actual model for a given analysis differs for each category. For example, the growth traits birth weight and weaning weight are analyzed in a bivariate model as well as weaning weight and yearling weight, but weaning weight EPD reported are from the birth weight/weaning weight analysis. These traits are run together because they are genetically correlated and the increased amount of information adds accuracy to the prediction. Weaning weight is included in the carcass analysis, but for a different reason than it was included in with the growth traits. Weaning weight is analyzed with carcass traits to account for selection bias seen when calves are either selected as replacements or as slaughter animals. The production of EPD is its own unique puzzle, but if done properly provides producers with the most advanced tools currently available to help them increase the profitability of their operation.

Key Words: Beef cattle, Genetic evaluation, Expected progeny differences

W98 Identification and characterization of an AFLP marker for protein yield in Canadian Holsteins. B. S. Sharma*[1], Z. Jiang[2], and G. B. Jansen[1], [1]*Department of Animal and Poultry Science, University of Guelph, Canada,* [2]*Department of Animal Science, Washington State University, USA*.

A total of 200 cows, including 100 high and 100 low EBV for protein yield were used for genome-wide screening of QTL (quantitative trait loci) linked markers for protein yield in Canadian Holsteins using selective DNA pooling and amplified fragment length polymorphism (AFLP) approaches. These cows were selected from an experimental population of 5445 animals and used to form 5 high and 5 low performance pools with 20 animals per pool. AFLP analysis was performed on these pools using 80 selective primer combinations. The PCR products of selective amplifications were electrophoresed and electropherogram readings were standardized by dividing the sum of peak heights of standard length fragments. Standardized peak heights of AFLP fragments were log transformed and compared between high and low pools. A 288 bp fragment, generated using the E-ACG/T-CAT primer combination, was found to differ most significantly (P¡0.001). The difference was also confirmed by AFLP genotyping of individual cows. The AFLP fragment was then extracted from the gel and sequencing analysis revealed a C/T substitution responsible for this AFLP polymorphism. This marker was genotyped on all high and low performance animals using a Bi-PASA (bi-directional PCR amplification of specific allele) technique along with approximately equal addition of new animals into each pool from both tail of EBV distribution. Allele "C" was twice as frequent in low than in high performance animals (0.28 vs. 0.14, P¡0.01). A BLAST search against GenBank databases showed evidence that this AFLP marker is orthologous to an intron region of the human *TCF7L2* gene. Based on comparative maps between human and bovine genomes, we genotyped two additional markers in this AFLP marker region on a bovine/hamster RH panel. RHMAP analysis assigned this AFLP marker and the bovine *TCF7L2* gene on bovine chromosome 26 (BTA 26).

Key Words: AFLP, Selective DNA pooling, Dairy cattle

Nonruminant Nutrition

W99 Enzyme addition as a tool to improve early postweaning piglet performance. E. Gómez[1], M. Cortés[2], J. Sánchez[2], F.J. Guzmín[2], and P. Medel*[2], [1]*Centro de pruebas de porcino, Hontalbilla, Spain,* [2]*Imasde Agropecuaria, S.L., Spain*.

A total of 192 crossbreed piglets (Pietrain*Large white x Large white*Landrace), 50 % male and 50 % female, weaned at 21 days and weighting 6.5 kg were used to determine the effect of addition of an enzymatic complex (CE n 34) containing 275 U/kg of endo-1,3(4)-β-glucanase (E.C. 3.2.1.6), 400 U/kg of endo-1-4-β-xylanase (E.C. 3.2.1.8) and 3,100 U/kg of α-amylase (E.C. 3.2.1.1) to diets on performance. There were two experimental treatments based on enzyme supplementation (500 mg/kg) to a basal diet. The experimental design was applied in both the prestarter (21 to 40 d of age) and the starter diet (40 to 60 d of age). Nutritive value of the diets was 10.08 MJ NE/kg and 14.7 g/kg lysine for Prestarter and 10.03 MJ NE/kg and 13 g/kg lysine for Starter, and were based on barley, wheat and maize. Each treatment was replicated 8 times and 12 piglets caged together formed the experimental unit. Data were analyzed by using the GLM procedure of SAS. At 40 d of age, piglets fed the enzyme supplemented diet showed higher body weight (9.34 vs 8.35 kg, P<.01); daily gain (124 vs 72 g/d, P<.05); feed intake (247 vs 193 g/d, P<.05); and better feed conversion (2.05 vs 2.83 kg/kg, P<.05) than animals fed the unsupplemented diet. However, from 40 to 60 d control animals showed better feed conversion (1.44 vs 1.56 g/g, P=.03) and similar growth rate than enzyme supplemented piglets (528 vs 428 g/d, P>.05), so that, global differences (21 to 60 d of age) on performance were not significant. In addition, piglets fed the enzyme supplemented diet tended to be cleaner (5= very good, 0=very poor) than control animals at 40 d of age (3.31 vs 2.81, P=.07), but differences disappear thereafter. In conclusion, enzyme addition improved piglet performance in the prestarter period, but for the global period these differences disappeared, probably due to compensatory growth.

