

# Effect of products containing medium chain fatty acids (MCFA) compared to zinc oxide (ZnO) or carbadox in improving nursery pig performance

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## Introduction

- Pig producers have been looking for alternatives to antibiotics or feed-based additives, including ZnO and carbadox, to enhance nursery pig performance.
- ZnO, while it consistently increases performance, has the tendency to give excess Zn in the manure, which causes environmental pollution.
- Carbadox, while it also has been proven to increase performance, there is antibiotic resistance associated with it, which decreases efficiency.
- Feed products containing medium chain fatty acids (MCFA) have been said to be possible substitutes for these additives.

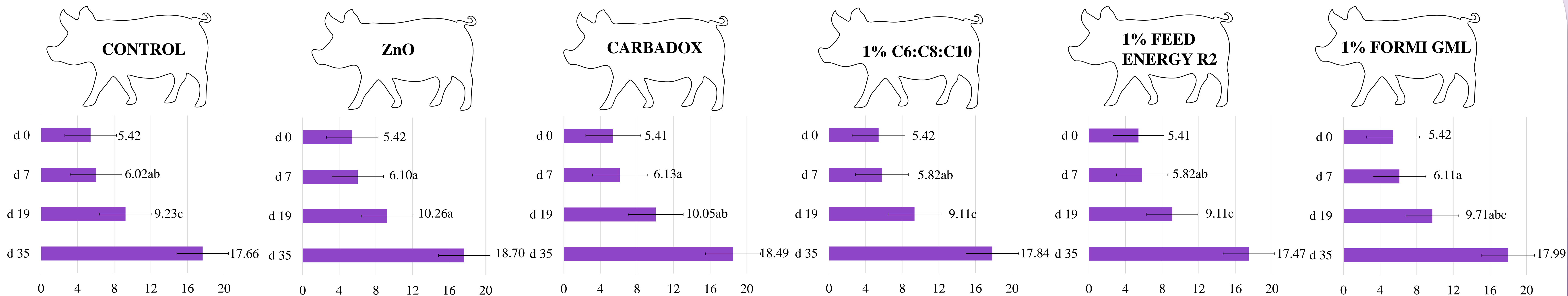
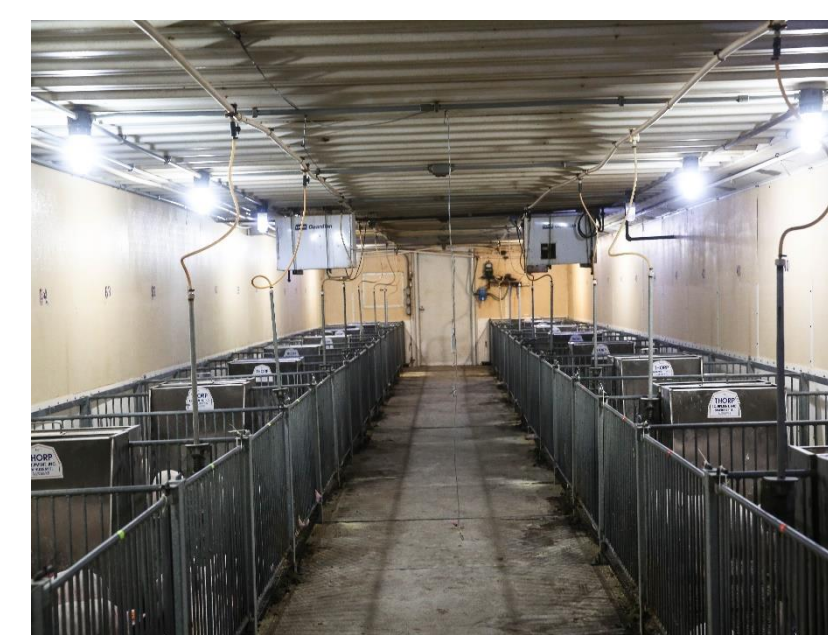
## Objective

To evaluate whether 3 products containing medium chain fatty acids (MCFA) are able to replace ZnO or carbadox in improving nursery pig performance.

