Evaluation of a nutritional water supplement on growth performance of nursery pigs

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ABSTRACT
One-hundred forty weanling pigs (5.26 kg; 20 d of age) were used to determine the effects of a nutritional water supplement (WB; Water Boost, Furst-McNess, Freeport, IL) on growth performance of nursery pigs. Pigs were randomly allotted to two water treatments (7 pens/treatment; 10 pigs/pen). The water treatments were 0 and 62.5 mL WB/L of water (stock solution) supplied by water medicators (1:128 dilution). Pigs were fed simple, corn-soybean meal diets (no plasma or crystalline lactose utilized) in four dietary phases (Phase 1: d 0-7, Phase 2: d 7-14, Phase 3: d 14-21, and Phase 4: d 21-42). The water treatments were provided on d 0 through d 3. Pigs and feeders were weighed weekly to determine ADG, ADFI, and G:F. Water meters were used to record and calculate water disappearance. Data were analyzed as a randomized complete block design with pen serving as the experimental unit. Water disappearance (L/pig/d) was not affected from d 0-21, but it increased ($P < 0.01$) for pigs provided WB for d 21-42 (1.71 vs 2.12) and d 0-42 (1.11 vs 1.35). Growth performance was not affected by WB during d 0-21. However, from d 21-42, WB tended to increase ($P < 0.10$) ADG (483 vs 528 g/d) and ADFI (706 vs 767 g/d), but it had no effect on G:F. For the overall period, pigs provided WB from d 0-3 tended to have improved G:F (0.671 vs 0.684) and numerical increases in ADG ($P = 0.14$) and ADFI ($P = 0.17$) were observed. Final ending body weight tended to be increased ($P < 0.10$) for pigs provided WB (18.6 vs 19.9 kg). These results suggest providing WB for the first three days in the nursery to pigs fed corn soybean meal-based diets increased water disappearance and tended to improve growth performance of nursery pigs.

OBJECTIVE
Determine the effects of a nutritional water supplement (Water Boost, Furst-McNess Company, Freeport, IL) on growth performance of nursery pigs.

LITERATURE
- Dietary probiotics tended to increase final BW, ADG, and FI in piglets 22 d post-weaning (Prieto et al., 2014)
- Weaned (21 d) piglets supplemented with certain strains of probiotics had a greater villous height and a greater villous height to crypt depth ratio present in the duodenum, ileum, and jejunum (Lee et. al., 2014)
- Piglets fed a yeast product had a reduced instance of diarrhea and a lower death rate (Xu et al., 2018)
- Supplementing pigs with a organic acids in feed reduced the number of S. Typhimurium in the cecum (Tanaka et al., 2010)

WATER TREATMENTS
- Two treatments provided during d 0-3 upon arrival to nursery
  1) 0 (NC)
  2) 62.5 mL Water Boost/L of water (WB)
  supplied by water medicator (1:128) with ad libitum access
- Water Boost (WB: Furst-McNess Company, Freeport, IL) is a nutritional supplement containing probiotics, yeast fermentation extract, organic acids, and botanical extracts

MATERIALS & METHODS
- Pigs: 140 crossbred weaned pigs (average BW = 5.26 kg)
- Block: Randomly blocked by BW and litter origin
- Allotment: 10 pigs/pen with 7 pens/treatment
- Timeline: 42 d study
- Housing: Environmentally-controlled buildings
- Pigs and feeders weighed weekly (ADG, ADFI, G:F)

Water meter readings on each pen recorded daily

Statistical Analysis:
- MIXED procedure of SAS (SAS Institute, Inc., Cray, NC)
- Randomized complete block design
- Pen served as the experimental unit.
- Differences between treatments were considered significant with P-value ≤ 0.05, and a trend P-value > 0.05 and ≤ 0.10.

DIETARY PHASES
- Common, simple corn-soybean meal diet fed to all pigs
- Vegetarian diet, no in-feed or water antibiotics used
- No plasma or crystalline lactose was used throughout
- Phase 1: d 0-7, Phase 2: d 7-14, Phase 3: d 14-21, and Phase 4: d 21-4

CONCLUSION
- Inclusion of WB in water for the first 3 days:
  – Increased water intake
  – Tended to increase ADG and ADFI (d 21-42) and G:F (d 0-42)
  – Tended to increase final body weight
- Water Boost appeared to ease the transition of pigs in the nursery

RESULTS

FIGURE 1: Average Daily Gain

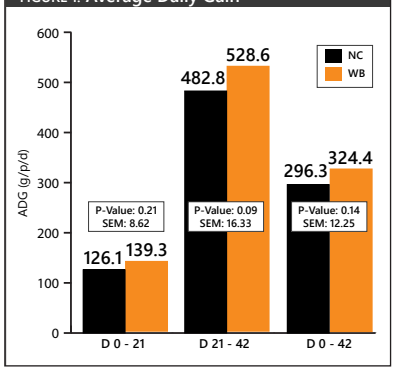


FIGURE 2: Average Daily Feed Intake

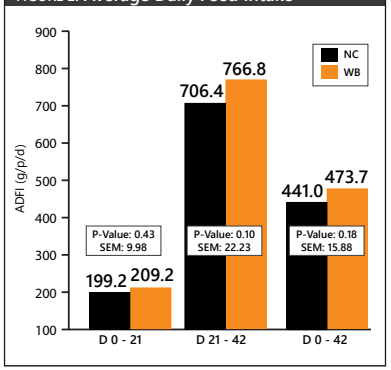


FIGURE 3: Average Water Intake

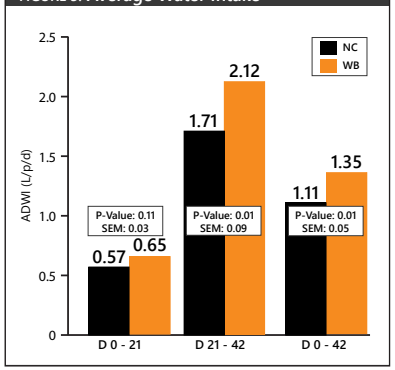


FIGURE 4: Feed Conversion Ratio (G:F)

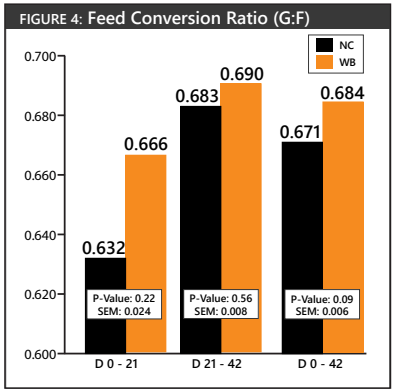
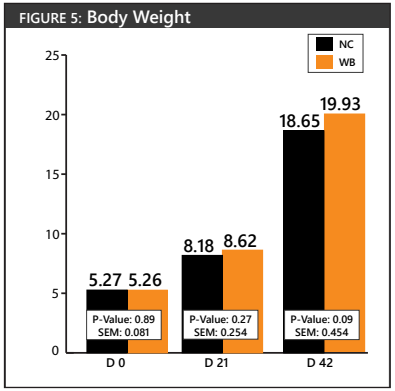


FIGURE 5: Body Weight



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