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Keeping Your Dairy from Being in the News

Deanne Meyer, Ph.D. Livestock Waste Management Specialist, UC Davis Department of Animal Science

By now, many operators have heard or read about the enforcement actions on dairies this spring in the Central Valley. Pamela Creedon, the Executive Officer for the Central Valley Regional Water Quality Control Board identified that "These practices (the burial of dead cows) undermine the vast majority of dairy operators in the Central Valley Region who work hard to follow good environmental practices in compliance with the Dairy General Order."

Expect more inspections. Given the magnitude of the findings from the inspections that resulted in two Cleanup and Abatement Orders, Executive Officer Creedon has charged her staff to conduct hundreds of inspections (from both the Rancho Cordova and Fresno offices) in the coming fiscal year (beginning July 1, 2012). Staff will need to ensure that dairies are correctly documenting mortality management practices, as well as accurately reporting manure and nutrient management in their annual reports and that these annual reports reflect actual activity on operations.

Be prepared for inspections. Staff will schedule inspections to determine compliance of management and the facility with the regulatory process. Anticipate that inspectors will want to review the documentation that you are in fact conducting the required activities associated with the Monitoring and Reporting Program associated with the General Order and maintaining detailed records (maintain records for 5 years). Understanding manure and nutrient management, the Sampling and Analysis Plan, the Nutrient Budget, and how records are kept/maintained will provide comfort to those under-going inspections. Just a reminder, the Monitoring and Reporting program requires that **records of mortality management and practices** be maintained (Page 9 2.d). Logically, invoices from the

Kernel processing is **excellent** when the proportion of starch that passes through the coarse sieve is more than 70%, **average** when it is 50-70%, and **inadequate** when it is less than 50%. Data from a commercial lab (Cumberland) indicates that 42% of the corn silage samples evaluated (n=1131) were inadequately processed.

Theoretical Length of Cut (TLC) of corn silage should be set so particle length is long enough to supply effective fiber for optimal rumen function and adequately short to favor packing and fermentation. Based on the DM of the harvested crop, TLC should be adjusted. If the corn crop is too dry, it should be chopped finely to improve packing. However, if ensiled corn is the only roughage source at the dairy, it is recommended to chop long to ensure enough effective fiber in the ration.

Dr. Mike Hutjens, the Dairy Extension Specialist from the University of Illinois, has developed some guidelines on the theoretical length of cut and the roll clearance based on whole plant maturity (http://www.livestocktrail.uiuc.edu/dairynet/paperDisplay.cfm?ContentID=615):

- DM < 33%: TLC should be 0.75 – 0.90 in. and the rollers open.
- DM 33-38%: TLC should be 0.75-0.90 in. and rollers with 0.12 clearance inches.
- DM 38%: TLC should be 0.5 in. and the rollers should be closed.

Measuring forage particle length using the NASCO Penn State Particle Separator continues to be a popular way to objectively evaluate on the farm if forages have optimal particle length. The recommendations are different for processed and unprocessed corn silage (see table).

	3/4 TLC Processed	3/8 TLC Unprocessed
Top	5-15	3-8
Second	>50	45-60
Third	<30	30-40
Bottom	<5	<5

Furthermore, if corn silage represents the major forage source in the ration, the target is to have more material in the middle two sieves and less in the top sieve and bottom pan. Penn State Separator guidelines can be found at: http://www.das.psu.edu/research-extension/dairy/nutrition/pdf/evaluating-particle-size-of-forages.pdf.

Results of a recent custom harvester survey (Collar and Silva-del-Río, 2010), indicates that the settings of the roll clearance opening ranged from 0.5 to 3.0 mm (0.02 to 0.12 inches) and TLC from 10 to 21 mm (0.4 to 0.8 inches). Research needs to be conducted to evaluate if the particle length and kernel processing of corn silage in California falls within the desired target.

Time for a Freestall Check?

