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Agriculture and Natural Resources

California Dairy Newsletter

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REISSUANCE OF WASTE DISCHARGE REQUIREMENTS GENERAL ORDER FOR EXISTING MILK COW DAIRIES (REISSUED DAIRY GENERAL ORDER)

Summarized by Deanne Meyer, UCCE Specialist

The General Order for Existing Milk Cow Dairies was reissued at the October 3rd Board Meeting for the Central Valley Regional Water Quality Control Board. This resulted from litigation between *Asociación de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board.* The revisions include modifications to the Waste Discharge Requirements (WDRs), the Revised Monitoring and Report Program, the Information Sheet, and readjustments made to attachments C, D, and E to reflect the modifications of the WDRs.

From a producer's perspective the monitoring and reporting requirements for soil, water, plant tissue, solid and liquid manure remain in place. Also, the record keeping required to track all nutrients onto fields and off of fields remain in place. What's new is the inclusion of the representative and individual groundwater monitoring programs as the primary tool to identify (1) if manure management practices are protective of groundwater quality and (2) identify additional or more effective practices when and where necessary. This Order includes time schedules for compliance for dairy operators to implement improvements if groundwater data indicate that certain types of facilities/practices are not protective of groundwater quality. This is a very aggressive schedule.

You will receive notification from the Regional Board about the reissuance of the WDR General Order. It's available online at: http://www.waterboards.ca.gov/centralvalley/water_issues/dairies/dairy_program_regs_requirements/index.shtml

What's the bottom line about the reissued Order? (**1) Be sure you're doing all your sampling.** Follow your sampling and analysis plan and quantify how much and the nutrient content of everything that is applied to each and removed from each field. **REMEMBER** to **soil sample 20% of your fields in 2013** on which you apply solid or liquid manure. The first samples were taken in 2008 and you're required to sample every 5 years. Modifications were made to allow producers to sample 20% of their fields each year**. (2) Be compliant with the rest of the Monitoring and Reporting Program** (MRP). Do the facility observations and keep records on the facility, on the pond (remember to take those photos), and on anything related to offsite discharge. The MRP requires a pond depth marker. This should mark the capacity needed for a 25-yr, 24 hr. storm event. (**3) Pay attention to the results of the Central Valley Dairy Representative Monitoring Program** (CVDRMP). The findings from the CVDRMP will set the stage for future modifications to the General Order. You will want to review your nutrient budget to be sure it represents your management practices. Keep in mind, Regional Board staff intend to inspect dairies once every three years.

MEET THE NEW ADVISOR – ALEX SOUZA, TULARE AND KERN COUNTIES

UC Cooperative Extension is pleased to announce the appointment of Dr. Alex Souza as Dairy Farm Advisor for Tulare and Kern Counties. Prior to joining UCCE, Souza served as manager of reproduction in cattle for Ceva Animal Health Headquarters in Libourne, France, providing global technical support in dairy cattle reproduction and management. In the US, he was a dairy reproduction specialist, leading the ReproConnections support service on behalf of Accelerated Genetics and World Wide Sires, a worldwide program designed to improve reproductive performance in dairy herds.

Souza earned a M.S. in Dairy Science from University of Wisconsin; a Ph.D. in Physiology of Reproduction in a joint program with the University of Sao Paulo, Brazil and University of Wisconsin, and completed a Post-Doc on Dairy Nutrition and Reproduction with University of Wisconsin. Souza also has a DVM from Sao Paulo State University, Brazil. While working on these degrees, Souza carried out work related to herd health, fresh cow management, synchronization programs, ultrasound and breeding techniques, nutrition, embryo transfer and *in vitro* fertilization in commercial beef and dairy farms in Brazil and the US.

SILAGE MANAGEMENT REMINDERS FOR FEEDERS

Noelia Silva-del-Río, UCCE Dairy Specialist, & Jennifer Heguy, UCCE Stanislaus and San Joaquin

Good management practices during the feeding process will help to minimize spoilage when forage is exposed to air. In the presence of oxygen, yeast can metabolize lactic acid, causing silage pH to increase. When pH increases, undesirable fungi and bacteria are able to grow and further spoil the silage. This spoilage translates into dry matter (DM) losses that can be as high as 10% in poorly managed silages, as well as reduction in forage quality, and palatability.

