

Milk Quality and Free Stall Bedding Management

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Dairy producers know that keeping free stalls clean and comfortable is an important component of producing quality milk. Dirty cows usually results in low quality milk. But even with this knowledge, many producers still do not manage their free stalls properly. At the 2007 summer regional meeting of the NMC, Drs. Jeffrey Reneau and Russell Bey from the University of Minnesota discussed the relationship of free stall bedding management and milk quality. Edited excerpts from their paper published in the proceedings of the meetings are reprinted below. Their comments are excellent guidelines for producers to use as they strive to produce high quality milk.

The choice of bedding material will depend on compatibility with the farm's manure system, availability, cost, and the characteristics that will best facilitate cow hygiene, comfort and udder health. While clean sand has become the "gold standard" among bedding materials, many other materials, including recycled manure solids, are used successfully. Regardless of the bedding material used, maintaining clean, well bedded stalls is imperative to having clean cows.

The frequency of changing the bedding material will depend on the material used, with organic materials requiring more frequent changing. The goal is to keep the bacteria count in the bedding as low as possible so teat ends and udders are in contact with the lowest number of bacteria possible while the cows are lying in the free stalls. Bedding conditioners can help slow the rate of bacteria growth, but frequent application is required, especially for organic materials.

Bedding management practices are affected by many factors, including the following: cow density (crowding), nutrition level, stall cleaning frequency, stall design, alley scrapping frequency, ventilation, bedding storage method, weather, bedding frequency, and bedding strategies (e.g. no bedding used or piling bedding in front of stalls).

The researchers gave the following five key "take home messages" from their presentation: 1) Bedding bacteria counts are positively related to teat end bacteria counts; teat end bacteria counts are positively correlated with intramammary infections; and there is a positive relationship between cow hygiene and somatic cell counts. 2) To remain healthy and productive, cows need to lie down 11 to 12 hours each day. These long durations of rest place teats in direct contact with bedding material. Therefore, consistent efforts to minimize teat exposure to environmental bacteria through bedding management will be crucial to maintaining udder health and quality milk. 3) Improved cow hygiene will reduce teat exposure to environmental mastitis pathogens, reduce intramammary infections, and reduce SCC. 4) Excellent pre-milking cow prep to remove environmental bacteria from teat surfaces prior to milking is the last line of herd management defense in assuring consistent production of quality milk. 5) Whatever bacteria are not successfully removed during the pre-milking cow prep will end up in the bulk tank milk. Bulk tank or line sampling of each milking shift and culturing for environmental pathogens will accurately indicate the effectiveness of pre-milking cow prep. Improved bedding management can result in higher quality milk, but it requires consistent attention to doing things correctly that leads to cleaner cows when they are milked.