



Chris Mondak



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Wow! What a year for milk prices and the ability to reposition oneself as a producer in this great Iowa dairy industry.

For those of you who made some major moves by way of facility upgrades to improve labor and milk per cow efficiencies, great dividends are usually the reward for improving cows managed per full-time labor equivalent. In addition, the efforts to improve cow comfort and dry matter intake tend to pay great dividends in milk per cow efficiencies.

For others, efficiencies were gained in the expansion mode in spreading costs out over more cows. It is interesting how these efficiencies seem to be dependent on the type of dairy system chosen.

For those who joined the Iowa dairy industry as producers, we as an industry welcome you as every cow milked and person employed in this industry is important to its whole.

And, last but not least, for those who maintained the status quo in those operations and put efforts into strengthening their current herd base and maintained the infrastructure of Iowa dairying, those efforts are the base of a great industry that creates enormous economic impact for the state of Iowa.

Into this New Year, please let us know how we can continue to be of assistance in your future dairy plans.

Chris Mondak

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**Dairy Research Briefs from December
Journal of Dairy Science:** *by Dale Thoreson*

Dry Period Length: Belgium researcher in cooperation with dairy researchers at the University of Arizona conducted a trial on various dry period lengths using 122 Holstein cows. Cows in their second or greater lactation showed no decrease in milk production, body condition score or metabolite status with a 35 day dry period versus 42 or 56 days. First calf heifers, however, had depressed daily milk and 305day milk yields with a 35 day dry period.

This study, along with five other recent studies, suggests a 35 day dry period is adequate for cows in their second or greater lactation and that milk production in subsequent lactations is not reduced. First calf heifers should continue to receive a 55 to 60 day dry period.

Bedding Wetness in Free Stalls: Fregonesie, Weary and associates from the University of British Columbia, Canada do an outstanding job of research on cow comfort issues. Their recent research explored the question "How much impact do wet bedding free stalls have on cow's behavior?" Cows were restricted to free stalls with either kiln-dried or wet sawdust bedding in 2 "no-choice" phases, followed by a free-choice phase in which cows could choose either wet or dry bedding. In the no-choice phases cows spent approximately 14 hours per day lying when provided access to dry bedding, and reduced lying time by 5 hours per day when provided wet bedding. All cows, in this 24 hour per day time-lapse photography study with dry cows, had a strong preference for stalls with dry bedding.

Free stalls bedded with sawdust, straw or other organic bedding are considerably more comfortable when cleaned and dry bedding spread on the surface at every milking.

ISU Extension Dairy Team
"Bringing Profits to Life"

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Essentials of Milk and Dairy Product Safety

Chris Mondak, ISU Extension Dairy Field Specialist

As milk processors attempt to gain unique marketing niches, our grocery store shelves are now filled with an array of milk products. Not only do we have 1%, 2%, whole, or flavored milk, we now also have “natural”, “organic”, and “hormone free” on the milk labels. Increasing options often lead to increasing consumer confusion and indecision: “What’s best?” “What’s wholesome?” “What’s safe?” To address this confusion, here are some essential “must know” facts about the realities of milk procurement, testing, and quality.

Milk is one of the most closely regulated and protected agricultural food products, and the primary focus of all regulations is to ensure a safe food product for humans. The US Public Health Service actions to ensure milk safety began in the early 1900s, and were joined by efforts of federal, state, and local government agencies, plus producers and manufacturers in the industry. The document that sets the standards for milk safety in this country is the PMO (Pasteurized Milk Ordinance).

In Iowa, the Iowa Dept of Agriculture and Land Stewardship includes a Bureau of Dairy Products, which enforces the PMO and sets rules for milk safety in this state. Milk producers who do not operate to the standards of this office lose their license to sell milk. In the words of David Brown, Bureau Chief of Iowa Dairy Products, “Milk is the most tested food product. Quality is taken very seriously, and our number one priority is protecting human health.”

What about antibiotics in milk? Dairy farmers are allowed to use prescribed antibiotics to treat infections in dairy cows, but they are not allowed to ship milk from treated cows. **There is ZERO TOLERANCE for antibiotics in milk.** Every tank of milk sold is sampled, and every tanker-load delivered to processing plants is tested. Shipments testing positive for any trace of antibiotic are dumped and this milk does not become food. Dairy owners that erred and shipped a positive load are severely fined (thousands of dollars), and will lose the license to sell milk if violations continue.

