Welcome to... http://www.mdr.msu.edu

With the advent of the New Year, Michigan Dairy Review (MDR), is making its debut on our redesigned web site. Just go to the URL: http://www.mdr.msu.edu and you will be just a click away from current and past issues of MDR, an up-to-date calendar of events, and the ability to e-mail the MDR staff at: mdr@msu.edu.

Our goal is to make the web site user-friendly to those MDR readers who are online. We shall still publish the hard copy, as needed, for Michigan dairy producers, farm employees, industry professionals, and dairy-related businesses that do not use the Internet.

This will save $3.33 annually per subscriber in printing and mailing costs. These funds can be used for other dairy-related educational programming.

We also encourage readers to drop us an e-mail to let us know what you like, or what you would like to read about. We would even want to know what you don’t like.

--- The MDR Staff

Our web page will still link to the MSU Department of Animal Science and MSU web sites and other links relevant to the dairy industry.

The MDR, published quarterly, first came out in February of 1996 as a project of the Michigan State University Dairy Programs Group, which includes the MSU dairy extension, research and teaching faculty and staff in the field and on campus. It is now published in January, April, July and October annually.

Our main objective is to present you with a variety of helpful information including timely management tips, research summaries of new developments in dairy science, management, production, and alerts and reminders about upcoming seasonal management actions, and descriptions of collaborative efforts among Michigan dairy producers and MSU Extension.

We also include news and profiles about MSU and Michigan dairy industry personnel and organizations.

MDR is backed by an editorial board of MSU faculty and staff that solicits and reviews articles. The cost of printing and mailing is paid by an annual grant from the Michigan Animal Agriculture Initiative. In large part, the MDR has taken the place of the more traditional extension bulletins and fact sheets as a method of providing timely and new information to the Michigan dairy industry.

--- The MDR Staff

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Dairy Processing

Familiarize Yourself with the Basics of Farmstead Cheesemaking

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The satisfaction of being one’s own boss and not having to share decision-making or profits with someone else always has been attractive to the entrepreneur that hides within most of us. Making independence a reality in the dairy industry may be approached through development of a farmstead or artisanal cheesemaking operation. However, before one launches themselves for established and successful enterprise in question.

The first step is to become familiar with the basics of cheesemaking. The romantic image of the cheesemaker as an artist only portrays part of the skills package required for manufacture of quality cheese. Understanding quality and functional characteristics of raw materials such as milk, rennet, starter/adjunct cultures, color, and flavorings used during cheesemaking provide a knowledge base for making many important decisions within the investigational stages of development. The requisite scientific understanding of cheesemaking may be attained from a variety of sources including short courses, books, and experience. Experience may be gained by working with or for established and successful cheesemakers. A wide variety of contacts for gaining experience and sharing the experiences of others may be found within the American Cheese Society.

Selection of Cheese

Selection of the type of cheese to be manufactured initiates a series of planning steps allowing for sound business decisions. The type of cheese selected must be marketable at a price that will cover the costs of a low volume, low efficiency operation. Making Cheddar, Colby, low-moisture, part-skimmed Mozarella, or other commodity-type cheese would likely be a mistake for the small cheesemaker because there a so many large, efficient cheesemakers producing excellent products within these categories that the price available for such a product would not likely result in a profit. Therefore, a variety of cheese less widely produced, yet attractive to consumers, should be selected. Selecting a source and species of milk may be dictated by the cheese variety. Current farm operations may define the milk source for a farmstead cheesemaker. An artisan cheesemaker may select milk from a variety of species depending on availability from outside sources.

Safety and Quality Monitoring

After selection of the cheese, targets should be selected for safety and quality monitoring. Targets for moisture, fat, salt, and pH/acidity will provide a baseline for assessing the performance of functional ingredients such as cultures and rennet during manufacture. The cheesemaker will either learn to run the appropriate analyses or send samples to an independent laboratory. The capital cost of laboratory equipment and internal labor compared with the cost of sending samples out needs to be one part of the decision-making process. Maintaining proper records on each batch of cheese during manufacture and proper identification of lots in the aging/storage facilities will allow for correlation of quality problems with cheesemaking procedures.

At the same time the cheesemaker monitors the scientifically measurable attributes, the art of cheesemaking must be practiced with consistency. Knowing the proper shape, body, texture, color, finish and flavor of the selected cheese variety will be important in monitoring the more artistic part of cheesemaking. Performing the proper affinage or aging of the cheese requires development of skills best acquired through experience. Defects in cheese quality must be related to either milk or ingredient quality or specific procedures in the manufacture or aging of the cheese. Learning or developing procedures for producing a consistently high quality product will take practice as will the interpretation of cheese quality attributes outside the acceptable range for the selected cheese variety.

Meeting Applicable Codes

Knowing the specific cheesemaking process will make the step of facilities planning much easier. Planning cheesemaking facilities requires a team effort. State and local regulatory agencies must be contacted and consulted to ensure that all procedures, structures and equipment meet applicable codes. Developing a good working relationship with regulators provides the cheesemaker with a great pool of knowledge. Selection of equipment will depend on the variety and quantity of cheese to be manufactured. Equipment need not be complicated but must be sanitary in design and materials. Be cautious of bargain basement and second-hand purchases, as one does not need to buy someone else’s problems. The facilities needed for the cheesemaking enterprise vary with marketing approach as well as regulatory requirements.

If direct marketing to consumers is planned, one should focus on finding a location with high traffic. Existing buildings must either meet codes or be brought up to codes. Water, wastewater, and whey disposal will need to be addressed, with special attention paid to environmental regulations. If anything other than a fresh cheese is manufactured, ripening facilities will need to be developed with controls for temperature, humidity, and air circulation. The ripening facility will require enough space to hold all of the cheese in the process of ripening plus a buffer of finished cheese to meet the customer demands. Additional room will be needed to handle the cheese before sale. These opera-
Feed-Borne Pathogens of Cattle: Part 1

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An often-overlooked aspect of feeding cattle is the potential for feedstuffs to contain pathogens (bacteria, viruses, or parasites) that are detrimental to animal health. Several important pathogens of cattle may be transmitted by ingestion of contaminated feed; however, actual disease outbreaks associated with contaminated feed are rare. The seriousness and potential human health consequences of some of these diseases, such as bovine spongiform encephalopathy (BSE), have led to specific laws and regulations on the manufacturing and handling of feeds destined for animal use. The source of pathogens in feedstuffs may include fecal contamination from animals shedding specific organisms (Salmonella, Johne’s) or the inclusion of animal products containing the organism (BSE, anthrax, Foot-and-Mouth Disease). Some pathogens are normally present in feedstuffs in small numbers but replicate to higher concentrations (Listeria) or produce harmful toxins (Botulism) when feeds are harvested and/or stored improperly.

Although not the focus of this discussion, another important aspect that should be considered is the potential for feedstuffs to be contaminated with pathogens that are in themselves not harmful to cattle but may be of human health concern if they enter the food chain. Examples of these would include E. coli O157:H7 and Salmonella.

This is the first of a two-part series reviewing common feed-borne pathogens of cattle. In this issue, pathogens that generally result from fecal contamination of feedstuffs will be discussed. In a future issue of the Michigan Dairy Review, pathogens that originate from other sources will be reviewed.

Salmonella: There are over 2000 distinct serotypes of Salmonella. The most common Salmonella serotypes infecting cattle include S. dublin, S. typhimurium, S. newport, and S. montevideo (1). Clinically, salmonellosis usually manifests itself as a severe diarrhea that can lead to septicemia, fever, dehydration, shock, and death. Salmonella also has been associated with abortions, arthritis, and pneumonia. Cattle that recover from infection with S. dublin often become carriers and shed large numbers in their feces (up to 1,000,000 colony forming units/gram) and milk (up to 100,000 colony forming units/ml) (2). Cattle become infected by ingestion of the bacterium. Sources include feed, water, bedding, and other inanimate objects that are contaminated with feces containing the bacteria. Feedstuffs of animal and plant origin can be contaminated with Salmonella (3); however the overall level of contamination is reported to be low (4, 5, 6). Rendered animal products may have higher rates of Salmonella contamination than other feedstuffs (7, 8). In a study of risk factors associated with Salmonella infection in feedlot operations, feeding of tallow, cottonseed or cottonseed hulls significantly increased the risk of finding Salmonella infected cattle (9). Practices that have been recommended to reduce the risk of spreading Salmonella through feedstuffs includes routine cleaning and disinfection of animal feeding equipment, avoiding the use of...
common equipment for feeding and manure handling, controlling of rodents, and providing clean water sources that are at low risk of fecal contamination. Keeping feedstuffs dry is important because Salmonella is more likely to survive and replicate under moist conditions. Irrigation of forage crops with lagoon water or spreading of manure slurry immediately prior to harvest also should be avoided.

**Johne’s Disease**: Johnne’s disease is caused by the bacterium *Mycobacterium paratuberculosis*. Recent surveys suggest that up to 50% of dairy herds may be infected with Johne’s disease (10). Young calves are most susceptible to new infection. Following infection as a calf, a long lag period ensues and clinical disease may not appear for years. Signs of clinical disease include chronic diarrhea and weight loss that are unresponsive to treatment. Infected cattle in later stages of the disease shed large numbers of the bacteria in their feces, which serve as a major source of infection for susceptible calves. Infected cows also may shed the bacteria in colostrum and milk. Avoiding fecal contamination of feed for replacement heifers is essential to controlling the spread of Johne’s disease (11). The practice of feeding weigh back or bunk waste from adult cattle to young heifers should not be practiced. In addition, use of common equipment for both manure and feed handling (i.e., skid loader) should be avoided. Feeding of pooled waste milk or colostrum to calves should not be done unless the milk is from known Johnne’s negative cows or has been properly pasteurized. Pasteurization of milk at 72°C (162°F) for 15 seconds or at 65°C (146°F) for 30 minutes has killed *M. paratuberculosis* under experimental conditions (12, 13).

**Neosporosis**: Neosporosis is caused by the protozoan parasite *Neospora caninum*. The definitive host of this parasite is thought to be members of the canine family (14). Other species, including cattle, are likely to be intermediate hosts. After infection of cattle, the parasite essentially becomes dormant in certain tissues and cattle rarely become sick. However, when latently infected cattle become pregnant, their fetuses often become infected. Fetal infections may result in abortion or calves with neurological disorders at birth. This essentially is the only clinical sign seen in cattle. Initial transmission to cattle is likely to occur from ingesting the organisms, which are shed in the feces of the definitive host, that being dogs. Feed and water contaminated with dog feces has been theorized as the source of Neospora associated abortion outbreaks (15, 16, 14). Vertical transmission from infected cow to fetus can also occur. Cow-to-cow transmission is not thought to occur. Prevention of Neospora infections should include protection of feedstuffs from contamination with canine feces.

