

Take Another Look at Free Stall Bedding

Dr. Donald E. Pritchard
Extension Dairy Specialist, NCSU

For years dairy producers have been told about the importance of keeping free stalls clean and well bedded. Dirty, poorly maintained stalls expose the teat ends of cows to a greater bacterial challenge, which often results in more mastitis. The type of bedding material used in the stalls has been an important consideration in reducing the population of bacteria that can cause mastitis, with most advisors recommending sand as the material of first choice. A research report published recently in the Journal of Dairy Science suggests that producers should perhaps take another look at the type of bedding material used in free stalls.

Environmental bacteria are the prevalent cause of udder infections in most dairy herds. These types of organisms are present in soil, manure, and bedding. The number present in the bedding depends on the type of material, the cleanliness of the stalls, the pH of the material, and the moisture level of the material. People have generally contended that inorganic bedding (sand) is less supportive of bacteria growth than is organic bedding (wood products or straw). However, regardless of the bedding type, the cleanliness of the stalls can greatly affect the number of bacteria present.

Researchers at the University of British Columbia in Canada found that the predominant environmental bacterial populations in the bedding and on the teat ends of cows housed in free stalls varied by bedding type. Sawdust bedded stalls contained considerably more *Klebsiella* species and coliforms than did sand bedding. Additionally, there were 6 times more *Klebsiella* species and 2 times more coliforms on the teat ends of cows housed in stalls containing sawdust compared with those housed in sand bedded stalls. The correlation between the counts of these types of bacteria in the sawdust bedding and the counts on the teat ends was reported as being moderate.

While *Streptococcus* species bacteria counts were about the same in both sand and sawdust bedded stalls, there were 10 times more *Streptococcus* species bacteria on the teat ends of cows housed on sand versus those housed on sawdust. This finding does not agree with an earlier published research report. The correlation between the *Streptococcus* species counts in the sand bedding and on the teat ends was relatively weak, suggesting that the way teat ends become contaminated when cows use sand bedded free stalls is different. While the rear udders of the cows in the study were dirtier when the cows were housed in sand stalls compared to those of cows housed in sawdust stalls, the correlation between cow udder cleanliness and bacteria counts on the teat ends was not consistent. Teat cleanliness was not measured, so a correlation with bacteria types and counts on teat ends was not possible.

So, what does this study suggest to producers about the type of free stall bedding material to use to minimize the transfer of bacteria from the bedding to teat ends? To me it suggests that free stall cleanliness is still very important and should continue to be a high priority, regardless of the type of bedding material used. Clean stalls are a must

for reducing udder infections. Sand bedding has some advantage over sawdust with certain types of bacteria, but sand also has some limitations. Besides maintaining clean stalls, teats must be clean at time of milking and proper milking procedures must be followed. There is not just one practice or product that will result in healthy, infection free udders. A total mastitis management program must be developed and followed. Producers should discuss this issue with their technical advisors.