

Effects of feeding a multi-enzyme and probiotic bacteria blend (CORE) on performance of nursery pigs fed a highly digestible diet

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ABSTRACT: The objective of this study was to evaluate whether performance of nursery pigs could be improved by using high levels of a multi-enzyme blend consisting of xylanase, phytase, cellulase, beta-glucanase, alpha-amylase and protease and a probiotic bacteria blend consisting of *Bacillus subtilis* and *Bacillus licheniformis* (CORE). For d 0 to 21, 0.3% CORE was added to two phases of a highly digestible basal diet (corn, soybean meal, fish meal, plasma and phytase; NC1) and when CORE was added to NC1, the supplemental phytase was removed (CORE1). For d 21-42, the third phase was a corn-soy basal diet that included phytase and 3.5% added fat (NC2), and 0.3% CORE replaced the phytase and 2.5% added fat (CORE2). There were 462 weaned pigs used with an average BW of 5.2 kg with 22 pigs/pen and 10 to 11 replications/treatment in a commercial scale nursery research facility. At the beginning of the trial pigs were randomly assigned to their dietary treatment. Pens of pigs were weighed and feed disappearance was measured to calculate ADG, ADFI, and F:G for d 0, 21, and 42. Data were analyzed as a randomized complete block design using GLM procedure in Minitab with Fisher's LSD test to determine differences between dietary treatments. For d 0-21, the pigs fed CORE1 had a 7.7% higher ADG (P=0.024) compared to pigs fed NC1. There was a tendency (P=0.090) for pigs fed CORE1 to have a 5.9% higher ADFI than NC1. For d 21-42, where 0.3% CORE replaced both supplemental phytase and 2.5% added fat, ADG tended to increase by 5.1%. In conclusion, the addition of CORE to a highly digestible nursery diet, replacing supplemental phytase, resulted in improved ADG and ADFI, and, in late nursery, CORE successfully replaced supplemental phytase and 2.5% of added fat with no loss of performance.

Table 1. Summary of Performance Data

Day 0-21	NC1	CORE1	SE	P-value
D 21 BW, kg	11.3 ^a	11.8 ^b	0.4	0.015
ADG, g	291 ^a	313 ^b	19	0.024
ADFI, g	337 ^y	357 ^z	24	0.090
F:G	1.16	1.14	0.04	0.648
Day 21-42	NC2	CORE2	SE	P-value
D 42 BW, kg	22.4 ^a	23.3 ^b	0.8	0.035
ADG, g	527 ^y	554 ^z	31	0.083
ADFI, g	746 ^a	817 ^b	53	0.015
F:G	1.42 ^a	1.48 ^b	0.03	0.003