**Summary**

Feed can serve as a source of pathogens known to cause disease in cattle. The occurrence of feed-borne disease in cattle is rare but should not be overlooked. Precautions to reduce the risk of fecal contamination of feed will reduce significantly the risk of feed-borne diseases in cattle. Dairy producers should take steps to reduce fecal contamination of feeds during storage, when handled, and in the feeding system.

**References**

health management and economics, control of emerging diseases, regulatory veterinary medicine, food safety, and agricultural policy.

In addition to providing better training opportunities, this program will provide state and national recognition that will help attract students, and enhance scholarship and private support of the veterinary program that relates to food animal production at Michigan State University. As the program evolves it should help insure the commitment of the College of Veterinary Medicine to maintaining a viable and progressive animal agriculture industry in the state of Michigan.

Labor Management

Communication Skills Can Help You Manage Your Business

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Department of Animal Science

Tomorrow I hope to be a better communicator than I was yesterday. That was my thought as I realized that the conversation I had with the herdsman yesterday did not go well. All we did was argue and yell at each other. Boy, that didn’t leave either of us with very good feelings. Going out there is going to be difficult for a few days.

How many times have you felt that you didn’t get your message across to someone else or that after a conversation you weren’t sure what someone meant by one of their statements? Or worse yet, the conversation led to conflict and resulted in bad feelings instead of the intended purpose.

Communication is more than giving orders. Bernie Erven (1), extension specialist from Ohio State University states, “Communication influences the effectiveness of hiring and training of employees, motivation of employees, providing daily instructions, performance evaluations, and the handling of discipline problems.” Good communication with employees and family members helps businesses and families to be successful.

The goal of this article is to summarize information about some useful communication skills and get you thinking about skills you might improve as part of your management tool box.

The Basic Communication Model

The model in Figure 1 shows the major elements in the communication process (1). The process starts with a [sender] who has a message for a [receiver]. The sender’s message travels to the receiver through a channel(s). The channels may be verbal or non-verbal. Feedback occurs when the sender becomes a receiver and the receiver becomes a sender and responds to the original sender’s message. Feedback helps the original sender validate whether or not the message has been received in the intended form. Effective communication results in the desired effect on the receiver; i.e., a level of understanding, an action, or a response.

Communications Skills for Your Manager’s Toolbox

The following seven communication skills are taken from Robert Bolton’s book “People Skills” (2). Each is defined with an indication of how it may help you manage your business.

1. **Attending** is giving your physical attention to another person. This non-verbal communication shows that you are paying close attention to the person who is talking. This is done by maintaining good eye contact, exhibiting a posture of involvement, displaying appropriate body motion and holding the discussion in a nondistracting environment. When we send conflicting verbal and non-verbal messages, the non-verbal message is usually the one that others believe.

   The impact. What feelings do you get when you are talking to someone who is not attentive? When people are being ignored, they are less willing to express themselves and give feedback (Figure 1). Attending will increase the effectiveness and accuracy of your communication with others.

2. **Reflective listening** is restating or paraphrasing what someone has said. This is part of feedback (Figure 1). Your goal is to restate the feeling and (or) content of what the speaker has communicated in a way that demonstrates understanding and acceptance; i.e., nonjudgmental.

   “I got to work and the front loader was broken, the battery was dead on the feed truck, and I was late to a meeting.” Reflective response, “Boy, you had a rough morning getting things done and getting to your meeting on time.”

   Hearing is not listening. Listening involves interpreting and understanding the significance of what is said. A
teenager put it this way, “My friends listen to what I say, but my parents only hear me talk.” Reflective listening is also a verification process that involves asking clarifying questions. When many of us were young we were taught not to ask too many questions. As a result, we often realize too late that we should have clarified another’s statements.

Although listening is an important communication skill, we spend little time learning how to listen (3) (Table 1).

**The impact.** Reflective listening helps to open up people, to empower people, and to make them feel a part of your business. It disarms upset individuals and helps to reduce conflict. Try it! It results in more accurate communication and desired actions by employees.

<table>
<thead>
<tr>
<th>Communication Skill</th>
<th>Percent of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td>57%</td>
</tr>
<tr>
<td>Reading</td>
<td>33%</td>
</tr>
<tr>
<td>Speaking</td>
<td>7%</td>
</tr>
<tr>
<td>Listening</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Table 1. Proportion of time spent learning four communication skills.**

3. **Logical consequences** are arranged or applied consequences, which result when a specific action or inaction occurs. Logical consequences follow the format: if a person’s behavior is such, then the consequences are this. This involves setting expectations. A producer provides an incentive program for his milkers where he adds $.10/hour to their monthly wages if they are not late on any scheduled days. The logical consequence is that they will not receive this pay if they are late once.

4. **Three-part assertion** message refers to stating what you need or want in a manner that focuses on your need and, often, the other person’s behavior. The focus is on behaviors, resulting feelings, and effects. It is not an attack on the other person. Being assertive falls between being aggressive and being passive. A three-part assertion message begins with a description of the offending behavior followed by the consequences or effects on you, your business or others and how you feel about those consequences. “When you don’t clean up the parlor, it makes more work for me and I feel very frustrated.”

The above message differs from “you are a messy person, you never clean up the parlor” which labels or attacks the person. Bolton suggests this formula for beginners: “When you [state the behavior nonjudgmentally], I feel [disclose your feelings] because [clarify the effect on your life].”

**The impact.** Assertive messages will help you communicate needs while maintaining good working relationships. You will feel more comfortable calling immediate attention to someone’s inappropriate behavior, allowing you to better direct the behavior of your family members and employees to accomplish the desired results of your business.

5. **Descriptive recognition** lets another person know that you value his or her specific behavior. This is different from flattery, an evaluative praise, a favorable judgement, or general statement about another person’s behavior. Evaluative praise often uses superlatives like “wonderful,” “great job”. This type of praise is rarely helpful. It is neither specific nor conducive to self-reliance and self-direction.

Consider the statements, “You did a great job checking cows today!” versus “You did a good job determining that Taffy, Wendy and Tippy were in heat today and recording their information in the computer so that Tim would know to breed them.” The latter suggests that you know what the person really did. It reinforces the specific behavior.

**The impact.** Descriptive recognition reinforces positive behavior, which helps employees and youth learn what you think is important in their job. People respond best to recognition if it is specific (4,5). Recognition is a reward. It helps create a better working environment (5).

6. **Conflict resolution** is a method of communication that helps two or more parties resolve differences in needs. This method encourages assertive communication and the expression of feelings. Effective communication is difficult to achieve even under the best conditions. Bolton comments, “When feelings run high, rational problem solving needs to be preceded by a structured exchange of the emotional aspects of the controversy.” After emotions subside, individuals are more willing to discuss creative ways to resolve conflict.

Bolton defines the conflict resolution method as involving three steps.

- Treat the other person with respect. Respect for another person is conveyed by specific behaviors. The way you listen to and look at him/her, your tone of voice, your selection of words, the type of reasoning you use.
- Listen until you “experience the other side”, i.e., until you understand what the other person thinks and feels. Then reflect content, feelings, and meanings. Steven Covey’s Fifth Habit, “Seek first to understand..., (6)” applies here, as do the reflective listening skills mentioned earlier.
- Briefly state your own views, needs, and feelings. Use assertive messages. It may be hard to constructively express the alienation or anger you feel toward a person who has offended you, but this is usually necessary to resolve conflict.
- A fourth step should be added. Once views are expressed, move on to find alternative solutions to the conflict and select an alternative that all parties agree upon.

**The impact.** Using these rules will help you avoid potential conflicts and can help you resolve conflicts among employees or family members.
Get Serious About Selecting Employees

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To be successful as an employer in the dairy business you need to have the right employees.

The first step on the road to employment bliss is deciding what you need from a particular job. Is this a temporary or permanent situation? This can affect the potential pool of applicants. Is there a job description? Does it need updating? If there is no job description, consider writing one; there are a variety of aids available. Then the time has come to attract applicants. There are several options here; newspapers, job services, or word of mouth. Take advantage of as many options as possible to maximize the number of applicants.

Now that the applicants are banging on the door, an application form is the item that will help sort through candidates. The application form should be simple, but include personal information such as phone number, address,

Employee Management Tip - Listening Is a Skill

Of the total time we spend learning how to communicate, only 3 percent of this time is spent learning how to listen. We are usually so intent on telling the other person what we know, that we often don’t listen to what they are saying. If you wish to communicate better, learn to listen better.

Good listening involves reflecting what you think you have heard. This will let the other person know you are listening and help clarify what they say to ensure you understand them. Listening takes practice.

References
3. Grusenmeyer, D. Cornell University. Personal communication.

Summary
So much rests on our ability to communicate, yet we may do little to improve our skills, especially listening. I have written this article, not as an expert, but as a learner. Because, tomorrow I hope to be a better communicator!! Bernie Erven (1) comments, “Communication is at the heart of many interpersonal problems faced by farm employers. Understanding the communication process and then working at improvement provide managers a recipe for becoming more effective communicators.” If you are managing cows through people, you may want to read Robert Bolton’s book “People Skills” (2) or other books that focus on communication skills. To be a better communicator work on the seven communication skills to:

• increase the accuracy of communicating what you want or expect;
• decrease conflict and help you be more comfortable dealing with conflict;
• increase flow of ideas and improve problem solving;

and,
• increase employee satisfaction, sense of team, and employee retention.

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education and job skills, information on previous employment, including dates and responsibilities. However, don’t ask about age, national origin, physical or mental disabilities, or similar lawfully protected characteristics. With the applications in hand you are prepared for the next step --- the interviews.

Interviewing has the most impact when filling a position that will have supervisory responsibilities. For other situations interviewing can be less complex but is recommended always. In either case a good interview requires preparation. Consider what questions you should be asking; also think about what questions would not be helpful. One strategy is to profile your best employees. Consider what behaviors allow them to be successful within your management system (see “Select Employees Based on Behavior”, Michigan Dairy Review, July 2001, p. 12).

Remember, attitude is not everything; actual job skills are important too. Also keep in mind that the ability to develop new job skills might make an inexperienced candidate fit your team better than an experienced candidate. Know what skills this position requires before the interview starts. Spend time checking the specific job skills needed for this position.

**Interviewing**

When the time for interviewing arrives, bring candidates individually. Trying to interview more than one person at a time is often counter-productive and inappropriate. The interviewer can’t give individual candidates his/her undivided attention, and the candidates cannot present themselves in the best possible light. The interviewer should strive to create an open, relaxed, non-threatening atmosphere. Remember, you are marketing your business. Interviewing a prospective employee while driving around checking crops, shopping for hydraulic hoses, or visiting with the milk inspector, is not a good approach. Clear time on your schedule. Set some chairs and a table in a quiet place and give the candidate the opportunity to impress you.

