



# NUTRITION NOTES

Innovation + Research from Kent Nutrition Group

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## EFFECT OF VEVOVITALL® IN NURSERY PIGS

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Pig producers face many challenges in raising cost-effective pork to feed a growing world population. High-quality feed and nutrition are extremely important for achieving optimum pig health and pork production efficiency. Recently, there has been increased interest in alternatives to feeding growth-promoting antibiotics for digestive health and efficiency. Research with some feed acidifiers has shown that they can modify gut microflora, which can reduce digestive disorders and associated medication costs. However, not all acidifiers perform equally.

Benzoic acid is a naturally-occurring organic acid. It is commonly used as a preservative for certain foods and beverages, and the pure form of the acid is also very effective for acidifying swine feeds (reducing the diet pH to help prevent/control the growth of molds/yeasts/bacteria). When a diet containing an approved level of benzoic acid is consumed, it is metabolized differently in the pig than other organic acids used for feed acidification. It cannot be metabolized as an energy source for enterocytes (intestinal absorptive cells) like many other organic acids, but some of it is absorbed and metabolized to hippuric acid that is excreted while reducing the pH of urine. The reduction in urinary pH can lower ammonia emissions from the manure slurry, leading to improved environmental conditions for pigs, workers, and neighbors. Benzoic acid that is not absorbed continues to pass through the gastro-intestinal tract, and beneficially affects the populations of microflora and digestion throughout the intestine.

**VevoVital**® is the ultra-pure source of food-grade quality benzoic acid approved for the acidification of swine diets. It has low odor, low corrosion, and low caking properties, and is safe to handle. In nursery pigs, feeding up to the approved dietary level of 0.5% **VevoVital**® has resulted in better performance, reductions in diarrhea and ammonia emissions, and less use of medication in many of the independent university and field research trials performed globally (summaries of data available from DSM Nutritional Products). Most recently, similar results from a producer nursery study in the Midwestern U.S. has shown improvements in growth performance of nursery pigs fed **VevoVital**® from day 0 to 23 post-weaning, as well as a shift to fewer hemolytic bacteria and more non-hemolytic bacteria in the fecal samples collected on day 16 post-weaning (Dr. Jon Bergstrom of DSM Nutritional Products, Personal Communication).

To test the effectiveness of **VevoVital**®, we conducted a 33-day trial in weanling nursery pigs to determine the effects on performance and economics. In our study, we supplemented **VevoVital**® in the NexGen grind-and-mix starter programs during the first 20 days, and then removed it during the last 13 days of the study. The pigs were not health-challenged and had about 3.5 square feet per pig. We had 456 pigs and 52 pens per treatment with an initial starting weight of 13.6 lb.

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**Table 1. Effect of VevoVital<sup>®</sup> on Performance and Economics During Days 0-10, 0-20, and 0-33**

VevoVital <sup>®</sup> (1st 20 Days)		~√
Number of Pigs	456	456
Number of Pens	52	52
Initial Weight, lb	13.56	13.62
Days 0-10		
ADG, lb	.299	.306
ADF, lb	.397	.396
F/Gb	1.352	1.306
Cost/lb Gain, ¢	58.27	57.09
Net Return, \$/pig @ \$80/cwt	.65	.69
Days 0-20		
ADG, lb	.573	.587
ADF, lb	.743	.744
F/Ga	1.302	1.273
Cost/lb Gain, ¢	34.33	34.37
Days 0-33		
ADG, lb	.804	.818
ADF, lb	1.185	1.182
F/Ga	1.470	1.441
Cost/Lb Gain, ¢	30.71	30.49
Net Returnb, \$/pig @ \$60/cwt	7.89	8.10

KNG 4N-51&55 aVevoVital effect (P < .05); bVevoVital effect (P ≤ .10)

During Days 0-10, adding **VevoVital<sup>®</sup>** improved feed efficiency by 3.4% and slightly improved cost of gain and net return. Feed efficiency was significantly improved during the Day 0-20 stage with **VevoVital<sup>®</sup>**. Overall (Days 0-33), we observed significant improvements in feed efficiency (2%) along with numerical improvements in gain (1.7%) from added **VevoVital<sup>®</sup>**. A very impressive and significant positive net return of 21¢ cents/pig was observed when pigs were on the **VevoVital<sup>®</sup>** program (**VevoVital<sup>®</sup>** was used during the 1st 20 days).

**SUMMARY**

Previous research using **VevoVital<sup>®</sup>** in starter diets has shown that it can improve nutrient digestibility and growth performance, while also helping to reduce ammonia emissions and the incidence of diarrhea. In our trial work, we were able to show improvements in performance and economics when using **VevoVital<sup>®</sup>** in pigs that were healthy and not crowded. Commercial operations raise pigs with less square footage and can face health challenges, especially from a variety of enteric pathogens. In conclusion, these data show that **VevoVital<sup>®</sup>** is a high-quality and effective acidifier that is now part of the **Kent NexGen<sup>®</sup> Pig Starter Program**.