Betsy Karle, UCCE Glen & Tehama Counties

When it comes right down to it, we have a bunch of hard-working ladies who we depend on for the next paycheck. While we spend a significant amount of time formulating rations and getting cows bred, the condition of freestalls oftentimes gets lost in the shuffle. Research has shown that comfortable cows produce more milk and we all know that a well-balanced ration isn't going to do a cow much good if she can't or won't lie down and get some quality cud-chewing time. So, take a minute and ask yourself a few questions about the condition of the freestalls on your dairy:

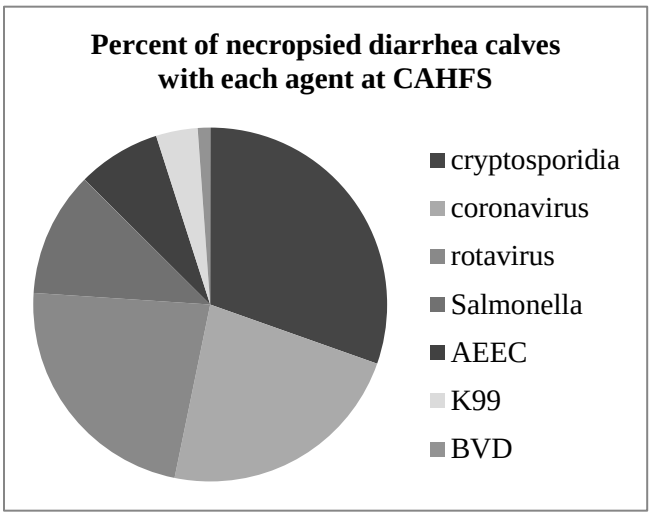
- Does that look like someplace I'd like to take a nap?
- Is she touching the inside of the rear curb with her hocks or udder?
- Do more than 10% of cows have any signs of hock injury?
- Can I see the stall base?
- Is the "knee-drop" test painful? (Don't forget to magnify the impact about 8 times to account for the weight of a cow!)

If you answered no to the first question or yes to any of the others, you need more bedding. Even if you use mattresses in your barns, 3-4 inches of bedding over the mattress surface is still recommended to prevent painful hock injuries and make cows more likely to lie down for longer periods of time. The goal is to provide cows a clean, dry surface that will provide ***cushion*** and ***traction*** while being ***yielding*** enough to conform to the shape of the cow. Most of us in the Valley don't have the luxury of using beach sand in our stalls, but well-dried manure solids are a great alternative. Unfortunately, no bedding surface is maintenance-free, so we have to take the time to rake or smooth the surface daily and add bedding as needed. Taking measures to increase cow comfort will pay dividends with more milk in the tank.

Diarrhea in Neonatal Calves

Dr. Pat Blanchard, DVM, PhD, California Animal Health and Food Safety Laboratory, Tulare Branch

Diarrhea in calves under 30 days old is caused by a variety of agents, some of which are age specific or require tissue examination to detect. The most common pathogens found in calves are parasites (cryptosporidia), viruses (rotavirus, coronavirus) and bacteria (*Salmonella*, K99 E. coli and attaching and effacing *E.coli* - AEEC). All except AEEC can be detected in the feces from live, sick calves. However colon tissue from dead calves improves detection of coronavirus and is required to detect AEEC. *Salmonella*, AEEC, and coronavirus in calves can cause bloody diarrhea. Calves with systemic bacterial infections (i.e. *E. coli, Salmonella)* or pneumonia may also experience diarrhea even though no infectious agents are present in their intestine. Rumenitis from milk fermenting in the rumen or bacteria, yeast and other fungi growing in the rumen and abomasum can cause decreased appetite or stomach pain in calves.



Parasites like cryptosporidia are not shed for at least 4 days in the feces so testing calves younger than 4 days old for this parasite is not useful. Coccidia have a prepatent (pre-shedding) period of 15-21 days and we have not seen this organism in calf hutch raised calves though it might occur in pasture or group housed calves.

K99 *E. coli* can cause high death losses and very rapid dehydration in calves, but typically only affects calves less than 6 days old, most often 2-3 days of age. There are effective dry cow vaccines for K99 *E. coli,* but they must contain the K99 component.

When mortality associated with calf diarrhea increases, this usually means multiple infectious agents are present which causes more severe disease. Freshly dead or moribund (near death) calves or tissues from these calves taken at a field necropsy are the best samples to submit to the California Animal Health and Food Safety Laboratory to diagnose the causes. The selected calves should have been sick less than 4 days and not been treated with antibiotics. If a high percent of calves become sick but very few die, sentinel bull calves that are exposed to the same conditions as the heifer calves could be submitted when they become ill to help identify the problem affecting the heifer calves. If the dairy is having a problem of poor doers after calves recover from diarrhea, this may indicate a rumen or abomasal problem secondary to intensive treatment.

