

COMPOST BARN FOR DAIRY: LATEST FINDINGS

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Compost barns have raised much interest recently as an alternative dairy housing option. The first barn was built in 2001 by two producer brothers in South-Central Minnesota. No descriptive data on compost barns were available to date. Therefore, a field study of 12 compost barns was conducted between late June 2005 and September 2005. Producers were interviewed on various aspects related to this housing system, samples of bedding and milk were collected, cow behavior was evaluated, and cows were scored for locomotion, body condition, hygiene and hock lesions. Only 7.8% of the cows were lame (locomotion score > 3 in a 1 to 5 scale). In another recent study, we estimated that approximately 25% of cows were lame in freestall barns in Minnesota. Seventy-seven percent of the cows had no hock lesions, 22.3% had mild lesions (hair loss) and only 0.97% of cows had severe lesions (swollen hocks). In another recent study we observed that 14.1% of cows housed on mattress freestalls and 1.8% of cows on sand freestalls had severe lesions. The average body condition score was 3.04 with a range of 2.88 to 3.17. Cow hygiene scores averaged 2.7 in a scale of 1 to 5 (1=clean; 5=dirty). That is similar to a freestall barn or slightly cleaner. The average DHIA somatic cell counts were 325,000 ($\pm 172,273$) cells/mL with a range of 88,000 to 658,000 cells/mL. A comparison of mastitis infection rates before and after housing the herds in a compost barn was performed for 9 of the dairies as an indicator of udder health. Six of the dairies saw a decrease ($P < 0.02$) in mastitis infection rates, with an average decrease of 12.0%. Three of the dairies had a significant decrease in infection rates variation as well. Bulk tank cultures were analyzed on a composite sample of four or five bulk tank pickups. Two out of 13 farms had a high level of *Strep. agalactiae*, one farm was found to have a high level of *Staph. aureus*, six farms had high levels of Non-ag *Strep*, and four farms had high levels of coliforms in the milk. The average lying space was 8.1 (± 2.7) m²/cow with a range of 3.5 to 14.3 m²/cow. The recommended minimum space is 7.4 m²/cow. Temperatures of the bedding material were taken at each of 12 locations across the pack twice, 1 wk apart, at various depths (15, 30.5, 61 and 91 cm). The average temperature across depths was 42.3 (± 6.65) °C, less than the ideal temperature of 54 to 60 °C recommended for composting organic materials. The main reasons for building this type of housing system were for improved cow comfort, cow health and longevity, and ease of completing daily chores. The largest concern was the cost and availability of bedding, especially as additional compost barns are built. All of the producers were generally satisfied with their decision to build a compost barn and believe that it was the right choice for housing their dairy herd.

Take home message: Results have shown that compost barns can be a good alternative for housing dairy cows. Like any system, they require optimum management to work properly. Special attention should be given to milking preparation procedures and maintenance of minimum space per cow to avoid high levels of somatic cell counts.