Key Words: Enzyme supplementation, Piglets

W100 Xylanase, glucanase and amylase supplementation to piglet diets. P. Medel*[1], M. I. Gracia[1], E. McCartney[2], A. Knox[3], and J. McNab[3], [1]*Imasde Agropecuaria, Spain,* [2]*Pen & Tec Consulting, Spain,* [3]*Roslin Nutrition, Scotland*.

A study was designed to assess the efficacy of an enzyme complex (CE n 34) containing 275 U/kg of endo-1,3(4)-β-glucanase (E.C. 3.2.1.6), 400 U/kg of endo-1-4-β-xylanase (E.C. 3.2.1.8) and 3,100 U/kg of α-amylase (E.C. 3.2.1.1), supplemented at 3 doses (T2: 400, T3: 500 and T4: 600 mg/kg) to a pelleted diet based on cereals (wheat, maize, barley) on the performance of newly-weaned piglets, in comparison with a negative control group (T1, 0 mg/kg). The experimental diets were fed in two phases: as prestarter pellets from weaning (21 d) to 42 d and as starter pellets from 42 to 63 d of age, to 16 replicates of 10 piglets per treatment. The prestarter and starter diets, respectively, were formulated to contain 12.5 MJ ME/kg and 15 g/kg lysine and 12.6 MJ ME/kg and 13.5 g/kg lysine. Data were analyzed as a completely randomized block design using the GLM procedure of SAS. For the overall period of growth, piglets fed on T3 (500 mg/kg of enzyme complex) gained more weight than piglets fed on either T1 or T4, with the piglets fed on T2 having an intermediate value (17.51, 18.09, 18.49, 17.55 kg for T1 to T4, respectively, P<.05). Feed intake was not affected by dietary treatment, but piglets fed on T3 had better feed conversion ratios than those fed on T4, with pigs fed on both T1 or T2 having intermediate values (1.601, 1.584, 1.536, 1.614 g feed/g gain for T1 to T4, respectively, P<.05). Neither mortality nor piglet uniformity was affected by dietary treatment. It was concluded that i) the addition of the enzyme complex to a diet for piglets improved their growth, and ii) the dietary concentration of the enzyme complex resulting in the optimal performance was 500 mg/kg.

Key Words: Enzymes, Piglets

W101 Enzyme supplementation to piglet diets. A. Morillo[1], D. Villalba[2], E. McCartney[3], M. I. Gracia[4], and P. Medel*[4], [1]*Test & Trials, Spain,* [2]*U de Lleida, Spain,* [3]*Pen & Tec Consulting, Spain,* [4]*Imasde Agropecuaria, S.L.*.

A study was designed to assess the efficacy of an enzyme complex (CE n 34) containing 275 U/kg of endo-1,3(4)-β-glucanase (E.C. 3.2.1.6), 400 U/kg of endo-1-4-β-xylanase (E.C. 3.2.1.8) and 3,100 U/kg of α-amylase (E.C. 3.2.1.1), when added at 2 concentrations (T2, 500 and T3, 600 mg/kg) to a pelleted diet based on cereals (wheat, maize, barley) on the performance of newly-weaned piglets, in comparison with a negative Control group (T1, 0 mg/kg). Diets were fed in 2 phases: Prestarter from weaning (21 d) to 35 d and Starter from 35 to 57 d of age, to 15 replicates of 10 piglets per treatment, in 3 blocks (weanings). Nutritive value of the diets was 10.55 MJ NE/kg and 16.1 g/kg lys for Prestarter and 10.37 MJ NE/kg and 12.5 g/kg lys for Starter. Data were analyzed as a completely randomized block design by using the GLM procedure of SAS. Piglets fed enzyme supplemented diets were heavier than Controls at 35 (9.2, 9.7 and 9.7 kg, P<.01) and at 57 d of age (18.2, 19.2 and 19.2 kg for T1, T2 and T3 respectively, P<.01). Enzyme addition improved piglet growth by 16% from 21 to 35 d (195, 227 and 226 g/d, P<.01), by 5% from 35 to 57 d (404, 426 and 424 g/d, P<.01), and by 8% from 21 to 57 d of age (322, 349 and 347 g/d for T1, T2 and T3 respectively, P<.01). Enzyme supplementation also induced improvements in feed intake from 21 to 35 d, from 35 to 57 d and for the overall period (445,

