

Research Now

Water Supplementation of Zinpro®LQ Improves Growth Performance of Nursery Pigs

Introduction:

Zinc (Zn) is an essential mineral that plays a critical role in immune function, making supplementation of Zn to nursery pigs a means of improved performance during this challenging production period. The objective of this experiment was to evaluate the efficacy of titrated levels of zinc from Zinpro®LQ (water soluble Zn amino acid complex) on the growth performance of nursery pigs.

Experimental Design:

Crossbred nursery pigs (n = 280; 5.5 kg BW) were randomly allotted to 1 of 4 water treatments:

1. 0 mg Zn/L of water
2. 40 mg Zn/L of water
3. 80 mg Zn/L of water
4. 160 mg Zn/L of water

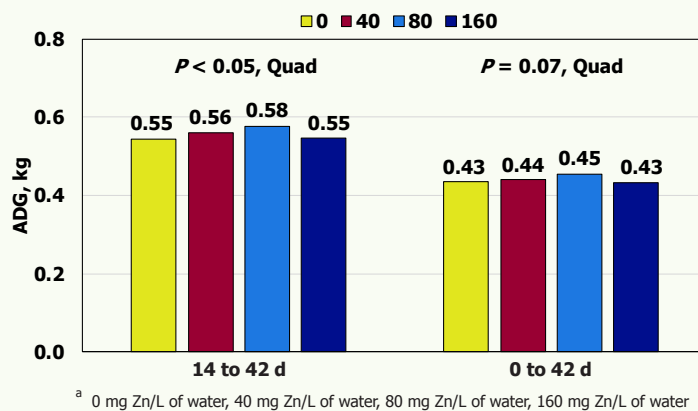
Pigs were fed a common diet containing growth promoting levels of ZnO and CuSO₄. Pigs and feeders were weighed weekly to determine ADG, ADFI and G:F. Additionally, water meters were used to record water disappearance and Zn intake.

Results:

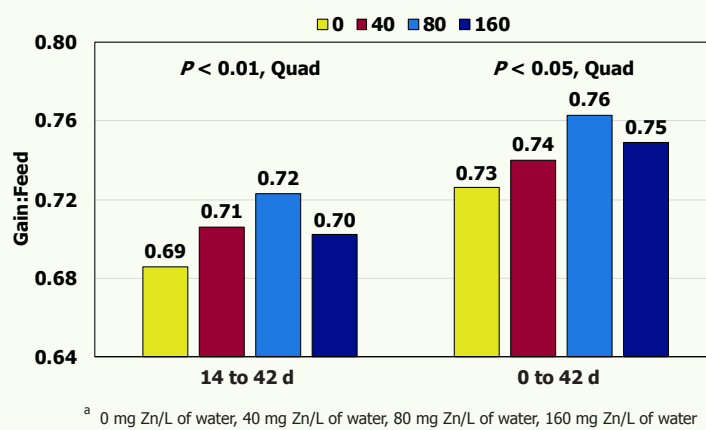
- Day 0 to 14
 - No differences in performance ($P > 0.10$)
- Day 14 to 42
 - 80 mg Zn/L of water improved ADG and G:F ($P < 0.05$, quad)
- Day 0 to 42
 - 80 mg Zn/L of water improved ADG and G:F ($P \leq 0.07$, quad)
 - 80 mg Zn/L of water tended to improve end body weight ($P = 0.07$, quad)

This study indicates that supplementing Zinpro-LQ via the water resulted in improvements in ADG and G:F for nursery pigs, with 80 mg Zn/L of water maximizing the response.

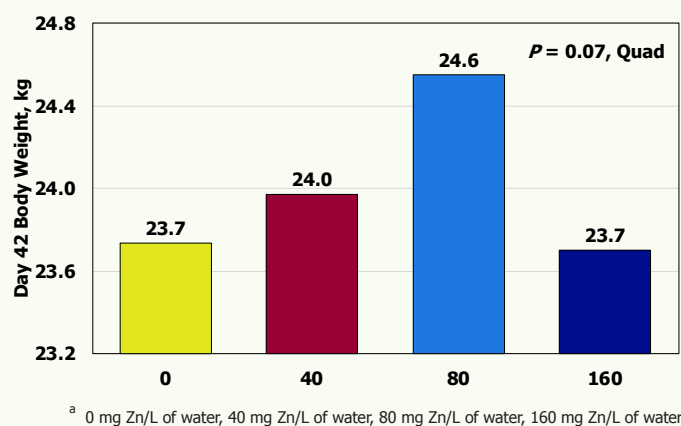
Effect of Zinpro-LQ on Average Daily Gain^a



Effect of Zinpro-LQ on Gain:Feed Ratio^a



Effect of Zinpro-LQ on Day 42 Body Weight^a



Abstract

Effects of titrated levels of water soluble zinc amino acid complex on growth performance of nursery pigs.

P. Aparachita¹, S.D. Carter¹, A.M. Sawyer¹, J.A. Harshman¹, Z.J. Rambo² and T.L. Ward²; ¹Oklahoma State University, OK; ²Zinpro Corporation, Eden Prairie, MN

Previously, we reported that supplementing a water soluble zinc via drinking water (0 to 80 mg/L) to nursery pigs improved ADG and G:F in a dose-dependent manner. To evaluate the efficacy of higher titrated levels of this water soluble zinc amino acid complex "Zinpro Zn LQ" (Zinpro Corporation, Eden Prairie, MN) on growth performance, 280 crossbred pigs (5.5 kg BW) were randomly allotted to four water treatments (7 pens/treatment; 10 pigs/pen). The water treatments were 0, 40, 80 and 160 mg Zn/L of water. Pigs were fed in 4 dietary phases with corn-soybean meal based diets: Phase 1 and 2 (2,500 and 1,750 mg Zn as ZnO/kg; d 1-7 and 7-14, respectively) and Phase 3 and 4 (200 mg Cu as CuSO₄/kg; d 14-23 and 23-42, respectively). Pigs and feeders were weighed weekly to determine ADG, ADFI, and G:F. Water meters were used to record and calculate water disappearance and zinc intake. Data were analyzed as a randomized complete block design. Orthogonal polynomial contrasts were used to determine linear, quadratic, and cubic effects. Water zinc intake and total zinc intake increased linearly ($P < 0.001$) with increasing zinc. From d 0-14 when high dietary zinc was fed, there were no differences ($P > 0.10$) in ADG, ADFI, or G:F. However, from d 14-42 when basal levels of zinc were fed, quadratic improvements in ADG (0.545, 0.561, 0.578, 0.546 kg; $P < 0.05$) and G:F (0.686, 0.706, 0.723, 0.702; $P < 0.01$) were observed with increasing zinc via water. Similarly for d 0-42, ADG (0.435, 0.440, 0.454; 0.434 kg; $P < 0.07$), G:F (0.726, 0.740, 0.763, 0.749; $P = 0.05$) and average ending wt (23.73, 23.97, 24.55, 23.70 kg; $P < 0.07$) improved quadratically with increasing zinc. In conclusion, supplementing Zinpro Zn LQ via water resulted in improvements in ADG and G:F for nursery pigs.

Keywords: growth performance, nursery pigs, water soluble, zinc

2019 Midwest American Society of Animal Science, March 11-13, Omaha, NE