



**Chris Mondak**



**Larry Tranel**



**Dale Thoreson**

It has been a year of immense change in the Iowa dairy industry as hopefully we won't have to deal with another year of extremely low milk prices and high feed prices for a long, long time.

The worldwide economy has impacted us in dairy dramatically and lots of net worth and optimism were eroded during 2009. Yet, the outlook, though not yet profitable on average, is hopefully heading that way.

Budget cuts to ISU Extension have encouraged reorganization and early retirements. And, our esteemed colleague, Dale Thoreson, will be ending his illustrious ISU Extension career in January, 2010. If you get a chance, please join us in thanking him for the great service he has given the Iowa dairy industry and ISU Extension. Dale has been a great mentor of "Hall of Fame" caliber to many.

Dale's thoughtfulness, leadership and resourcefulness will be sadly missed by his colleagues and the producers he helped serve over his 37 year Extension career, spanning four decades. Hopefully, we will continue to see him around.

On the following page, we asked Dale to share with us his thoughts on changes that have happened over his career and to give him an opportunity to say "good-bye" to all of us as well. Best wishes to Dale, his wife Linda and family. And, best wishes to all of you and your families as well in 2010 and beyond.

**Chris Mondak**

ISU Extension Dairy Field Specialist, NW Iowa

**Larry Tranel and Dale Thoreson**

ISU Extension Dairy Field Specialists, SE and NE Iowa

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## 2010 ISU Extension Dairy Days

Jan 18<sup>th</sup> Elma, Knights of Columbus Hall, Main Street  
Jan 19<sup>th</sup> Calmar, Dairy Foundation, Hwy 150 South  
Jan 20<sup>th</sup> Waverly, Civic Center, 200 1<sup>st</sup> Street NE

Feb 1<sup>st</sup> Bloomfield, Extension Office, 402 E. North St.  
Feb 2<sup>nd</sup> Kalona, Chamber of Commerce, 514 B. Ave  
Feb 3<sup>rd</sup> Holy Cross, Neumann's Bar/Grill, 927 Main St.  
Feb 4<sup>th</sup> Ryan, American Legion Hall, 206 Main St.

9:30 am Registration and Refreshments

9:55 am Introductions

### 10:00 am Program Topics

- Current Issues in Pasteurization of Calves Milk. *Jenn Bentley, ISU Research Technician, NE IA Dairy Foundation*
- Manure Stewardship-Responsibility before Regulation. *Angie Rieck-Hinz, ISUE Extension Program Spec, Agronomy*
- Am I Making a Profit? *Larry Tranel, Extension Dairy Field Specialist, NE/SE Iowa*

### Noon- Lunch and visit Sponsor's Booths

- Cutting Feed Costs without Cutting Profits. *Dr. Lee Kilmer, ISU Extension Dairy Nutritionist*
- Breed 'Em or Weep—Heifer and Cow Pregnancies Affect the Bottom Line. *Dr. Leo Timms, ISU Extension Dairy Specialist or Dr. Jan Shearer, ISU Vet Diagnostic & Production Animal Medicine*
- Feed & Forage Quality- the Mycotoxin Concerns. *Dale Thoreson ISU Extension Dairy/Beef/Forages Field Specialist, NE Iowa*

### 3:00pm Adjourn

Cost = \$10.00 per person includes noon meal and proceedings. Vouchers available from Agri-Businesses. NOTE: ISUE will have available the Penn State Particle Separator to do particle separation on forages and TMRs at no fee. Bring about one pint of sample.

**ISU Extension Dairy Team**  
**"Bringing Profits to Life"**

### ***Dairy Field Specialists***

- Dale Thoreson, 319-267-2707
- Larry Tranel, 563-583-6496
- Chris Mondak, DVM, 715-737-4230

### ***State Dairy Specialists:***

- Dr. Lee Kilmer
- Dr. Leo Timms

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## **Goodbye -- Changes Over 4 Decades**

*by Dale Thoreson, ISU Extension Field Specialist Dairy/Beef & Forages*

It's time for me to say goodbye. I'll be retiring from Iowa State University Extension January 31st. So this will be my last opportunity to exchange ideas with you, our readers.

A career is made up of many experiences. Fortunately for me the vast majority were good. Many were fun! I've really enjoyed the farm families that I've had the privilege to work with. I don't think there was a single farm call that I didn't learn something from. I hope those families felt their experience with Extension were mutually beneficial. Yes there were tough times. The 80's especially were physically and mentally draining to all of us. Our current dairy, swine and feedlot economic situations have also been difficult.

