



Neck Rail Position in Free Stalls

This study tested the effect of neck-rail position on stall usage and udder and stall cleanliness. Five neck rail positions (51, 57, 63, 69, and 75 in. from the rear curb, at a constant height of 49 in. above the bedded surface) were tested. When the neck rail was positioned further from the rear curb, cows spent less time standing with their front 2 hooves in the stall and more time with all 4 hooves in the stall. The effect was more marked for smaller cows, perhaps because the standing behavior of larger cows was restricted even at the 75 in. treatment. Cows using the larger stalls tended to defecate and urinate more in the stall and had dirtier udders and these stalls required more cleaning time. In summary, positioning the neck rail further from the curb increased the time cows spent standing fully in the stall. This change in standing behavior is likely beneficial for hoof health, but required more frequent stall cleaning. Unfortunately this study did not measure changes in lying behavior due to neck rail position.

-Fregonesi et al. 2009. *J. Dairy Sci.* 92:1979.

Using Partial Budgeting to Evaluate Changes to Dairy Farms

Partial budgeting can be a very powerful tool for evaluating the impact of changes on any given dairy farm. Partial budgeting is based on the principal that small changes will either: increase income, decrease expenses, decrease income, or increase expenses. It assumes that other factors on the operation are not impacted by the proposed change.

To produce an example, let's evaluate a new feed additive. This additive is fed at 1 ounce per day and research shows that it increases milk production efficiency by 2% (so a 2% increase in FCM with no change in feed intake). We also know that the feed additive cost is \$1/lb to get to the farm so it costs \$0.063 per cow to feed. If average milk yield is 80 lb the 2% increase is 1.6 lb of milk. With milk mailbox price at \$12.75 this would be \$0.204 increase in milk income. Partial budgeting tells us that we need to evaluate the increased cost (\$0.063 per cow per day), increased revenue from milk sales (\$0.204 per

cow per day), decreased expenses (none) and decreased income (none) for a net change potential of \$0.142 per cow per day. In this case, we assume the additive is a good investment. But what if the additive improved milk yield 2% but also increased dry matter intake 0.5 lb? Here we assume that each lb of dry matter in the ration is worth \$0.11 so our partial budget is: \$0.204 – \$0.063 – \$0.11 + \$0 for a net return of \$0.032 per cow per day. This time the risk may not be worth the potential reward and you may not want to feed this additive. Finally, what if this additive can do all of the above but also will replace another additive that cost \$0.07 per cow per day to deliver on farm. Now our partial budget is \$0.204 – \$0.063 – \$0.11 + \$0.07 for a net return of \$0.102 per cow per day.

Foot Lesions and Culling Risks

A recently published Canadian study discussed the association between foot lesion and culling of dairy cows. Data from 6,513 cows in 157 herds were recorded by 5 trained professional hoof trimmers for analysis. During the study period, 1,293 cows (19.9%) were culled. Infectious lesions were most frequent in non-culled cows, whereas hoof horn lesions were most common in the culled cows. Median time to culling after trimming was 188 d for cows without a lesion and 157 d for cows with a lesion. Results showed that infectious hoof lesions had no significant association with culling, whereas hoof horn lesions were associated with an increased culling risk. The hazard ratios for white line lesions, ulcers, and hemorrhage were 1.72, 1.26, and 1.36, higher compared to the cows with no lesion, respectively.

These results illustrate that there were significant associations with cow productivity for hoof horn lesions found at routine hoof trimming and that emphasis should be placed on proper treatment and earlier detection of these foot lesions.

