Dead Cows Don't Eat

Dairy Transfaunation, "A New Paradigm for the Progressive Dairy Practitioner"

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One lesson that I am reminded of on a regular basis in my daily travels as a dairy practitioner is that "dead cows don't eat." This statement may be viewed by some as rhetorical in nature, but it is a powerful statement about the need for adequate fuel to sustain life for the modern dairy cow. Dairy cattle depend on a diverse group of "bugs" to extract nutrients from feed to be used as fuel to maintain life. This mutually beneficial relationship between the rumen bugs and their host allows both of them to survive. As feed is consumed, the rumen bugs experience cycles of life and death. Even in death these rumen bugs contribute important sources of protein that are absorbed in the small intestine. This delicate balance is preserved by the ability of the animal to regulate pH, temperature, and oxygen concentration within the rumen and associated organs of the gastrointestinal tract. When this balance is disrupted and the cow becomes ill, our efforts are primarily directed at providing substitutes for the functions of the healthy rumen.

Instead of substituting, we have the opportunity to provide the perfect solution for what ails the rumen- its own healthy contents. This process, known as transfaunation, involves removal of rumen fluid from a healthy cow and placement of that fluid into the rumen of the sick cow with a drench tube. Up until now, this process has been very cumbersome, difficult, inefficient and labor intensive for both the person extracting the rumen contents and the donor cow. Typical standard operating procedures to accomplish this task involve removal of all ruminal contents and processing them with industrial mop buckets, or metal grids, to separate the rumen juice from the feed particles. After performing the transfaunation task, the person that had to remove the rumen contents was subjected to days of rumen-associated stink on hands, arms, nose and face. Meanwhile, the rumen environment of the donor was destroyed, including fermentation activity, due to temperature, oxygen concentration and pH disruption. Normal function of the rumen also relies on layering, including a fiber mat, gas cap and liquid phase, with each layer providing its own important functions. Removal of ruminal contents to harvest rumen juice disrupts stratification in the donor rumen, leaving the donor with the potential for abnormal rumen health.

Veterinary practitioners and their clients now have the ability to provide the filtered and processed contents of the healthy rumen to any cow with an abnormal rumen environment. The Rumen-Mate[1] extraction and delivery system makes the process easy, safe and hassle-free, while causing minimal disruption to the donor cow. This device consists of a specially designed probe unit that is placed into the rumen of the donor cow via a rumen cannula/fistula site. This extraction unit filters the rumen contents and allows the rumen fluid to be removed from all layers of the rumen at the same time without disruption of these layers in the donor cow. The extraction unit is connected via an easy-to-use hose to a pumping system that allows for collection of rumen fluid. Then, with a turn of two valves, the same pumping system can be used to drench the sick cow with the healthy rumen fluid. This gives the unhealthy rumen environment a source of rumen bugs for recolonization, provides needed nutrients, and helps stimulate the appetite of the sick cow. This unique system offers a solution to what was once the cumbersome and messy transfaunation process.

Impacts of transfaunation on sick cows are supported in veterinary literature. One study concluded that "benefits of rumen transfaunation of cows after surgical correction of LDA included a lesser degree of ketonuria, greater feed intake, and higher milk yield, compared with nontransfaunated cows"[2]. In the trial, experimental surgical patients were given three gallons of rumen fluid immediately after displaced abomasums (DA) surgery and then again twenty four hours later, while the other half of the cows were given three gallons of warm tap water at the same intervals after surgery. Both groups were monitored for five days after surgery for milk production and feed intake. Differences between the two groups were dramatic. The average cow that was given the rumen juice produced 40 pounds more milk and consumed 130 pounds more dry matter than the average control cow over the five days.

Another important factor for controlling voluntary feed and water intakes was figured out in another experiment[3]. They found that movement of fluid from the blood to the rumen, across the rumen wall, is an important factor for controlling dehydration. Basic design of this study was to make the cow dehydrated, then put a very concentrated substance into the rumen and allow them free-choice access to feed. They discovered that an increase in rumen fluid concentration actually decreases voluntary feed intake in cows that are dehydrated. This scenario is repeated every day on dairies where incorrect drench formulas are utilized. We take a dehydrated ill animal that already has reduced feed intake and pump a very concentrated product into the rumen. This causes the cow to further reduce her feed intake and sends her closer to the dead truck or dead pile. If we use rumen fluid, we can match the

exact concentration of the normal rumen and give the sick cow the signals that she needs in order to start eating once again[3]

Veterinary practitioners and their clients have a wonderful opportunity to embrace current science and provide sick animals on a modern dairy with the perfect solution to an ailing rumen. Old methods of transfaunation are difficult on the dairy employees and the donor cows. Rumen-Mate[1] provides a great new tool to have a significant positive impact on rumen health and decrease removals on the modern dairy farm.

References

[1]www.drenchmate.com/product/ viewed June 2012

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[3] M.S. Burgos, W. Langhans, M. Senn. 2000. Role of rumen fluid hypertonicity in the dehydration-induced hypophagia of cows. Physiology & Behavior, 71: 423-430