What about aflatoxins in milk? In some years, dry weather conditions are conducive to the growth of

Aspergillus molds in corn; these molds can produce aflatoxin. **There is ZERO TOLERANCE for aflatoxin in milk.** In years where there is a chance of aflatoxin presence in feed grain going to livestock, IDALS requires testing of grain at elevators and testing of all milk going to Iowa milk processing plants. A positive test results in dumping of the whole load; it does not become food. The dairy farm that shipped the positive milk is severely fined (thousands of dollars) and will lose the license to sell milk if violations continue. Dairy producers bear responsibility to test grain, silage, and DDGs. Positive feeds cannot be blended down to achieve the 20ppb limit for dairy cattle. This feed must not be used for dairy cattle and young stock; there is ZERO Tolerance for aflatoxin in milk.

What about hormones in milk? Humans, plants, and cows are biological organisms that have their vital functions regulated by hormones. Milk production function in mammals, including dairy cows and humans, is governed by hormones, including bovine somatotropin (BST). As such, all milk products contain by-products of these normal biological activities. Labels that claim “Hormone free” are false labels and are illegal. Some dairy producers choose to supplement a cows’ normal BST with a synthetic BST to support efficient milk production. FDA studies on milk from BST supplemented cows found no difference from milk in those cows not receiving supplemental BST.

The bottom line summary message is this: Milk is a highly regulated, highly tested food product. Milk that does not meet the standards for anti-biotic free and aflatoxin free is dumped and does not go to our food supply. The variety of labels appearing on certain milk jugs reflects marketing attempts to sell products that often carry a higher price. The niche market label claims do not mean that those products are safer or more wholesome than conventionally labeled milk.

Sources:

--US Food and Drug Administration – Center for Food Safety and Applied Nutrition – www.cfsan.fda.gov

--Technology Assessment Panel. NIH Technology Assessment Conference statement on bovine somatotropin. Journal of American Medical Association 265: 1423-1425, 1991

--National Dairy Council

--Iowa Dept of Agriculture and Land Stewardship. Conversation with Chief of Bureau of Milk Products, David Brown.

Dairy Farming -- Success in the Bio-Economy

Robert Tigner, Farm Management Field Specialist

A lot of the focus on the dramatic changes in agriculture has been the rapid expansion of ethanol production in the US, especially Iowa and surrounding states. This expansion, and a few other factors, has led to large increases in corn and oilseed prices. The change is mostly away from a supply driven price determination to demand driven price determination. That change has dramatically increased feed costs for dairy producers. More important is whether net profit margins have declined. Of course, the answer will vary by individual farm cost and milk price. Certain management principles can help dairy owners succeed in the new environment.

As a first step, don't sweat the small stuff, yet. Ask yourself what the largest expense in milk production is. Approximately 45% of milk production cost is feed, purchased and grown. Reducing feed waste, increasing dry matter intake and improving feed quality are all items that will help reduce feed cost per hundredweight. A periodic review, at least quarterly, can be done to make improvements. Improved feed quality will assist in more milk per cow and better cow health.

Feed additives are common to a dairy cow diet, but do they add to the farm bottom line. Research not just testimonials should be the way to judge effectiveness. Corn has been an easy "fix" for feed problems, but other products are available to be used as an energy replacement. Another strategy could be to feed high moisture ground ear corn. Pound for pound it provides as much energy as shelled corn on a dry matter basis but one can harvest more pounds per acre.

The next largest cost on dairy farms is labor, including unpaid labor from the farm owners. Fully utilizing labor, labor efficiency, task efficiency and doing the important stuff first is important here. One of those is management and coordination. Management failures can be exceptionally costly in lost milk as well and higher expenses. Being ready for alfalfa harvest ahead of time, can make for higher quality haylage than your neighbor who isn't ready. Management also looks at tasks to be accomplished and assigns them in ways that benefit profitability most. Each person on the dairy team should handle the tasks they are best at, not just the ones they like most. For instance, the person on the dairy team best at handling pre and post fresh cows should have that as their major responsibility.

This improved transition cow care reduces improves milk production cost and increases farm profit.

Far from suggesting that the small stuff is unimportant, I am suggesting that priorities need to be made correctly to yield the most profit for dairy farms. With the bio-economy changes least cost producers in any commodity will survive and prosper. Find cost reductions in the big stuff first and work your way down.

