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# Compost bedded pack dairy barn management, performance, and producer satisfaction

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### Abstract

The objective of the research was to characterize herd performance, producer satisfaction and recommendations, and management practices used by compost bedded pack (CBP) managers in Kentucky (42 farms and 47 CBP facilities). Farms were visited between October 2010 and March 2011. A random selection of cows housed solely in the CBP were scored for locomotion and hygiene. Changes in monthly Dairy Herd Improvement Association performance records, including milk production, SCC, reproductive performance, and daily bulk-tank somatic cell count after moving into the CBP were analyzed using the MIXED procedure of SAS (SAS 9.3; SAS Institute Inc., Cary, NC). The GLM procedure of SAS (SAS 9.3) was used to develop models to describe CBP moisture, CBP temperature at 20.3 cm, and mean herd hygiene. Producers provided  $9.0 \pm 2.2$  m<sup>2</sup> of pack space per cow ( $n = 44$ ). Barns constructed with an attached

feed alley cost \$1,051 ± 407 per cow (n = 40). Barns constructed without an attached feed alley cost \$493 ± 196 per cow (n = 13). Kiln-dried shavings required 0.05 ± 0.04 m<sup>3</sup> of bedding per cow per day (n = 15). Green shavings required 0.07 ± 0.06 m<sup>3</sup> of bedding per cow per day (n = 12). The most-frequently cited benefits of the CBP included cow comfort (n = 28), cow cleanliness (n = 14), and the low-maintenance nature of the system (n = 10). Increased stirring frequency, stirring depth, and ambient temperature increased pack temperature, measured at 20.3 cm below the CBP surface. Increased stirring depth, pasture-adjusted space per cow, and drying rate decreased CBP moisture. Mean herd locomotion and hygiene scores were 1.5 ± 0.3 (n = 34) and 2.2 ± 0.4 (n = 34), respectively. Increased 20.3-cm depth CBP temperature and ambient temperatures improved mean herd hygiene. Bulk-tank somatic cell count decreased from the year before to the year after moving into the CBP barn (323,692 ± 7,301 vs. 252,859 ± 7,112 cells/mL, respectively) for farms using the CBP barn as the primary housing facility (n = 9). Daily milk production, collected from monthly Dairy Herd Improvement Association tests, increased from before moving into the CBP barn to the second year after (29.3 ± 0.3 vs. 30.7 ± 0.3 kg, respectively) for farms using the CBP barn as the primary housing facility (n = 8). Calving interval decreased from the year before to the second year after (14.3 ± 0.1 vs. 13.7 ± 0.1 mo) moving into the CBP barn for farms using the CBP as primary housing (n = 8).



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## Key words

compost bedded pack barn; facility management

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