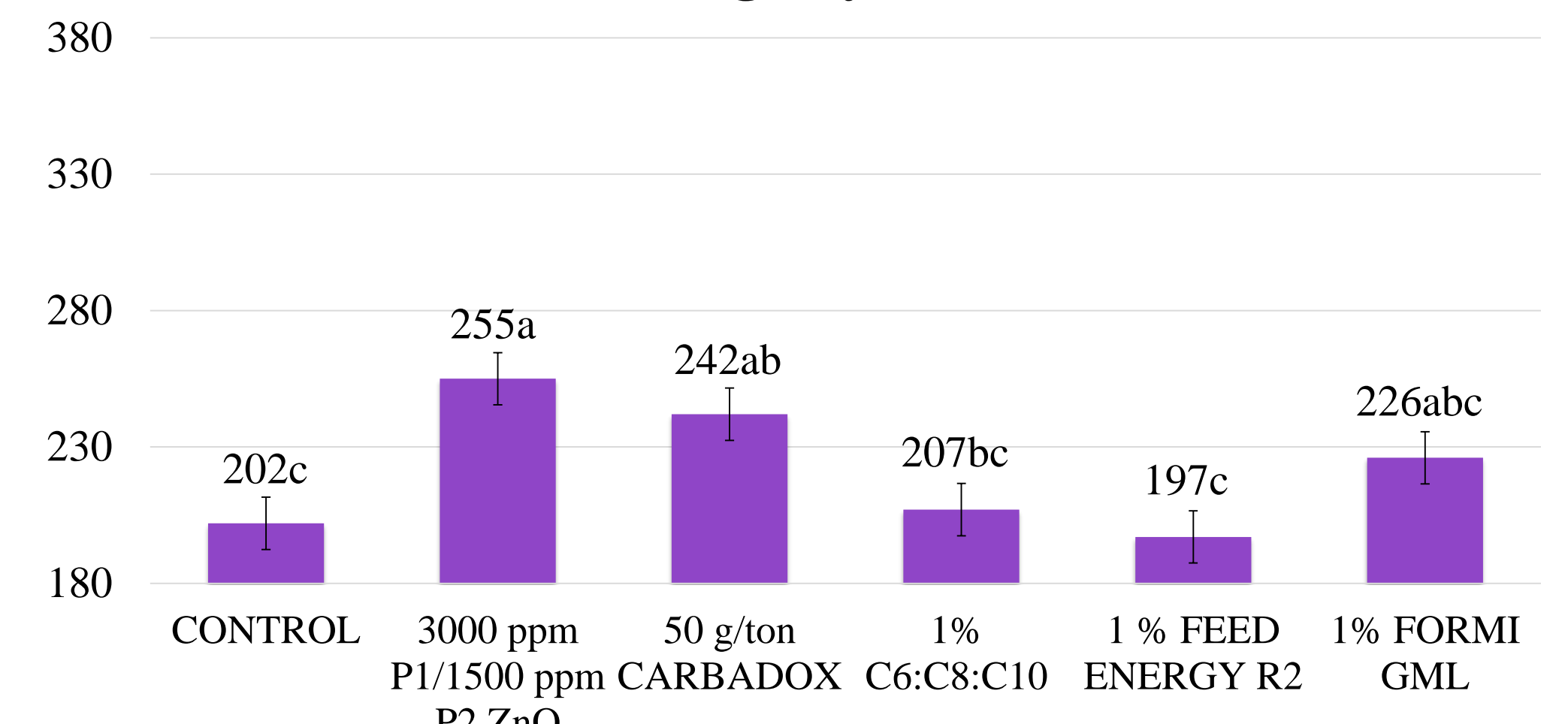
## Materials and Methods

- Subject:** 360 weanling pigs (DNA 200x400;  $5.4 \pm 0.07$  kg)
- Experimental Design:** Completely randomized design
- Replicates:** 10 pens with 6 pigs/pen
- Experiment Unit:** Growth - pen, Fecal - pig
- Treatments:** Control, 50 g/ton carbadox, 3000 ppm/1500 ppm P2 ZnO, 1% blend of C6:C8:C10, 1% Feed Energy R2 (Feed Energy Corp., Des Moines, IA), 1% FORMI GML (ADDCON, Bitttrfield-Wolfen, Germany)
- Phases:** Treatment Phase 1 (d 0 to d 7), Treatment Phase 2 (d 14 to d 19), Control Phase (d 20 to d 35)
- Data Collected (weekly):** Body weight, feeder weight, fecal
- Data Analysis:** GLIMMIX PROC of Statistical Analysis System (SAS).