**Use Open-ended Questions**

Questions during the interview should be open-ended. Ask questions that sound like, “What do you think about …?” or “How would you approach …?” Ask few questions which can be answered with one or two words. The objective is to evaluate each candidate and find out how they would go about correcting or managing a situation. “Imagine the milk cooler has broken down during the evening shift. What would you do?” These types of questions put the candidates in a position to give you a picture of how they think.

Remember, while you are determining whether a candidate is right for the job, the candidate also is deciding whether he or she wants to work in your business. Provide a realistic preview of the job in question and your expectations in writing. Provide opportunities for the candidates to ask questions and talk about their expectations for a job. This will allow the candidates to give you insight about their reasons for seeking employment in your business and what is important to them.

**Sampling the Candidate’s Work**

A simple test or work sample activity can be scheduled. Because certain job skills were already identified in the job description, some of these can be used as a test. Tests might include handling cattle, milking, operating certain equipment or something as simple as lifting a bale of hay as evidence of fitness for the job. This also could be a time to involve current employees. They can help develop tests by pointing out which skills are most important for a particular position. They could supervise the candidate while milking or work with the candidate while moving cattle from pen to pen. By doing this you can get a “second opinion” from others already involved in daily operations. Finally, if several candidates qualify for employment, a second interview or a more detailed evaluation of a candidate’s skills might be appropriate.

**Equal Employment Opportunity**

The need to be aware of and in compliance with state and federal equal opportunity and anti-discrimination law is paramount. As in the application form, you may not ask for physical or mental disabilities during the interview. You may, however, ask whether the candidate would need any special accommodations to be able to do the job. Also, you may not ask about arrest records - you may ask about convictions (carefully worded). Specific information on the rights of employees and employers are available at http://www.eeoc.gov. If you are new to hiring employees you might find useful information at our web site (http://www.msu.edu/user/bitsch/). Go to “Materials by MSU Extension” and look up the “Agricultural Employers’ Checklist.”

Equal opportunity means treating each potential employee the same as every other. The best way to do this is to develop a plan for the interview process. Stick to this plan as close as possible, so each candidate can be evaluated equally against the others. Job descriptions help here, as does taking notes during the interviews and tests. In addition, a well-done selection process will help the employer build a positive image with the candidates. Kim Watson, writing for Dairy Herd Management magazine said, “Building a positive reputation as an employer begins with the hiring process.”

**“Building a positive reputation as an employer begins with the hiring process.”**

_**Kim Watson**_

_Dairy Herd Management magazine_
Getting the Most Out of Your Effort

A positive reputation is based on communication. Start by acknowledging the receipt of a candidate’s application. If you screen out applicants before interviewing, let them know as soon as possible. Tell them they had great qualifications but they aren’t going to fit your needs at this point in time. If they leave feeling good about themselves, the “word” will get around concerning the fair way they were treated. This in turn will enhance the farm’s reputation as a “good” place. Be especially careful with the candidates that you think might work well if your first choice does not accept. Tell them you were very impressed although you decided to hire someone else. Thank them for applying and ask if you may keep their application on file in case you need more help in the future.

After you make an offer to your number one and it has been accepted, don’t forget the most important step for starting your new employee is the job orientation. Take time or have a trusted employee take the time to orient the new employee to your dairy and the job. You do not want to have him or her guess what is expected of them. Time spent on orientation will be repaid many times in the future. A helpful article on the orientation process is available on the Internet. Follow the favorite links on our web site to “Agricultural HRM” and click on “Orienting New Dairy Farm Employees,” by Bernie Erven, Ohio State University’s well-known human resource specialist.

Key Points

What is most important about the hiring process? Understand what this job in particular requires from your future employee. Take your time and don’t get hurried. If there is an urgent need to fill the position, hire someone temporary, e.g., a student. Don’t hire someone if you have doubts about him or her. Do another search. The secret to hiring exceptional people is to keep an open mind during the process. The best future employee might not be the most obvious one.

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Business Management

Production and Financial Factors Impact Net Farm Income

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This is the second report of a study to determine the accuracy of FINLRB projections by dairy farmers. A detailed copy of the entire report may be found at http://www.msu.edu/user/nott/

Michigan State University Extension has used the FINAN (financial analysis) portion of FINPACK a computer software program (Center for Farm Financial Management, University of Minnesota) to perform annual farm business analyses for 7 years. The FINAN utilizes beginning and ending year balance sheets as well as income and expense information to generate an accrual income statement (profit and loss statement). In contrast, the FINLRB (financial long-range planning) portion of FINPACK is used to project the profit and cash flows of alternative future scenarios. A FINLRB exercise is commonly used to determine if proposed farm expansions will cash flow or be profitable on an annual basis. Utilizing farm level enterprise budgets and balance sheets, the software can be used to build multiple alternative scenarios.

Thirty-one Farms Expand

Thirty-one farms of an original 38 surveyed completed an expansion (adding various combinations of barns, parlors and cows investments), allowing comparison of actual investments with FINLRB projections. FINLRB projections from these 31 farms were completed between October 1992 and March 2000. Sixteen of the Michigan farms also completed a FINAN after they proceeded with the proposed change modeled by their FINLRB. The objective of this study was to identify production and financial factors that impacted the accuracy of the FINLRB projections.

Sixteen southwest Michigan dairy farmers completed FINANs for the year following facility completion (Yr +1) and 13 had complete FINANs 2 years following facility completion (Yr +2). This allowed comparison of actual herd size, milk production, net farm income (NFI), milk revenue, and feed, labor and total cash expenses of the FINLRB projection with the actual values found in the FINAN. These values are found in Tables 1 and 2 shown on page 10.

For both years following facility completion average cow numbers and income factors met or exceeded projections in the FINLRB. However, average feed, labor, and total costs were greater than projected. Therefore, costs higher than projected were the contributing factors to the farms not meeting the NFI projection.

Only 25% of the 16 farms had higher actual NFI in Yr +1 compared with NFI projected by the FINLRB (Table 3, page 11). During Yr +1, four of the farms had negative NFI. This low actual NFI occurred despite a higher than projected milk price (median + $0.63/cwt). Cow numbers exceeded projection on 67% of the farms and 69% of the farms exceeded goals for milk production per cow. However, 81% of the farms exceeded projected labor costs and 50% exceeded...
projected feed costs in Yr +1. The data sets included summary totals only, so no determination was made regarding increased quantity or price of labor and feed costs.

Two years after facility completion, 54% of the 13 farms with completed FINANs had a NFI higher than that in the FINLRB projection. Labor and feed costs were again the major contributors to higher than projected total cash expense. However, 92% of the farms exceeded the milk revenue projection, which allowed twice the amount of farms to meet NFI goals as in the previous year.

NFI projections were not met on the majority of the farms with completed FINANs in Yr +1. Only slightly better than half were able to meet this projection 2 years after facility completion. Purchased feed and labor expenses were the primary reasons these farms did not reach NFI projections.

Table 1. Comparison of production, revenue and expense factors from 16 Michigan dairy farms FINLRB projections and actual FINANs 1 year after facility completion.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Projected Mean FINLRB Projections</th>
<th>Actual Mean FINANs Yr +1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milking and dry cows</td>
<td>379</td>
<td>375</td>
</tr>
<tr>
<td>Milk sold per cow</td>
<td>20,363 lb</td>
<td>20,671 lb</td>
</tr>
<tr>
<td>Gross milk price per cwt</td>
<td>$13.35</td>
<td>$14.39</td>
</tr>
<tr>
<td>Milk revenue</td>
<td>$1,000,255</td>
<td>$1,167,888</td>
</tr>
<tr>
<td>Purchased feed cost</td>
<td>$308,070</td>
<td>$326,374</td>
</tr>
<tr>
<td>Hired labor</td>
<td>$156,993</td>
<td>$190,353</td>
</tr>
<tr>
<td>Total cash expenses</td>
<td>$1,003,374</td>
<td>$1,097,572</td>
</tr>
<tr>
<td>Net farm income</td>
<td>$197,830</td>
<td>$124,090</td>
</tr>
<tr>
<td>Milk revenue per cow</td>
<td>$2,603</td>
<td>$2,961</td>
</tr>
<tr>
<td>Purchased feed cost per cow</td>
<td>$773</td>
<td>$824</td>
</tr>
<tr>
<td>Hired labor per cow</td>
<td>$393</td>
<td>$478</td>
</tr>
<tr>
<td>Total cash expenses per cow</td>
<td>$2,675</td>
<td>$2,853</td>
</tr>
<tr>
<td>Net farm income per cow</td>
<td>$493</td>
<td>$343</td>
</tr>
</tbody>
</table>

Table 2. Comparison of production, revenue and expense factors from 13 Michigan dairy farms FINLRB projections and actual FINANs 2 years after facility completion.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Projected Mean FINLRB Projections</th>
<th>Actual Mean FINANs Yr +2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milking and dry cows</td>
<td>304</td>
<td>340</td>
</tr>
<tr>
<td>Milk sold per cow</td>
<td>19,715 lb</td>
<td>19,718 lb</td>
</tr>
<tr>
<td>Gross milk price per cwt</td>
<td>$13.43</td>
<td>$14.63</td>
</tr>
<tr>
<td>Milk revenue</td>
<td>$743,106</td>
<td>$986,275</td>
</tr>
<tr>
<td>Purchased feed cost</td>
<td>$247,142</td>
<td>$284,914</td>
</tr>
<tr>
<td>Hired labor</td>
<td>$110,587</td>
<td>$159,624</td>
</tr>
<tr>
<td>Total cash expenses</td>
<td>$809,860</td>
<td>$1,003,546</td>
</tr>
<tr>
<td>Net farm income</td>
<td>$105,328</td>
<td>$65,107</td>
</tr>
<tr>
<td>Milk revenue per cow</td>
<td>$2,522</td>
<td>$2,866</td>
</tr>
<tr>
<td>Purchased feed cost per cow</td>
<td>$773</td>
<td>$759</td>
</tr>
<tr>
<td>Hired labor per cow</td>
<td>$359</td>
<td>$453</td>
</tr>
<tr>
<td>Total cash expenses per cow</td>
<td>$2,655</td>
<td>$2,837</td>
</tr>
<tr>
<td>Net farm income per cow</td>
<td>$425</td>
<td>$368</td>
</tr>
</tbody>
</table>

Conclusions

The FINLRB is intended to be a long-range decision making tool. Start up costs of projects and unexpected market price changes are difficult to accurately project. In fact, a FINLRB is designed to compare alternative scenarios at some point in the future when they have reached stability – when the uncertainties of expansion transition have ended. When an individual farm reaches that point is unique and difficult to determine. It was not established that the farms studied in this project had reached that time of stability when the FINANs of Yr +1 and +2 were collected. Therefore, it may be quite unfair to compare the FINLRB projections to any one or all of the FINANs collected. However, lessons can be gleaned from the comparisons of actual and projected production, revenue, and expense data.