477 and 487 g/d for T1, T2 and T3 respectively, P<.01). Finally, enzyme complex reduced feed conversion ratio by 4% from 21 to 35 d of age (1.23, 1.20 and 1.17 g/g for T1, T2 and T3 respectively, P=.01). No significant differences were found between 500 mg/kg and 600 mg/kg. There were no significant differences among treatments in piglet body weight uniformity, cleanliness, incidence/severity of diarrhoea, veterinary treatments or mortality. In conclusion, the addition of 500 or 600 mg/kg of an enzyme complex containing glucanase, xylanase and amylase to a barley wheat and maize-based diet of weaned piglets improved growth performance.

Key Words: Feed enzymes, Piglets

W102 Activity of disaccharidase in small intestinal membranes of piglets as influenced by age. Q. M. Yang*[1,2], D. F. Li[1], and S. Y. Qiao[1], [1]*College of Animal Science and Technology, CAU, Beijing, P.R. China,* [2]*Southern Research and Outreach Center, University of Minnesota.*

The objective of this study was to determine the activities of disaccharidase in the small intestinal membrane of pigs. Thirty-nine pigs from eight litters were creep fed from d 28 and weaned on d 35. On d 0 (day of farrowing), d 7, 14, 21 and 28, three pigs were selected and d 35, 42, 49 and 56, six pigs were selected and prepared for membrane collection of jejunum and ileum on ice cold plate to determine the activity of disaccharidase in the membranes. The results indicated that the activities of lactase, sucrase and maltase were 1.91±0.65, 0.14±0.11 and 0.32±0.14 U/g membrane of the middle jejunum, respectively, on d 0 before sulking. The average activity of lactase was 4.16±1.54 U/g membrane during 1 to 4 weeks, however, it decreased (P<0.05) to 2.23±1.20 U/g membrane on week 5 and to a low level (P<0.01) of 0.68±0.45 U/g membrane after week 6. The activity of lactose was higher in ileum in the first week and in the proximal region of the jejunum. The average activity of sucrase in the membrane of small intestine was, respectively, 1.63±0.65, 2.09±0.66, 2.91±1.09, 5.71±2.2, 7.05±3.43, 2.04±1.00, 3.72±1.90 and 3.34±1.91 U/g membrane from week 1 to week 8. The activity of sucrase decreased after weaning (P<0.01). The average activity of maltase in the membrane of small intestine was only 1.23 1.58 U/g during week 1 to week 3 and increased (P<0.01) to 9.43±2.09 U/g membrane at 4 weeks old. However, it decreased (P<0.01) to 1.37±1.33 U/g membrane on week 6 of weaning, and then increased to 4.39 4.55 U/g membrane at week 7 and week 8. The activity of lactase coincided with the ability to digest lactose from milk before week 4, and then the decrease on week 5 when the pigs increased solid feed intake, and dropped to a very low level after weaning. The activity of sucrase was developed continuously, and reached its peak on week 5, but decreased at weaning. The activity of maltase developed on week 4, but was dramatically affected by weaning. In conclusion, the activity of lactase was due to the presence of milk, and the activities of sucrase and maltase were developed when pigs were growing, but decreased due to weaning.

