with general linear models to estimate line, treatment, and interaction effects; W, BF, and LMA were fitted as covariates in separate analyses. 91.4% of LWxLR gilts on AL and 78% on R attained puberty ($P < 0.01$). Treatment did not affect this percentage for L45X (AL = 97.1%, R = 94.2%). More L45X than LWxLR gilts produced P1 litters (L45X=69%, LWxLR=56%, $P< 0.01$). L45X gilts produced 2.85 ±1.57 ($P = 0.07$) more live pigs through Parity 3 than LWxLR females. Treatment did not affect lifetime number of live pigs based on breeding gilts; but of females with a P1 litter, those on AL produced 2.91±1.61 ($P= 0.07$) more live pigs than those on R. An increase in W at 226 d was associated with increased likelihood of a P1 litter only for L45X, R gilts (0.0068±0031/kg). An increase of BF at 226 d was associated with increased likelihood of producing a P1 litter only for LWxLR gilts (AL=0.013±0.006/mm; R=0.031±0.009/mm). W and BF at P1 and P2 did not affect the likelihood of another litter.

Key Words: Gilt, Energy intake, Lifetime production

169 Effects of sow parity and L–arginine treatment during early gestation on litter size and birth weight. M. Hahn*[1], S. Town[1], M. Smit[1], J. Patterson[1], A. Pasternak[1], D. Guggenbiller[2], C. Smits[3], P. Ramaeker[3], M. Dyck[1], and G. Foxcroft[1], [1]*Swine Research & Technology Centre, University of Alberta, Edmonton, Alberta, Canada*, [2]*Trouw Nutrition, Highland, IL*, [3]*Nutreco Swine Research Centre, Sint Anthonis, The Netherlands*.

L–arginine, a key regulator of embryogenesis as well as placental and fetal growth has been reported to increase litter size born. L–arginine could also counteract effects of intrauterine growth retardation (IUGR) likely due to intra-uterine crowding established in the higher parity sows used in the study. However, the optimal dose/duration of L–arginine treatment is not known. Therefore, parity two to six sows in estrus within ten days of weaning (n = 735) were bred by artificial insemination and allocated equally to one of six treatments: Controls – untreated; Tmt 1 – full dose (20g) L–arginine (ProgenosTM) fed on gestation days 16-28; Tmt2 – half dose on days 16–22; Tmt3 – full dose on days 30–44; Tmt4 – full dose on days 16–22; Tmt5 – full dose on days 23–29. Parity was equally distributed among all treatments. Litter data was collected from the 586 pregnant sows within 24 hours after farrowing. Total pigs born was affected by parity (12.1 ± 0.3, 12.6 ± 0.3, 11.03 ± 0.3, and 11.5 ± 0.3, in parity 2, 3, 4, and 5&6, respectively; P<0.01) but not by L–arginine treatment (P = 0.17). Overall, litter birth weight was strongly and negatively correlated with total born (r = -0.53) and was not affected by L–arginine treatment (P = 0.26). For litters of 10-15 total born, birth weight was less affected by total born (r = -0.18) but still not affected by L–arginine treatment (P = 0.2). Litter size and birth weight were not affected by L–arginine treatment; however, litter size was affected by parity.

Key Words: L-arginine, Pig

170 Effects of different creep feeder designs and feed accessibility on proportion of piglets consuming creep feed and litter performance. R. C. Sulabo*, M. D. Tokach, J. L. Nelssen, S. S. Dritz, R. D. Goodband, and J. M. DeRouchey, *Kansas State University, Manhattan*.

A total of 54 sows (PIC Line 1050) and their litters were used to determine the effects of different creep feeder designs on the proportion of piglets consuming creep feed (eaters) and pre-weaning performance. Two groups of sows were blocked according to parity and date of farrowing using a randomized complete block design and allotted to three experimental treatments: Treatment 1 – rotary feeder with hopper; Treatment 2 – rotary feeder without hopper; and Treatment 3 – pan feeder. A creep diet (3,495 kcal ME/kg, 1.56% TID Lys) with 1.0% chromium oxide was offered ad libitum at d 18 until weaning (d 21). A single lactation diet (3,503 kcal ME/kg, 0.97% TID Lys) was used, and sows were allowed free access to feed throughout lactation. Fecal samples from all piglets were taken twice using sterile swabs between 3 and 12 h before weaning for all treatments. Piglets were categorized as eaters when the fecal sample was colored green at least once on any of the two samplings. Results showed no differences in pig (5.6, 5.9, and 5.9 kg; P>0.18) and litter (59.1, 61.6, and 61.3 kg; P>0.51) weights at weaning among litters using the different types of creep feeder. Total and daily gains of pigs (0.72, 0.82, 0.77 kg and 245, 268, 263 g/d; P>0.20) and litters (7.7, 8.3, 8.1 kg and 2.6, 2.8, 2.7 kg/d; P>0.31) were similar across treatments. Litters using the rotary feeder with the hopper had 2.7 times lower (0.44 kg; P<0.01) total creep feed disappearance than litters using the rotary feeder without the hopper (1.18 kg) and the pan feeder (1.24 kg). Creep feeder design influenced (P<0.01) the proportion of eaters with a higher percentage of eaters created when litters were fed using the rotary feeder with hopper (69%) than when using the rotary feeder without hopper (47%) or the pan feeder (42%). In conclusion, the proportion of eaters in creep-fed litters and feed wastage can be influenced by non-dietary factors, such as creep feeder design.

Key Words: Feed management, Creep feed, Feeder design

171 Effect of dietary vitamin levels and group size on performance of growing pigs. Y. Huang*[1], Y. Wang[1], J. H. Cho[1], Y. J. Chen[1], J. S. Yoo[1], H. J. Kim[1], K. Y. Whang[2], and I. H. Kim[1], [1]*Dankook University, Cheonan, Choongnam, Korea*, [2]*Korea University, Seoul, Korea*.

This study was conducted as an effort to assess the effects of dietary vitamin levels and group sizes on growth performance, nutrient digestibility, and blood characteristics in growing pigs. A 2×3 factorial (two vitamin levels, three regimens of group sizes) arrangement was utilized with 96 pigs (BW=23.10±0.95kg). The pigs were divided into 6 treatment groups with 4 replications. The group sizes were 3, 4, or 5 pigs per pen, respectively. The floor-space allowances for all treatments were 0.64, 0.48, and 0.38 m^2 /pig. The diets used in this study were a basal diet and a high vitamin diet (twice the NRC recommended requirement). The ADG and ADFI of pigs were decreased linearly as the group size increased (P=0.03 and P=0.01, respectively). The G/F of pigs was 5% lower (P=0.03) in the high vitamin treatment group (0.531) as compared with the control treatment group (0.557). Both DM and N digestibility were affected negatively to a significant degree by high vitamin levels in diets (P=0.05 and P=0.04, respectively). Moreover, a negative effect (linear, P=0.02) on N digestibility was detected in the large groups. Cortisol concentrations were increased with increasing group size (linear, P=0.03). And the principal effects of dietary vitamin level were observed, cortisol concentration in control treatment group (4.20μg/dl) was 11% higher (P=0.04) than in the high vitamin treatment group (3.79μg/dl). Serum urea nitrogen concentration was affected in a linear fashion by group size (P=0.03) with the highest concentration noted in the 3 pigs/pen treatment. Group size also caused a linear reduction in WBC concentration (P=0.05). Our data indicated that the principal effect of group size had no interaction with dietary vitamin levels. In conclusion, our results indicate that pigs with lower feed intakes as a