1. 60-70% of farms reached projected cow numbers immediately after facility completion.
2. 55-70% of farms reached projected milk production immediately after facility completion.
3. Despite projections based on the farm’s prior purchases, 50-70% of the farms underestimated purchased feed costs.
4. On 80-90% of the farms, hired labor costs were underestimated. In this small sample of Michigan farms it appears that farmers do fairly well in filling barns and making milk in their expansions. However, these producers were much too optimistic about the farms’ ability to control feed and labor costs. Careful examination of all farm records reveals no repeating reasons for the underestimation of these costs. Each farm faced different circumstances. Examples of higher feed costs include internal transfers for new partnerships, different acres farmed than in the projection, feed inventories increased, and drought in the expansion year.

A FINFLO, which projects detailed monthly cash flow over several years, may provide farmers with more complete and accurate financial projections over the time of a new construction project. The FINLRB did meet the majority of farmers needs by assisting in development of a strategic direction for the business. The authors believe that the process of generating the FINLRB, from data generation to examining various possible scenarios to output review, is as important as the final financial “answer” provided.

Acknowledgements

We wish to thank the dairy farmers that took time from their busy schedules, allowed an interview, and shared financial data for this study.

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### Table 3. Percent of farms that had higher FINAN values in Yr + 1 and Yr + 2 compared with the projected FINLRB.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Yr + 1</th>
<th>Yr + 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milking and dry cows</td>
<td>62%</td>
<td>69%</td>
</tr>
<tr>
<td>Milk sold per cow</td>
<td>69%</td>
<td>54%</td>
</tr>
<tr>
<td>Gross milk price per cwt</td>
<td>75%</td>
<td>77%</td>
</tr>
<tr>
<td>Milk revenue</td>
<td>81%</td>
<td>92%</td>
</tr>
<tr>
<td>Purchased feed cost</td>
<td>50%</td>
<td>70%</td>
</tr>
<tr>
<td>Hired labor</td>
<td>81%</td>
<td>92%</td>
</tr>
<tr>
<td>Total cash expenses</td>
<td>69%</td>
<td>77%</td>
</tr>
<tr>
<td>Net farm income</td>
<td>25%</td>
<td>54%</td>
</tr>
<tr>
<td>Number of farms</td>
<td>16</td>
<td>13</td>
</tr>
</tbody>
</table>

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4. On 80-90% of the farms, hired labor costs were underestimated. In this small sample of Michigan farms it appears that farmers do fairly well in filling barns and making milk in their expansions. However, these producers were much too optimistic about the farms’ ability to control feed and labor costs. Careful examination of all farm records reveals no repeating reasons for the underestimation of these costs. Each farm faced different circumstances. Examples of higher feed costs include internal transfers for new partnerships, different acres farmed than in the projection, feed inventories increased, and drought in the expansion year.

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### Here Are Some Dairy Farm Exit Strategies

- **Tom Purdy**
  MSUE Farm Management Agent
  West Central Region

- **Sherrill B. Nott**
  Dept. of Agricultural Economics

In 1992 Michigan had 4,605 Grade A dairy herds. By 2001, the number had dropped to 3,166 according to Ken Olson, who draws his numbers from the State Department of Agriculture list of producers licensed to sell milk. This is a 31% net decline of net of farm business units in 9 years. Indications are that Michigan may continue to lose dairy farm families at this rate. It helps explain the interest readers have shown in the topic of how to exit dairy farming. This article contains some of the considerations families should have if they are planning to ease out of dairying and provides additional information sources.

**Personal Considerations**

The options one has in closing out a dairy business are affected by the following factors:

1. Goals
2. Family’s situation
3. Resources available
4. Perceived options
5. Planning horizon
6. Non-farm savings and investments
7. Financial situation

This list is from “Winding Down Your Farm Operation” by John R. Brake, an 11-page Cornell extension publication A.R.M.E. E.B. 94-20. He states that the planning horizon in an exit situation is much shorter than the family may be accustomed to compared with goals aimed towards building the business. Level of savings and the financial situation will take on added importance when planning to exit.

To help in planning, Brake lists these options for winding down:

1. Quit, sell out, leave farm
2. Gradual wind down or retirement
3. Forced out by finances

If severe financial problems clearly indicate the business is not going to survive, Brake says it is good advice to get out as soon as possible and continue life elsewhere so the family can be better supported. For a family that is going to sell out and leave the farm, a good approach is to find a buyer for the real estate before selling the cows and equipment. An independent appraisal of all assets is needed to realistically determine the expected sales price.

It may be easier to think about a gradual wind down or retirement rather than selling out. This usually means staying in the house and remaining active in the community. If labor or facilities are becoming a problem, the milking herd could be
leased or sold. Less labor intensive livestock enterprises might be considered, such as raising heifer replacements for dairy purposes or feeding beef animals. A bigger step would be to sell all of the livestock, but keep producing and marketing crops. An analysis of local crop marketing alternatives would be needed. The type of crops grown and the machinery needed might have to change. If most of the machinery is to be sold, perhaps the crop land and buildings can be leased.

Selling land is a big step for most people. Selling everything and moving to a different home can be done in one deal. Or, perhaps the house and immediate surroundings are kept while everything else is sold to a single buyer. Another alternative that may be available depending upon the layout and location of the land is to sell off pieces over several years. Some pieces may be sold to other farmers, while some may be sold for homes or recreational use. The strategy of selling by pieces may fall under the definition of Michigan’s Public Act 288, “The Land Division Act”. To learn more, go to this Internet site:


You’ll find that special rules about lot shape take effect when you sell land in several pieces below defined sizes. Zoning laws may limit what can be done with the land by potential buyers. Buyers may insist the land pass percolation tests done by city, county, or district health departments. These “perk” tests gauge whether the soil will support future drainage and sewer systems.

Legal Considerations

Farm owners with borrowed money need to deal with their lenders early in the planning stages. Assets secured by mortgages or security agreements cannot legally be sold without permission of the lenders holding the security. If a major loan exists, blanket security agreements probably are filed at the courthouse with all the crops, cattle, and machinery being pledged as collateral. Part of the permission to sell usually includes promising the lender that sale proceeds go first to paying off the loan(s). If both first mortgages and second mortgages are in place for one piece of land, both lenders have to give permission to sell, and the first mortgage holder gets their loan repaid first. If there are several loan contracts, negotiations about which loans get paid first are to be expected. For tax management, it may be beneficial to ensure sale proceeds go first to paying off accrued interest before any principal is repaid.

Income Tax Considerations

When selling any item, whether crops, dairy animals, machinery, buildings, land, or some combination, there will probably be a taxable gain. The sale price, less any costs of the sale such as auctioneer or real estate agent fees, is compared with what was paid for the asset, adjusted for any depreciation taken. If land has been held for a long time and if the value has inflated, this gain could be large. The gain on open land would be taxed at capital gains rates. Dairy cows born and raised on the farm have a cost basis of zero; all gain on those held 24 months or more would be taxed as capital gains. On purchased cows, and on machinery, any gain due to past depreciation deducted is taxed at the ordinary gains rates, which are usually higher than capital gains rates. Unless the dispersal is made under the rules of an installment sale, the taxes would all be due during the year of the sale. Working with a tax accountant is important to identify legal alternatives you may have.

In a Hoard’s Dairyman article February 10, 1999, p. 91, Eddy LaDue reported the taxes in the case of selling a whole farm business would average about 19 percent of the total assets. They ranged from 10 to 25 percent of assets for the New York farms he studied. LaDue says that to ignore these potential taxes, called deferred taxes, on a balance sheet is to create an ‘equity illusion.’ If a family is looking toward retirement by selling the farm, these potential taxes must be paid, as well as all the debts. What is left can be used for retirement. In your case, how much would be left?

Planning for Your Situation

In summary, if you are planning to exit the dairy business, there are a few special planning steps to take. Decide how quickly or leisurely you can make the move. Get a market based appraisal of all assets you would sell. This should be a realistic assessment of what someone actually would pay in a reasonable amount of time, recognizing all the rust and peeling paint and local market quirks. Work those appraised values into a complete balance sheet that includes the current tax cost basis of all assets. Finish the balance sheet with a list of each loan contract and what security is pledged for each loan. Once this information is assembled, go to a farm income tax consultant and get a precise estimate of what the federal and state income taxes would be on the proposed sale. If the sale is going to lead to retirement, good information can be found at this Internet site: http://www.ces.purdue.edu/retirement/intro.html It will lead you through personal considerations in preparing for retirement.
Milk per cow per year is reported to dairy farm managers from both DHIA and Telfarm. In the case of DHIA, this is the rolling herd average for milk. In Telfarm, it is milk sold based on milk cooperative or processor receipts and cow inventory reported by the producer. On any given farm we would expect the milk per cow to be different between DHIA and Telfarm due to the different calculation formulas. The Telfarm value is expected to accurately reflect milk sold because production totals are recorded during each milk pick-up. DHIA calculations incorporate data collected approximately 12 times per year and do not include adjustments for discarded milk. When trying to do a financial projection of milk income, and having only the DHIA number for a herd, one might wonder how much to adjust the DHIA value to obtain a more accurate cash flow plan. To answer this question, we identified for year 2000 the 53 Michigan dairy farms which enrolled in DHIA and who also had completed a year-end Telfarm business analysis. From each system we obtained the farm’s cow numbers and milk per cow. We did not identify breed, but most were Holstein herds. The results are in Table 1.

The DHIA values were from the December, 1999 through November, 2000. Results

For the 53 farms, the Telfarm average milk per cow for the 12-month period was 810 pounds less than for the same farms’ DHIA rolling herd averages. Table 2 contains the distribution of the differences between DHIA average cow production and Telfarm average milk sold per cow (DHIA minus Telfarm).

The differences varied considerably among the farms, ranging from -3,540 to +2,893 pounds milk. On 11 farms, the Telfarm number was higher than from DHIA. Approximately 60% of the herds (32 herds) had DHIA production averages that were greater than the Telfarm data by more than 500 pounds of milk.

We suggest that Table 2 shows the importance of using an individual farm’s actual milk sales when doing financial projections, such as planning for an expansion. If no other data are available, the DHIA rolling herd average minus 810 pounds could be used. However, keep in mind the tremendous range of differences represented by these 53 herds. Even a DHIA rolling herd average adjusted by minus 810 pounds could overestimate the projected milk sales for a particular herd.