Key Words: Piglets, Small intestinal membrane, Diasaccharidase

W103 Effects of feeding flaxseeds on the production traits of sows. S. K. Baidoo*[1,2], G. Azunaya[1], and A. Fallah-Rad[1], [1]*Department of Animal Science, University of Manitoba,* [2]*Southern Research and Outreach Center, University of Minnesota.*

A feeding trial using sows was conducted to determine the effects of dietary supplementation of flaxseeds (FS) during gestation and lactation on the production traits of sows and litter performance. Two hundred and forty three multi-parous sows (Camborough 15, PIC, Acme Alberta, Canada) were allotted to this study in a commercial 3000 sow farrow to wean facility. The sows were assigned to two dietary treatments, 0% and 5% FS immediately after breeding and fed through gestation and lactation. Individual sow or each pen of piglets was an experiment unit. Measurements in different gestational phases were treated as repeated measurements. The data were statistically performed by ANOVA using the GLM procedures of SAS. The body weight of sows fed the 5% flaxseed (FS) supplemented diet was higher (P<0.05) than sows fed 0% FS diets during gestation (249.4 vs 234.3 sem=2.7 kg). Sows fed 5% FS lost 28% more body weight at weaning than the control fed sows (219.5 vs. 211.3; sem=5.2kg). There was no dietary effect (P>0.05) on backfat thickness in sows during gestation and lactation. Litter size born alive was not influenced (P>0.05) by dietary treatments. Litter size weaned was higher (P<0.05) in the sows fed the 5% FS compared to control (10.4 vs. 9.05; sem= 0.03). Piglet birth weight (1.65 vs. 1.45; sem= 0.07 kg) and weaning weights (4.80 vs. 4.30; sem= 0.04 kg) were higher for sows fed the 5% FS compared to the control. The conception rate from first service was 89.3% for the sows fed the control diet, and 100% for the sows on the 5% FS diet. In conclusion, the production traits of sows were improved by the supplementation of 5% flaxseeds in diets of pregnant and lactating sows.

Key Words: Sows, Flaxseed, Production traits

W104 Dietary effects of flaxseed and vitamin E on the concentration of serum progesterone and vitamin E in sows. S. K. Baidoo*[1,2], A. Fallad-Rad[1], and Q. Yang[2], [1]*Department of Animal Science, University of Manitoba,* [2]*Southern Research and Outreach Center, University of Minnesota.*

The objective of this study was to determine the effects of flaxseed and vitamin E on serum progesterone concentrations (PGC) of sows and vitamin E levels of sows and piglets. Forty-eight Cotswold gilts were allotted to six dietary treatments for both gestation and lactation periods with 8 gilts per dietary treatment. The experimental design was a split-plot design with repeated measurements. Three levels of flaxseed (FS) (0%, 5% and 10% FS) and two levels of vitamin E (40 IU/kg and 80 IU/kg) were 2 factors in the factorial arrangements and were applied to the main plots. Individual sow or piglet was an experiment unit. Measurements in different gestation and lactation phases were treated as repeated measurements applied to the subplots. Serums were from blood samples collected from vena cava puncture for all the sows and three piglets per litter. The progesterone concentrations (PGC) in the serum of gestation sows on d 30 (20.4 ng/ml) and 60 (19.6 ng/ml) of gestation were higher than in the serum of sows on d 90 (16.4ng/ml), 109 (15.0 ng/ml) of gestation and d 1 (0.83 ng/ml) of farrowing (SEM=0.62; P<0.05). The PGC on d 90 and d 109 of gestation were also higher (P<0.05) than those on d 1 of gestation and all the days post parturition. The diets with 0 and 5% FS increased (P<0.05) PGC in the serum of gestation sows compared to the 10% FS diet (9.9 & 9.5 vs. 8.4 ng/ml, SEM=0.38). Vitamin E had no effect (P>0.05) on serum PGC in both gestation and lactation. The serum PGC of sows at farrowing (0.83ng/ml) was higher (P<0.05) than on d 8 (0.24 ng/ml) and d 16-post parturition (0.37 ng/ml). The vitamin E concentration (VEC) in the milk of sows on d 1 was higher (P<0.01) than on d 8 and d 16. The serum VEC (IU/ml) of pigs was 0.8 on d 1, 6.7 on d 8 and 5.3 on d 16 (P<0.05, respectively). The diet with vitamin E at 80 IU/kg increased (P<0.05) VEC in sera of pregnant and lactating sows, pigs, and in body tissue of pigs compared to diets with vitamin E at 40 IU/kg. In conclusion, the progesterone concentration (PGC) in the serum of sows was influenced by phase of pregnancy. High levels of VE and 10% FS in the diet increased VE in milk and body tissue of pigs.

