

CALVING EASE

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HEALTHY CALVES

We all like healthy calves. They eat well. They bounce around like a rubber ball. They look great. They are evidence that we are doing a good job.

In recently reported research, dairy scientists at the University of Tennessee used 90 Jersey calves to look at the question of why all calves don't stay healthy. The calves were weighed, watched and otherwise observed closely for their first 35 days of life. They were all born between August and October. The reports only mention one case of pneumonia - that was fatal. But, lots of scouring was observed - five cases were fatal.

Before you get discouraged waiting for the "bottom line," the research showed that the healthiest calves got lots of colostrum early (around 4 hours old) and were housed in clean hutches. But, now for the rest of the story.

What about colostrum feeding? One group of calves received a bottle of colostrum as soon as they would drink after birth and another bottle 12 hours later. (A bottle was 2 liters or about 2 quarts.) The other group of calves got all the colostrum they would drink! How? They nursed the dam. Under what conditions? First, the dams were all housed in individual calving pens bedded with straw. They were supervised 24 hours a day. Each calf was observed at birth. One-half of the calves were fed fresh colostrum milked from their dams. One-half of the calves were allowed to nurse. If a calf was supposed to nurse but had not done so by 4 hours after birth, she received assistance. This assistance made certain she received all the colostrum she would drink soon after birth.

What were the results? Calves that nursed (basically, they got unlimited amounts of colostrum even if they had to be assisted for the first day or so) had nearly 60 percent more immunoglobulin in their blood at 1 day of age than those fed only one bottle of colostrum at birth. (Immunoglobulin = serumIgG) (Nursed calves = 38g/L, limited colostrum calves = 24g/L). Moral of the story? More is better, earlier is better.

Why better? If the calves are housed in an environment that exposes them to many bacteria, parasites and viruses, the passive immunity delays the start of scouring and reduces the number of days with scours. If their environment is unusually clean (like the clean hutches on an area not previously exposed to calves), this research found no difference between 2 bottles of colostrum and unlimited nursing. Sam and Pam do not have "unusually clean" housing so they feel lots of colostrum soon after birth.

What about *Cryptosporidia*? Well, the research plan had a "poop" patrol to sample feces on a regular basis. "Crypto" was in the feces of 96 percent of the calves. But, this was concentrated in just the first four weeks of life with most of it during the second week. The calves that nursed shed crypto earliest (probably picked it up from the dam). One-half of the calves were housed in a calf barn in individual pens. The barn had housed calves before. These calves had the highest rate of Crypto during the second week of life and much greater shedding rates than hutch-calves during the third week.

Moral of the story? First, if we can get the calves through the first four weeks we can quit worrying about crypto. Second, it's nearly impossible to achieve zero exposure to crypto - 96 percent of these calves shed some crypto oocysts. Third, they achieved lower exposure levels with hutches than with a calf barn in spite of efforts to "get things clean."

Who wouldn't know that? It's as plain as the nose on your face! Calves that scour a lot don't gain as much as ones that are scour free. We didn't need more research to tell us that. On one hand, for the first three weeks of age the differences in weight gains among calves in this study were not large enough for any of us to bother with. On the other hand, when did unlimited colostrum feeding and clean environment pay off in this study? It wasn't until the calves were past the crypto challenge (about three weeks) that significant differences emerged. Then, the calves that started with lots of colostrum and were housed in the cleaner environment started outgaining the others. (Twenty-six percent higher daily gain overall in first 35 days.) They also had a higher feed efficiency (22 percent) as measured by weight gain per unit of dry matter eaten.

What's the REAL bottom line? Simple basics pay off. Lots of the best quality colostrum as early as you can manage. As clean an environment as you can provide. Scours start later and last fewer days. Fewer cases of secondary infections. Increased feed efficiency. Higher weight gains.

Source: J.D. Quigley, et al. "Effects of Housing and Colostrum Feeding on Serum Immunoglobulins, Growth and Fecal Scores of Jersey Calves," *Journal of Dairy Science* 78:893-901 and J.D. Quigley, et al. "Effects of Housing and Colostrum Feeding on the Prevalence of Selected Infectious Organisms in Feces of Jersey Calves," *Journal of Dairy Science* 77:3124-3131.

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