



Get calves off to a good start

Milk feeding and wet calf housing have remained at the research forefront.

by A.F. Kertz

THERE was record attendance at the 2013 joint annual meeting of the Animal and Dairy Science societies in Indianapolis in July. Four abstracts from posters, orals or other presentations related to calf care have been selected to briefly review.



KERTZ

The author is the principal in ANDHIL, LLC, a St. Louis-based consulting firm.

Heat pasteurization still best

Over the last several years, ultraviolet (UV) light has been offered as an alternative to heating to inactivate bacteria in milk. There has been limited data on its efficacy. In this study, waste milk samples from nine Pennsylvania herds were collected twice daily for 15 days both before and after UV light treatment. There were 60 samples taken per farm.

All samples were analyzed for standard plate count, coliforms, noncoliform gram-negative bacteria (NC), environmental and contagious streptococci, coagulase-negative staphylococci (CNS) and *Staphylococcus aureus* count.

UV light treatment significantly reduced all types of bacteria. Percentage log reductions were: 23 percent for standard plate count, 61 percent for coliforms, 42 percent for noncoliform gram-negative bacteria, 56 percent for environmental streptococci, 93 percent for contagious streptococci, 38 percent for coagulase-negative staphylococci and 21 percent for *Staphylococcus aureus*. After UV treatment, 74 percent of samples had standard plate counts less than 10,000 cfu/mL and 47 percent of samples had a coliform count less than 10 cfu/mL.

For comparison, heat pasteurization target

recommendations have been suggested as log reductions of 50 percent. Other recommendations have been for a maximum count of 10,000 cfu/mL for the standard plate count. For three of the seven bacteria types, UV reduction of 50 percent was realized, and 43 percent of 116 samples had bacteria levels within suggested limits.

Take-home message: While reductions in various bacteria categories were achieved with UV light treatment, these reductions were not great enough to result in this method being a suitable alternative to heat pasteurization.

Contact: Jud Heinrichs, Pennsylvania State University. Phone: 814-863-3916; email: ajh@psu.edu

Does bedding impact welfare?

Generally, sand is recommended for bedding during summer because it is cooler and does not draw flies. Straw, which is often recommended for its insulation value during colder winter months, tends to attract flies.

In this study, 28 Jersey calves were used from birth through 8 weeks of age to study the effects of different types of bedding. The three bedding types chosen were gravel, sand or rubber mats. Lying time was not affected by bedding treatment. Calves on rubber mats had more daily lying bouts (12.1) than on sand (9.0) or gravel (9.8). Body weight gain was not influenced by bedding treatment. There were no biologically significant differences in calf behavior or performance.

Take-home message: Any of these beddings used may be suitable without compromising welfare of preweaned Jersey calves as long as the overall management of the dairy is good.

Contact: Peter D. Krawczel, University of Tennessee. Phone: 865-974-8941; email: pkrawcze@utk.edu

Covers reduce hutch heating

Alleviating heat stress at the minimum requires shade, but the type and location of

WHEN IT COMES TO PASTEURIZATION, using heat to inactivate bacteria is still best. Log reductions in bacteria counts should be over 50 percent. UV treatment sometimes missed this mark.

the cover is very important. This study was conducted at two dairies in central Texas. The cover was a single layer of two-sided reflective aluminized polyester film with reflectivity of 95 percent.

Six hutches at each dairy had no cover or had the cover over the top and sides of the hutch, leaving the front, back and pen exposed.

The average maximum daily temperature inside the uncovered hutches over the 21 days was 107°F, while the covered hutches were 7.5°F cooler. During the hottest 10 days, peak daily temperatures inside the uncovered hutches averaged 113°F, while the covered hutches were 8.5°F lower. Average interior ceiling temperature during early afternoon was 110°F in uncovered hutches and 16.7°F lower for covered hutches. The highest interior temperature during the sampling period was 123°F for the uncovered hutch versus 110°F for the covered hutches. It is important that the covers not delaminate, resist wind and be cost effective.

Take-home message: A reflective cover that can be simply installed is effective in lowering inside hutch temperature. If they are available at a reasonable cost, the covers have real value for lowering ambient temperature inside hutches.

Contact: Ted H. Friend, Texas A&M University. Phone: 979-845-5265; email: t-friend@tamu.edu

Colostrum goes beyond IgG

When we think of colostrum, we naturally gravitate to the immunoglobulins. But there are many other bioactive components in colostrum which come along with that first colostrum feeding. These may have been overshadowed by near sole focus on the IgG dimension. These other bioactive factors help maturation and function of the gastrointestinal tract, enhance absorptive capacity, and raise glucose absorption and glycogen levels in the liver.

Improved productivity of calves via growth, feed intake, feed efficiency and long-term effects have been observed when they are fed higher levels of colostrum, independent of the immunoglobulin status of the calf. This response appears to be additive with the level of milk replacer fed.

In a recent Cornell study, calves were fed 4 or 2 liters of colostrum at birth. The 4 liter group received an additional 2 liters within 12 hours. Calves fed greater amounts of colostrum consumed 8.5 percent more milk replacer, had an 18 percent boost in preweaning daily gain, a 12 percent increase in postweaning feed intake and a 25 percent hike in postweaning daily gain through 80 days of life. This indicated that colostrum potentially affects appetite regulation which enhances growth and possibly feed efficiency.

Take-home message: Overall, colostrum is an important vehicle of communication between mother and offspring, through lactocrine signals that enhance developmental functions of the calf beyond its immune system.

Contact: Michael E. Van Amburgh, Cornell University. Phone: 607-254-4910, email: mev1@cornell.edu 🐄