Summary

An analysis of 53 farms in Michigan compared the reported quantity of milk per cow for the same farms in the Dairy Herd Improvement Association (DHIA) and in the Telfarm accounting project. Because of different ways of calculating, it was expected that the DHIA milk per cow would differ from Telfarm values. For the year 2000, this was true. The DHIA number averaged 810 pounds per cow more than in Telfarm. However, on a few farms the Telfarm number was higher. This has implications for doing financial projections if DHIA data are used.
Milk Market Update: Another Year, Another Price Drop

Christopher Wolf
Dept. of Agricultural Economics

For each of the past 5-6 years, a standard milk price pattern has been gradual price increases to highs in September and October followed by not-so-gradual price declines. While demand has not dropped precipitously, with milk production recovering to near 2000 levels, a price drop from the record high prices this summer was expected. The federal marketing order pricing system brings the price declines from butter and cheese prices into the farm pay price with a lag in the fluid (Class I) price (Figure 1). Class IV is milk for butter. The Class IV price fell $2.81/cwt from September to October ($15.58 to $12.77/cwt). Class II is milk for soft-products such as ice cream. The minimum Class II price is the Class IV price plus a fixed differential. Therefore, Class II prices follow exactly the same pattern as Class IV. Class III is milk for cheese. The cheese market stayed relatively strong a month longer than butter. Class III price fell $1.30/cwt from September to October and followed that with a $3.29/cwt drop into November. Class I milk basically follows the higher of Class III or IV with a one month lag. The fluid price can be calculated one month further out. We see the Mideast Order minimum falls from $17.76/cwt in November to $13.98/cwt in December (these are Cleveland prices—Michigan is actually $0.20/cwt lower). Producer milk checks will reflect the drops weighted by the Order and any cooperative or processor utilization blend. Forecasts do not indicate a return to the high prices of this past summer. However, these same forecasts did not foresee those prices a year ago, either.

Class I, or fluid, utilization in the Mideast Order declined from a high of 52% in January of 2000 immediately following Order reform and consolidation to a low of 31% in July of 2001 (Figure 2). As was discussed in the July 2001 MDR, the primary cause of this fluid utilization was “pool-riding.” The amount of paper-pooled milk was sizable. Basically, milk was pooled into the Mideast Order to draw out the producer price differential which is largely the value of the fluid utilization. This milk shows up in the increasing Class III utilization in Figure 2. This paper-pooled milk also is evident in the total Mideast Order milk production, which peaked in July and August of 2001. These months were, not coincidentally, the same months that fluid utilization bottomed out.

Milk production for Michigan has increased slightly since 1998 (Figure 3). The number of milk cows has been 300,000 for the entire 4-year period. The
Milk/Cow (lb/month)

Dairy producers have utilized manure (slurry) as an important nitrogen source mainly for corn, grasses, and small grains. Considerable research has been conducted on fertilization of alfalfa and grasses with inorganic fertilizer. Historically, manure application to alfalfa has not been recommended because of concerns of nitrogen fixation shutdown, possibility of stimulated competition from grasses and weeds, and possible mechanical problems with fouling of harvested forage.

Manure application to alfalfa, however, is being re-evaluated. Why? There are several reasons. First, more dairy cows were added to farms in recent years resulting in increased manure production and a lack of farm land available for manure application. Second, tight profit margins made dairy producers re-evaluate manure as a valuable fertilizer source. Third, environmental concerns by the public as well as the government became a serious issue and now animal production is targeted as one of the most serious non-point sources of pollution. Fourth, alfalfa has a great potential to take up high amounts of manure nutrients compared with other annual crops. Fifth, better manure handling systems have been developed in recent years. Therefore, it will be very important to make optimum manure nutrient management decisions in alfalfa production in terms of efficient manure nutrient utilization as well as environmentally sustainable agriculture.

A Valuable Nutrient Source

Dairy manure can be viewed as either a waste disposal burden for dairy producers or as a valuable nutrient source for forage crops. Dairy manure contains secondary and micronutrients (Cu, S, Zn, and B) as well as macronutrients (N, P, and K), which can be utilized efficiently by forage crops as a valuable fertilizer source. One dairy cow (1400 lb body weight) produces about 208, 84, and 168 lb of nitrogen, phosphate, and potash per year. If you calculate nutrient values of manure into equivalent chemical fertilizer nutrient values, utilizing dairy manure as a fertilizer source becomes cost-effective. In addition, dairy manure contains organic matter that can improve soil quality.

Alfalfa has become one of two dominant forage crops for feeding dairy cattle; the other being corn silage. In general, most manure has been applied to non-legume crops such as corn, which results in application beyond the capacity of nutrient uptake of corn. This excessive or poorly timed land application of nutrients also has contributed to environmental problems and public health concerns such as ground and surface water contamination.

Alfalfa has a unique root system and nutrient utilization capability. Alfalfa has a deep tap-root (more than 3 ft), which is beneficial in scavenging nutrients that otherwise can be leached into the soil and contaminate ground water. About 480, 120, and 360 lb of nitrogen, phosphate, and potash per acre per year can be utilized by alfalfa, which is a much higher nutrient removal than corn and small grains. In an effort to reduce environmental impacts, applying dairy manure to alfalfa fields will provide more opportunities for manure utilization by increasing the crop acreage on which to spread manure. The good news about manure application to alfalfa is that alfalfa can utilize nitrogen from the two sources, symbiotic nitrogen fixation and soil nitrogen from organic (manure) or fertilizer sources. Applying dairy (slurry) to alfalfa generally reduces the amount of nitrogen fixed by the alfalfa root nodules, which is good in terms of manure nutrient utilization because alfalfa will absorb nitrogen from dairy
manure as a substitute for nitrogen fixation.

Because alfalfa is an expensive crop to produce, proper manure nutrient management is necessary to maintain good stands for high yield and forage quality. There are several important things to consider before manure is applied to alfalfa fields.

1. Timing of Application

Timing dairy manure application on alfalfa presents many opportunities. In particular, multiple harvests (3 to 5 times per year depending on climate) provide times during the year when some fields are available for manure application while other crops, such as silage corn, are still growing. Dairy manure can be applied to the fields at different times such as before planting (pre-planting), right after each cutting, and on snow covered ground under certain circumstances. Some producers apply dairy manure (slurry) to the field, then disk and harrow before planting. Manure should be applied uniformly before planting without having big chunks of manure that might be detrimental to seed-soil contact. When dairy manure is applied after cutting, it is best to apply within 3 to 5 days after cutting (depending on growing temperatures). Normally manure application right after the last cutting of the season is not recommended because alfalfa plants become dormant and growth almost stops. So the capability of utilizing dairy manure by alfalfa after the last cutting of the season is minimal and high application of dairy manure might raise some concern for surface run-off and leaching problems.

What about manure application to the frozen ground in alfalfa fields? In a real farm situation, manure storage facilities should be emptied to allow storage of manure during the winter period. To do that, dairy manure should be applied to fields in mid to late November in some areas like northern Michigan. Applying manure to snow ground of alfalfa fields can be an option as long as the field doesn’t have a steep slope or sandy soil type. Because alfalfa has its highest yield at the first cutting, manure applied on snow ground in the previous year will be mineralized and utilized by alfalfa the following spring.

2. Rates of Application

Proper application rates depend on forage crop species, soil test results, yield goal, and field slope. As mentioned above, alfalfa takes up greater amounts of nitrogen than other crops. Soil testing is essential for determining crop plant nutrient needs. If no further nutrients are recommended to optimize crop yield, manure application to alfalfa might create some surface run-off and leaching problems. The key to good soil test results is proper sampling. The samples should represent a whole field.

Although dairy producers tend to be optimistic, overestimating yield goals will result in excessive nitrogen applications. This can lead to a potential loss of income and potential environmental impacts such as surface- and ground-water contamination. In particular, higher rates of dairy manure (slurry) application to sandy soils on steep slopes in alfalfa fields late in the growing season will maximize nitrate leaching potential.

3. Solid Content of Dairy Manure

Controlling solid content of dairy manure is critical. When manure is surface-applied, smothering alfalfa plants, in particular crown buds and auxiliary buds by solid manure content is possible and will reduce stand persistence. During hot, dry summer weather, it is important to lower solid content in manure because of susceptibility of smothering and scorching the alfalfa plants. It is safe to apply dairy manure with less than 8% solids content (slurry) when manure is surface-applied.

In conclusion, applying a dairy slurry several times per year to alfalfa appears to be a beneficial practice in a forage-dairy system. Properly managed dairy slurry application to alfalfa would increase the land available for manure application and reduce environmental impacts and chemical fertilizer costs.

Dairy Grazing – True, False or a Draw

Ben Bartlett
Extension Dairy Agent
Upper Peninsula

What is your opinion of grazing lactating dairy cows? Take the following quiz and see how your opinions of grazing compare with the current level of grazing knowledge. Grazing your lactating cows is another way to manage your herd that has different strengths and weaknesses as compared with year around barn feeding. If you want more information about dairy grazing, future MDR articles will examine economics of grazing and how to get started, or you can call your local MSU extension person for more information. The Great Lakes Grazing Conference also is being held in Battle Creek on February 11 and 12, 2002. Some of the dairy topics will be parlor design, an update on a multiple state grazing economics study, and New Zealand dairy genetics. Call Bill Bivens at (517) 788-4292 or Ben Bartlett at (906) 439-5880 for more information.

Dairy Grazing Quiz
1. Turning cows out to pasture will decrease milk production? true/false/draw
2. Grazing is less harvest efficient and requires more acres? true/false/draw
3. Grazing is just for small herds? true/false/draw
4. Grazing cows have fewer health problems? true/false/draw
5. Grazing cows live longer than barn cows? true/false/draw
6. Grazing is more work? true/false/draw
7. Grazing plus winter feed means more equipment? true/false/draw
8. Pasture is easier to grow than corn? true/false/draw
9. Pasture is just for “poor” ground? true/false/draw
10. Grazing is just a fad? true/false/draw

1. Turning cows out to pasture will decrease milk production? True
Given an equal quality ration, a grazing cow would produce slightly less milk due to the energy spent in walking while grazing and traveling to the milking facilities. While there are grazing herds with over 25,000 lb averages, most grazing herds tend to have lower averages. How much less milk production per cow depends on the nutritional level of the supplemental feeding program and the level of pasture management. The main difference between barn feeding and grazing is that with stall or barn feeding, you bring the feed to the cow and with grazing, the cow does her own forage harvesting.

2. Grazing is less harvest efficient and requires more acres? False
Well-managed grazing will require no more and maybe fewer acres than mechanically harvested feed. Mechanical harvesting, storage, and feeding losses can be significant and can range from 10 to over 40%. Grazing does not harvest as close to the ground as mechanical harvesting but this residue promotes a quicker re-growth. Good grazing management will allow for 4 to 8 grazings per season.