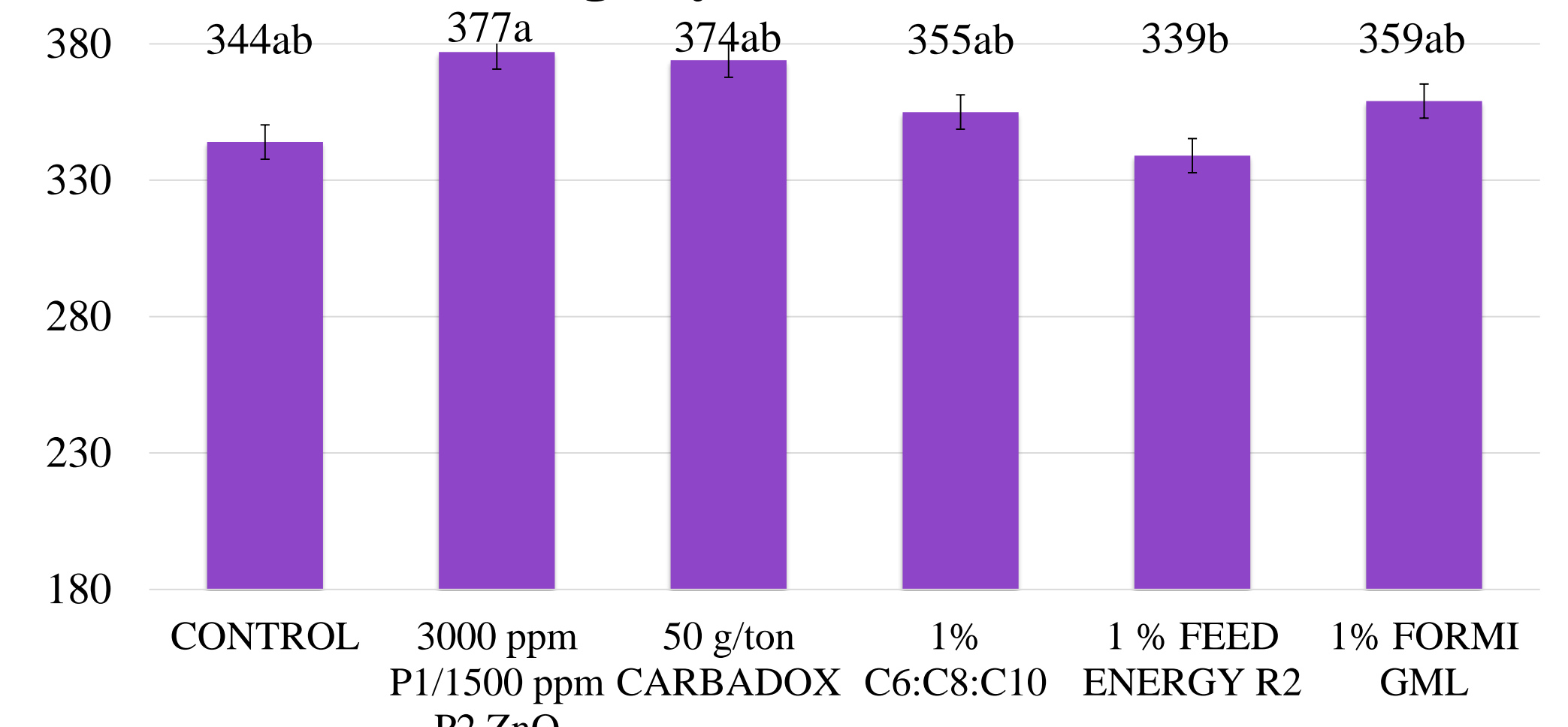
**BODY WEIGHT (kg)**  
d 0  $P = 0.696$   
d 7  $P = 0.003$   
d 19  $P = < 0.0001$   
d 35  $P = 0.06$



