The Effect of Feeding Low Complexity Diets Contaminated with Deoxynivalenol and Supplemented with NutraMixTM or Fish Oil on Nursery Pig Growth Performance.

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Three hundred twenty newly weaned pigs (6.7±0.3 kg BW) were used to determine the effect of low complexity diets contaminated with deoxynivalenol (DON) and supplemented with NutraMixTM or fish oil on nursery pig growth performance. Pigs were randomly divided into 40 pens and assigned to 1 of 5 dietary treatments (n = 8): [1] high-complexity diet containing animal proteins (HC) or one of four low complexity diets with protein supplied only by corn and soybean meal with [2] no DON contamination (LC), or [3] DON contamination of 3 ppm without supplements (DON-), [4] with NutraMixTM supplementation (2 g/kg; DONNM), or [5] with fish oil supplementation (2.5%, as-fed; DON ω3). Diets were fed over two phases (7 and 15 days, respectively) and a common phase III diet was fed to all pigs for 20 days. In phase I, ADG, ADFI, and G:F were not different between pigs fed the HC and LC diets, but were lower for pigs fed DONNM and DON ω3 (P < 0.05). In phase II, pigs fed the DON- and DONω3 diets had lower ADG than LC (375 vs. 410 g/d; P < 0.05) and lower ADFI than HC (452 vs. 519 g/d; P < 0.05), while pigs fed DON- and DONω3 had greater G:F than those fed HC (0.83 vs. 0.78; P < 0.05). The BW at the end of phase II were not different between HC and LC (13.0 kg), but tended to be less for DONω3 (12.6 kg; P = 0.084 and 0.079, respectively). In phase III and over the entire nursery period, there were no treatment effects on ADG, ADFI, G:F, or final BW (26.0±0.7 kg). Feeding low complexity diets contaminated with 3 ppm DON initially reduced growth performance, but pigs were still able to achieve BW not different from HC pigs at the end of the nursery period, regardless of supplementation.

Keywords: compensatory growth, nursery pig, deoxynivalenol

Effect of Fiber Source and Crude Protein Level on Nursery Pig Performance.

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A total of 360 pigs (DNA 200-400, initially 5.0 kg) were used in a 45-d growth trial to determine the effects of fiber source and crude protein (CP) level in diets without pharmacological levels of ZnO on nursery pig growth performance and fecal dry matter (DM). Pigs were randomly assigned to 1 of 8 treatments with 5 pigs/pen and 9 pens/treatment. Treatments were arranged in a 2×4 factorial with main effects of CP (21 or 18%) and fiber source [none, coarse wheat bran (CWB), oat hulls, or cellulose (Arbocel, J. Rettenmaier USA, Schoolcraft, MI)]. Fiber source was added to equalize the level of insoluble fiber contributed from 4% CWB, resulting in the addition of 1.85% oat hulls or 1.55% cellulose. Diets were fed in two phases (d 0 to 10 and 10 to 24) followed by a common diet (d 24 to 45). The 21% CP diets contained 1.40% SID Lys in phase 1 and 1.35% SID Lys in phase 2. Treatment diets were formulated to a maximum SID Lys:digestible CP level of 6.35%, thus SID Lys decreased in the 18% CP (1.25% SID Lys) diets. Data were analyzed using the lmer function in R. No fiber source × CP level interactions (P >0.05) were observed. Decreasing dietary CP decreased (P = 0.05) ADG, ADFI, G:F, or final BW (26.0±0.7 kg). Feeding low complexity diets contaminated with 3 ppm DON initially reduced growth performance, but pigs were still able to achieve BW not different from HC pigs at the end of the nursery period, regardless of supplementation. In conclusion, reducing dietary CP decreased growth performance and the inclusion of cellulose improved fecal DM of nursery pigs.
Effects of Initial Nursery Diet Budget on Growth Performance of 5.5- to 23-kg Pigs.

An experiment was conducted to determine the effects of the initial nursery diet budget on growth performance. A total of 3,264 pigs (initial BW = 5.5 kg), placed in pens with 51 pigs each, were used in a 45-d trial. There were 4 treatments consisting of different feed budgets of the initial nursery diet: 4.1 kg, 5.4 kg, 6.8 kg, or 8.2 kg. The experimental diet was corn, soybean meal, and whey permeate-based and contained 1.38% SID Lys. After the allocated budget was consumed, pigs were provided a common corn and soybean meal-based diet. There were 16 replicates per treatment. Pigs were weighed weekly to calculate ADG, ADFI, and G:F. Data were analyzed with SAS MIXED procedure.

In the first 14 d of the trial there was no evidence for differences (P > 0.10) in growth performance as all pigs were receiving their allocated budget of the initial diet. From d 14 to 21 as well as d 0 to 21, pigs that received a budget of 6.8 or 8.2 kg had improved ADG (quadratic, P < 0.05) and G:F (linear, P < 0.05) compared to those fed budgets of 4.1 or 5.4 kg. From d 21 to 45, when all pigs received a common diet, there was no evidence for differences (P > 0.10) in ADG. However, there was a linear response (P < 0.05) in G:F, with pigs previously fed the lowest feed budget presenting improved G:F. Overall (d 0 to 45), there was an improvement (linear, P < 0.05) in ADG and ADFI as feed budgets increased, with the best performance observed when pigs were fed 6.8 or 8.2 kg of the initial nursery diet. In conclusion, providing a 6.8 or 8.2 kg budget of the initial nursery diet resulted in improved overall nursery performance.

**Keywords:** budget, growth, nursery