Key Words: Sows, Flaxseed, Vitamin E

W105 Dietary effects of flaxseed and vitamin E on lipid profiles of sows. S. K. Baidoo*[1,2], A. Fallad-Rad[1], and Q. M. Yang[2], [1]*Department of Animal Science, University of Manitoba,* [2]*Southern Research and Outreach Center, University of Minnesota.*

The objective of this study was to determine the effects of flaxseed and vitamin E on serum lipid profile of sows. Forty-eight Cotswold gilts were allotted to six dietary treatments for both gestation and lactation periods with 8 gilts per dietary treatment. The experimental design was a split-plot design with repeated measurements. Flaxseed (FS) with three levels (0%, 5% and 10% FS) and vitamin E with two levels (40 IU/kg and 80 IU/kg) were 2 factors in the factorial arrangements and were applied to the main plots. Individual sow or piglet was an experimental unit. Measurements in different gestation and lactation phases were treated as repeated measurements applied to the subplots. Serum from blood samples were collected via vena cava puncture from all the sows and three piglets per litter. All the saturated free fatty acids (SFFA) and unsaturated free fatty acids (UFFA) in the serum of sows and pigs were not different (P>0.05) among dietary treatments. The total n3 FFA in serum of piglets from sows fed diets with 10% FS were higher (P<0.05) than the piglets from sows fed control diets (14.1% vs. 8.7%; SEM=1.5). The serum of pigs had higher (P<0.05) n3 FFA at birth than on d 8 after farrowing and at weaning (13.4% vs. 10.7%; SEM=0.7). The amount of SFFA, UFFA, SFFA: UFFA, n3 FFA and n6 FFA in milk were different (P<0.01) among diets and phases of gestation, but not different (P>0.05) between the dietary vitamin E contents. There were interactions (P<0.01) between diets and phases of gestation for n3 FFA and n6

FFA. The concentrations of n3 FFA and n6 FFA in sow milk decreased (P<0.05) from farrowing (17.5% and 21.9%; SEM=0.3) to d 8 (7.4% and 12.1%; SEM=0.3) and to d 16 (6.2% and 10.1%; SEM=0.3). FS supplementation to sows before farrowing will be advantageous for sows (to maintain backfat) and piglets (to increase in milk fats). An increase of FS in diets reduced SFFA (P<0.05) and increased UFFA (P<0.01) in milk. The 10% FS and 5% FS diets had 7.9% and 4.4% more (P<0.05) UFFA, respectively, in milk than control diet. In conclusion, The diet supplemented with 10% FS fed to sows increased n6 FFA in the serum of sows, UFFA, n3 and n6 FFA in the milk, and n3 FFA in the serum of pigs at birth.

Key Words: Sows, Flaxseed, Fatty acids

W106 Carry over effect of dietary protein supplied to pregnant sows on protein utilization during lactation. P. K. Theil*, H. Jorgensen, and K. Jakobsen, *Danish Institute of Agricultural Sciences, Denmark*.

Lowering the supply of dietary protein in swine diets has been in focus the last decade in order to minimize nitrogen (N) excretion to the environment. This experiment was conducted to quantify the protein metabolism in 8 sows fed low (LP) or standard (SP) dietary protein during pregnancy and either low (LF) or high (HF) dietary fat during lactation. The experimental setup was a crossover design between pregnancy diets (LP, SP) and lactation diets (LF, HF). The dietary change occurred at the day of farrowing. Diet formulation and feeding level were in accordance with Danish recommendations. This implied an elevated feeding level during the last month of pregnancy, while lactating sows were fed according to litter size. The LP and SP diets supplied 7.39 and 10.29 g fecal digestible protein/MJ ME, respectively, while LF and HF diets supplied 10.18 and 10.04 g fecal digestible protein/MJ ME. Nitrogen balance was quantified in three balance periods during lactation by total collection of feces and urine on days 9-12, 16-19, and 23-26. Milk production, determined during the balance trials by D_2O dilution, increased from 831 g/piglet/d (d 10) to 1151 g/piglet/d (d24) (P<0.001), with no effect of pregnancy diets (P=0.73). Milk contained 17.7 % of DM and milk protein content (N x 6.38) was 28.1 % of DM, with no effect of stage of lactation (P=0.89). As the milk production increased, milk protein yield increased (P<0.01) as lactation progressed, whereby the protein retention (N x 6.25) decreased concomitantly (P<0.05). The LP and SP sows were supplied with comparable amounts of metabolized protein during lactation. The data show that sows fed the LP diet during pregnancy retained considerable amounts of protein during lactation at the expense of milk protein yield.

