than a third of all calves exhibit the problem.

First, use the new plastic nose flaps rather than the old pronged nose rings. The plastic nose flaps have been developed primarily in the beef industry to ease the stress of weaning. The plastic nose flap is inserted into the nostrils without puncturing the nasal septum and can be removed in a few days or weeks.

Through a number of research studies, six factors have been shown to have a significant effect on the problem.

First, the basic question to ask is whether you feed milk in an open bucket or if it is fed through a teat-bucket, nipple bottle, or floating nipple. Feeding milk in open buckets will increase the problems of intersucking substantially.

Second, if milk is fed through a teat or nipple, the hole should be relatively small to keep the calf sucking longer. Some people enlarge the opening to speed the feeding process, but that practice will add to the cross-sucking problems.

Third, the calves should have access to the teat bucket or nipple bottle for at least 10 minutes, and preferably 30 minutes, after the meal is finished.

Fourth, if you also can feed water through the teat or nipple, the practice should reduce inappropriate sucking.

Fifth, making sure calves have continuous access to high-energy solid feeds is important. If access to calf starter is limited to a few hours or if the energy density of the supplement is low, the incidence of inappropriate sucking will increase.

Abrupt weaning has been shown to reduce the inappropriate sucking after weaning. On the other hand, gradually weaning during a period of a week or more increases the problem.

All six of these management practices have been shown in research trials to reduce the problem. If you implement these practices, you should be able to forget where you keep those old nose rings!

■ FORAGES

Using hay preservatives

Dwain Meyer, professor of forage production and physiology in the Department of Plant Sciences at North Dakota State University, recently was featured in Hoard's Dairyman on this timely topic of forage preservatives. With greater value of forages, preservatives can help protect your investment. However, they are not a cure-all.

Questions concerning the use of hay preservatives often arise during the first harvest when you're trying to make hay between rainstorms. Nothing is more frustrating than having 40-plus acres of hay almost dry with a short-term forecast of significant rain, which is when high-moisture hay preservatives have real potential.

Basically three types of hay preservatives are marketed:

- anhydrous ammonia
- bacterial inoculants
- organic acids

Uniform application a must

Preservatives generally are applied with nozzles on the baler shoot. Adequate nozzles are needed to get a uniform application to all of the hay. Mixing the preservative with water (1-to-1 ratio) permits more thorough coverage of the hay, but the rate of acid application must be maintained. Application equipment (tank, pumps, nozzles and so forth) costs about $1,000 for a minimum setup, with the cost increasing for more elaborate setups. The cost can be recovered quickly, however, if a high-value hay crop can be put up rather than a rain-damaged one.

Ideally, propionic acid-treated hay should be stored inside or under cover. Never store treated hay with untreated hay since moisture can move from the higher-moisture bales to the dry hay during curing and, thereby initiate deterioration of the dry hay.

Economic comparison of our alternative haying situations

	Baled dry		Baled wet	
Component evaluated	**No rain**	**1 inch rain**	**Untreated**	**1% PA**
Respiration loss in field, %	5	10	5	5
Harvest loss	10	15	5	5
Harvest yield (lbs./acre)	1,700	1,500	1,600	1,800
Storage loss	5	5	18	10
Final yield (lbs./acre)	1,600	1,500	1,440	1,600
TDN, %	66	61	59	64
TDN Yield (lbs./acre)	1,056	854	850	1,024
TDN lost after cut, %	25	39	39	27
Value/acre ($)	58.08	46.97	46.75	56.32

TDN valued at $0.55/lb. (shelled corn at $2.50/bu.)

When piling acid-treated hay, stack the bales loosely so they can "sweat" and cure. Tightly packed stacks may prevent curing and lead to deterioration of the hay.

Are they worth it?

Does a hay preservative pay? Purdue University researchers presented four scenarios attempting to answer this question (see table). The four scenarios were:

- hay baled at less than 25 percent moisture with no rain
- hay rained on before it dried
- hay baled at 32 percent moisture to avoid the rain
- hay baled at 32 percent moisture but propionic acid (PA) used

Harvest losses were reduced at higher moisture contents, but storage losses were doubled or more. Total digestible nutrients (TDN) were highest in the dry hay followed by the propionic acid-treated hay. Based on the value per acre of each scenario, the propionic acid-treated hay was superior to the rain-damaged hay, but not the field-dried hay without rain. Using propionic acid treatment costing $10 per ton (low for today's cost) and $2.50 for corn (also low for today), the preservative treatment paid for itself, compared with rain-damaged or high-moisture hay without a preservative. Compare the economics based on the going price of propionic acid, TDN value and cost of corn.

In summary, use of organic acids as high-moisture hay preservatives has its best potential in the prevention of rain-damaged hay and not as a normal harvesting procedure. Their use to increase the harvesting window also is valuable for covering large acreage.

■ NUTRITION

Maximize Forage Quality to Reduce Ration Costs

Higher forage diets can keep feed costs down, but use high-quality forages and formulate rations to maintain milk income.