3. Grazing is just for small herds? Draw
What is a small herd? People with over 1000 milking cows are supplying their forage needs with grazing. To prevent extended time waiting in line to be milked, both grazing and housed herds are usually divided into smaller groups of 100 to 200 head.

4. Grazing cows have fewer health problems? Draw
Grazing cows can have more problems with bloat, internal and external parasites, and grass tetany. However, grazing cows have fewer feet and leg problems. Metabolic problems such as milk fever can go either way depending on mineral content of the ration.

5. Grazing cows live longer than barn cows? True
Cows that don’t spend all their time on concrete generally will have better reproductive performance and therefore greater longevity. Work at MSU has shown that lameness will reduce reproductive performance. It also has been shown that laminitis is more common in cattle housed on concrete. Unfortunately, specific longevity data that compares grazing versus barn-stalled cows under equal management efforts is not available. Anecdotal observations do support the notion that more “old” cows are in grazing herds as compared with cows in stalls. The longevity of grazing herds will be less in herds that are in the process of going to seasonal calving. These herds will have more turnover of cows because of cows that are not in the desired calving window.

6. Grazing is more work? Draw
Grazing requires that management balance the needs of the growing forage crop and cows needs at the same time, so daily management decisions are required. With grazing there is less labor needed for feeding, bedding, and scraping. Therefore, cows per man-hour are very similar. The difference being that with grazing herds, your time is spent moving cows and fence as needed, whereas with stalled cows the required labor involves feed and manure handling, usually using mechanical equipment.

7. Grazing plus winter feed means more equipment? True
Grazing does require both fence, water, and lane systems in addition to having some way to feed your cows during the non-grazing season. The good news is that the cost to own and operate grazing equipment, (fence, water, and lanes) is minimal. Ten thousand dollars of fence and watering equipment would be sufficient to set-up the average 100 acre grazing system. Grazing for 6 to 9 months reduces the amount of mechanically harvested winter feed required.

8. Pasture is easier to grow than corn? False
Corn is an annual and only harvested once per year. Pasture is often a combination of many species of plants, is harvested four to eight times per season, and takes at least 3 years to thicken up to be a good pasture. Growing good pasture requires significant management based on how you harvest the pasture. Your grazing management impacts the well-being of the pasture plants while at the same time determines the quality of the forage in the grazing cow’s ration. Pasture management is balancing the needs of the cow and the plant for your long term benefit.

9. Pasture is just for “poor” ground? False
Pasture is often found on ground not tillable, but lactating dairy cattle require a nutrient dense ration, which can often only be grown on better soils. The best soils that are closest to the milking facilities are the best fields for grazing.

10. Grazing is just a fad? Draw
The way we produce milk is often driven by the price of milk and the cost of grain. Low milk and high grain prices are often followed by an increased interest in grazing. High milk and (or) low grain prices seem to push managers towards maximum milk per cow and away from grazing. We know that grazing has potential to increase cow longevity, we know grazing is used around the world to produce milk at the lowest cost possible, and we know grazing has been practiced successfully in Michigan and the upper Midwest. Grazing may be an alternative dairy cow system for the young producer just getting started, or the “senior” producer who wants to spend more time with the cows and less time on a piece of equipment, or the way to add cows without adding a lot of facilities, or it may be the way to increase your cow longevity. Grazing is not a fad. It’s not the better way to manage cows, but it is an alternative worth considering.
Meet Roxanne Pillars, DVM - New MSUE Dairy Agent

Pam Jahnke
Dept. of Animal Science

Roxanne Pillars’ veterinary experience surely will come in handy as the newly named Michigan State University Extension Dairy Agent for Branch, Hillsdale, Jackson and St. Joseph Counties, an agriculturally diverse area that includes 360 dairy farms.

Pillars, who replaces Roberta Osborne, began her duties October 1. Osborne assumed a new role as Branch County MSU Extension Director.

Although her professional background is one of veterinary medicine, Pillars views her current post as one where she can continue working with the dairy industry—an industry that she has been familiar with all her life since she grew up on a 180-acre dairy farm in Martin, MI. While her brother and father were toiling in the fields she was assigned to the milking, feeding and overseeing the herd.

“I loved working with the animals—that was part of the reason I became a veterinarian. I wouldn’t know how to do anything else” she said.

Prior to her MSUE appointment, Pillars worked as a veterinarian in mixed-animal practice in Ohio and Michigan, however, most of the animals she came in contact with were dairy cows. In Shelbyville, MI, she served as a herd veterinarian for a 600-cow dairy.

But, due to the physical rigors of being a veterinarian—such as pulling calves or trimming feet—Pillars decided to enroll in a post-doctoral degree program at MSU so she could expand her skills beyond private practice. While working as a clinical instructor in the MSU College of Veterinary Medicine, she earned her M.S. in the Department of Large Animal Clinical Sciences in August. Pillars graduated with her B.S. in Veterinary Medicine in 1994 and her Doctorate of Veterinary Medicine in 1996, respectively from MSU.

She accepted her current extension position because “it was a good fit” as she could continue maintaining her connection with dairy producers. Her role as a dairy agent is “to be a resource for dairy producers to provide information and act as a link between them and the university.” She also plans on using her expertise as a former veterinary practitioner to be an animal health resource in areas such as biosecurity and disease. As herds expand and the concentration of livestock increases, the potential for diseases to be introduced into the herd and spread also increases, she noted.

“We now have a better understanding of how diseases are spread. We need to analyze what we are doing on the farm and try to find ways to minimize disease and disease transmission,” Pillars explained. The best part about implementing biosecurity measures is that by controlling a disease, such as Johnes, it also will help control other diseases such as salmonella, BVDV, and pneumonia.

Pillars said her four-county area is known as one of the more diverse areas in the state’s dairy industry ranging from large dairies consisting of over 3,000 cows to small Amish Farms with five or 10 cows selling milk in cans to cheese factories. She has been working with neighboring agents to pinpoint the needs of those farms and is teaming up with other agents to sponsor extension short courses on various topics such as herd health, manure management and a dairy feeder school.

Meet Roxanne Pillars, DVM - New MSUE Dairy Agent

Laurie Davis, Miriam Weber Nielsen, and Joe Domecq
Dept. of Animal Science

The Dairy Challenge is a 2-day competition for undergraduates that was initiated at MSU in April 2000 through a partnership between the dairy industry and the Department of Animal Science. The purpose of this event is to challenge the practical dairy knowledge of students. Participants evaluate dairy herd management at a local commercial dairy farm and then prepare a 30-minute presentation for the farmer, judges, and moderators. The presentation consists of giving a description of the farm and management practices, making an assessment of these practices, and recommending changes for improving the farm.

Teams of undergraduate students from either the AgTech or 4-year program compete in the event. These students are not only from the Department of Animal Science but also Ag Communications, Agriscience, and Agribusiness majors. By competing in this event, students should be able to successfully evaluate a dairy herd, gain knowledge of management practices, interact with industry professionals and extension agents, and improve their presentation, teamwork, and problem-solving skills.

Last year’s event was held on Friday, April 6th and Saturday, April 7th. On the first day of the Dairy Challenge event, students participated in a workshop on transition cow management given by consultants from Cargill Animal Nutrition. Students then met with the nutrition consultant for the farm to be evaluated. The consultant discussed the rations and how cows were separated into feeding groups. After receiving copies of the herd’s production records, the students then traveled to the farm where the owner gave an overview of the farm and answered questions. Snow Dairy of Mason was chosen as the farm to be evaluated. The
Snow family presently is expanding its herd so students were able to evaluate the practices needed for a successful expansion. Teams then spent 2 hours touring the farm. Taking observations seen on the farm and information from the farmer, students worked in their teams Friday night and Saturday morning to prepare their presentations.

Presentations were given Saturday afternoon with 10 to 15 minutes of questions from the judges following the presentation. Winners of the 2001 Dairy Challenge were recognized at a banquet held Saturday night. The first place team, winners of $1,000 in cash scholarships, consisted of Ben Church, Emily Green, Sam Potter and Laurie Tolan. Two teams tied for second place, with each team receiving $500. These team members were Kris Lehnert and Gabe Papoi; and Brent Robinson, Darrin Siemen, John Whitmore, and Tyler Wilson. Other participants included Jeremy Arend, Joe DeLong and Caleb Stewart.

A survey was written for both students and judges to evaluate the strengths and weaknesses of the Dairy Challenge event. Assessment of surveys concluded that students and judges both thought the event was challenging and well-organized, the farm had apparent strengths and weaknesses, and the farmer was open for discussions with the students. In addition, from survey results and other comments, students felt they needed more practice with programs such as PCDART. Evaluating such events allows dairy professors in the department to see what topics they may need to spend more time on in class. Also, these evaluations help in making next year’s Dairy Challenge even more successful than the previous 2 years by making changes where needed.

Due to the success of the 2000 and 2001 Dairy Challenge events, Michigan State University has spread the word about this event to the national level by presenting a talk at the 2001 Federation of Animal Science Societies (FASS) meetings held in Indianapolis during July. Expansion of this competition into a regional and/or national contest is planned.

The 2001 event was sponsored by Cargill Animal Nutrition and Michigan State University. Cargill provided the scholarship funds, transportation costs, meals and polo shirts for the participants. MSU provided facilities and organization for the event. Judges for the event included Dr. Kevin Dill, Purina Mills; Mr. Fred Martzolf, Cargill; Mr. Dean Ross, MSU Dairy Extension Agent; and Larry Whipple, Cargill. Moderators included Mr. Phil Taylor, MSU Dairy Extension Agent; Dr. Joe Domecq, Coordinator of the AgTech Dairy Management Program; Dr. Miriam Weber Nielsen, Assistant Professor of Animal Science and Ms. Laurie Davis, Animal Science Graduate Assistant. In addition, Mr. Andy Dietz and Mr. Jody Whitmore, both of Cargill, helped with the event and workshop.

The Dairy Challenge is one element in the Dairy Associates Program currently under development in the Department of Animal Science. For more information on this event or the Dairy Associates Program at MSU contact Dr. Weber Nielsen, program coordinator, at (517) 432-5443 or msw@msu.edu.

Over $60,000 in Scholarships Awarded to 26 Dairy Students

Miriam Weber Nielsen
Dept. of Animal Science

Students with a dairy interest continue to benefit from tremendous scholarship support at Michigan State University. This year, over $60,000 were awarded to 26 incoming and current students planning to pursue careers related to the dairy industry. Scholarships are provided by the Michigan Dairy Memorial and Scholarship Foundation, Inc. and the Howard Cowles estate.