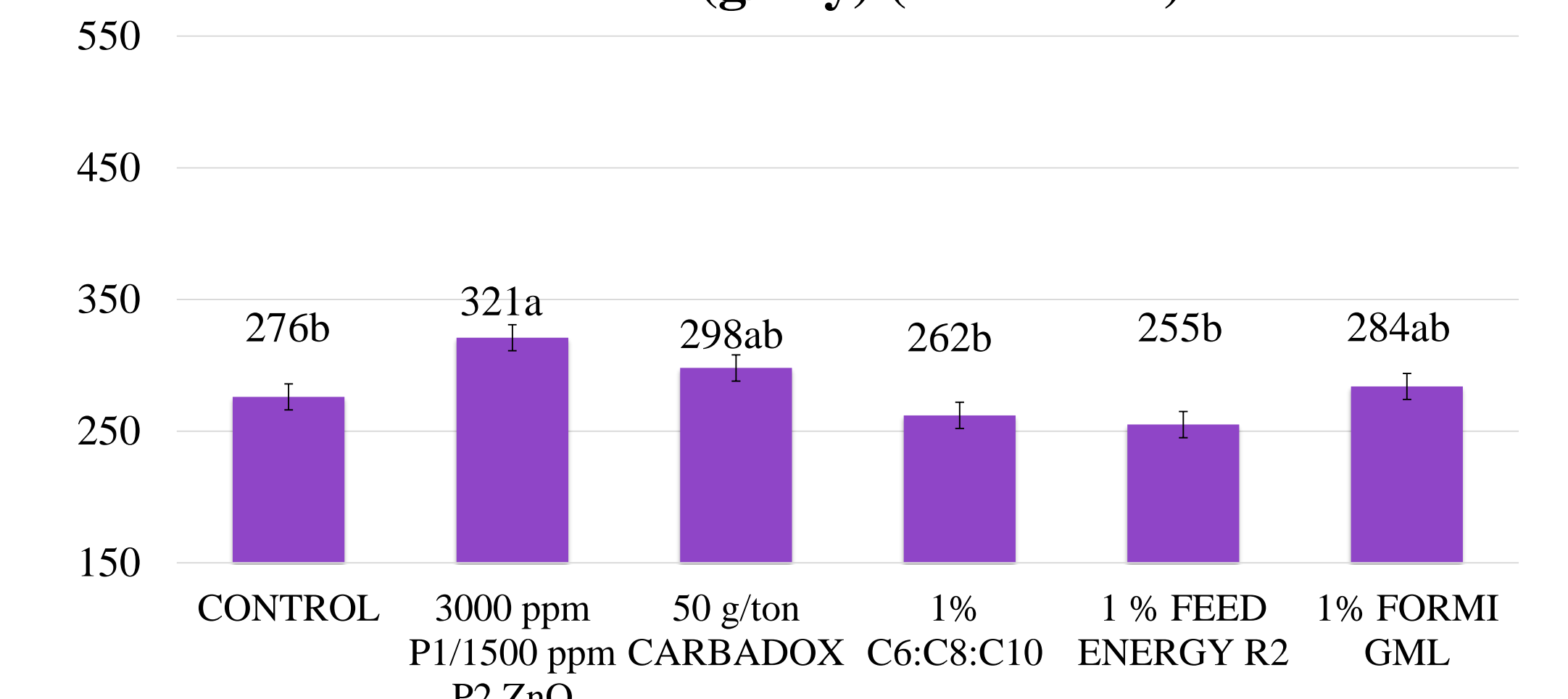
**TRETEMENT ADG (g/day) (d 0 to d 19)**  $P = < 0.0001$



