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[745-16 Bacterial Community Structure of a Cattle Feedlot Pen Surface.](#)

Wednesday, 8 October 2008

George R. Brown Convention Center, Exhibit Hall E

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Ammonia volatilization is the primary route for nitrogen loss from cattle feedlots. An additional, but poorly studied mechanism in feedlots is aerobic nitrification. The objective of this study was to characterize the spatial and temporal variation in ammonia-oxidizing bacteria (AOB) and nitrite-oxidizing bacteria (NOB) in the context of the larger bacterial community for a cattle feedlot pen in central Nebraska. Soil samples were collected over a nine-month period from three sites within a cattle feedlot pen (feed bunk, central mound, and down gradient) and at three depths, unconsolidated surface material, shallow compacted surface material (0 to 10 cm), and deep compacted surface material (10 to 20 cm). Bacterial diversity was investigated by PCR/DGGE analysis. The general bacterial community showed the strongest group separation by pen site and date, but showed poor grouping by soil depth. The AOB and NOB communities also showed similar patterns of strongest grouping by pen site and date, but showed a tendency to group by soil depth. This investigation indicates that the larger bacterial community, as well as the nitrifier community, was spatiotemporally dynamic and diverse.

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