Miscellaneous Calendar of Events

Manure and Pesticide Applicator Training sessions occur throughout Jan, Feb and March. Check with your local Extension Office for dates and times.

- Jan 7 Sheep Barn Meeting 7:00pm Terry Bailey farm, Nashua
- Jan 8 ISDA Annual Meeting 10 to 3:00 America's Best Value Inn, Waverly
- Jan 10 Sheep Winter Meeting 7:00pm At Local Extension Offices
- Jan 19 North Central Iowa Beef Day 10:00am Ellsworth Community College, Iowa Falls
- Jan 21 Sheep Barn Meeting 7:00pm Kelvin Menken, Allison
- Jan 23 Cattle Risk Management Workshop 10:00am to 3:30pm Graffiti's, Edgewood
- Jan 28 Tri-State Beef Day 10am-3:00pm Crawford County Admin Building, Prairie du Chien, WI
- Jan 28 Tri-State Beef Day 4:00pm to 9:00pm Waukon Reception and Banquet Center, Waukon
- Jan 29 Dairy Days 10:00am to 3:30pm KC Hall, Elma
- Jan 30 Dairy Days 10:00am to 3:30pm 4-H Fairgrounds, Waverly
- Jan 31 Dairy Days 10:00am to 3:30pm Dairy Foundation Center, Calmar
- Feb 5 Dairy Days 10:00am to 3:30pm Legion Hall, Ryan
- Feb 6 Dairy Days 10:00am to 3:30pm Dubuque County Fair Grounds, Dubuque
- Feb 8-9 Women Adding Value to Agriculture 11:30am to 1:00pm Hotel Winneshiek, Decorah
- Feb 20-21 Hawkeye Farm Show, Cedar Falls
- Feb 29-Mar 1 Iowa Holstein Convention, Hotel Winneshiek, Decorah
- Mar 5, Cattle Risk Management Workshop, 4-9pm, T-Bocks, Decorah
- Mar 17, 18, 19 Midwest American Society of Dairy Science, Des Moines
- Mar 20 NE IA Community-Based Dairy Foundation Annual Meeting, 10:00am, Calmar

Annie's Project--Management Education for Today's Farm Women, Tuesdays, January 15--February 29, Osage Library 6-9pm

NE Iowa Dairy Days

- 9:30** Registration, Refreshments--Exhibits
9:55 Welcome/Announcements
- 10:00** **Fat Feeding- Facts, Fiction & Fertility**
Lee Kilmer, ISUE Dairy Specialist
- 10:40** **Succeeding with Dairy in the New Bio-Economy**
Robert Tigner, ISUE Farm Mgt. Specialist
- 11:10** **Iowa Dairy Farms Disease Risk-Results**
Dale Thoreson, ISUE Dairy Specialist
- NOON Lunch – Commercial Exhibits**
- 1:00** **Maintaining a Healthy Dairy Herd- Problem Indicators**
Dr. Pat Gordon – ISUE Veterinary
- 1:40** **The New ISU Dairy: A Virtual Reality!!**
Leo Timms, ISUE Dairy Specialist
- 2:20** **Personality Skills to Benefit a Dairy**
Larry Tranel, ISUE Dairy Specialist
- 3:00** **Your Dairy and It's Genetic Future**
Dale Thoreson, ISUE Dairy Specialist
- 3:30** **Closing comments**

DATES / LOCATIONS

Jan. 29	Elma K.C. Hall
Jan 30	Waverly 4-H Building, Fairgrounds
Jan. 31	Calmar Dairy Foundation Center
Feb. 5	Ryan American Legion Hall
Feb. 6	Dubuque Dubuque County Fairgrounds

Please call your local Extension office to pre-register the Friday prior to the program date.

A \$10 registration fee will cover meal and proceedings costs.

Vouchers may be available from your local agri-service providers or veterinarian.

FREE FEED TESTING! Bring ziploc bag of TMR and/or silage and/or grain samples for particle size analysis (approx. one quart).

Dairy Facility Tours

During the past five years, ISU Extension has sponsored low cost milking parlors tours the first week of March. This year the tours will continue but in addition to showcasing parlors, other dairy facilities and topics will be show cased, too.

However, there will probably not be another newsletter out before then to publicize the facility tours so stay tuned to local radio and newspaper outlets for dairy facility tour dates and locations.

If you know of someone, including yourself, who has a facility that you think other dairy producers would love to see, please let your county extension director or your dairy field specialist know.

