Research Notes

Arm & Hammer Animal and Food Production

CERTILLUS Eco Makes Pen Cleaning Easier in Swine Production Facilities

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.

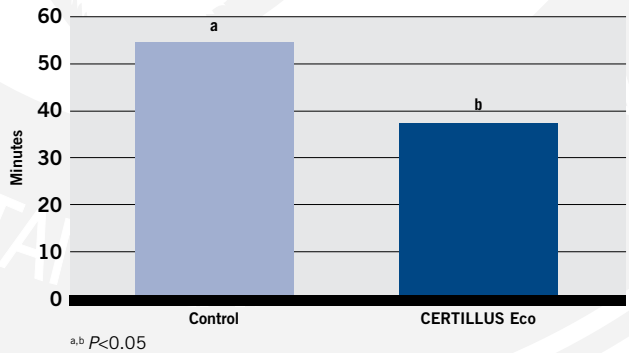
STUDY OVERVIEW

- This study[1] was conducted at the University of Arkansas Swine Research Unit, Fayetteville, Ark., to determine the effects of feeding CERTILLUS Eco to grow-finish pigs on pen cleaning characteristics.
- Pigs were randomly assigned to one of two dietary treatments fed throughout the starter (23 to 36 kg BW), grower (36 to 64 kg BW) and finisher (64 to 105 kg) phases, with 12 pens/treatment housing six pigs/pen.
- Pens contained partially slatted concrete flooring with a solid concrete portion.
- Control pigs were fed a corn/soybean meal basal diet.
- Treated pigs were fed the basal diet supplemented with 0.05% of a three-strain *Bacillus* product, CERTILLUS Eco, that provided 1.5 x 10^8 CFU of *Bacillus*/g of supplement.
- CERTILLUS Eco consisted of *B. licheniformis* and *B. subtilis* strains specifically selected and formulated for their ability to degrade compounds present in swine manure.
- Tylosin was included at 0.11 g/kg feed in the starter and grower phases, and at 0.04 g/kg feed in the finisher phase.
- At the completion of the study when all pigs were moved out of the barn, two sections of solid manure buildup (manure mat) in the solid portion of the pen were collected and cut into small rectangular mats weighing ~4 g. These mat samples were placed in a beaker of water with a stir bar and the time required to break up the manure mat while stirring on a stir plate was determined.
- Additionally, the time required to clean the pens per the farm site's standard operating procedures was determined for each pen.

RESULTS

- Manure mat samples from pens housing pigs fed CERTILLUS Eco broke apart in less (P<0.05) time than those from control pens, resulting in a 33% reduction in dispersal time (Figure 1).
- CERTILLUS Eco improved barn cleanup time after closeout, resulting in less time required to clean the pens housing pigs fed CERTILLUS Eco than was needed to clean Control pens (Figure 2).

FIGURE 1: Manure mat dissolve time.

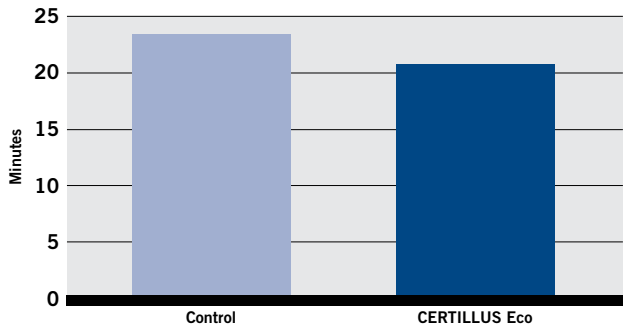


[a,b] P<0.05

CONCLUSIONS

- The reduction in time to disperse the manure mat indicates that CERTILLUS™ Eco is effective at breaking up swine manure solids.
- Less time spent cleaning swine facilities when feeding pigs CERTILLUS Eco results in less water usage and more effective use of employee time for animal husbandry and welfare.
- Easier dispersal of manure buildup when using CERTILLUS Eco has the potential to make cleaning and disinfecting procedures more effective and improve herd health.

FIGURE 2: Pen cleaning time.



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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 characteristics of growing-finishing pigs. *J Anim Sci* 2008;86:1459-1467.