Michigan Dairy Memorial Scholarships

The Michigan Dairy Memorial and Scholarship Foundation has honored 131 dairy leaders in Michigan since its founding in 1955. Individuals honored during the last year include Francis Johnson, Grover Laurie, Jack Laurie and Dr. Allen Tucker. To date, over 300 MSU students have received scholarships from the Foundation. This year, scholarships were awarded to the individuals listed below.

Freshman Scholarships ($1,000)

Mary Daniels grew up on a family dairy farm in Whittemore. She credits her agricultural background with inspiring her interest in a career in veterinary medicine. During high school, Mary participated actively in many organizations including FFA, National Honor Society, 4-H, and Girl Scouts. She graduated valedictorian of her class and began at MSU in the fall as a pre-veterinary major.

Katie Hyde grew up on a family farm in Morley. On her family’s farm, Katie assists in feeding, milking, and general farm chores. In addition, Katie has held offices in the Michigan Junior Holstein Association and 4-H, and participated in the Michigan Milk Marketing Tour and the National Dairy Quiz Bowl contest. Katie is studying Animal Science at MSU.

Laura Krzykwa from Montague is majoring in Animal Science, with a career goal of becoming a veterinarian. Laura has held offices of president, vice-president and secretary in the local FFA chapter, and participates actively in National Honor Society and as a class officer. In addition, Laura has worked as a veterinary assistant for two years.

Pamela Radloff from Sandusky, MI continues to participate actively on her family’s dairy farm, helping with milking cows, feeding and bedding calves, and many other responsibilities. In addition, Pamela is involved in FFA as the Sanilac chapter’s president, as treasurer of her 4-H club, and in the National Honor Society. Pamela plans to major in Animal Science.

Emily Sneller grew up on a family dairy farm in Sebewaing.
She has been active in 4-H and FFA, and participated in high school band and in soccer. Emily is also involved in community activities including C.R.O.P. Drive and the Lion’s Club All-State Band. She plans to major in Biology with a biotechnology emphasis.

**Dairy Memorial Scholarships ($2,500)**

**Joseph DeLong** is a sophomore in Animal Science, with a specialization in agribusiness management. Joe has worked on his family’s dairy farm since childhood and also on a local farm during high school. In addition, Joe is a member of Alpha Gamma Rho agricultural fraternity and the MSU Dairy Club. Upon graduation, Joe plans to work in the dairy industry in sales or consulting.

**Trent Hilding** of Clinton is a junior in Agriscience Education. Trent has worked on several dairy farms during high school and college with responsibilities in feeding calves and milking. Also, Rachel participated in FFA and National Honor Society. She plans to enter into a partnership on a dairy farm after completing college.

**Emily Green** is a senior in Agriscience, planning to work in the international arena to facilitate development of sustainable agricultural practices. She grew up on a family farm in Elsie and continues to be active in the dairy industry as president of the Michigan Junior Holstein Association and as an intern with Michigan Holstein Association. Emily also served as the Region IV State Vice-President for FFA.

**Attalee Hardy** from North Adams is a sophomore with a double major in Animal Science and Agriscience Education. She has gained dairy experience as an employee on a 400-cow dairy farm, as an intern with Northstar-Select Sires/Michigan DHIA, and as a research assistant at the MSU College of Veterinary Medicine. Attie has been active in FFA, 4-H, Dairy Club, dairy judging and Michigan Junior Holstein Association.

**Trent Hilding**, a senior with a double major in Agribusiness Management and Political Economy, plans to obtain his law degree after graduation. He participates in the Dairy Club and is a representative for the College of Agriculture and Natural Resources to the Associated Students of Michigan State University. Trent also works on his family’s beef and cash crop farm in Edmore.

**Megghan Honke** from Byron is a sophomore in Agriculture and Natural Resources Communications. A dairy judging contest sparked her initial interest in dairy cattle. She is planning a career in public relations with a focus on the dairy industry. She has been active in FFA and the Agricultural Communicators of Tomorrow.

**Walter Iciek**, a junior in Agriscience Education, grew up in Gladwin, Michigan, where he lived and worked on his family’s dairy farm. Walt participated extensively in FFA and 4-H. In addition, Walt has worked as an intern for Lt. Gov. Dick Posthumus and as campaign manager for Michigan State House of Representative campaigns. He plans to teach agriscience and advise FFA after graduation.

**Lindsay Kirk** is a sophomore in Animal Science. She grew up and worked on her family’s farm in St. Johns, in addition to being active in student council and sports during high school. Lindsay participates in the MSU Dairy Club as chairperson of promotions and has served on the Michigan state 4-H dairy judging team.

**Jeffrey Lehnert**, a junior in Animal Science, continues to work on his family’s dairy farm in Remus. Jeff participates actively in Alpha Gamma Rho as membership chairperson and was a member of the Spartan Marching Band for two years. In addition, Jeff works as an animal caretaker at the MSU Dairy Farm. Jeff plans eventually to return to the family dairy farm.

**Ashley Liddy** from Gladwin is a sophomore in Animal Science. Ashley grew up on a family dairy farm where she milked cows, fed calves and assisted with many other responsibilities. She served as club president in 4-H, and participated actively in FFA and high school athletics. Ashley is the social chair for the MSU Dairy Club and a member of the Block and Bridle Club.

**Brandon Lupp** from Sebewaing is a junior in Agriculture and Natural Resources Communications. Brandon is very active in FFA and will represent Michigan as the 2001 National Officer Candidate. He participates in the MSU Bailey Scholars Program and the MSU Honors College. After graduation Brandon plans to work in public policy with an emphasis on agriculture and natural resources.

**Katie McCune** grew up on a family farm in St. Louis. Katie recently served as the State FFA Secretary and participated on the FFA and 4-H dairy judging teams. She participates in the MSU Dairy Club and as part of the leadership for Michigan State Collegiate 4-H. Katie is a junior in Agriculture and Natural Resources Communications and plans to work in the food industry.

**Carri Morlock** from Reed City is a junior in the Veterinary Technology program. Carri works on her family’s dairy farm and has worked for a local veterinarian for the past five years. In addition, Carri is a member of the MSU Dairy Club and the Block and Bridle Club. She plans to work in a veterinary clinic after graduation.

**Beth Munsell** from Fowlerville is a sophomore in Animal Science. Beth has served as secretary and president of her 4-H club and was co-chair of the 1999 Milk Marketing Tour. Currently, Beth is Education chairperson for the MSU Dairy Club, Treasurer of the Michigan Junior Holstein Association, and works in the MSU Animal Behavior Laboratory.

**Melissa Siemen** is a junior with a double major in Agriculture and Natural Resources Communications and Advertising, grew up on a family farm in Harbor Beach. Melissa has participated extensively in FFA and 4-H and is a member of the Michigan Junior Holstein Association. She is a member of the National Agri-Marketing Association and Historian for Sigma Alpha, a social and professional agricultural sorority.

**Rebel Smith** grew up on a dairy farm in Fremont, where he
currently raises 24 Jersey replacement heifers. Rebel has been active in 4-H, in FFA as a state officer, and as a resident mentor at MSU. In addition, he gained dairy experience by milking cows for a local dairy farm. Rebel is a junior in Agriscience Education and plans a career in teaching agriscience at the high school level.

Lora Sommers from Marshall is a junior with a double major in Agriscience Education and Agriscience Communications. Lora has participated extensively as an officer in FFA and 4-H. At MSU, Lora is a member of the Agricultural Communicators of Tomorrow and the Agriscience Education Club and works at Murphy Dairy Farms. Lora plans to become an agriscience teacher at the high school level.

Carrie Vollmer grew up on a family farm in Edon, Ohio where she raised dairy and beef show cattle. She has participated in 4-H, FFA and served as President of Sigma Alpha sorority, as an Ambassador for the College of Agriculture and Natural Resources, and in the National Agri-Marketing Association. Carrie is a senior in Agriscience Education and plans to become an agriscience teacher.

Sarah Zagata from Sebewaing is a senior majoring in International Relations and Agriculture and Natural Resources Communications. Sarah is active in National Agri-Marketing Association and Agriculture Communicators of Tomorrow. Sarah completed a semester on a CANR Exchange Program in Mexico this year. She plans to obtain a law degree and work in public policy in international agriculture.

Russel Erickson Scholarship ($4,000)

Eric Benthem is the recipient of the first Russel Erickson Michigan Dairy Memorial Endowed Scholarship, established in honor of Dr. Russel Erickson, a recently retired dairy professor at MSU and a long-time friend of the Michigan dairy industry. Eric grew up on a family dairy farm in McBain, where he assists with milking, feeding, breeding, cow care, and fieldwork during the academic year and summer breaks. Eric is a junior in Animal Science and a member of the MSU Dairy Club. He plans eventually to return to the family farm.

Glenn & Ann Lake Scholarship (full tuition and fees for fall and spring semester)

Christina Mitchell grew up on a family dairy farm in Hersey, where she worked as a herdperson. She participated in 4-H and Farm Bureau youth activities, worked at a veterinary clinic as a veterinary assistant, and as Student Senate representative and Vice-President for the MSU Dairy Club. Also, Christina is an Ambassador for the College of Agriculture and Natural Resources. Christina was an intern at Yoplait U.S.A. for the two past summers. She is a senior in Animal Science and plans to return to the family dairy farm.

Howard Cowles Dairy Scholarships

The Howard Cowles Dairy Scholarships are given annually to students in Animal Science who have attained junior status and demonstrated a strong interest in dairy. Academic achievement and participation in extracurricular dairy activities such as the MSU Dairy Club or MSU Dairy Judging are given strong consideration. The scholarships are provided by revenue from a gift from the estate of Howard E. Cowles, who was a long-time employee of Sealtest Dairy. This year’s recipients include Eric Benthem, who was mentioned above, and Kristy Daniels. Kristy grew up on a dairy farm in Sterling, where she was actively involved in feeding calves, milking cows, vaccinating cattle, and in fieldwork. During high school, Kristy participated in FFA as a regional officer, and in high school student government and athletics. Currently, Kristy is employed in a dairy heifer research project in the Department of Animal Science and is a member of the MSU Dairy Club.

For additional information on making contributions to honor members of the dairy industry or to support student scholarships, please contact the College of Agriculture and Natural Resources Development Office at (517) 355-0284. To learn more about the Michigan Dairy Memorial and Scholarship Foundation, contact Dr. Miriam Weber Nielsen in the Department of Animal Science at (517) 432-5443 or by e-mail at msw@msu.edu.