Once ensiled and fermented, the silage's quality is set – good feeding management practices can't improve silage quality, but they can help to reduce further feed deterioration. Here are a few reminders for the feedout phase:

1. Remove enough forage from the face. Twelve inches in depth is recommended in the cooler months, with 18 inches being the recommendation in warmer months.
2. Remove the forage carefully so the face is smooth and the surface exposed to oxygen is minimized.
3. Pull the plastic cover back two to three times per week. Check the integrity of the plastic cover throughout the year and patch any holes or tears so that air cannot infiltrate the silage mass.
4. Remove silage as needed throughout the day so it is incorporated into the ration shortly after removal.
5. Push feed up frequently, especially during the warm months, to avoid heating of the TMR in the feedbunk and to stimulate appetite.

Figure 1. Silage bag ripped at the time of ensiling. Check plastic of piles and bags at the time of ensiling and throughout feedout – repair rips and holes as necessary.

NEONATAL CALF DIARRHEA- PART 2

(Part 1 can be found in the August edition of the California Dairy Newsletter)

Patricia C. Blanchard, DVM, PhD, Associate Director California Animal Health and Food Safety Laboratory

Table 1 represents the frequency of various organisms and the age reported in calves submitted for necropsy at Tulare laboratory over 4 years. An important aspect of breaking the cycle of disease is to identify key factors where intervention could prevent future cases. If affected calves are usually born in the evenings this might signal a delay before they receive colostrum or are moved to a clean, dry area which reduces their exposure to organisms. If affected calves are usually the offspring of first calf heifers that only receive dam's colostrum, this could indicate the heifers are not receiving the same dry cow vaccines (rotavirus, coronavirus and K99 *E. coli*) as the older cows. In general, colostrum of first calf heifers may have less variety or lower amounts of antibodies than older cow colostrum due to lower exposure to organisms. If transport devices (carts, trucks) used to move newborn calves to hutches are also used to remove dead calves this exposes newborn calf to high levels of organisms that killed other calves. The source of milk, treatment (pasteurized or not), and type (replacer, whole, etc.) may be factors contributing to diarrhea and were discussed in the previous article.

The optimal calf or fecal sample to submit for testing is from a calf that has had diarrhea for 1-3 days and has not been treated with antibiotics as antibiotics can suppress the ability to grow *Salmonella* in culture. A response in diarrhea calves to antibiotic treatment would support the presence of a bacterial agent. However, bacterial overgrowth due to undigested feed in the intestine may show some response to antibiotics even though the primary cause of diarrhea is damage from a virus (coronavirus, rotavirus) or cryptosporidia which do not respond to antibiotics. Antibiotic treatment failure does not rule out bacterial causes as the organism may be resistant to the antibiotic or the antibiotic may not be in high enough levels to kill bacteria in the intestine. Use of antibiotics on non-bacterial diarrheas (rotavirus, coronavirus or cryptosporidia) may worsen the diarrhea by suppressing the normal bacterial flora which allows yeast, *Salmonella* and attaching and effacing *E. coli* to overgrow.

Diagnosing the cause(s) of diarrhea in calves can assist in implementing an effective prevention and treatment program by providing information on what organisms are present so optimal vaccination, management and therapeutic strategies can be implemented. Examination of management factors on the farm can identify weaknesses in calf management particularly when an outbreak of diarrhea occurs.

Table 1: CAHFS –Tulare (2008-2011) data from 2,311necropsied calves less than 35-days old with diarrhea.

Pathogen	Positive (%)	Mean Age (days)	Age Range (days)
Cryptosporidium sp	**37.2**	**13.0**	**3-33**
Coronavirus	**30.5**	**10.4**	**1-30**
Rotavirus	**26.6**	**10.5**	**1-32**
Salmonella spp:	**15.7**	**--**	**--**
Group D1 (*S dublin*)	**5.8**	**17.1**	**2-30**
Group C2 (*S newport*)	**4.2**	**8.7**	**1-30**
Group B (*S typhimurium*)	**2.7**	**8.1**	**1-30**
Others	**3.0**	**12.6**	**2-21**
Attaching and effacing *E coli*	**10.5**	**12.0**	**1-31**
K99 E *coli*	**4.5**	**2.3**	**1-7**
Bovine viral diarrhea virus	**1.3**	**16.1**	**2-30**

SUSTAINABILITY OF THE US DAIRY INDUSTRY

Alejandro R. Castillo, UCCE Merced

The US dairy industry has realized tremendous improvements in efficiency and milk production in the last 50 years. The American Dairy Science Association has invited a group of ten researchers from different universities to analyze the evolution and the sustainability of the US dairy industry. This work has recently been published in the Journal of Dairy Science(1).

