

herds recorded from 1998 to 2007 were used to jointly estimate residual (cow-level) (co)variances for 305Milk and ProjCI for each herd-year using a bivariate restricted maximum likelihood approach. (Co)variance estimates were then used to compute the cow-level correlation for each herd-year. The distribution of the estimated 305Milk-ProjCI correlation was symmetrical, centered at 0.26 and ranged from highly positive to negative values (i.e., unfavorable to favorable relationships between milk production and reproductive performance, respectively). A total of 16 selected herd performance indicators and management factors were evaluated as potential sources of correlation heterogeneity using stepwise model selection based on Bayesian Information Criteria. The final model indicated that the cow-level correlation between 305Milk and ProjCI was greater in herds with 2X versus 3+X milking frequency ($P < 0.01$) and was lower in herds that used bST compared to those that did not ($P < 0.01$). Also, the 305Milk-ProjCI correlation increased in herds undergoing expansion ($P < 0.01$) but was not associated with herd size ($P = 0.08$). The correlation between 305Milk and ProjCI increased linearly over the 10-year period considered ($P < 0.01$). In summary, this study provides preliminary evidence for heterogeneity in the relationship between milk production and reproductive performance of dairy cows, as a function of herd-related and management factors.

Key Words: dairy production, heterogeneous correlation, management

94 Effects of maternal lineage on production and fertility traits of Holstein cattle. C. N. Vierhout*, S. P. Washburn, R. L. McCraw, and E. J. Eisen, *North Carolina State University, Raleigh.*

The objective of this study was to determine effect maternal lineage has on production and fertility in Holstein cattle. Data included Holstein historical lactation records dating from 1980 to August 2005 from 13 states obtained from Animal Improvement Laboratory of USDA. Cows were included from historical records dating back to birth year of 1980 or 1981 as the foundation cows. Historical records included cows calving and completing lactations through August, 2005. Cows were then put in maternal family groups using dam identification within herd. A family value was calculated by averaging the first and second lactations across parity by degree of relationship to the individual (free of progeny information) for generations one through four. Each family was entered into top, middle, and bottom groups based on average deviations for milk production, pregnancy rate, or by combining pregnancy rate and milk into a selection index. Analyses were performed on fifth generation cows to determine if milk production and pregnancy rates were significantly associated with historical performance of the respective cow families. After adjustments for sire predicted transmitting ability (PTA), maternal-grand sire PTA, and family group for milk in the model the effect of maternal cow family was significant for pregnancy rate (P

< 0.05 ; -1.05 percentage units) and milk production ($P < 0.05$; +913 kg) in an inverse relationship. When using deviations of pregnancy rate, the effect of maternal cow family was significant for both pregnancy rate ($P < 0.05$; +7.73 percentage units) and milk production ($P < 0.05$; -128 kg). A selection index with equal weights for milk and pregnancy rate resulted in an effect of maternal cow family for milk ($P < 0.05$; +133 kg) but not for pregnancy rate ($P > 0.05$; -0.22 percentage units). Although pregnancy rate and milk production have an antagonistic relationship, simultaneous consideration of both traits could allow for moderate genetic gain in production without adversely affecting reproduction. Consideration of maternal family history for pregnancy rate may be useful when selecting future bull dams.

Key Words: milk yield, pregnancy rate, selection index

95 Use of acaricides and gastrointestinal anthelmintics in developing countries: A case study among livestock farmers in Ghana. W. Addah*¹, J. Baah², and E. K. Okine¹, ¹*University of Alberta, Edmonton, Alberta, Canada,* ²*Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Alberta, Canada.*

Logistical constraints facing regulatory agencies in developing countries limit their capacity to enforce laws on importation, packaging and appropriate use of agro-parasiticides. A survey of 100 ruminant livestock farmers was conducted to assess their knowledge and administration of acaricides and gastrointestinal anthelmintics to ruminant livestock in the Sissala East district of the Upper West region of Ghana. Respondents were interviewed with a semi-structured questionnaire and data analyzed using Statistical Package for Social Sciences (SPSS 11). Inspection of labels of acaricides and anthelmintics showed that 4% and 30% respectively were not certified by the Foods and Drugs Boards of Ghana. Only 10% of farmers ($P < 0.05$) used anthelmintics at the recommended rate. Majority of respondents (72%; $P < 0.05$) reported underdosing of anthelmintics while overdosing of acaricides was 18% ($P > 0.05$). Administration of both parasiticides was not done by the livestock owners themselves (30%), hired herdsmen (50%); none of whom were literate in the English language nor had any formal training in the use of agro-parasiticides, veterinary personnel (9%) and community-based livestock health workers (11%). Most farmers (35%; $P < 0.05$) did not practice parasiticide withdrawal prior to slaughter or sale of livestock. Thirty eight percent ($P < 0.05$) of anthelmintics had no expiry dates on their labels. The commonest place for storage of both parasiticides was under the bed in the bedrooms of farmers (43%; $P < 0.05$). Animals that did not respond to treatment were slaughtered and consumed in the household (65%; $P < 0.05$). The study found that inappropriate handling and use of livestock parasiticides were prevalent and raised serious public health and food safety concerns in the region.