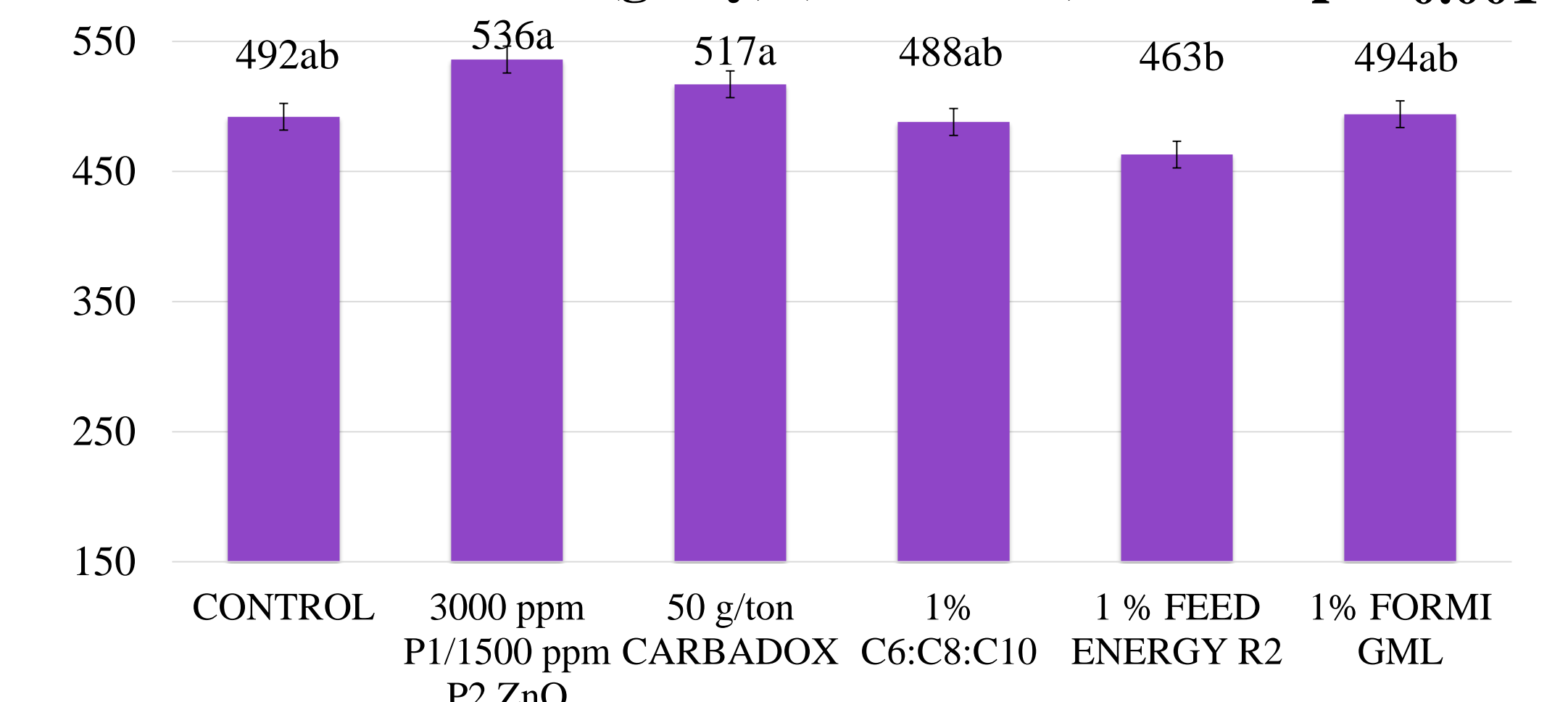
**OVERALL ADG (g/day) (d 0 to d 35)**  $P = 0.012$