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To sign up for CAHFS Connection monthly eNewsletter contact slhein@ucdavis.edu

Rabies in Ruminants

Robert B. Moeller Jr. DVM, DACVP, DABT, California Animal Health and Food Safety Laboratory

Rabies is a rare viral disease to affect ruminants in California or the remainder of the United States. In 2010, 71 cattle were identified to have rabies in the United States. However, in certain areas of the world, particularly Central and South America, rabies is a common disease of cattle and small ruminants. While a rare problem here, rabies should always be considered as a possible infection if an animal is demonstrating neurological signs. In California, bats are the most common animal species that is identified with rabies. However, skunks, foxes and raccoons are also known to become infected with this viral disease and transmit this disease to other animals. In the United States, most cases of rabies in cattle are skunk associated. Infections often occur in cattle, sheep and goats that are confined in limited areas where the animal cannot escape and are bitten by the rabid animal. Rabies in all animals and man is almost always fatal.

Cattle infected with rabies often do not demonstrate the same clinical symptoms and may present with a variety of clinical signs. Infected animals may become aggressive and agitated; the animal often becomes very belligerent and may attack anything that moves. Other infected cattle may present clinically depressed and in a stupor state. Animals may also have difficulty swallowing and salivate excessively; these animals often appear to be choking due to a foreign body in the throat (no foreign body is found in the throat of the animal). Some cattle may also develop nonspecific neurological signs. Weakness of limbs with staggering and incoordination or paralysis of facial nerves can lead to difficulty picking up and chewing food. Animals may strain to urinate and bellow excessively. Many times these clinical signs cannot be differentiated from more common neurological problems in cattle such as anaplasmosis and hypomagnesemia (aggressive animals), pituitary abscess, listeriosis, *Histophilus somnis*, polioencephalomalacia or toxicities such as lead or locoweed.

Sheep and goats infected with rabies may present in an excitable agitated state which then progresses to one of severe depression and stupor. As with cattle, these animals may have difficulty drinking water or picking up and eating food (facial nerve damage). Like cattle, these clinical signs may mimic other common neurological diseases of sheep and goats such as lead toxicity, listeriosis, brain abscesses due to *Corynebacterium pseudotuberculosis*, *Clostridium perfringens* type D enterotoxemia, and West Nile virus (sheep).

In all these animals, rabies virus is shed in all body fluids and is found in high viral loads in the saliva, milk and urine. People exposed to these secretions are in danger of becoming infected with the virus. Consequently, it is important to have your veterinarian examine any animal that has developed neurological conditions and take appropriate samples to rule out rabies as the cause of the animal's condition.

Use of By-products in Lactating Dairy Cow Diets

Alejandro R Castillo, UCCE Merced County, California.

The drought in the Midwest will impact corn production and commodities prices. By-products can be used as an alternative feed to replace some of the feed ingredients normally used in dairy diets. A California survey[(1)] indicates that the three main feed ingredients used in lactating dairy total mixed rations (TMR) are corn silage (74% of rations), alfalfa hay (98% of rations), and corn grain (84% of rations), with many by-products also used to feed lactating cows (Table 1).

Table 1. Estimated dry matter intakes of by-products and % of TMR including these by-products.

	Mean	Min	Max	TMR*
By-products	**lbs./cow/day**			
Cotton seed	3.5	1.4	6.4	72
Canola meal	4.2	1.1	8.9	65
Dry distillers grains	3.6	0.1	10.2	43
Almond hulls	3.2	0.4	6.5	38
Soy hulls	2.7	0.5	5.4	30
Whey/permeate	2.7	0.7	10.0	28
Soybean meal	2.1	0.2	4.9	24
Corn gluten meal	3.1	0.2	6.3	20
Molasses	1.0	0.7	1.5	18

	Mean	Min	Max	TMR*
By-products	**lbs./cow/day**			
Corn germ	4.9	0.5	10.9	17
Wheat mill & starch	3.1	0.6	6.3	14
Rice bran	0.8	0.1	1.8	10
Grain screenings	1.5	0.2	4.8	7
Bakery Waste	3.1	2.1	3.9	5
Wet distiller grains	3.7	3.0	3.9	4
Sugar beet pulp	3.9	2.2	5.1	4
Raisin tailings	3.3	2.9	3.5	4
Tomatoes	2.0	2.0	2.0	1

*TMR= percentage of TMRs including each byproduct (n=104 TMR)

The main nutritional concerns of using by-products are:

1. **Possible mycotoxin contamination**, particularly in fermented feeds (e.g. distillers grains) and feeds not stored properly.
2. **Mineral content** of some feeds may be very high (corn gluten, distillers grains, etc).
3. **Excess dietary fat content**: more than 7% dietary fat can affect production (i.e. cotton seeds, distillers grains, etc.).
4. **High moisture level feeds** increase transportation costs, are easily fermented (mycotoxins), create for difficult handling and storage, and can attract insects.
5. **Excess or deficit of fiber** (NDF): lack of fiber in the ration can be related to rumen acidosis problems (starch, molasses, whey, permeate, etc.) and excess fiber affects milk production (straw, raisin tailings, wheat bran, etc).
6. **Palatability**: some are relatively unpalatable (blood by-products) or they may be fermented affecting palatability (mycotoxins).
7. **Crude protein content**: can be very variable in some by-products affecting milk yield, feed efficiency, manure nitrogen content and nutrient management plans.
8. **Animal performance**: because of some of the points previously discussed, long-term use of by-products may affect animal performance, thus diets and feed management practices should be carefully controlled.

To save money and avoid problems with by-products in your TMR, **consult your nutritionist** before purchasing any new by-product and obtain a **complete chemical analysis** (including all minerals) to help reduce or mitigate some of the challenges discussed in this article.

(1) Access the TMR survey presented at the 2012 American Dairy Science Association meeting: http://cemerced.ucdavis.edu/Dairy/Recent_Dairy_Articles,_Posters_and_Presentations/

Career Change for G. Higginbotham, UCCE Dairy Advisor

By Carol Collar, UCCE Kings County

After a productive 23 year long career with the University of California Cooperative Extension, Dr. Gerald Higginbotham (aka Jerry) recently retired from his position as Dairy Farm Advisor for Fresno and Madera Counties. But instead of heading to the golf course, Jerry is headed back to work! A trace mineral company has hired Jerry to serve as their new Ruminants Business Manager for California.

As one of Jerry's colleagues at UCCE, I can tell you that we will miss his research and educational contributions, but we are excited for him in this new opportunity and wish him the best in his transition back to the "private" sector. Before joining UCCE, Jerry started his career working as a consulting dairy nutritionist at Nutri-Systems in Fresno. Jerry came to work for UCCE in 1989 and promptly established an active applied research program focused on seeking answers to common problems challenging Central Valley dairies. DHIA records management, raising healthy calves, determining the value of feed or silage additives, fly control, manure management, biosecurity and energy conservation – these and other topics were investigated, summarized and reported by Jerry. The UC Cooperative Extension Dairy Herdsman Short Course was an especially notable educational effort led by Jerry. Over 10 years, hundreds of participants from California, the US and even Central America attended the annual program. Tremendous organization and patience were required to successfully manage the team that taught the 3-day event each year. Jerry's leadership was the glue that held it all together. Thank you Jerry for all your dedicated service to the mission of UC Cooperative Extension!

Jerry continues to work in the Fresno area and can be reached at
gerald.higginbotham@micro.net or (559)907-8013

UC Davis Award of Distinction

Brian Pacheco, 4th generation dairyman from Kerman CA and Chairman of the Board of California Dairies, Inc. (CDI), is a recipient of an Award of Distinction from the College of Agricultural and Environmental Sciences at UC Davis. The Award of Distinction is the highest recognition presented by the College of Agricultural and Environmental Sciences "to individuals whose contributions and achievements enrich the image and reputation of the college and enhance its ability to provide public service". Brian received his B.S. in Agricultural and Managerial Economics from UC Davis, and he is an ardent supporter of research and outreach activities at UC Davis. Brian and his family are active in their community as well as statewide activities. Brian's contributions to UC Davis, the dairy industry, and his community will be recognized at the 24th annual College Celebration on Friday, October 5, 2012 on the UC Davis campus.

Information about the event:
http://caes.ucdavis.edu/NewsEvents/Events/college-celebration/

NMC comes to California in January – Save the Date!

The National Mastitis Council (NMC) 52nd Annual Meeting will be held **January 27-29, 2013** at the Omni Hotel in **San Diego**, California. The NMC Annual Meeting is a three-day forum for all individuals interested in quality milk production, including milk quality specialists, veterinarians, milk plant field staff, dairy suppliers, dairy producers, university researchers and extension specialists and students.

The main program will cover current topics in udder health, mastitis control, milking management and new technologies in the area of quality milk production. Short courses (workshops) on specific topics will also be offered. The meeting provides an excellent opportunity to network with dairy professionals from around the world with a common interest.