Feeding less grain and more forage generally decreases ration costs. If that's part of your feeding strategy, do so with the goal of maintaining milk and component yield.

The strategy:

1. Formulate diets using one of the nutritional models, such as the Cornell Net Carbohydrate and Protein System (CNCPS or CPM), or using NRC 2001. They help more precisely determine animals' nutrient requirements and better estimate actual nutrients supplied by a diet. Modeling diets reduces the need for "safety factors" that increase the amount of recommended concentrate.
2. The major reason we can't feed all-forage diets is that forages are less digestible than concentrates, mostly because of higher fiber content. But we can increase dietary forage content by feeding higher-quality forage. Feeding very high-quality,

high-digestibility forage is the major key to reducing diet cost and maintaining or improving milk yield.

As forage digestibility increases, effective fiber (effective neutral detergent fiber, or eNDF) drops. Maintaining adequate eNDF levels is critical to cow health and component yield. Some of my clients grumble that for years I badgered them to make better forages – and now I complain that their forages are "too good" because they don't supply enough effective fiber to maintain cud chewing and rumination. We need both higher-digestibility forages and enough effective fiber for rumen-healthy diets. Maximizing forage digestibility is very important, but very high-digestibility forages lose their effectiveness as fiber sources.

You must provide adequate eNDF in the ration when feeding higher-digestibility forages. This might be lower-quality forage, chopped hay or prechopped straw. Feeding purchased straw with very high-digestibility forages usually is more profitable than feeding low-quality forages and more concentrates, even when straw is expensive. Straw is preferable because it is a concentrated source of effective fiber that delivers eNDF in a small package, thus you can feed more highly-digestible forages without compromising rumen function and health. Straw and coarse grass hay are not as brittle as alfalfa and don't break up well in a mixer, so they should be chopped first or cows will sort them out. High-quality grass hays are usually too soft to provide much effective fiber in a total mixed ration (TMR).

We don't always have to provide an ingredient specifically for effective fiber. Whether we do depends on other factors, including moisture content of the diet forages, forage particle length and the maturity of the plant material.

Choose corn silage varieties with higher digestibility, especially brown midrib (BMR). BMR has some additional expense and risk, but can enhance profitability. When feeding BMR silage, adjust rations for higher forage and adequate eNDF to avoid acidosis-related health problems or reduced butterfat yield.

One exception to forage that's "too good" may be very high relative feed value (RFV) Western alfalfa. High RFV (above 200) alfalfa hay, grown under irrigation in arid climates, is very dry, brittle and leafy with low fiber content and very little effective fiber, making it difficult to maintain adequate eNDF even on high-hay diets.

Another problem is that small particles from high-RFV alfalfa may have high rumen passage rates. Partial solutions include feeding hay with RFV values of 175 to 195 or mixing in lower-quality "feeder" or "mixer" hay. To increase diet eNDF levels, consider buying less than excellent Western alfalfa, or straw.

Very high-digestibility forages fed alone to replacement heifers can fatten them excessively. The problem often is you grow only high-quality forage with no provision for lower-digestibility forages for heifers. Find lower-quality forages as a main forage for heifers or added to high-digestibility forages to reduce energy and intake.

On the other hand, heifer diets that contain mostly poor-quality forage must be supplemented with concentrate for growth. Reduce feed costs by feeding better-quality forage and eliminating purchased supplements other than minerals for older heifers.

Choose ingredients wisely. Ingredient price and ration cost are different things. High-density ingredients are usually more expensive than lower-density ingredients. For instance, soybean meal (49 percent protein) is more expensive than canola meal (37 percent protein). But higher-density ingredients deliver their nutrients in a smaller package – and leave more room in the diet for forage, often reducing net diet cost. This is especially true in diets formulated for high levels of production where fiber is at a premium.

Use ration software to evaluate similar ingredients. The outcome is not based on cost alone – appropriate nutrient constraints are applied before "least costing." Have your feed adviser periodically rerun options by least-cost optimizing, especially when booking feed. Buying on price alone could increase ration cost if you have to feed more, even

when buying mixed feeds. This is one reason we recommend producers should insist that mix formulations be provided and open to the purchaser.

Given today's commodity prices, higher corn silage diets usually will reduce feed costs, compared with diets heavy on hay. This is driven by the price of corn grain and other energy ingredients, but also because of greater dietary protein efficiency. Corn silage diets often can be lower in total protein because the high starch content supports efficient rumen microbial yield. Also, high protein hay-crop diets tend to have much higher soluble and degradable rumen protein loads, requiring more expensive bypass protein.

But high-corn silage diets are not more economical when a dairy grows its own corn grain. With reasonable yield and input costs, feeding high levels of high-quality hay crop as base forage is less expensive for these dairies.

The economics of feeding dairy cows is challenging, intensified by current feed prices. Feeding higher-forage diets can help, but eNDF content must be maintained. Choose feed ingredients wisely – using denser, more expensive ingredients may result in lower-cost diets.