The authors first defined sustainability as a framework for the paper discussion, including environment, economy, and social values as the three pillars of sustainability. Then, they analyzed the evolution of the US dairy industry from 1940 to today. Advances in genetics, nutrition, and herd management have resulted in more than a four-fold increase in milk yield and an associated reduction in numbers of both farms and cows. In 1940, there were approximately 21 million cows on almost 4.7 million dairy farms in the United States, but by 1980, farm and cow numbers decreased 93% and 48%, respectively, to 334,180 farms with just under 11 million cows. Farm numbers decreased to approximately 53,000 licensed dairies in 2012 and cow numbers have decreased a further 16%. Milk yield averaged 5,194 lb./cow in 1950 compared with 21,340 lb./cow in 2011. As a result of this evolution, today's dairy industry produces 59% more milk with 64% fewer cows, consuming 77% less feed and 65% less water per CWT of milk produced compared with dairy production in 1944.

Some of the main conclusions and final thoughts were the following: the paper identified and presented several major factors affecting the future sustainability of the US dairy industry, including climate change, rapid scientific and technological innovation and advances, globalization, failure to integrate societal values, and lack of multidisciplinary research initiatives. They also argued that sustainability is more than economic profitability; it relates to environmental and societal concerns, including the quality of life of workers and the animals on dairy farms. Public input regarding the acceptability of practices, including new technologies, is required. Sustained engagement between and among producers, various sectors of the industry (e.g., processors and producers), consumers, and citizens will be essential to recognize and implement more sustainable practices. Authors recognize that this will require a major paradigm shift on the part of the US dairy industry to collaboratively develop a path to ensure the long-term sustainability of the industry. The paper analyzes the actual funding sources for dairy research and strongly encourages more public funding sources (including by the USDA), and the dairy industry at large, to begin funding the research (including that which falls into the domain of social science) that will be required to support improved sustainable practices in the years to come. In respect to the consumers' attitude, the article concludes that the dairy industry must be prepared to make changes to accommodate public expectations. This approach will benefit the longer-term sustainability of the industry by helping to ensure that consumers (and citizens) have confidence in dairy production methods and that the practices of dairy farmers fit well within the values of our broader society.

(1) For more details please go to: von Keyserlingk et al., 2013, Sustainability of the dairy industry. Journal of Dairy Science. 96:1-21

UPCOMING MEETINGS

2013 WESTERN ALFALFA AND FORAGE SYMPOSIUM

December 12 & 13
Peppermill Hotel Casino ~ Reno, NV
For more information: http://ucanr.edu/sites/Alfalfa/

Sessions Include:

- Economics and Industry Trends
- Water and Environment Issues
- Mini-Symposium: Corn, Sorghum and the Art of Silage Making
- Pest Management in Alfalfa
- Production of Miscellaneous Forages
- Producing a Quality Hay Product
- Diagnosing and Improving Alfalfa Production

DAIRY HEAT STRESS ROAD SHOW

April 4, 2014
University of California Veterinary Medicine Teaching and Research Center
18830 Rd. 112, Tulare, CA

Meeting Topics:

- Managing Heat Stress in California Dairies
  - Dr. Noelia Silva-del-Río and Dr. Alex Souza, University of California
- Nutritional Additives and Facility Modifications to Reduce Heat Stress
  - Dr. Robert Collier, University of Arizona
- Tools and Technologies to Assess Heat Stress on Commercial Dairies
  - Dr. Todd Bilby, Merck Animal Health
- Should We Cool Dry Cows?
  - Dr. Geoffrey Dahl, University of Florida
- Current and Future Opportunities to Reduce the Impact of Heat Stress
  - Dr. Pete Hansen, University of Florida

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