

Research Notes

Arm & Hammer Animal and Food Production



CERTILLUS Eco Helps Improve Fertilizer Value of Swine Manure

CERTILLUS™ Eco contains scientifically selected strains of *Bacillus subtilis* and *Bacillus licheniformis* for use in swine production to reduce ammonia emissions and increase nitrogen retention in manure.

STUDY OVERVIEW

- A field study¹ was conducted to determine the effect of CERTILLUS Eco on nutrient composition in deep pit swine manure storage systems.
- Deep pit manure storage systems were sampled from 217 grow-finish swine barns in the Midwest—141 of the samples were from barns in which the pigs were fed CERTILLUS Eco and 76 of the barns sampled were from control barns housing pigs that were not fed CERTILLUS Eco.
- Pigs were fed corn/soybean meal-based diets typical in commercial swine production with dried distillers grains with solubles (DDGS) inclusion ranging from 8% to 18% of the diet. CERTILLUS Eco was administered in the feed of grow-finish pigs to provide 1×10^5 CFU/g feed.
- Manure samples were obtained from each pit by sampling the entire depth of the manure storage pit with a 6'-long PVC sampling rod.
- Nutrient analysis was conducted on the manure samples by A&L Great Lakes Laboratories (Fort Wayne, IN) using accredited methodologies.

TABLE 1. NUTRIENT COMPOSITION (%) OF SWINE MANURE PIT SAMPLES

	CONTROL	CERTILLUS ECO	SE	P =
Moisture	91.28	93.96	0.349	<0.001
Crude fat	13.29	10.61	0.816	0.017
Crude protein	49.50	67.62	2.061	<0.001
Ammonia N	5.29	7.90	0.263	<0.001
ADF	18.69	15.01	0.484	<0.001
NDF	39.01	31.77	1.511	<0.001

RESULTS

- CERTILLUS Eco reduced ($P < 0.05$) crude fat, acid detergent fiber (ADF) and neutral detergent fiber (NDF) in swine manure pit samples compared to manure pits in barns housing control pigs (Table 1).
- CERTILLUS Eco increased ($P < 0.001$) crude protein, ammonia nitrogen (N) and moisture content in swine manure pit samples compared to manure pits in barns housing control pigs (Table 1).

CONCLUSIONS

- CERTILLUS Eco reduces the solids component in swine manure that accumulates from undigested feed, either by increased nutrient digestibility in the pig or by the utilization of these nutrients by microorganisms in swine manure.
- The increase in crude protein and ammonia nitrogen in swine manure when feeding CERTILLUS Eco indicates more nitrogen is retained for fertilizer value and less is volatilized as ammonia gas in hog barns.



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¹ Davis ME, et al. Effect of a *Bacillus*-based direct-fed microbial feed supplement on growth performance and pen cleaning characteristic of growing-finishing pigs. *J Anim Sci* 2008;86:1459-1467.