Manure storages, calf, heifer and freestall barns are always popular options.

Our motto is to remodel the Iowa dairy industry but we know we best learn from each other.

Low Cost Milking Parlors

By Larry Tranel, ISU Dairy Field Specialist and County Extension Education Director, Dubuque County

Over the past 10 years a multitude of low cost parlors have been built in the Midwest for as little as \$5,000. Others have cost upwards of \$100,000 with a new building shell included.

The last newsletter had photos of a parlor modeled after the TRANS Iowa parlor. We get many requests for the blueprints of the parlor and an explanation of what this type of parlor would look like. So, on the next two pages, the blueprint is included.

There is a new publication available through the dairy field specialists on the low cost milking parlors. It can be sent to producers and others at minimal or no charge. It is available free at the website below which also has video footage of what it is like to milk in a TRANS Iowa Low Cost Parlor.

www.extension.iastate.edu/dubuque/info/dairy+publications.htm

For more information contact your dairy field specialist (numbers listed on back panel).

PEAQ Will be Conducted This Spring

Pat Derdzinski, Butler CEED and

Dale Thoreson, Field Specialist Dairy/Beef/Forages

Beginning in May 2008, volunteers and ISU Extension staff will begin field checking and measuring alfalfa fields using the Predictive Equation For Alfalfa Quality (PEAQ) method every Monday and Thursday in May or until fields are harvested, whichever comes first. PEAQ is a research-based procedure to help alfalfa growers estimate the timing of their first cutting based on quality goals. The first alfalfa cutting is usually the largest yielding harvest of the season and therefore of great economic importance to alfalfa growers and livestock producers such as dairy operations. The PEAQ measurements we take are specific to that alfalfa field but the results we report keep area producers informed and encourages them to take their own measurements.

Growth of alfalfa fields varies across Iowa by conditions of the year. Usually alfalfa fields are more mature south of I-80 then Hwy 20 and Hwy 9, but not always.

The measurement results in a Relative Feed Value (RFV). Each point of RFV is worth approximately \$1 to dairy and livestock rations by way of reducing feed costs and improving intake, especially to lactating dairy cows. Thus, prompt cutting is of great economic value. The PEAQ readings link at the Butler County Extension Service web site at: <http://www.extension.iastate.edu/butler/>

We also send the results to the local media. Our media list include The Charles City Press, KLGO, Dubuque Radio, Clear Channel, Agri News, WCIN, KLMJ, KWAY, KXEL, Linder Radio, KOEL, Butler, Delaware, and Dubuque County Farm Bureau, If your favorite station or paper isn't carrying the PEAQ results, ask them if they will and forward their e-mail address to Butler County Extension or call our office at 319/267-2707.

New ISU Dairy Moo-oves Ahead

Nov 26 and 27, 2007 saw all the female youngstock and replacements (26th) and milking cows (27th) make their new home at the new ISU Dairy in south Ames (3 miles south of campus) and start a new era in dairy for ISU and the dairy industry. Approximately 700 total head (325 replacements, 375 cows) made the trek from the ISU Dairy at Ankeny while another 50 head of Jersey cattle (23 replacements, 27 cows) returned home from the NEIDF Dairy Center at Calmar. The new home includes a 456 lactating cow

free stall barn, 100 head dry cow/transition barn (50% freestall, 50% large pens), integrated maternity (16 maternity pens) and calf barn (~ 100 calves), 4 heifer barns, and a milking center housing a double 12 subway parallel parlor and a large, state of the art classroom. The cows adjusted great (no milk loss) and people and protocols are following. Look for the New ISU Dairy report (part of Animal Industry Reports from ISU) in January and updates in future newsletters.