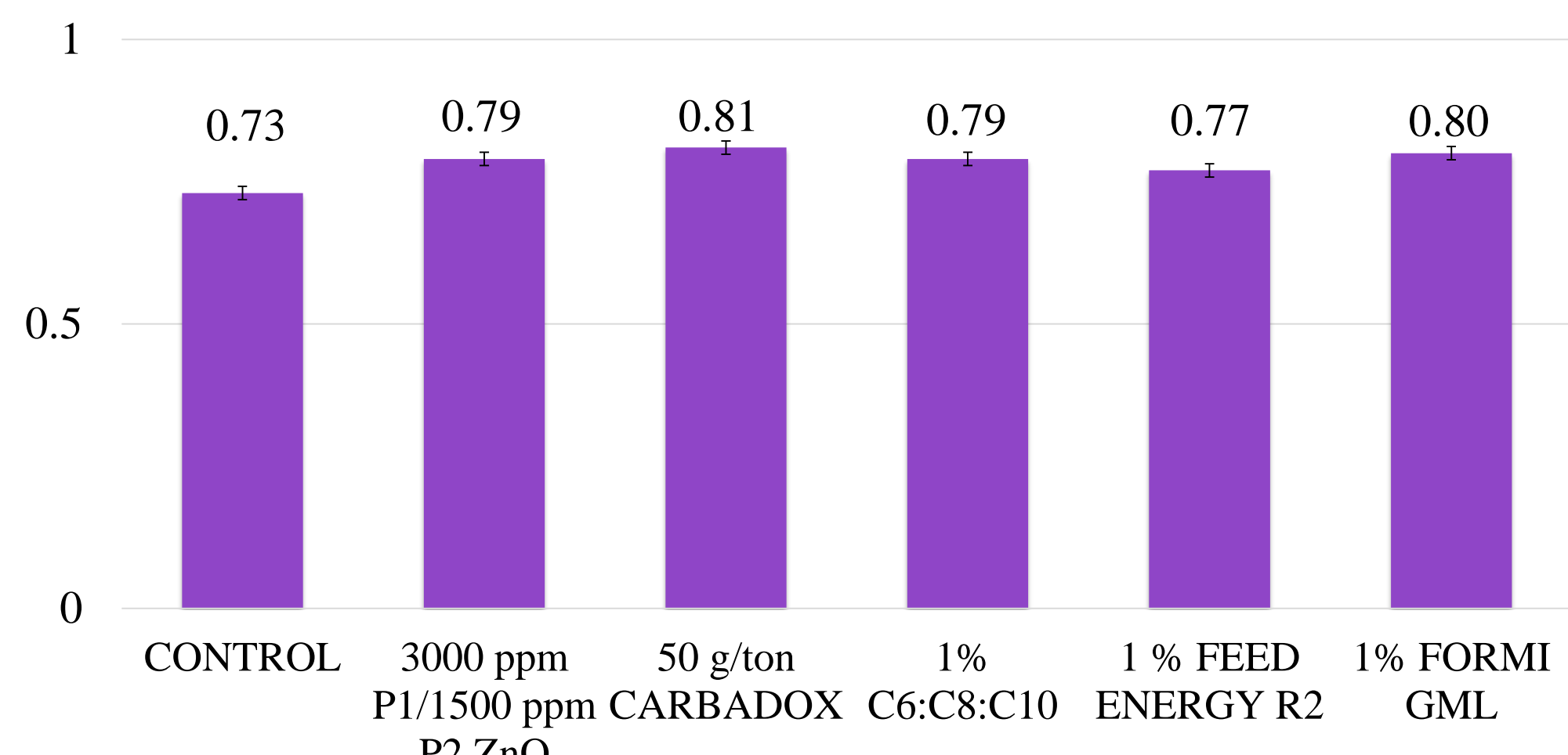
**TREATMENT ADFI (g/day) (d 0 to d 19)**  $P = 0.0004$