-Cramer et al. 2009. *J. Dairy Sci.* 92: 2572

Causes of Cow Deaths

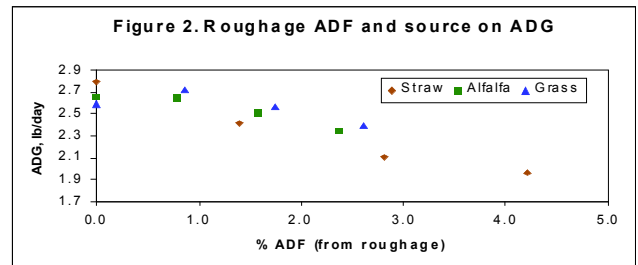
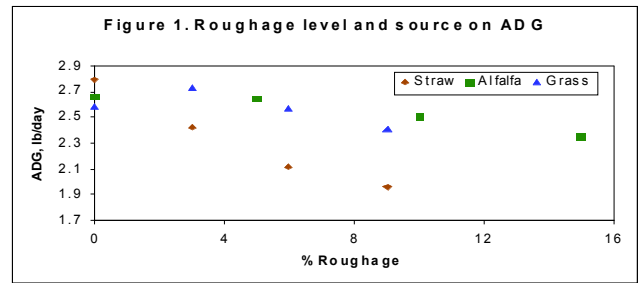
All cows that died on a 1,500 cow Colorado dairy over a one-year period were necropsied. Each

death was characterized by a proximate cause (the most likely immediate cause of death). During the study, 1,468 cows freshened, 507 cows were sold, and 94 cows died, resulting in a mortality risk of 6.4%. Overall 21% (20/94), 36% (34/94), and 45% (42/94) of deaths occurred by 6, 15, and 30 d, respectively after calving. The top 10 causes of death in descending order were: severe limb injury, GI ulceration, metritis, spinal injury, abdominal/liver abscess, toxic mastitis, digestive-infections, lymphoma, pneumonia-chronic, pneumonia-aspiration, and ruptured uterus. An interesting finding from this study was that compared with the 96% of cases (90/94) where the cause of death was determined by postmortem examination, the producer perception of the cause of death was correct only 55% of the time.

-McConnel et al. 2009. *J. Dairy Sci.* 92 :1954.

Minimize Roughage in Calf Grower Diets

A series of trials have been completed this winter and spring evaluating the amount of roughage from various sources contained in the grower diets for 2 to 4 months old calves. The 3 sources of roughage were: wheat straw (2% CP, 54% ADF, 81% NDF, DM basis), grass hay (12% CP, 36% ADF, 55% NDF, DM basis), and alfalfa hay (23% CP, 23% ADF, 33% NDF, DM basis). All 3 roughage sources were chopped and mixed with a textured grower diet. These 3 sources were chosen because of their different qualities or concentrations of fiber. The grower contained 62% grain (corn and oats), 35% protein pellet, and 3% molasses. Calf ADG declined either linearly or quadratically as roughage from the 3 sources increased from 0% (Figure 1). Textured growers based on 62% grain should be fed with approximately 1% ADF (Figure 2) or approximately 1.5% NDF from roughage to calves between 2 and 4 months of age. This added amount of roughage corresponds to from approximately 1.5% straw to 5% alfalfa hay. Diets with 0% roughage were not necessarily the best because of issues with acidosis and bloat that also reduce ADG. None of the calves gained more than 0.5 units of body condition score or were excessively conditioned at 4 months of age. Additionally, hip width change paralleled ADG, so calves with more ADG were also growing frame.



Flooring System and Claw Conformation

Researchers from Sweden investigated in two experiments the effect of different flooring surfaces in walking and standing areas on claw conformation, claw horn growth, and wear in a research dairy herd of 170 cows. The flooring systems tested were solid rubber mats, asphalt with and without rubber-matted feed-stalls, and aged concrete slats, slatted concrete flooring and rubber flooring. The cows were introduced to the flooring systems in early lactation and their claws were trimmed before the exposure period. Asphalt floors caused shorter toe length, steeper toe angle, increased wear on rear claws and horn growth rate. Rubber mats instead of asphalt in walking areas reduced wear and claw growth. Rubber-matted feed-stalls together with asphalt walkways decreased claw wear. The concavity of claw soles was reduced on asphalt, especially in the lateral rear claws. Rubber matting in feed-stalls prevented loss of sole concavity compared with asphalt. Claw asymmetry did not differ between flooring systems. While different access to abrasive flooring affected claw conformation, there was no evidence that flooring system influenced the disproportion between lateral and medial claws.

-Telezhenko et al. 2009. *J. Dairy Sci.* 92: 2625

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