

# The Role of Composting in Recycling Manure Nutrients. (3720)

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## Abstract:

Recently, composting has been receiving increased interest as an alternative means of handling the large volumes of manure generated by the livestock industry. As fresh manure is composted, nutrient (e.g. nitrogen, phosphorus, carbon) transformations suggest that when compost is applied to soil, its behavior is different than that of fresh manure. The percent of total nitrogen (N) in the available form decreased from 22% in fresh material to 7% in finished compost for Alberta beef feedlot manure. In Nebraska, 25% of the total phosphorus (P) was in the organic form in fresh beef feedlot manure compared with 16% in compost, indicating mineralization of organic P during the composting process. Both the original source and age of organic materials (composted and uncomposted dairy solids and chicken manure) were important factors in determining nitrogen and carbon mineralization in an Oregon laboratory and field study. In Manitoba, composting of hog manure in straw-based systems improved nutrient homogeneity but available N was highly variable depending on whether the fresh manure was stockpiled or not prior to composting. Composting also changes the physical properties of manure (reduced water content and volume, increased density), allowing nutrients to be transported more economically than fresh manure. This has implications for export of nutrients from high-loading areas to soils where nutrients may be used more sustainably.

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