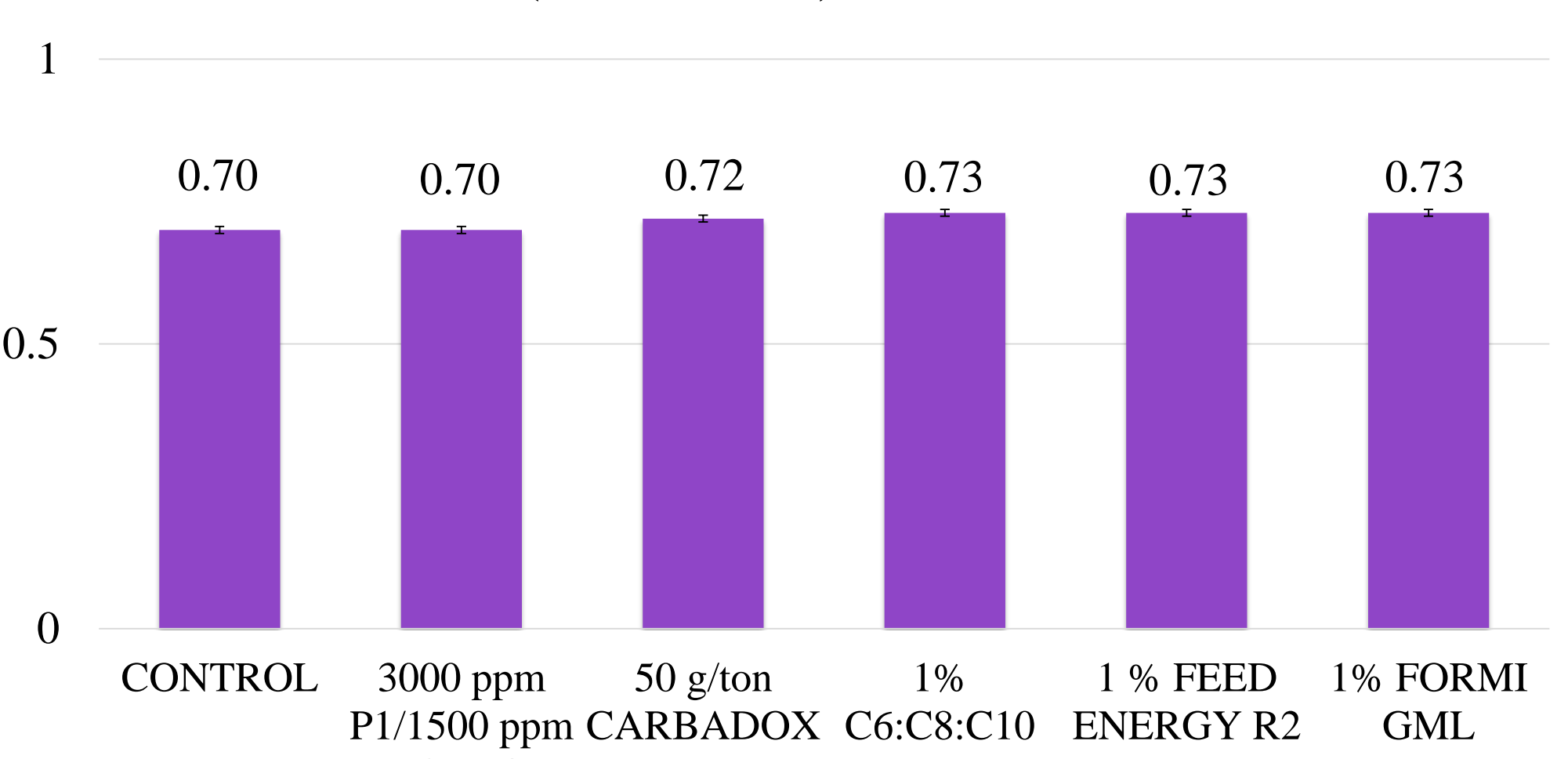
**OVERALL ADFI (g/day) (d 0 to d 35)**  $P = 0.001$



**TREATMENT G:F (d 0 to d 19)**  $P = 0.078$



**OVERALL G:F (d 0 to d 35)**  $P = 0.078$



## Conclusions

- Pigs fed the ZnO treatment overall had the most efficient growth performance when looking at ADG, ADFI.
- Pigs fed the R2 treatment overall had the least efficient growth performance due to reduced palatability.
- There was no significant difference found looking at G:F.
- ZnO and carbadox both have possible negative consequences, but in overall growth performance in nursery pigs MCFA are not a sufficient substitute.
- Researching more about MCFA would help increase efficiency and make them a greater possible substitute for ZnO or carbadox.

## Acknowledgments

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