

DAIRY VETERINARY NEWSLETTER

September 2018

From the AABP Meeting - Automated Calf Milk Feeding and Cow Milking

During my last couple of years in veterinary school at Ohio State, and in the first years after I graduated, a major change took place in the way that many pre-weaned dairy calves were raised, during approximately the first 2 months of life. Calf hutches were something new, and by nearly all accounts, an improvement. Compared with “calf castles”, buildings that were often built to house something like 20 or so calves on grates or slats through which the old bedding would fall as new bedding was added, traditional calf stalls in barns, converted older buildings, etc. the ventilation and prevention of calf to calf transmission of disease were markedly improved in hutches.

During the late 1990’s and early 2000’s, greenhouse calf (and sometimes cow) housing of many different designs became popular. There were also buildings where hutches were each half in and half out of holes in the side of the building, with each calf’s “front yard” facing into the building, sometimes bedded on pea gravel. The idea was that the calves received good natural ventilation through the side holes around each hutch, but the humans were out of bad weather and had storage of supplies indoors and nearby. These changes reflected larger herd sizes, correspondingly large numbers of hutches, and weather conditions affecting people taking care of the calves. The issue of milk or milk replacer becoming too cold or too hot during feeding times was also emerging. Nevertheless, calf raising buildings, hutches stuck through holes in a building, and greenhouse calf housing certainly seemed to be in decline in the Northeast before I moved to Utah in 2006, and I do not see these types of housing here. Hutches predominate.

A good review of the history of dairy calf housing and currently used types of housing is, “Dairy Calf Housing and Environment: The Science Behind Housing and On-Farm Assessments” by Washington State University Extension. It cites USDA data from 2010 that 75% of calf housing types were hutches. What is not clear is whether this was percentage of farms (I suspect that it was) or percentage of calves. It is likely that the percentage of the calves raised in hutches was even higher, with the farms using hutches being larger than for example the 12% listed as tiestall or stanchion housing for pre-weaned calves. I was surprised that there are not as many refereed publications comparing types of calf housing to hutches as one might think. (One of the first publications on calf hutches was by C. Arave et al. in J Dairy Sci, April 1985, from Utah State University.) Studies have shown mixed results, but many show reduced disease, especially respiratory disease, in individually housed calves. It has also been stated that control of outbreaks of respiratory disease or diarrhea seems to be facilitated by individual housing compared to group housing; this is logical and I think most veterinarians would agree with this observation. An increase in calf starter feed consumption, average daily gain, and milk production as an adult cow has also been found with hutches. When I was in New York, we evaluated many calf raising practices in association with mycoplasma in adult cows. Dimly lit, poorly ventilated indoor calf housing near the adult cow herd, especially if steam was visible during cold weather were risk factors for lactating cow mycoplasma mastitis and visible signs of calf mycoplasma (head tilt, droopy ear, respiratory disease, arthritis). This is probably not a surprise, making biological sense. However, the time of individual calf hutches and individually bottle or bucket fed calves may be coming to an end. Introduced 20 years ago, automated group calf milk feeding is beginning to be more widely adopted. Veterinarians will certainly be involved in this aspect of calf health.

At the recent American Association of Bovine Practitioners conference, Marcia Endres gave an excellent review based on her considerable experience with, and polling of dairy producers regarding, automated calf milk feeders and robotic milking. She is at the University of Minnesota, and stated that not all presented was from controlled studies; much of the information is from experience including hers and that of producers and their veterinarians and equipment dealers:

Automated calf milk feeding systems

- Most dairy producers polled said that within the next 20 years we will have no calf hutches or individual bottle or bucket feeding of calf milk because of labor and large numbers of calves per farm.
- The brands of automatic calf milk feeder that she mentioned were Forster-Technik, Holm and Laue, and Urban (Calf Mom®). As with Dr. Endres' talk, this newsletter does not endorse any brand over another.
- Forster-Technik is sold and distributed in the U.S. by DeLaval, GEA, and Lely.
- Milk replacer mixing and cleaning of the machines is essential. (Several YouTube videos of the various milk feeders show milk replacer powder and water being mixed freshly for each calf; at least one manufacturer claims that they have the only brand that completely cleans all hoses between calves).
- The largest number of calves in a group should be 25.
- There should be at least 45 square feet per calf, approximately 7 feet by 7 feet, in each pen.
- Post-pasteurized calf milk should be refrigerated (this agrees with a study we did in 2012 in Utah and Colorado regarding handling of calf milk after pasteurization).
- Standard plate count (SPC) of bacteria greater than 100,000 cfu/ml in calf milk was associated with increased disease, including 81% higher proportion of calves with fever compared with calves fed milk below that level.
- Median SPC with calf feeder milk was 21,000 cfu/ml (the highest numbers of SPC were in trillions).
- Calf milk drinking speed is an important indicator of calf health; slowing down is an early indicator of a sick calf (she did not mention specific rates, and while this parameter is nearly always mentioned in websites about automated feeders, I did not find anything regarding specific numbers or automatic alerts regarding slow drinking by a calf). Those of us who have taken care of calves certainly recognize slower emptying of their milk from a bucket as an early disease sign.

Some new information regarding automated (robotic) milking systems

We covered many aspects of robotic milking in the July 2017 and May 2018 editions of this newsletter. A few more insights from Dr. Endres at the recent AABP conference:

- Pre-fresh heifer robot training boxes, which producers can make themselves or are sold commercially, not only facilitate first calf cows learning to enter milking robots and be milked, but also are associated with 7 pounds of increased milk production per cow per day.
- Sorting gates on entry to or exit from the robotic milking stalls are recommended for diverting cows to treatment pens or other areas.
- One of the best returns on investment as part of automated milking systems is the feed push-up robot that pushes feed up throughout the day and night if desired. They are associated with 10% more milk per cow per day compared to cows fed without them.

Acoustic Pulse Therapy for Bovine Mastitis - Update

In our previous issue, July 2018, I reported on a presentation at the American Dairy Science Association meeting on acoustic pulse therapy (APT), a non-antibiotic treatment for dairy cow mastitis. I did not know when or if they might release a commercial product in the U.S., but I mentioned that they had a patent here. As it happened, there has been a recent release of information about an APT device in the U.S. by Armenta Ltd., from the same group that presented at ADSA. This newsletter as always does not endorse any specific products or brands; I just want to make our readers aware that this new product is either available or seemingly will be soon. Their website includes the statements, “The FDA does not require submission of a 510(k), PMA, or any pre-market approval for devices used in veterinary medicine.” and also says that APT “offers - - udder protection during the dry period”; the latter claim surprises me. Evidence for the claims, which I know this group has published on somewhat, details regarding whether it is actually available now, will be sold/distributed only through veterinarians, or directly sold to producers, etc. are not clear from the information I can find at this time.

More Milk Processors Going out of Business, Producers Suddenly Losing Their Milk Market

A disturbing phenomenon that has not been commonplace in my time in the dairy industry is happening, and seems to be occurring at an increasing rate. An established - often in business for 80 years or more - milk processor ceases operation, and producers selling their milk to the business are suddenly without a milk market. This is certainly a concern to veterinarians who count these farm operations as clients and friends. There were several stories reporting on this during spring 2018, affecting all regions of the country including here in the West. One account, by W. Bechtel in Dairy Herd Management May 29, 2018, reported, “Three dairy plants located in different states announced plans to stop processing milk - - . Milk processors in Erie, Penn., Lynn, Mass. and Portland, Ore. all announced in mid-May that operations at their plants would cease.” J. Cowdell, an executive director of a bank in Lynn, is quoted, “This came out of the blue - - We had no notice and we were told today this is not a Lynn problem, rather it’s the result as a nationwide decrease in milk consumption.” The story describes another plant closing that affected “producers in Pennsylvania, Indiana, Kentucky, Tennessee, North Carolina and Ohio”. A related story by A. Laca in Farm Journal’s MILK, March 6, 2018, states, “Upwards of 80 producers who are patrons of Dean Foods are in search of a new home for their milk come June 1. Dairy Farmers of America, the largest dairy cooperative in the U.S., says they will not be able to rescue those producers.” M. Massey, senior vice president and chief of staff at DFA, is quoted, “We are sympathetic to the farmers who have been impacted by this decision and realize it has created a tough situation for them - - We currently face difficult marketing environments, particularly in areas of the Northeast and Mideast, and unfortunately, don’t have a market for their milk at this time.”

