Evaluating the efficacy of medium chain fatty acids on growth performance in nursery pigs

M. T. Breault, A. B. Lerner, and C. K. Jones

Department of Animal Sciences and Industry, Kansas State University, Manhattan

Introduction

- Antibiotics are commonly incorporated into diets of nursery pigs to improve overall health and increase growth performance.
- Zinc Oxide is also therapeutically utilized in diets to prevent E.coli associated diarrhea and improve growth.
- Due to disadvantages associated with carbadox and ZnO, along with increased pressure from pork consumers to reduce use of antibiotics, research is needed to find alternatives.
- Evidence has suggested that Medium Chain Fatty Acids (MCFAs) may potentially serve as an alternative for antibiotics, however knowledge pertaining to the effect of MCFAs on pig performance is currently limited.

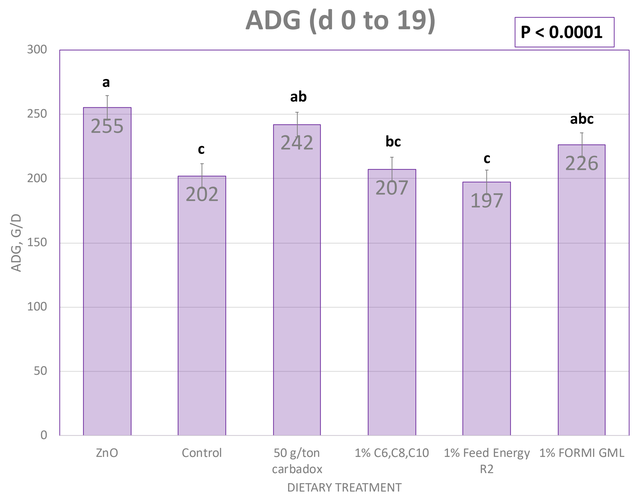
Objective

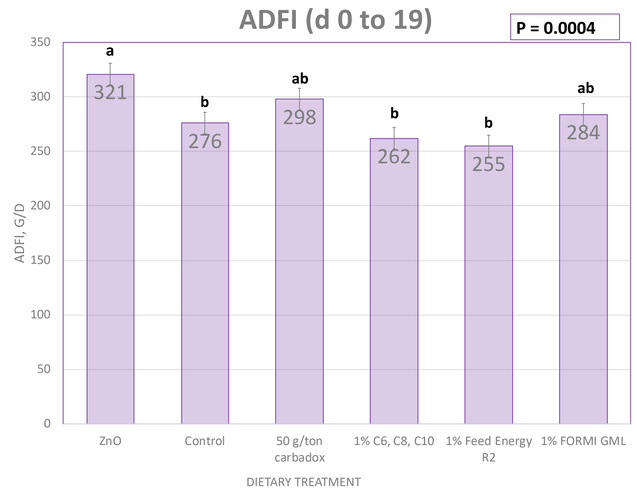
The objective of the study was to evaluate the efficacy of Medium Chain Fatty Acids on nursery pig growth performance compared to ZnO and carbadox.

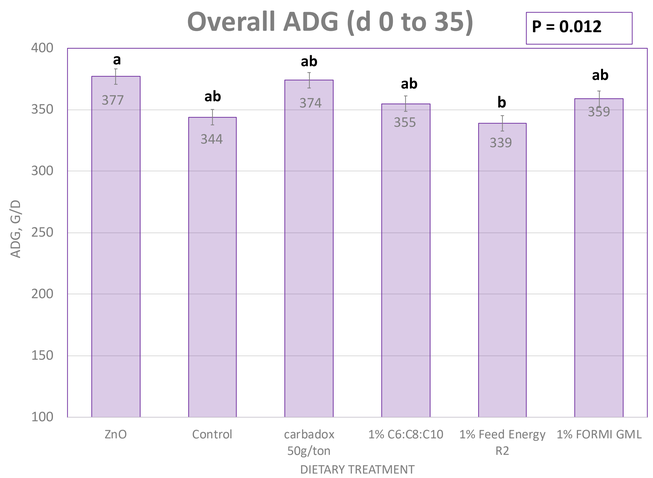
Materials and Methods

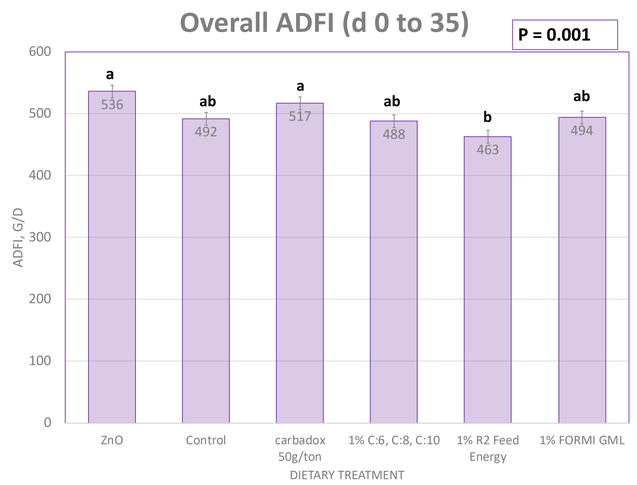
- 360 weanling pigs (DNA 200 x 400 5.4 ± 0.06 kg BW; 21 days of age)
- Experimental Design: Completely Randomized
- Experimental Unit: Pen (6 pigs/pen and 10 replicates)
- Dietary Treatments:
    1) Negative control
    2) carbadox (50 g/ton)
    3) ZnO (1,500 ppm phase 1; 3,000 ppm phase 2)
    4) 1% C6:C8:C10
    5) 1% Start R2 by Feed Energy (Feed Energy, Des Moines, Iowa)
    6) 1% FORMI GML by ADDCON (Bitterfield-Wolfen, Germany)
        - Phase 1: treatment diets (d 0 to 7) using 1,500 ppm ZnO
        - Phase 2: treatment diets (d 8 to 19) using 3,000 ppm ZnO
        - Phase 3: common diet (d 20 to 35)
- Response Criteria: ADG, ADFI, G:F
- Pigs weights and feed intake were measured weekly
- Data Analysis: Data was analyzed using Statistical Analysis System (SAS GLIMMIX PROC) with 0.05 as the alpha value

Results









Conclusions

- Carbadox and ZnO were found to have the strongest positive impact on growth performance. The 1% FORMI MCFA was statistically similar to carbadox and ZnO and resulted in intermediate growth and may be useful as a possible alternative, but further research is warranted.
- ADFI appears to correlate with increased ADG as ADFI was increased for pigs fed ZnO, carbadox, and 1% FORMI with other diets being intermediate.

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