Three studies were conducted to evaluate the effects of dried distillers grains with solubles (DDGS) on palatability and feed intake of growing pigs. In Exp.1, 90 gilts (initially 26.4 kg) were used to evaluate a corn-soybean meal-based diet with or without 30% DDGS from two different sources on feed preference. Source 1 was obtained from an ethanol plant built before 1990 and source 2 was obtained from a plant built after 1990. Each pen had two feeders, one with the corn-soybean meal diet and the other with one of the DDGS sources. There were 10 pens with six pigs per pen and 10 pens with three pigs per pen. Feeder locations were switched twice daily. From d 0 to 7, there were no differences in ADFI among the dietary treatments. However, from d 7 to 13 and overall, feed intake was lower (P < 0.01) for both DDGS diets when compared to the corn-soybean control. For Exp. 2 and 3, there were four feeders in each pen, each containing a different diet. Feeder locations were switched twice daily. In Exp. 2, 187 barrows and gilts (initially 23.6 kg) were used to examine the effects of increasing DDGS in either the corn-soybean meal or DDGS diets. These decreased (P < 0.01) with 0 or 30% DDGS and either 0 or 0.02% Sucram. There were 15 hundred twenty five cross-bred pigs (DYL, 6.00 kg, ± 0.34) used to examine the effects of adding Sucram, a feed flavor additive, in PALM diet (P < 0.01) on feed intake in either the corn-soybean meal or DDGS diets. These studies demonstrate that pigs prefer corn-soybean diets compared with diets containing DDGS and the source of DDGS or addition of a feed flavor did not influence palatability.

Key Words: Pigs, Feed Intake, DDGS


This experiment was conducted to determine the effect of dried palm oil powder containing different amount of monoglyceride on the growth performance and serological cholesterol changes in weaned pigs. One hundred twenty five cross-bred pigs (DYL, 6.00 ± 0.79 kg average initial BW) were used in a 21 d growth assay. Dietary treatments included SOY (containing 5% soybean oil), PALM (containing 5.5% dried palm oil powder) and SOPM0, 12.5 and 25 (containing 2.5% soybean oil and 2.7% dried palm oil powder containing 0%, 12.5% and 25% mono-glyceride, respectively). For the whole period, ADFI was increased in dried palm oil powder containing monoglyceride and PALM treatments compared with SOY and SOPM treatments (P<0.05). Digestibility of fat was higher (P<0.05) for pigs fed the SOY diet than fed other diets. SOPM diets containing monoglyceride showed increased fat digestibility compared with PALM diet (P<0.05). However, there were no significant differences in digestibility of DM, N and DE (P>0.05). Backfat thicknesses were not significantly different among treatments. There was a decrease in total cholesterol, HDL-cholesterol, triglyceride, total lipid and increase in free fatty acid (P<0.05) in serum of pigs fed SOY diet. Also, triglyceride concentration in serum was increased in PALM treatment compared with SOPM treatment (P<0.06). In conclusion, feeding soybean oil in weaned pigs shows a higher digestibility of fat and lower concentration of cholesterol and triglyceride in blood than feeding only dried palm oil. Also, feeding dried palm oil powder containing mono-glyceride result in improved digestibility and ADPI.

Key Words: Dry palm oil powder, Monoglyceride, Pigs

175 The effects of herbal plant mixture(Miracle20) supplementation on the productions of lactating sows and growth performance and hematological changes of piglets. B. J. Min*, O. S. Kwon1, J. W. Hong1, W. B. Lee1, K. S. Son2, Y. H. Yu2, and I. H. Kim1, 1Dankook University, 2HANPEL TECH Co., Ltd.

This study was conducted to evaluate the effects of dietary herbal extract mixture(Miracle; included Angelicae Gigantis radix, Rehmanniae radix, Cnidii rhizoma, Glycyrrhizae radix, Schizandraceae fructus, Plantago asiatica and Dioscorae radix) on the productions of lactating sows and growth performance and hematological changes of piglets. Twenty seven sows (Yorkshire × Landrace× Duroc, 1 to 3 parities) were used in a 21 day trial. Dietary treatments included 1) CON (control; basal diet), 2) HPM0.1 (basal diet + herbal plant mixture 0.1%) and 3) HPM0.2 (basal diet + herbal plant mixture 0.2%). Backfat thickness loss from farrowing to weaning was decreased in HPM treatments compared with CON treatment (linear effect, P<0.003). ADFI was decreased in sows fed herbal plant mixture (linear effect, P<0.05). Also, treatments of dietary herbal plant mixture reduced day of return to estrus compared with control (linear effect, P<0.05). Availability of digestible energy was improved in HPM treatments compared with control(linear effect, P<0.05). In piglets, weight gain (P>0.34) and survivability (P>0.89) after weaning were not affected by treatment. No statistical differences were found for albumin, WBC, lymphocyte and monocyte concentration among treatments(P>0.05). In conclusion, dietary herbal plant mixture reduces backfat thickness loss and day of return to estrus and improves availability of digestible energy in lactating sows.

Key Words: Herbal plant mixture, Lactating sow, Piglet


Phosphorous (P) is essential in supporting bone growth and maintenance; however, little research has focused on the genetic mechanisms controlling P utilization. To better understand these mechanisms, we examined the effects of P deficiency in 36 gilts (6.63 ± 0.78 kg) from 6 litters (3 gilts/litter) sired by two lines known differ in bone structure (one considered heavier-boned (HB) and the other lighter-boned (LB)). Pigs were assigned to 3 dietary treatments: P adequate (0.414% available P for 2 wks), repletion (0.14% available P for wk 1, 0.41% available P for wk 2), or P deficient (0.14% available P for 2 wks). After 14-d, pigs were harvested and bone marrow was collected for analysis of gene expression by real-time PCR, and radial bones were collected for breaking strength analysis. In the LB line, repletion pigs had higher ADG (P<0.01) than the other treatments, and in HB pigs P deficiency caused a decrease in ADG (P<0.01) compared to the other treatments. In LB pigs P deficiency did not affect ADG. The radial bone strength of P deficient pigs was less (P<0.01) than that of the other treatments in both sire lines. In HB, but not LB pigs, treatment affected the expression of calcitonin receptor (P<0.05), IL-6 (P<0.05), oxytocin receptor (P<0.11), IGFBP-3 (P<0.06) and vitamin D receptor (P<0.04). Expression of osteocalcin and osteoprotegerin was not affected by sire or treatment. Bone traits and expression levels were analyzed using a mixed model with sire line, treatment and the interaction between sire line and treatment fit as fixed effects. Based on this study, the HB line appears to be more responsive to dietary P deficiency than the LB line. A better understanding of the role genetics plays in P homeorhesis will enable selection for pigs that will require and excrete less P, as well as allow for the recommendation of specific genetic lines for producers with different waste management strategies.

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Key Words: Phosphorous, Gene expression, Bone