Northwest Iowa Dairy Calendar

- | | |
|-----------|--|
| Jan 8 | Iowa State Dairy Association Annual Conference – Waverly, IA |
| Jan 15 | Western Iowa Dairy Alliance Annual Meeting & Dinner- 6pm, Place TBA
Guest speakers: Maynard Hogberg
ISU Animal Science Chairman and
Bill Northey, Iowa Secretary of
Agriculture; 1-712-441-0893 |
| Jan 18-19 | Women in Denim Conference –
Buena Vista University; 800-242-5022 |
| Jan | Dairy Focus Group Meetings –
Multiple dates & locations to be
announced <i>Focus topic: Selecting
priorities and setting an Action Plan</i> |
| Jan 30-31 | I-29 Corridor Dairy Meeting –
This year's program will focus on reproduction topics:
Economics of Reproduction and Nutrition's Role in
Reproduction. Keynote presentations will be followed
by break-out session workshops to focus on practical
application of the concepts. Also featured will be a
panel of dairy producers involved in non-traditional
approaches to dairy herd management. Program
sites and dates: Jan 30 – Brookings; Jan 31-
Sheldon; Feb 1- Pipestone. Contact Chris Mondak,
ISU Extension, 712-737-4230. |
| Feb | Dairy Focus Group Meetings –
Multiple dates & locations to be
announced <i>Focus topic: Evaluating
the results, and setting the next plan</i> |
| Mar 19-20 | Central Plains Dairy Expo –
Sheraton Convention Center – Sioux
Falls 218-236-8420 |
| Apr 1- 3 | DCHA (Dairy Calf & Heifer Assn
National Convention – Mayo Civic
Center, Rochester, MN; 636-449-
5077 |
- Point of contact for more details about these events:
Chris Mondak, ISU Extension Dairy Field Specialist,
cmondak@iastate.edu, 712-737-4230

Collegiate Dairy Career Day Connects Students to Dairy Industry

Go to any gathering of dairy producers in the state and you'll likely hear these 2 comments: "How can we get young people interested in the dairy industry?" and "We need trained, dedicated herdsmen and professionals to work in our industry." The Collegiate Dairy Career Opportunity Day and Tour, Nov 16-17, held at Sioux Falls in conjunction with the Central Plains Dairy Association's annual fall Dairy Business Meeting and Cow College was a learning activity designed to address these two concerns.

Twenty students from ISU and NICC-Calmar traveled to Sioux Falls to attend the CPDA Dairy meeting.) On Friday, they met with dairy producer "mentors", attended sessions and break-outs, and participated in an informal Job Fair. On Friday night, students took part in a Career-Builder seminar that featured a panel of young professionals serving the dairy industry, and a program about understanding personality profiles to enhance good working relationships in the work place.

On Saturday, students traveled by bus to visit dairy farms in NW Iowa. The five farms visited introduced students to the mixture of small, medium, and large farms present in NW Iowa, and to the specific jobs and work expectations associated with typical jobs on these farms.

Judging by the enthusiastic reception of the students by the dairy producers and industry leaders attending the Central Plains Association event, and by the constructive criticism offered by the students, the stage is set to plan for this off-campus learning experience again next Fall.

Western Iowa Dairy Alliance Reaches Milestones

The Western Iowa Dairy Alliance officially became an organization early in 2007, completing a 3-year long process that included shaping a vision, building a structure, and creating an image and presence in the Iowa dairy industry. The purpose of WIDA is to serve as a voice to represent the interests and concerns of the western Iowa dairy industry in the region situated west of I-35. The dairy producers and industry leaders serving as first officers and initial Board of Directors opted to establish WIDA as an affiliate of ISDA (Iowa State Dairy Association). This will encourage communication and collaboration within the Iowa dairy community, and will help dairy producers develop a unified "voice" to represent the industry to consumers and state legislators.

Priorities of WIDA include developing good consumer/community/political relations; seeking education opportunities for dairy producers; staying informed on new technologies; encouraging opportunities for beginning farmers, and promoting growth of dairy industry in Iowa.

With official legal status established, the group conducted simultaneous membership campaign and a search for an Executive Director. Kayla Lyon was selected as WIDA's first Executive Director, commencing her assignment in late September. Under her direction, WIDA is continuing membership campaign work, fine-tuning by-laws, and developing policy statements.

Despite its brief history, WIDA has taken actions since Spring 2007 to carry out its mission:

- Sponsored the first NW Iowa 4-H Dairy Quiz Bowl
- Participated in forums with Senators Harkin and Grassley and Congressman Steve King regarding immigration policies and related issues
- Co-sponsored the Dairy Challenge farm tours
- Hosted a visit with IFBF President Craig Lang and WIDA members at Fall Steak Fry
- Co-sponsored and coordinated Dairy Career Opportunity Day and Tour for ISU and NICC –Calmar dairy science students
- Represented interests of western Iowa and WIDA at the World Dairy Expo at Madison
- Represented western Iowa dairy industry at Iowa Dairy Coalition meeting
- Building partnerships and collaborations with CPDA, ISDA, NE Iowa Dairy Foundation, CSIF and Iowa Dairy Coalition

Preparations are underway for the WIDA's first Annual Meeting planned for January 15, 2008. Maynard Hogberg, Chairman- ISU Animal Science Department and Iowa Secretary of Agriculture Bill Northey will be guest speakers at the Annual Meeting.