MSU Dairy Judging Program Shines in Final Fall Competition

Joe Domecq
Dept. of Animal Science

Members of the Michigan State University Collegiate and Ag Tech Dairy Judging Teams and over 25 Michigan 4-H members spent numerous summer and fall weekends visiting farms and judging cows in preparation for the fall judging season. The teams visited dairy farms in Michigan, Ohio, Indiana, Wisconsin, and Ontario, Canada. Practices were held at the Genesee and Shiawassee County Fairs and the community fair in Hudsonville, MI. A final summer workout was held at the Michigan State Fair. All of the practice and preparation paid off as the state of Michigan successfully was represented in three national contests, including outstanding results at the North American International Livestock Exposition in Louisville, KY.

All-American Dairy Show

The first contest of the year was the Pennsylvania All-American Dairy Show in Harrisburg, PA. The MSU Collegiate team members for 2001 were Emily Green (Elsie), Attie Hardy (North Adams), Betty Meyer (Byron Center), and Ann Munsell (Fowlerville). The team placed 1st in Holsteins, 6th in reasons, and 8th overall. Individually, Emily was 2nd in Brown Swiss, and 8th overall. Michigan 4-H was represented by Brandon Delong (Fremont), Jason Herbert (Fowlerville), Brock Palen (St. Johns), and Matt Sneller (Sebewaing). This team placed 8th overall. A second youth team, comprised of Michigan FFA members, competed in the FFA.
division of the contest to gain experience for future 4-H contests. Team members included Allen and Arthur Gust (Manitou Beach), and Aaron and Ben Kaeb (Lowell). This team placed 1st in Ayrshires, 4th in Brown Swiss, 5th in Guernseys, 3rd in both Jerseys and linear evaluation, 4th in reasons, and 3rd overall. Ben was 1st in Ayrshires, 5th in linear evaluation, and 9th overall. Aaron was 1st in Jerseys and 7th overall. Allen was 6th overall.

World Dairy Expo Contest

In late September, the Collegiate, Ag Tech, and 4-H teams traveled to Madison, WI for the national contest at World Dairy Expo. The Collegiate team placed 2nd in Milking Shorthorns, 5th in both Holsteins and Red and Whites, 7th in reasons, and 11th overall. Emily was 6th in Milking Shorthorns, Ann was 8th in Milking Shorthorns, and Attie was 10th in reasons.

Ag Tech team members included Cindy Byma (Grant), Rachel Girbach (Saline), and Holli Rosekrans (Ionia). The Ag Tech team placed 6th in Ayrshires, 10th in both Brown Swiss and Jerseys, 9th in Red and Whites, 7th in reasons, and 10th overall. Holli was 6th in reasons. Michigan 4-H was represented by Kristin Kramer (Harbor Beach), Fred Ludwig (Fostoria), Beth Munsell (Fowlerville), and Emily Sneller (St. Louis). The Michigan 4-H team placed 10th out of 32 teams. The 4-H team was 3rd in Brown Swiss, 9th in Jerseys, and 10th in reasons. Fred Ludwig was 1st in Brown Swiss and 19th overall.

The Collegiate, Ag Tech and 4-H teams also participated in the practical contest at World Dairy Expo. Nineteen university teams participated in this contest. This contest consists of three sections. The first section is evaluating and selecting commercially bred heifers based on price, health status, and production records. Team members evaluate body condition, feet and legs, udder promise, and estimate heifer weights and heights. Appropriateness of service sires also is evaluated. The second part of the practical contest involves evaluating a group of registered heifers (including pedigrees and genetic values) and determining economic values of the heifers. Finally, team members perform linear evaluation on six cows. The practical contest offers team members an opportunity to utilize practical knowledge and experience.

The Collegiate team was 1st overall in this practical competition, placing 2nd in commercial bred heifer evaluation, 7th in registered heifer evaluation, and 10th in linear evaluation. The 4-H team was 4th in registered heifers and 8th in linear evaluation.

Final Contest of the Year

The final contest of the year was held at the North American International Livestock Exposition in Louisville, KY. All of the teams had an outstanding day, winning the 4-H contest and tying for 1st in the Collegiate contest. The Ag Tech team placed 5th overall. MSU also had the high individual overall in both the Collegiate and 4-H contest. The Collegiate team placed 1st in Holsteins and Ayrshires, 5th in Guernsey and Jerseys, 10th in Brown Swiss, and 5th in reasons. The team placed 2nd overall out of 22 teams based on the contest tie breaker. Attie was 4th in Brown Swiss, 6th in Holsteins, and was the high individual overall in the contest. Emily was 2nd in Ayrshires and Holsteins, and 5th overall. Betty was 3rd in Ayrshires, 10th in Holsteins, and 9th overall. The Ag Tech team placed 5th overall, was 3rd in Guernseys, 5th in both Brown Swiss and Holsteins, and 4th in reasons. Holli was 1st in Ayrshires, 2nd in Holsteins, 6th in Guernseys, 9th in reasons, and 10th overall. Cindy was 7th in Jerseys. Rachel was 7th in Holsteins. Jeremy Zebrowski (Clare) was 6th in Jerseys.

The Michigan 4-H team members for this contest were Diana Feenstra (Jenison), Jessica Geurink (Allendale), Bobbi Meyer (Bryon Center), and Mary Tenbrink (Coopersville). This team placed 1st overall and was 2nd in both Ayrshires and Jerseys, 3rd in Guernseys, 5th in both Brown Swiss and Holsteins, and 3rd in reasons. Individually, Jessica was the high individual overall, placing 1st in reasons, Brown Swiss, Guernseys, and Holsteins, and 3rd in Jerseys. Diana was 3rd in reasons. Bobbi was 3rd in Ayrshires and 6th in Brown Swiss. Mary was 8th in Ayrshires.

The Michigan 4-H teams are selected from the top 25 individuals at the state judging contest held during Michigan Dairy Expo in July. These individuals are invited to participate in several workouts during August, and the teams for each contest are selected at the end of August. All 4-H youth are invited and encouraged to participate in the contest at Michigan Dairy Expo and try-out for one of the state teams. The Collegiate and Ag Tech team members are selected from students at Michigan State University who have completed a judging course and have been part of the judging program during their education at MSU.

ABS Global, United Dairy Industry of Michigan, Northstar Cooperative, Inc., Michigan FFA Alumni Association, and the Michigan Holstein Association provide major financial support for the MSU Dairy Judging Program. Team members also participate in fund raisers throughout the year, including the Spartan Spectacular Calf Sale.

A Special Thanks

The MSU Dairy Judging Program would like to extend appreciation to all of the individuals, farms, and agricultural businesses that support the program by providing cattle, expertise, and financial support. Special thanks to Mrs. Sara Long and Mrs. Sarah Black, who traveled with the team to various contests and workouts this fall. The MSU Dairy Judging Program is coordinated by Dr. Joe Domecq, with assistance from Ms. Laurie Davis, graduate student in the Department of Animal Science.
Calendar of Events

Manure Management Workshops
Manure Management Plan Writing Workshops are scheduled for:

- **Wednesday, January 23** - Caledonia Township Hall in Caledonia.
- **Thursday, January 31** - Ionia Educational Center/MCC in Ionia.
- **Tuesday, February 5** - Lakeview Community Center in Lakeview.
- **Wednesday, February 27** - Clarksville Experiment Station in Clarksville. For more information, contact Rebecca Mitchell at 616-527-5357 or at mitchelr@msue.msu.edu.

**Great Lakes Grazing Conference**
The Great Lakes Grazing Conference is set for:

- **Monday and Tuesday, February 11 and 12** - the McCamly Plaza Hotel in Battle Creek. Room registration deadline January 30, 2002 at 1-888-622-2659. A premier mid-west grazing conference attended by 300 to 500 graziers with nationally and internationally known speakers along with farmers experienced in grazing. Activities will include a series of discussions, a trade show, and many exhibits. Also, there will be special sessions for dairy, beef, sheep, pasture, poultry, and beginning graziers - plus a symposium on Kura Clover. Certified crop advisor credits pending. Registration details contact Conference Local Coordinator: Tracy Bronson at 616-781-4867 Ext 5 or the Conference Web site: http://www.msu.edu/jackson/GLGC.htm

**PCDART Training Programs Scheduled**

You are invited to participate in a PCDART training program to learn more about PCDART 7.0. The latest version of PCDART 7.0, released in September, includes the new feature of Windows-based data input.

- **MSU Extension and DHIA Services of NorthStar Cooperative are co-sponsoring several workshops in Michigan. Topics to be covered during the workshop include:**
  - **Data entry** - New Windows-based functions to input routine cow events and health events.
  - **Creating customized reports** - An easy process to create your custom reports in PCDART 7.0 in Windows.
  - **Monitoring herd management** - Standard reports that are available to summarize key performance factors in your herd.
  - **DairyMetrics** - A new benchmarking tool that allows you to compare your herd performance with herd group averages.
  - **PocketDairy** - Handheld dairy management system which provides cow look-up and data entry at cowside.

Each workshop will be held from 9:45 a.m. to 3:00 p.m. Computers will be provided. Lunch is sponsored by NorthStar Cooperative, Inc. The registration fee will cover expenses associated with computer rental, training materials, and program support. ($15 per person for pre-registration and $25 each for on-site registration)

**Dates and Locations**

- **January 25** - East Lansing (NorthStar Cooperative Headquarters).
- **January 31** - Lake City (Lake City Experiment Station – Meeting Room).
- **February 1** - Cass City (Detroit Edison Office – Meeting Room).
- **February 12** - Grand Haven (Lake Shore Middle School-Computer Lab).

To request more information or more detailed directions, you may contact your MSU Extension Dairy Agent or Katy Stanke at NorthStar Cooperative (800-631-3510).

MSU Extension programs and materials are open to all. MSU Extension is an affirmative-action, equal-opportunity organization.

**Michigan Dairy Education Partnership**
The following events have been scheduled by the Michigan Dairy Education Partnership (Michigan State University Extension, Michigan Dairy Foods Association and the Michigan Department of Agriculture.)

- **Tuesday, February 19** - A Cleaning and Sanitation Workshop.
- **Tuesday and Wednesday, March 5 and 6** - A Pasteurizer Operator Workshop.

**The MSUE Forage AOE Team**
The MSUE Forage AOE Team has scheduled the following presentations for:

- **Wednesday and Thursday, March 20 and 21** - Introductory Grazing School in Gaylord. Jack Middleton and John Molesworth will host farmers and forage producers interested in gaining a working knowledge on grazing in today’s agriculture climate. For more information contact Molesworth at 989-785-5616 or moleswo1@msu.edu.

**The MSUE Forage AOE Challenge**
The MSU Department of Animal Science Dairy Teaching Programs will host the following events:

- **Friday and Saturday, February 22 and 23** - The MSU Dairy Challenge.
- **Friday and Saturday, April 12 and April 13** - The 1st annual North American Intercollegiate Dairy Challenge. For more information contact Miriam S. Weber Nielsen at 517-432-5443 or msw@msu.edu.