Many internet stories directed toward dairy farmers say that unless dairy producers operate a “huge corporate farm” they are “squeezed out and should sell out as fast as you can”. Dairy farmers are now starting GoFundMe campaigns to save their farms, with more than 2,500 producers using the website according to a story published 9/20/18 by R. Barrett in the Milwaukee Journal Sentinel. Related to this phenomenon, something I have written about several times for more than 10 years is now coming to pass. More consumers are not spending the additional money to buy organic milk and dairy products, or are turning to substitutes such as soy “milk” and rice “milk”. The organic industry has long been the source of some of the most critical advertising against conventional milk production, implying that it produces “drug laced” and “unhealthy” food. Many consumers who no longer buy organic dairy products are also staying away from conventional dairy products, having been told for years that these are bad for their health and that of their families. 55% of people in a recent survey believe that conventional dairy foods are unhealthy. This is contributing to the decline in fluid milk (and overall) per capita dairy consumption in the U.S., which has fallen 27% since 1970 and 15% since 1990. There is still a large number of websites touting continued growth of the organic milk market, including at the present and projecting for the next 5 years. It is not always easy to tell, but some of these are clearly sites that promote the organic market; certainly these sites showing current growth of sales do not reflect current reality of organic milk sales.

A summary by H. Haddon et al. in Business, January 3, 2018, states, “Grocery stores that rushed to stock organic milk have eased purchases and allotted more dairy-case space to plant-based alternatives. Dairy cooperatives are

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slashing prices paid to farmers, setting quotas and even selling organic milk as conventional dairy. - - Dairy industry executives say their forecasts were off for organic-milk demand continuing at the initial pace, but also blamed almond, coconut and other plant-based milks - - 'The premium dairy business continues to be pressured by the industry's oversupply of organic milk,' Danone CFO Cécile Cabanis said this fall. 'We continue to take steps to reduce our organic-milk supplies.' - - The national herd of cows raised to produce organic milk rose to more than 267,500 in 2016, more than a third higher than in 2011, according to the USDA. The honeymoon ended in 2017."

The article also mentions the current ongoing effort to have federal requirements changed so that the only way any product can be labeled as "milk" is if it comes from the mammary secretion of a lactating mammal. This is quite straightforward, but it should be no surprise that the plant based "milk" industries are lobbying against this change. (In some areas of the country, most dairy producers are also large almond growers, planting more trees in recent years. Their opinions on this would be interesting to hear.) Currently 46% of adults surveyed agree that milk is only from a lactating mammal, a plurality over those who disagree but clearly not a majority. Veterinarians should contact the FDA to let them know their opinion. However, you will not be surprised to know that this is one of the surest ways to enter a black hole in terms of communication. As I have related in the past, reaching a person at FDA is only slightly more difficult than contacting Bigfoot. You can start with FDA CVM (240) 402 - 7002 (you will reach voice mail) or AskCVM@fda.hhs.gov. The reply as always includes no one's name or email, and says allow a minimum of 10 business days. My past experience suggests that you multiply that by 6, but please begin the contact.

Please let us know your comments and suggestions for future topics. I can be reached at (435) 760-3731 (Cell), or David.Wilson@usu.edu.



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