

# Effectiveness of Three Manure Pit Additives in Commercial Scale Manure Channels and Simulated Outdoor Storage

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The effectiveness of three manure pit additives was evaluated in commercial scale channels and simulated outdoor storage with grower-finisher pig manure. The additives were American BioCatalysts, Pit Boss and Westbridge (H4-5O2). Two trials were conducted, one consisted of an indoor phase followed by an outdoor phase and the second trial had only an indoor phase. Results from the two indoor phases were combined to provide eight replicates for statistical evaluation. Overall, the performances of the additives were quite mixed. Odour threshold reductions ranged from no reduction to 11% reduction during the indoor phase and no reduction to 66% reduction during the outdoor phase. Hydrogen sulphide concentrations were reduced from 57 to 76% and ammonia concentrations were reduced by 5 to 33% during the experiment. All of the additives seemed unable to achieve much solids reduction or solubilisation during the indoor phase of the experiment, but improving nutrient retention and availability was a strength of all of the additives. Nitrogen content and availability was improved by 7 to 19% and 9 to 25%, respectively during the indoor trial. Similarly, phosphorous availability was increased from 16 to 24% by the additives during the indoor phase. The additives did not perform very well in reducing chemical oxygen demand, providing no reduction or a minor reduction during the indoor phase. In general, the additives provided some benefit but were not able to improve all aspects of the manure.

## **Implications:**

The tested pit additives would provide very limited odour and solids reductions with swine manure. They would tend to increase the manure nutrient value, which is an asset in areas where it can be used as a fertiliser. In-barn evaluation of manure pit additives is a valuable process to determine their effectiveness on a commercial basis and provides objective information on those products to the swine industry.