I probably had the best set of mentors one could have asked for when I joined Extension. Jim Meno, Clair Hein, Phil Hufferd and Kay Connelly and the overall direction of Al Goetsch were extremely beneficial to me. Doing a meeting or a farm/business call with them was a "college course" crammed into a few hours. But I must give credit to a former Assistant County Agent in Barnes County, North Dakota, Larry Corah (now Vice President of Certified Angus Beef, Supply Development) who asked the question, "Are you going to college or aren't you?" that sent me on my way.

Maybe one doesn't recognize the impact one's parents had on their career. Dad always asked "What do you think?" And he listened to our thoughts. Mom always had time to listen (not easy for a mother of 10) especially when washing the Surge buckets and cream separator together.

I've been so fortunate to share offices with truly fantastic co-workers. They would listen to my "rants" and make suggestions---- it was great. A special thank-you to the many Office Assistants I was privileged to work with. They are the true trainers of Extension staff and the "glue" that holds the organization together.

I owe my family, a special thank-you. My wife, Linda, for the late meals, understanding that someone needed help and that I probably was going to be the last person to leave the meeting. Thanks to my sons Jon and Mark for their understanding and guidance and my daughter-in-law, Amy, for her sincere questions about agriculture. And our grand kids Ryan and Emily who are always willing to "read" a cow book with Grandpa.

**It's been great. Thank-you, Dale Thoreson**

**As I near the time for me to step down from my career in the Extension Service, I would like to reflect on the changes over those 37 years.**

I'm sure each of you would add more items to my thoughts but here is what I see over those decades.

Farming and communities are different. We've gone from tractors and wagons to semis. From checked corn to almost no weeds; from walking beans or sometimes riding a rig with a spray wand to plant, spray and harvest; from demand for my two sons to help stack hay and straw bales to big rounds and haylage.

The dairy industry has also changed. Twenty to 30 cow herds were common in the early 70's. Now the state average is over 100 cows but with that came far fewer dairy farms. Stanchions (many wooden ones) have given way to robotics. Cows come to the dairyman rather than the dairyman going to each cow. We've seen simply massive changes in animal nutrition. The advent of by-pass protein, amino acid balancing, transition cow & heifer rations, total mixed rations and new additives have enabled the dairy cow to produce at almost unbelievable levels.

The computer changed genetic selection during that time. Jay L. Lush's work from the 30's got implemented in the late 60's and put into farmer's hands full force in the 70's and 80's. Genomic selection points to even faster changes ahead.

However, there have been other changes. There has been a noticeable decline in rural farm children, an aging rural population, a decrease in farmsteads, a decrease in livestock (especially cattle), and a decline in most small town's main streets. Fence lines are obsolete in some communities.

And there have been changes in people from the "thick" Western European dialects (mine included, as my first Area Director said...."He sounds like a Norwegian" on my first radio program) to Spanish being the language I struggle to understand.

But amongst all these changes some things stay the same. There are still many good people out there and I feel rural communities are fortunate to have at least their fair share of those good folks. I'm still a "people optimist", thinking that if you can get good, sound information to people and be available for their questions, you'll be amazed what they can accomplish.

Yes, there have been many changes over my career here in Iowa with Iowa State University. But it has been a wonderful ride! **Thanks again to all of you for making it so. Dale Thoreson**

## Part 2: Defining Dairy Operations- Introduction to Federal Regulations

by Angela Rieck-Hinz, ISU Extension Program Specialist

In the [August 2009 edition of the DAIRY News and Views newsletter](#) I briefly introduced you to terminology that describes how dairy operations fit into the current regulatory structure for manure management issues in Iowa. In addition to state regulations, federal regulations also impact dairy operations in Iowa. Federal regulations can affect all sizes of dairies, but because of the manner in which Iowa regulations are enforced, federal regulations mostly affect dairies that are considered open lots (see definition the August 2009 edition) and meet certain size requirements.

The important thing to remember as a dairy producer is to determine how your operation is classified so you can be aware how regulations may impact your operation. As with many dairies, many housing types and animal types are present. To fully understand how your operation is designated you should contact your local DNR field office for assistance. This article will introduce terminology used in federal regulations. More information and resources will be forthcoming in future newsletters.

### Federal Terminology/Definitions

The following definitions were gleaned from the EPA's *Producers' Compliance Guide for CAFO's (EPA 821-R-03-010)*.

