
Three trials were conducted to investigate the effect of feeding betaine (1 g/kg of diet) to finishing male, female and/or castrate pigs. Trial 1 examined the effect of dietary amino/Calorie ratios (LC: 36, 42, 49 or 56 g MJ DE) with or without betaine to 40 males and females (71 kg initially) for 41 d in a 2 x 4 factorial treatment arrangement. Males consumed more (P < 0.01) feed and gained faster (P < 0.01) than females. The addition of betaine (BT) to the diet of pigs tended to lower feed intake as compared to controls with no effect in males resulting in a BT x sex interaction (P < 0.05). A LC x BT interaction (P < 0.05) was observed for feed:gain ratio (FG) with betted pigs having a lower FG than controls with no consistent response in males. Trial 2 utilized a similar 2 x 4 factorial treatment arrangement but LC offered were 45, 50, 56 or 67 g MJ DE using 160 gts (103 kg initially) fed for an average of 26 d with or without BT. Daily gain and feed intake were improved by 22 and 14% with addition of BT in the .45 LC diet, but BT tended to depress intake and gain at higher dietary LC levels (.62 or .87 g MJ DE). P2 and tenth rib fat depths were greater (P < 0.05) and LEA lower (P < 0.07) for BT-fed as opposed to control-fed gits. Trial 3 was designed as a 2 x 2 x 4 factorial with two dietary DE levels (14.7 or 13.8 MJ/kg) fed at 4 LC (39, 43, 47 or 51 g MJ DE) with or without BT using 160 gts (101 kg initially) for 26 d. A BT x DE interaction (P < 0.10) was observed for ADG and feed intake. Pigs fed diets with 13.8 MJ/kg with BT tended to consume less fed and grow slower than pigs fed BT in contrast. BT addition of pigs with 14.7 MJ diets tended to increase feed intake and gain. As observed in trial 2, feed intake and ADG tended to improve with BT addition to lower LC diets. Increasing LC linearly (P < 0.05) decreased P2, first rib and last rib fat depth and LEA. Data indicates BT response on growth and/or carcass is influenced by dietary LC and DE level. BT tends to improve growth performance in lower LC (protein) diets, but depresses intake and gain in high LC (protein) diets.

Effect of starter feeding on growth performance and lean body mass at market weight in two different swine genotypes. K. Y. Whang* and R. A. Easter, University of Illinois, Urbana.

A trial was conducted to access the effect of dietary treatment during the starter period on growth performance and lean yield at market weight in barrows and gits from Yorkshire-Duroc females mated to Hampshire sires (F2) and Camborough 15 females mated to PIC line 405 sires (F4). Pigs (age = 21 ± 1 d; weight = 4.53 ± 0.15 kg) were assigned to two 2 x 2 factorial arrangement of eight treatments. Animals were randomly assigned to treatments from blocks based on litter of origin, weight and gender. Treated animals were divided according to genotype in two swine genotypes (L and H). A 6-day starter feeding program was provided for 41 d postweaning. The H was a three-phase program while L was a single-phase program. The phase 1, 2 and 3 diets of H were provided from day 0 to 7, 7 to 21 and 21 to 41, respectively. While diets were isonitrogenous and isocaloric, qualitative differences were due to ingredients used. After the starter period, pigs from H and L treatments were provided the same corn-soybean meal-based diets for the growing (d 41 to 85 postweaning) and finishing (d 85 to 151 postweaning) periods. A total of 84 pigs were slaughtered, carcass measurements were taken and lean body mass (LBM) at termination estimated (NPPC, 1991). Average daily gain of H was greater (P < 0.01) than that of L for the starter period in both genders and both genotypes. During finishing period, P2 barrows and gits fed the low-quality diet sequence (FHL and FHS) tended to grow faster than P2 barrows and gits fed the high-quality diet sequence (FHB and FHS). The terminal body weights of FHB and FHL were 111.16 ± 2.5 kg and 110.19 ± 2.6 kg, and those of FHS and FLS were 108.01 ± 2.6 kg, respectively. However, PIC HB (PHB) tended to grow faster (P < 0.20) than PLB for whole experimental period. Final weights were 119.69 ± 0.2 kg for FHL and 112.77 ± 4.8 kg for PLB. Also, PHS and PLS had similar ADG for finishing period. The terminal body weights were 105.05 ± 0.6 kg for FHS and 100.41 ± 1.9 kg for FLS. Starter feeding program did not affect LBM at termination within gender or genotype. Gits were leaner (P < 0.001) than barrows, but LBM was the same. The PIC gits (50.80%) were leaner (P < 0.05) than the P2 gits (49.20%) and gits (49.07% for PIC and 38.72 kg for F2). This experiment suggests that ability to compensate for retarded growth during the starter period depends on genotype, however lean growth is not affected by starter feeding program regardless of gender or genotype.