

ENVIRONMENT

Title: Alternative calcium and phosphorus sources for reducing ammonia emission through manipulation of excreta pH - **NPB #00-043**

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Abstract:

Ammonia emission can be reduced through lowering manure pH. Although such a reduction can be achieved by adding acids in the pit, greater reductions in ammonia emissions can be expected when excreta pH is lowered through the diet as a substantial portion of ammonia is emitted from slats. Feeding acidogenic phosphorus sources such as phosphoric acid and monocalcium phosphate was effective in reducing urine pH with 1 pH unit and both, when fed with suitable calcium sources, resulted in lowered ammonia emission (30 and 16%, respectively). A major dilemma encountered in these experiments was the calcium source to use; calcium carbonate (limestone) increases urine pH, in contrast to calcium sulfate (gypsum) or calcium chloride. The latter two, however, may negatively affect gut and animal health, therefore increasing odors. In growth performance experiments they also led to poor animal performance. In conclusion, for reducing ammonia emission, phosphoric acid and monocalcium phosphate are preferred over dicalcium phosphate as phosphorus sources. Calcium chloride and calcium sulfate are calcium sources that can lower urine pH but as they negatively affect animal performance, limestone remains the preferred source of calcium.

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