An *Animal Feeding Operation (AFO)* is an agricultural operation where animals are kept and raised in confined situations. AFOs generally congregate animals, feed, manure, dead animals, and production operations on a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures. Animal waste and wastewater can enter water bodies from spills or breaks of waste storage structures (due to accidents or excessive rain), and non-agricultural application of manure to crop land.

An AFO is a lot or facility (other than an aquatic animal production facility) where the following conditions are met: 1) animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and 2) crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

### Additional Information:

Environmental Protection Agency (EPA) Animal Feeding Operations  
Web Page: [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=7](http://cfpub.epa.gov/npdes/home.cfm?program_id=7)

EPA's Producers' Compliance Guide for CAFOs  
[http://www.epa.gov/npdes/pubs/cafo\\_prod\\_guide\\_entire\\_doc.pdf](http://www.epa.gov/npdes/pubs/cafo_prod_guide_entire_doc.pdf)

A **Concentrated Animal Feeding Operation (CAFO)** is an AFO that is either defined as a CAFO (defined by size of operation) or is designated as a CAFO (designated by permitting authority based on contribution of pollutants to surface waters).

**Large CAFO:** An operation is defined as a Large CAFO if it meets the regulatory definitions of an AFO and it meets the threshold requirement for that animal type. See Table 1.

**Medium CAFO:** An operation is defined as a Medium CAFO if it meets the regulatory definition of an AFO; meets the Medium CAFO threshold requirement (See Table 1.) and meets at least one of these two criteria:

- 1) a man-made ditch, pipe or similar device carries manure or process wastewater from the operation to surface water, or
- 2) the animals come into contact with surface water that runs through the area where they are confined.

**Small CAFO:** A Small CAFO does not confine enough animals to meet the Medium CAFO category, (See Table 1) but may be designated as a CAFO if the AFO is a significant contributor of pollutants to surface water and it meets at least one of these two criteria:

- 1) a man-made ditch, pipe or similar device carries manure or process wastewater from the operation to surface water, or
- 2) the animals come into contact with surface water that runs through the area where they are confined.

**Table 1. Threshold categories for CAFO determination for dairy animals.** (Adapted from EPA's *Producers' Compliance Guide for CAFOs*).

An AFO that has....	Is a .....
At least 1,000 dairy heifers or at least 700 mature dairy cows	Large CAFO
From 300 to 999 dairy heifers and meets one of the Medium CAFO category discharge criteria	Medium CAFO
From 300-999 dairy heifers and has been designated a CAFO by the permitting authority	Medium CAFO
From 200 to 699 mature dairy cows and meets one of the Medium category discharge criteria	Medium CAFO
From 200-699 mature dairy cows and has been designated a CAFO by the permitting authority	Medium CAFO
Fewer than 300 dairy heifers and has been designated a CAFO by the permitting authority	Small CAFO
Fewer than 200 mature dairy cows and has been designated a CAFO by the permitting authority	Small CAFO

## **Improve Herd Productivity by Fine-Tuning Calf Management**

*by Chris Mondak, DVM, Dairy Field Specialist, NW Iowa*

Recovering from a very tough financial year, dairy producers are paying attention to the management practices that will help them be profitable in the long run. Recent research points to improvements in herd productivity and profitability that can be gained by fine-tuning the management of young calves. This overview article summarizes some key points made on this topic at the Replacement Heifer Seminar held during the American Association of Bovine Practitioners Meeting, September 2009.

### **Provide Good Dry Cow Management to Maximize Immunity in Cows and Newborn Calves**

Dr. Corbett (Utah) explained the link between good Dry Cow management and healthy calves: It is vital to provide well-balanced negative DCAD rations in dry cows, and necessary to supply adequate energy and protein – both to support cows' immune function, enhance colostrums quality, and develop fetal growth and immune system.

### **Improve Calving Assistance Methods to Reduce Dystocia and Calf Death**

Dr. Frank Garry (Colorado State University) emphasized that the things that happen to the calf at birth and first 2 days of life can determine the animal's long-term performance. Management of youngstock can determine the future profitability of the herd. One area of great opportunity on US farms is in improving assistance at calving, and doing the right things during difficult births. He reported that non-infectious diseases conditions that are associated with difficult birth account for 1/3 to 1/2 of calf losses. This points to the value you can gain by fine-tuning calf delivery methods and immediate newborn calf care on your farm. Plan to meet with your vet to re-visit about these methods, and to seek advice on refresher training or protocol revision for employees or family members working on your farm.