Item	LP[a]	SP[a]	SEM	P
N balance of lactating sows (g/d)				
Intake	141	151	11.8	0.59
Feces	24	27	2.4	0.45
Urine	38	46	3.8	0.16
Milk	66	78	6.9	0.27
Retention	13	0	2.9	<0.01
Milk production (kg/d)	9.02	9.54	1.00	0.72
Litter size	9.0	9.5	0.73	0.64
Litter gain (kg/d)	1.86	2.03	0.12	0.35

[a] Pregnancy diet

Key Words: N utilization, Milk protein, Balance experiment

W107 A dynamic computer-model to estimate the changes of body composition during lactation in sows. J. G. Kim* and K. Y. Whang, *Korea University, Seoul, Korea*.

A lactating sow model was developed to estimate body composition changes and nutrient flow based on body weight (BW), P2 back fat depth (P2), and litter size (LS) and to propose the nutrient requirements to support ideal body condition. Input variables were BW, P2 at farrowing, feed intake (FI) during lactation, number of suckling piglets, piglets weights at farrowing and weaning. The BW and P2 were used to determine body composition. Difference of piglet weight between farrowing and weaning (PWC) was employed to determine average daily gain and daily milk requirement for piglets. General feed intake pattern (FIP) was also modeled to reach maximum feed intake at 7 day post-farrowing. The model showed body composition of sow (fat, protein, water, and ash), BW, and P2. An example of model (BW:200 kg; P2: 20 mm; LS: 9; PWC: 5.5 kg; FI: 120 kg; FIP: 7 days) showed that fat and protein contents and BW of sow decreased until 5 d post-farrowing and increased after on. A reversed pattern showed in P2. Estimated values of this model indicated that piglet body weight change was main factor that affected body composition and BW of sow. Feed intake was also important factor on body composition and BW of sow. But effects of feed intake pattern of sows were relatively less important than weight change of piglets.

Item	Fat 7 day	Protein	BW	P2	Fat 21 day	Protein	BW	P2
PWC(kg)								
4.5	29.50	43.25	191.39	20.55	32.14	45.24	204.83	19.81
5.5	28.39	42.64	185.99	21.83	29.63	44.01	192.75	20.89
6.5	27.21	41.96	180.18	21.44	26.78	42.50	178.93	22.05
FI(kg)								
110	28.07	42.25	184.18	21.00	28.48	42.89	186.62	21.07
120	28.39	42.64	185.99	21.83	29.63	44.01	192.75	20.89
130	28.70	43.01	187.73	20.97	30.72	45.06	198.58	20.72
FIP(days)								
5	29.16	43.58	190.30	20.98	29.89	44.42	194.31	20.94
7	28.39	42.64	185.99	21.83	29.63	44.01	192.75	20.89
9	27.67	41.75	181.93	21.00	29.38	43.61	191.28	20.83

Input valuables of standard lactating model were BW: 200 kg; P2: 20 mm; LS: 9 pigs; PWC: 5.5 kg; FI: 120 kg; FTP: 7 days

Key Words: Sow, Computer model, Body composition

Animal Behavior & Well-Being: Social and Physical Environments

W108 Analysis of the effect of gestation housing systems on fertility and piglet death. L. Anil*, S. Baidoo, J. Deen, R. Walker, S. Anil, and R. Morrison, *University of Minnesota*.

Records of 1426 litters from 664 sows of parity 1-4 were analyzed to compare the production performance in terms of farrowing rate and piglet deaths/litter among sows housed in individual stalls and pens with electronic sow feeder during gestation and farrowing in crates. A major cause of piglet death, death due to laid-on, which is related to housing systems was also compared. The means in each group were compared using Independent-samples T test. Farrowing rate was significantly (P <0.001) higher among sows housed in individual stalls during gestation compared to sows housed in pens with electronic sow feeder during gestation (86.22 and 79.49 respectively). There was no significant difference in mean percentage of pig death/born alive (7.94 ± 0.46 and 7.60 ± 0.42 per litter in stalls and pens respectively), average number of mummies/litter (0.22 ± 0.02 in both) and average number of stillborn/litter (0.56 ± 0.04 and 0.53 ± 0.04 in stalls and pens respectively) among sows housed in the two systems. Piglet death per litter due to laid-on was also similar in the two housing systems (0.20 ± 0.020 in both), indicating that factors such as previous experience in stalls or muscle weakness due to stall-housing are not critical in determining piglet death due to laid-on. The results indicate that in terms of the production parameters studied, neither system is superior to the other.

Key Words: Housing, Gestation, Fertility