

Impact of Total Dissolved Solids (TDS) in Drinking Water on Nursery Pig Performance

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Introduction

High concentrations of total dissolved solids (TDS) in water have been reported to increase the incidence of diarrhea and reduce nursery pig growth performance. However, the particular minerals of concern for nursery pigs have not been fully characterized.

Objective

The objective of this study was to investigate the effects of drinking water with high concentrations of TDS from sulfate salts on animal performance and feed and water disappearance.

Methods

- Newly weaned pigs (n=1144; 20 d old PIC) were stocked at 26 pigs per pen of equal gender in 44 pens in the SDSU wean-to-finish commercial research barn
- Each pen was randomly assigned to receive one of four water treatments into two cup waters per pen: 1) combination of CaSO₄, MgSO₄, NaSO₄; 2) CaSO₄; 3) MgSO₄; 4) NaSO₄
- Drinking water treatments were derived from stock solutions delivered at 1:128 to pens
- Pigs were provided free access to four phase nursery diets and water throughout the trial
- Pen weights were measured on d 0, 7, 21, 35, and 42 using a scale that weighs the entire pen of pigs at once
- Feed remaining on weigh days was calculated according to a prepared calibration curve
- Water meters at each pen were read on weigh days to determine the water usage per pen

Results

- Water treatment did not affect ADG nor ADFI of pigs (P > 0.07)
- Water disappearance only tended to be greater in pens receiving the CaSO₄ water compared to the combination treatment from d 21 to 35 (P < 0.10)

Conclusion

The TDS concentrations from sulfate complexes used in this experiment did not impact the growth performance or water usage of newly weaned nursery pigs.

This work was supported by the USDA National Institute of Food and Agriculture, Hatch project 1018523

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