### **Colostrum Management Essentials: QQQCM**

Dr. Godden, University of Minnesota, cited colostrums management as an area of opportunity to improve calf health. She summarized the key principles in an easy-to-remember scheme: Quality – Quantity-Quickness – Cleanliness - Monitoring

- **Quality- Goal: 50g/L IgG-** Good quality colostrums contains IgG antibody levels at greater or equal to 50g/liter. Use a colostrometer to evaluate the quality. If it measures in the GREEN range, it has 50g/L IgG.

- **Quantity – Goal: 10% of calf's body weight.** Even if the colostrum is good, you must feed proper amount so that the calf will ingest 100grams IgG in the first feeding. Feed 10% of calf's body weight at the 1<sup>st</sup> feeding. Example: for a Holstein weighing around 90 lbs at birth (43 kg), it should receive 3.8 Liters (4 qts). Godden cited research by Faber (2005) that showed a significant difference in 1<sup>st</sup> & 2<sup>nd</sup> lactation milk production in those cows fed 4 Liters colostrums at birth compared to those fed only 2 Liters at birth. So, for larger calves (Holsteins and Brown Swiss), get a gallon in.
- **Quickness- Goal: Feed colostrums within 1-2 hours of birth.** This may be given via tube or bottle, or a combination--- feed most by bottle, and give the rest via tube.
- **Cleanliness-** High bacteria counts in colostrum can cause calf sickness AND can block the absorption of antibodies from calf's digestive system. Refrigerate fresh colostrum in small container to allow rapid cooling – colostrums in buckets does not cool down and allows rapid growth of bacteria.
- **Monitoring** – Work with your vet to set up a way to stay on track with colostrums management principles: Routinely check colostrums bacteria levels, and check serum total protein levels in calves to make sure they are getting adequate IgG antibodies. Work by Tyler says that total protein in calf serum of 5.0g/dl indicates serum IgG of 10mg/ml. Your goal should be to see over 90% of calves with total protein greater or equal to 5.0g/dl.

### **Pasteurize Waste Milk and Colostrum to Improve Calf Health and Survivability**

A field study by Dr. Godden at University of Minnesota (2005) involving 439 calves compared growth weights and health in calves fed 1 gallon pasteurized waste milk daily vs calves fed 20:20 milk replacement (1 lb powder). On average, the calves in each group weighed about 88 lbs, and the calves were weaned at 46-47 days. Calves fed the pasteurized waste milk had better gain and health:

- Better Average Daily Gain ( +.29 lbs)
- Better Health- fewer treatments for pneumonia and scours
- Better survival – fewer deaths, especially in the winter months

Batch pasteurization of colostrum studies indicate significant reduction in salmonella, mycoplasma bovis, E. coli, listeria, and M. paratuberculosis (Johnes Disease pathogen) exposure to calves.

## **Adjust Cold & Hot Weather Feeding to Meet Maintenance and Growth Needs**

The traditional practice of feeding 1lb milk replacement powder 2 times per day grossly under-supplies calf growth needs, especially in winter, reports Dr. Corbett (Utah). The thermoneutral temperature range for calves is 50-68 degrees F. Above that and below that, the calf has more stress, so we must supply protein and energy to help calf meet the stress, plus have nutrients available for growth. Here are guidelines for Cold Weather feeding and housing:

- Increase solids to 15-18% range (traditional level of 1 lb milk replace powder is 10%)
- Add fat
- Feed 3 times /day
- Warm the milk or replacer to 105 degrees F
- Have free choice water available at all times
- Provide adequate straw bedding so they can have a deep nest that covers their legs and lower body when they are nestled in.

## **Increase Pre-weaning Feeding Amounts to Improve Lifetime Milk Production**

Dr. Mike Van Ambrurgh (Cornell) reported that current research is suggesting the level of early life nutrient intake in calves is having long-term impacts on animals' productivity. Other work is pointing to conclusion that improved pre-weaning growth rates in calves under 8 wks old is resulting in improved 1<sup>st</sup> lactation milk production of approximately 3000 lbs. Studies examining improved growth rate impact on mammary development did not find that increased growth rate and mammary tissue development did not result in fatty udders or decreased milk production.

**Practical application and next steps:** If any of these current best management practices described above are not what you are currently doing, you may have opportunities to improve your herd productivity and profitability by making some changes. Talk with your vet and nutritionist about your ideas or questions. You may also wish a third party evaluator who could work along with you and your vet. This is available through ISU: Dr. Patrick Gorden's role at ISU College of Vet Medicine is to get vet students on to farms around the state to get real-world experience in herd assessments, under the guidance of experienced clinician. You may reach him at 515-294-3096 or [pgorden@iastate.edu](mailto:pgorden@iastate.edu). Please send a message ([cmondak@iastate.edu](mailto:cmondak@iastate.edu)) or give a call (712-737-4230) if you are seeking more details on the topics summarized here.