Source: B. Burhans, nutritionist, Dairy-Tech Group, Twin Falls, Idaho.

How Will You Feed Your Herd in 2008?

Who would have expected the conditions we've seen in 2007 and 2008? Milk prices exceeded $25 per hundredweight (cwt). Corn and soybean prices reached record or near record highs and now we may experience a drought, which will lead to depressed forage yields and reduced forage quality. The next 12 months will be interesting. These conditions provide a strong stimulus for us to seriously examine the economics of our feeding program. Regardless of the economic conditions, remembering that the goal is to produce milk at the greatest economic return per cwt of milk produced is important. This means that we must look at both costs and returns. As an example, when corn prices exceeded $5/bushel and soybean meal $350/ton, feeding less was tempting. However, this was not a good decision when milk prices exceeded $25/cwt. As we face new challenges for 2008, consider the following factors in guiding your long- and short-term planning decisions:

Long Term

- Forage quality is especially important. Strongly consider forage varieties yielding more digestible nutrients. The BRM varieties of corn and other forages used for silage have been developed with higher whole-plant digestibility. This results in improved intake, less grain (corn) feeding and potentially healthier cows producing milk with higher components. What about reduced tonnage and crop knockdown? Research has yielded new varieties that address these problems quite well. One can expect similar yields and standability characteristics of conventional varieties.
  - Grouping cows. When bovine somatotropin (BST) was more widely used, we had less incentive to group cows because we could reduce the drop in production experienced by cows in late lactation. One-group TMR herds also were easier to feed and manage. However, with higher feed costs and more variation in daily milk yield, now we have more incentive to group cows. Premium ingredients can be utilized in rations for fresh and/or high-production groups where an economic return from more milk, higher components or improved health justifies their expense. Suggested minimum lactation groups are:
  - Fresh cows – first two to three weeks of lactation
  - High production
  - Low-production/late-lactation cows
- Environment. What are conditions like where the cows eat? Consider the following:
  - Do they have protection from sun, wind, rain?
  - Will added ventilation or cow cooling improve intake and cow comfort?
  - Does the bunk surface encourage intake or should it be resurfaced?

Short Term

- Forage test routinely. Monthly testing of corn silage is advised, with more frequent testing as herd size or expected variation in the forage quality increases. Use wet chemistry for initial samples and less expensive near-infrared (NIR) testing when less variation is expected. Starch levels should be measured in all corn silage samples.

- Make wise purchasing decisions.
  - Become informed about market trends. Subscribe to information services that provide timely, brief reports on market trends. This information also will help you negotiate in an informed manner with your feed supplier. Most milk marketing cooperatives provide such information to their members.
  - Develop relationships with several feed suppliers. Their long-term goal is for your continued profit (and theirs)! A little competition is good for everyone. However, loyalty to good service and reasonable pricing will encourage the supplier to stick with you when times are tough economically. A good supplier will relay market trends to you in a timely fashion and help you manage feed costs. Don't switch suppliers at the slightest burp in feed prices with one supplier over another.
  - Evaluate the relevance of ingredients. What is the cost of each ingredient? What does it provide to the ration? What are the benefits of continued inclusion in the ration and the risks of economic losses if it's removed from the ration? What are the limitations to higher, economical production for the herd? If somatic cell count exceeds 350,000 or days in milk exceed 225 for the group, some premium-priced ingredients likely will not elicit an economical return. Ingredients with marginal returns for mid to late-lactation cows and in lower-producing herds include: amino acid supplements, probiotics and fat supplements.

- Control shrink. Losses for forages and some commodities can exceed 25 percent of the delivered quantity.
  - Manage the silo face by using a facer or shaving the face from the side with the unloader.
  - Control weeds around silo bags by spraying with herbicides or using electric fencing to discourage animal damage to bags.
  - Use gravity flow bins for high-priced ingredients that are not used rapidly.
  - Train feeders to minimize dropping excessive amounts of forages or commodities while loading mix wagons.

- Consider the purchase of feed management software. These technologies enable managers to monitor loading and feeding accuracy as well as shrink. Once deliveries of commodities or grain mixes are entered into the inventory, the system will deduct amounts utilized as cows are fed, thereby enabling a comparison of what the cows receive and what was delivered. They also provide a convenient way to track dry-matter intake of groups of cows within the herd and relay it to the nutritionist.

Ultimately, remember the three rations that exist on the farm:

1. The ration that has been formulated and delivered to the feeder. Were the appropriate ingredients selected? Did you provide good information to the nutritionist?
2. The ration that was delivered to the cows. Are loading and mixing instructions clear for the feeder? Did he/she mix the ration as instructed and deliver appropriate amounts to the group?
3. The ration that the cow consumed. Did the cow do any sorting? How does the dry-matter intake compare with that specified from the nutritionist? Did you communicate this information back to the nutritionist? Strive to make sure that they are all the same.

When facing the challenges of high feed prices, don't make rash decisions; instead evaluate some of these key factors involved in successful feeding management.

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