Program details will be available in the next issue of the California Dairy Newsletter and also this fall on the NMC website: www.nmconline.org

The National Mastitis Council (NMC) is a not-for-profit professional organization devoted to reducing mastitis and enhancing milk quality. The NMC promotes research and provides information to the global dairy industry on udder health, milking management, milk quality and milk safety. Founded in 1961, the National Mastitis Council now has close to 1,500 members in more than 40 countries throughout the world. Learn more at www.nmconline.org, www.twitter.com/QualityMilk, and www.facebook.com/NationalMastitisCouncil.

Putting our Best Foot Forward

Gregorio Billikopf, UCCE Area Farm Advisor

In my seminars on interpersonal negotiation skills (how to deal with disagreement) I speak on a number of factors that help people improve their interpersonal relations. One of them has to do with never stopping to put forth our best efforts.

We tend to put our best foot forward when meeting people for the first time. Much the same can be said about our workplace 'honeymoon period'. We try very hard to make a good first impression. Sooner or later our human weaknesses show and others see the *real* us. It is at this point that we may reason, "Why try and pretend anymore to be someone I am not?"

The key to making a long-term positive impression is to never stop trying to be the person we hope to someday become and to decide to continue to put our best foot forward despite our weaknesses.

For more information on interpersonal relations at work, download Chapter 4 of *Party-Directed Mediation*: http://www.cnr.berkeley.edu/ucce50/ag-labor/7conflict/

Air Quality Classes in Modesto, Tulare Offer Important Updates

The California Dairy Quality Assurance Program (CDQAP) is offering free classes in air quality *(see schedule at right)*. **This will be the only 2-hour class offered in air quality by the CDQAP prior to the September 30 deadline for certification.** The class will provide important updates on implementing Revised Rule 4570 requirements, what to expect during inspections and regulatory compliance tips.

Producers with questions can call the CDQAP at (209) 525-6877.

Modesto Course
Tuesday, August 21, 10 a.m. – 12 p.m.
Stanislaus County Ag Center
3800 Cornucopia Way, Modesto

Tulare Course
Thursday, August 23, 1 p.m. - 3 p.m.
Tulare County Ag Center Classroom
4437 Laspina Street, Tulare

UCCE Silage Day ~ Modesto

Thursday, August 23, 2012

AGENDA

9:15a – Registration begins

9:45a - Welcome & introductions

10a - UCCE silage update

Jennifer Heguy, UCCE Dairy Advisor

10:20a - Timing harvest for silage quality

Dr. Heidi Rossow, UC Vet Med, Dairy Nutrition & Nutrient Management

10:45a – What's the value of high quality corn silage?

Dr. Noelia Silva-del-Rio, UC Dairy Production Medicine Specialist

Break – Visit with meeting sponsors

11:30a - Feeding silage for production & animal health

Dr. Peter Robinson, UC Dairy Nutrition Specialist

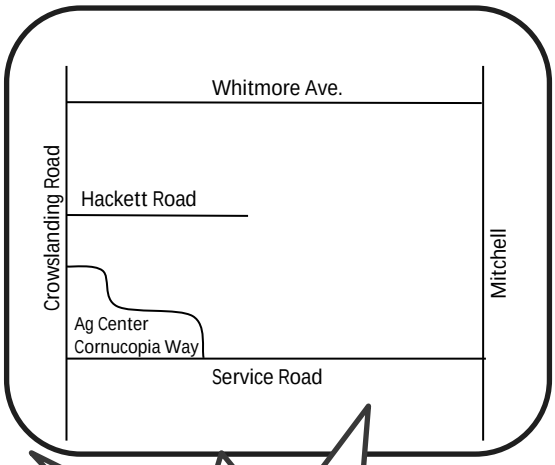
12p - Technology spotlight

Local dairy producer panel

Lunch – Visit with meeting sponsors

2p –Adjourn

Harvest Hall, Stanislaus Ag Center:
3800 Cornucopia Way, Modesto



Bring in your silage samples for DM analysis using NIR technology!

- There is **no charge** to attend
- **RSVPs are appreciated** to plan lunch and handouts
- **Register** at (209) 525-6800 or jmheguy@ucdavis.edu

2012 Silage Day Sponsors:

Questions? Please contact **Jennifer Heguy, UCCE Dairy Farm Advisor** @ (209) 525-6800 or jmheguy@ucdavis.edu

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California Dairy Newsletter

August 2012

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