## **Using Adobe Connect to Connect with Dairy Producers** by Larry Tranel, ISU Extension Dairy Field Specialist, NE/SE Iowa

From 2007 through 2009, ISU dairy extension programming was experimenting with using Adobe Connect to connect with Dairy Producers. The first adobe connect session on **Building a Low Cost TRANS Iowa Parlor** received 2,079 hits on the internet with 650 viewers watching the 85 slide presentation of 41 minutes in length all the way through. The goal for learning that "using a low cost but highly efficient approach, dairy producers can milk cows in a very comfortable, safe and labor efficient way." It's url for viewing is <http://connect.extension.iastate.edu/parlor> .

Seeing the success of this adobe presentation, a second adobe presentation on **Beginning Dairy Grazing** was developed with the intent of giving a visual teaching tour on the basics of dairy grazing. From October 1, 2009 through December 1, 2009, the presentation has had 367 hits with 160 viewers watching the 21 minute, 47 slide presentation through to the end. It's url for viewing is <http://connect.extension.iastate.edu/grazing>.

**Other presentations that can be viewed include:**

**Managing Dairy Farm Finances** Url: <http://connect.extension.iastate.edu/finances>

**Dairy Goat Financial Study, 2007-08** (WI data), Url: <http://connect.extension.iastate.edu/goatfinances>

**Managing Feed Cost Benchmarks,** Url: <http://connect.extension.iastate.edu/feed>

**Using Dairy Goat (Sheep) TRANS to Increase Profit Performance,** Url: <http://connect.extension.iastate.edu/goattrans>

**Using Dairy TRANS 4.4 for Profit Performance,** Url: <http://connect.extension.iastate.edu/dairytrans>

**What Do You Tell the Kids in Tough Times,** Url: <http://connect.extension.iastate.edu/kids>

For other information regarding dairy production and management, check out the ISU Extension Dairy Team webpage. URL: [www.extension.iastate.edu/dairyteam](http://www.extension.iastate.edu/dairyteam)

*Please contact Larry Tranel at 563-583-6496 for more information or the handouts for these presentations.*

# Dealing with Molds and Mycotoxins in Grain and Silages in Ruminants

by Dr. Steve Ensley, ISU VDL and Dale Thoreson, ISU Extension Field Specialist Dairy/Beef & Forages

Hail, at least four storms, frost, and a wet, cool fall have combined to produce more molds in corn fields than normal. There are literally hundreds of molds and many mycotoxins but few that we routinely are concerned about in animal production. The fungi that cause the visible (and invisible) molds are common every year. But occasionally they have the right temperature and humidity to produce molds. Because the same fungus is able to produce several mycotoxins and several fungi can produce the same mycotoxin, it is difficult to correlate mycotoxins to the presence of molds in feed.

Table 1 describes the characteristics of the mycotoxins of most concern this year. Table 2 is the action or recommended concentrations of mycotoxins in animal feeds.

Table 1: MYCOTOXINS COMMONLY FOUND IN IOWA GRAINS AND THEIR HEALTH EFFECTS					
Mycotoxin	Source	Substances	Conditions favoring production	Effects	Remarks
<b>Aflatoxins</b> (B <sub>1</sub> , B <sub>2</sub> , G <sub>1</sub> , G <sub>2</sub> )	<i>Aspergillus flavus</i> , <i>Aspergillus parasiticus</i>	Grains: corn, milo, cotton seed, peanuts	78°F - 90°F (ideal) down to 55°F  Kernel damage  High humidity or grain moisture	<b>Acute:</b> liver toxin, evidence of liver pathology including depression and anorexia <b>Chronic:</b> depends upon species, but includes anorexia, poor growth, anemia, ascites, steatorrhea	The first mycotoxin characterized. More of a problem in states SE of Iowa, especially in the SE part of the US. Chronic exposure can produce liver cancer
<b>Fumonisin</b> (B <sub>1</sub> , B <sub>2</sub> , B <sub>3</sub> )	<i>Fusarium moniliforme</i> , <i>Fusarium proliferatum</i>	White & yellow corn	Not well defined:  Drought during growing season, followed by cool, wet conditions during pollination and development	<b>Ruminants:</b> anorexia and mild weight loss on diets with up to 200 ppm fumonisins, no deaths, no other significant or persistent signs	
<b>Vomitoxin</b> (deoxynivalenol, DON)	<i>Fusarium roseum</i>	Corn, milo, wheat, rye, barley, other cereal crops	Alternating cool and warm temperatures  Wet period during flowering	<b>Cattle:</b> no apparent adverse health effects at levels below 5 ppm	Often occurs with zearalenone
<b>Zearalenone</b>	<i>Fusarium roseum</i> ( <i>Fusarium graminearum</i> ), <i>Fusarium moniliforme</i>	Corn, wheat, barley, milo, oats	High moisture content (> 22%)  Alternating high and low temperatures during the maturing and harvesting stage (45°F - 70°F)	<b>Cattle:</b> Functions as a weak estrogen. It does not cause abortions. little effects at levels below 1 ppm; vaginal secretions, vaginitis, mammary enlargement at levels > 1 ppm	Mold infection commonly called "pink ear rot" or "scab"  Often occurs with DON (deoxynivalenol, vomitoxin)  Cattle are not very sensitive to zearalenone