Dairy Calf and Heifer Association – National Convention April 1-3, Rochester, Minnesota

For all those with a stake in raising healthy, quality calves and heifers, mark your calendar for this meeting. We are fortunate to have this national meeting so close by this year; it is a great chance to network with dairy people from all over the country. Contact DCHA 636-449-5077, www.calfandheifer.org

“To Dip or Not to Dip?” That is the Question (“In Winter”)! By Leo Timms

A great new year but 10 degrees below zero (-30 wind chill) and concerns about winter teat problems! We're there again, and the same old question pops up: To dip or not to dip? If so, with what? And what else can we do to stop winter teat problems? Let's start with why dip?

The purpose of teat dipping is to provide a germicide that will kill mastitis germs and apply skin conditioners that keep teat skin and ends healthy. These are both essential to achieve to minimize mastitis risks! In winter, we want these same things but want to make sure that when we dip, we don't compromise one for another (frozen teats, more germs on teats). So initially (not just winter) you need a dip that has a proven germicide and excellent skin conditioning. We need to start and be here all the time. But now, it's winter? Here's the choices!

- **Use the same good germicide, skin conditioning dip you've been using!**
 - Most days, it's not cold enough to freeze the drop on the teat end so tally ho!
 - In situations (cold wind chills and/or direct exposure post milking), **dab or wick the drop off the end with a cloth towel.** This takes very little time and effort. **DO NOT DRY THE TEAT** as it removes the dip / conditioners. **This has been proven to work!**
 - **Never add extra conditioners to dip!** It screws up the formulation!
- **What about barrier dips?**
 - **Not recommended** in very cold weather and exposure situations since they take 20+ minutes to dry, increasing risks for teat end problems!
- **What about the winter formulation dips? High emollients and/or powder dips?**
 - **Designed to be used only during cold weather and high risk situations where teats will freeze or dehydrate quickly** (like your fingers cracking)!
 - Usually cost 2X your regular dip (but evaluate potential returns, not just investment!)
 - **High emollient dips:** (usually > 50% skin conditioners): Minimizes initial freezing risk post milking due to slow evaporation; Make sure germicide is proven!; Teats stay wetter and oily longer so may increase risks with prolonged cold exposure or dirty conditions (sticky teats!)
 - **Powder based dips:** Function to keep teats dry (no liquid). New formulations have germicide and skin conditioners. Stalls, etc must be clean / dry,

to avoid wicking on teats. Need to get adequate (full teat) coverage so dip properly!

- **What about salves?**
 - **NOT THE BEST CHOICE!** High risks unless germicide and skin conditioning are proven!
 - Most germicides can be overcome by contamination!
 - Greasy hands, greasy teats, greasy equipment! A mess and a great way to spread things!
 - Can coat / trap infections; grease attracts (dirt, etc.!).
 - Research shows minimal or no effect (some detrimental) when more fluid salves are used.
 - If you decide to use, use sparingly (only on the risky area – teat end!)
- **What about quitting dipping /doing nothing else?**
 - **POOR CHOICE OR NOT EVEN A CHOICE!**
 - Teats are still wet after milking; teat skin conditioners milked off; increased dehydration and cracking risks; Plus no contagious mastitis germicides!

So there's the dip choices! It's a sure thing that winter will come, a sure thing that teat end problems will occur (none of the above can totally stop everything), and a sure thing that the best way to deal with it is manage the risks. Weigh out the options above and pick the one that you can manage the best. Couple this to other management strategies such as minimizing direct wind exposure post milking, clean dry stalls **to prevent chilling and organism growth,** and excellent milking techniques and properly functioning milking equipment **that minimize other teat stressors.**

(Below is a graph from one of our recent ISU trials evaluating winter teat dips with high emollients. The graph shows teat skin scores. There are 3 separate barns (EW and WW are tie stall, FS = free stall). As can be seen, dips work differently depending on weather exposure, with a lot of fluctuation in skin condition even with these high emollient dips. They also work differently depending on barn and weather exposure.) Combined Skin Data for 1% I2, 50% glycerin