We are entering the time of year when mold growth is more manageable. Cold temperatures typically under 45°F will slow mold growth as will lower kernel moisture (<20%) content. With silages and high moisture stored grains we have an additional ally in that we can exclude oxygen from the silo, bunker, bag or pile by thorough packing and a good job of sealing the silage with plastic. Molds don't grow in the absence of oxygen.

If you suspect a mycotoxin is present because of decreased milk production or slow growth of animals, you can have a feed or silage sample analyzed. ISU Veterinary Diagnostic Laboratory offers a series of rapid ELISA screening tests and GC/HPLC tests. For dairy and feedlot cattle the most important are testing for Fumonisin, Zearalenone and Vomitoxin (DON). Aflatoxin is probably of less concern as it is more of a problem in dry growing conditions. Getting a representative sample for mycotoxin presence can be challenging. For grain it is best to collect several small samples from a flowing stream and then combine them. A 20 lb. sample is suggested.

Table 2: ACTION OR RECOMMENDED CONCENTRATIONS OF MYCOTOXINS IN ANIMAL FEEDS					
Mycotoxin	Commodity	Animal	Concentration	Remarks	Reference
Aflatoxin	Corn, peanut products	Finishing (feedlot) beef, cattle	300 ppb		FDA/ORG CPG 7126.33, Sec 683.100
		Breeding beef cattle, breeding swine, mature poultry	100 ppb		
	Corn, peanut products, other animal feeds or feed ingredients, excluding cottonseed meal	Immature animals	20 ppb		
		Cottonseed meal	Beef, cattle, swine, poultry (regardless of age)	300 ppb	
		All feeds or feed ingredients	Dairy animals, animal species not listed above, uses not listed above, intended use unknown	20 ppb	
Fumonisin	Corn & corn by-products	Breeding ruminants, breeding poultry, lactating dairy animals, laying hens	30 ppm (<50% of diet)		US FDA Final Guidance, Nov 9, 2001
		Ruminants >3 months old, raised for slaughter	60 ppm (<50% of diet)		
Vomitoxin (deoxynivalenol DON)	Grain & grain products	Ruminating beef and feedlot cattle > 4 months, chickens	10 ppm (<50% of diet)		FDA advisory
		Dairy cattle & other	5 ppm (<40% of diet)		
Zearalenone	Diet	Virgin heifers	<10 ppm		Osweiler (1996) Toxicology, The National Veterinary Medical Series for Independent Study, Williams & Wilkins, Media, PA: 421.
		There may be some concern if the total dietary levels is > 1 ppm			

### Wet Weather Brings Out the Mycotoxins

The Veterinary Diagnostic Laboratory (VDL) at the Iowa State University College of Veterinary Medicine reports a higher than normal incidence of affected corn across Iowa and in samples submitted from six states, Illinois, Kentucky, Michigan, Oklahoma, Texas and Wisconsin. Samples received from most regions of Iowa have tested positive for mycotoxins.

According to Dr. Steve Ensley, toxicologist with the VDL, "The wet summer and harvest season have caused a greater incidence of fungi in grains typically used in livestock feeding. We are receiving samples from throughout the region with elevated mycotoxin levels, particularly vomitoxin, zearalenone and some fumonisin. These levels can be tripled if grain is fermented at an ethanol processing plant, so it pays grain or feed producers to know what may be in the feed they are producing and feeders to know what they are getting so they can adjust rations appropriately." If you suspect mycotoxicoses is affecting your animals, contact your veterinarian.

Using a new rapid screening test, the Iowa State VDL can analyze feed or grains for mycotoxins and inform the producer as to the content of the feed made from the crop. Four mycotoxins typically can be present in the grain and detected in standard test panels: aflatoxin (more common with hot weather and dry conditions), fumonisins, deoxynivalenol (DON or vomitoxin) and zearalenone.

**Additional information, including sample requirements and costs, is available on the ISU Veterinary Diagnostic Laboratory Web site: [www.vdpam.iastate.edu](http://www.vdpam.iastate.edu) or by contacting the Laboratory at (515)294-1950.**

**Genetic Base Changes in January** by Ron Lenth, Bremer County Extension

Every five years, the genetic evaluations of US dairy cattle undergo a “base change”, and this will occur again in the upcoming January USDA Sire Summary. While the numbers will change, **the relative rankings will not change.** The genetic bases illustrate the rate of genetic change in our selection programs. For example, a Jersey sire whose prior proof was +1323M and now stands at +1000M, reflects the base change and his proof did not actually change. By looking at each breed and trait, it illustrates the genetic improvement the last five years.

Some traits changed more than others because they are more heritable and easier to change. Look at some of the other changes in other ag industries the last five years.....multiple “gene stacks” in corn and soybeans, auto-steer in farm implements, etc.

To view the complete article about the Jan, 2010 base change go to: <http://aipl.arsusda.gov/reference/bas e2010.htm>

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*On Behalf of the ISU*

*Extension Dairy Team*

*We Wish You a Happy*

*and*

*Profitable New Year!*

**Should You Feed Less Grain?**  
by Dr. Lee Kilmer, Extension Dairy Nutritionist

Dairy producers have been facing a cost-price squeeze greater than any time in the recent past. The depressed milk prices that producers have received for much of the past year have driven many producers to look for ways to cut some corners in an attempt to make a profit from their dairy operation. Everyone recognizes that they make a profit when their income is greater than their expenses, and since they have no control over the price received for their milk, most tend to look for ways to cut expenses. There are several ways to do this, but not all are beneficial to the bottom line.

Let’s start with the basics. All animals, as well as people, need a certain amount of nutrients to maintain their bodies. Nutrients are needed to support the basic life processes primarily by providing the energy to regulate body temperature and carry out vital functions such as breathing and pumping blood throughout the body. Only when an animal has consumed enough nutrients to meet their maintenance requirements, will any additional nutrients consumed be used to support growth, milk production, or fetal growth.

To show how this works, let’s use a 1250 lb bodyweight cow, 120 days in milk in her second lactation, producing milk with a 3.8% fat and 3.2% protein test. She is being fed 10 lb of some really good alfalfa hay and 50 lb of good corn silage daily. The table below illustrates how much milk this cow will be expected to produce as we increase the amount of grain fed.

Each additional pound of grain will provide enough nutrients to support an additional 10 pounds of milk. Looking at the economics, feeding an additional 5.0 lbs of a grain mix (corn and soybean meal in a 3:1 ratio) would cost about \$0.45 at current prices but would return an additional \$1.35 in milk. That’s \$3.00 more milk for every additional \$1.00 spent on feed. Seems to me that now is **NOT** the time to be cutting back on the amount of grain fed.

	Ration A	Ration B	Ration C	Ration D	Ration E
Alfalfa hay, lb	10	10	10	10	10
Corn silage, lb	50	50	50	50	50
Grain mix, lb	0	5	10	15	20
Pounds milk expected	25	35	45	55	65

**Note from Larry Tranel:** Some dairy graziers in the Midwest are experimenting with no and low grain feeding levels due to the practice being successfully done in other countries with low milk per cow and energy levels of .82 NEL in their pastures which is not the case here. Our pastures are typically only .65-.75 NEL. ISU Extension does not advocate no or low grain feeding due to the recognized production & health effects. Producers are urged to tread carefully in any attempt to dramatically reduce grain levels.

## 2009 Iowa Corn Silage Yield Trial

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A coalition from ISU Extension, NICC, the Dairy Foundation, and seed corn representatives initiated a corn silage hybrid trial at the NE Iowa Dairy Foundation farm in 2008. This is the second year of the trial in a randomized design replicated three times.

The plots were treated with 2 quarts Harness Extra plus 3 oz. of Hornet per acre, early post emergence. No rootworm control was applied at planting and two hybrids did not have the rootworm resistant gene. The trial received 10,000 gallons dairy manure. Manure analysis was 27-7-15 pounds N - P<sub>2</sub>O<sub>5</sub> - K<sub>2</sub>O per 1000 gallons. An additional 80 pounds per acre nitrogen was side dressed in spring 2009.

Results from the 12 hybrid varieties are shown in Table 1. The corn plot received modest hail damage in 2009. The hail seemed to cover entire plot.

Corn maturity was much slower than typical this year. Based on an August 5, 2009 survey of the trial, plots ranged from zero percent silked to 100% silked. We estimated ½ kernel milk line to be attained by September 16, 2009.

Harvest was conducted on September 12<sup>th</sup> but obviously the average moisture of 75.8% was higher than the 65% desired in corn silage.

Table 1. Relative Maturity (RM), Whole Plant Moisture, Dry Matter and Silage Yield, and Quality Traits for Corn Hybrids Planted at Calmar (Winneshek County) in 2009

Hybrid	RM	Population	Harvest	Dry	Silage	CP	ADF	NDF
		V5 stage	moisture,	matter	yield			
		plts/acre	%	tons/ac	tons/ac	%	%	%
DKC61-69	111	31,833	74.3	8.5	33.2	7.2	23.6	42.1
DKC59-64	109	33,500	74.5	9.0	35.3	6.3	27.0	46.0
V5082	110	33,667	75.4	8.2	33.6	7.4	26.1	44.4
V4884	108	35,000	75.8	8.1	33.6	7.1	26.0	43.9
P34A89	109	34,500	75.7	8.3	34.2	6.8	28.0	47.8
DS8208	108	33,333	76.2	8.2	34.5	7.0	26.1	44.0
DS9009	109	33,167	76.1	8.4	35.2	7.4	25.8	45.7
688743SK	111	32,167	74.3	7.0	27.4	7.1	25.8	44.9
64143SK	107	32,833	75.8	6.9	28.6	7.4	26.8	47.2
F2F569	105	34,500	77.6	7.5	33.5	7.2	26.1	45.5
P1395	113	30,500	75.9	7.6	31.7	6.8	24.7	42.2
F2F725	113	34,000	77.6	6.8	30.5	6.9	25.8	46.2
<b>Average</b>		<b>33,250</b>	<b>75.8</b>	<b>7.9</b>	<b>32.6</b>	<b>7.0</b>	<b>26.0</b>	<b>45.0</b>
LSD 0.05		2,594	1.7	0.6	2.6	0.6	2.1	2.8

  

Hybrid	NDFD	NDFD	IVTDMD	Starch	Lignin	Fat	MILK	MILK
	24	30	30				2006	2006
	%	%	%	%	%	%	per ton	per acre
DKC61-69	52.5	58.6	82.6	24.6	2.7	1.7	2,700	23,007
DKC59-64	50.3	54.2	78.9	21.9	3.0	1.2	2,427	21,841
V5082	52.2	59.1	81.8	21.5	2.7	2.1	2,617	21,595
V4884	53.1	56.9	81.1	21.5	3.0	2.1	2,576	20,914
P34A89	51.1	56.2	79.1	18.2	2.7	1.9	2,397	19,942
DS8208	47.4	55.8	80.6	20.5	2.9	1.6	2,362	19,424
DS9009	49.4	55.6	79.7	18.9	2.6	1.4	2,271	19,105
688743SK	52.9	58.4	81.3	21.7	2.7	1.9	2,610	18,328
64143SK	54.1	57.8	80.1	18.6	3.2	2.3	2,588	18,009
F2F569	61.7	64.7	83.9	15.8	1.7	1.5	2,332	17,564
P1395	52.3	57.2	81.9	19.3	2.7	1.2	2,148	16,457
F2F725	63.0	68.1	85.2	15.7	1.9	1.5	2,392	16,303
<b>Average</b>	<b>53.3</b>	<b>58.5</b>	<b>81.4</b>	<b>19.8</b>	<b>2.7</b>	<b>1.7</b>	<b>2,452</b>	<b>19,374</b>
LSD 0.05	5.0	4.1	2.3	3.4	0.6	0.5	257	2,639

Dairyland Laboratory conducted dry matter and wet chemistry analysis also calculated milk per ton. Milk2006 approximates animal performance based on a standard cow weight and milk production level (1350 lb. body weight and 90 lb/day at 3.8% fat). The values used to calculate Milk2006 were based on laboratory values for hybrid moisture, crude protein, NDF, NDF digestibility (48 hours), starch, ash, NDFICP and ether extract (fat). Field calculations were used for dry matter yield. No kernel processing was assumed.