Key Words: anthelmintics, acaricides, livestock

Nonruminant Nutrition: Feed Ingredients

96 A comparative evaluation of a new dried cheese and milk product (Gold Star Milk) versus other milk protein sources for weaning pigs. G. L. Cromwell*, M. C. Ulery, Y. L. Ma, I. F. Hung, and M. D. Lindemann, *University of Kentucky, Lexington.*

Gold Star Milk (International Ingredient Corp., St. Louis, MO) is a product resulting from the blending of dried cheese powder and specialty dairy powders such as dried milk and whey protein concentrate. It has a pleasant cheese aroma and an attractive dairy flavor. The product typically contains 24% CP, 15% fat, and 38% lactose. A 21-d experi-

ment involving 90 pigs weaned at 21 d and averaging 7.6 kg BW was conducted to compare Gold Star Milk with 3 other sources of milk protein in Phase I (7 d) and Phase II (14 d) diets. There were 4 replications of 4 or 5 pigs/pen. Treatments were (1) basal diet with no milk protein, and 4 diets with 1.82% milk protein provided by (2) dried skim milk, (3) whey protein concentrate, (4) Gold Star Milk, or (5) casein. The 4 milk protein sources analyzed 35.9, 35.2, 23.1, and 88.7% CP, respectively. In addition, the Gold Star Milk product analyzed 96.1% DM, 17.1% fat, 35.6% lactose, 0.42% Ca, 0.57% P, and 1.92% lysine.

The milk products were substituted for starch (3.5% starch was in the basal diet), and lactose was equalized across diets at 20 and 15% during the 2 phases. Levels of fat, Ca, and P also were equalized across diets. Lysine levels in the basal and in diets 2-5 were 1.14 and 1.40% during Phase I, and 1.00 and 1.24% during Phase II, respectively. The basal diet was purposely made slightly deficient in lysine to better assess the contribution of the milk protein sources. Pigs fed 3 of the dried milk sources tended to gain more rapidly than controls during Phase I of the study (255, 243, 273, 282, 278 g/d for diets 1 to 5, respectively), but the differences were not significant ($P = 0.40$). Overall ADG, ADFI, and feed:gain for the 21-d study were, respectively: 424, 459, 450, 446, 466 g/d; 639, 628, 632, 601, 656 g/d; and 1.51, 1.37, 1.40, 1.35, 1.41. Pigs fed the 4 milk protein sources gained faster ($P < 0.10$) and more efficiently ($P < 0.01$) than controls, but feed intake was not affected ($P = 0.72$). These results indicate that Gold Star Milk is as effective in improving performance in weaning pigs as other milk protein sources when fed in Phase I and II nursery diets.

Key Words: pigs, milk protein

97 Canola meals from yellow-seeded *Brassica napus* and *B. juncea* have a higher digestible and net energy content in pigs than the meal from black-seeded *B. napus*. C. A. Montoya, K. Neufeld, P. Kish, and P. Leterme*, *Prairie Swine Centre Inc., Saskatoon, SK, Canada.*

The digestible (DE) and net (NE) energy content of canola meal (CM) in monogastric animals is limited by its high dietary fiber content. A breeding program based on yellow cultivars of *Brassica napus* and *Brassica juncea* has been initiated to develop canola seeds with lower fiber content, especially that of lignin. Also, the defatted meal is normally toasted to destroy antinutritional factors and evaporate solvent residues but excessive toasting can negatively affect digestibility. Therefore, an experiment (factorial 3x2) was conducted in growing pigs to determine the DE content and estimate the NE content of 3 different CM: yellow *B. napus* (YBN); black *B. napus* (BBN) and yellow *B. juncea* (YBJ) that were toasted (95 °C) or not (60 °C). A basal diet and 6 CM-based diets (2/3 basal diet, 1/3 CM) were prepared. A total of 42 growing pigs (28 kg; 6/treatment) were kept in metabolic cages for 18 d and their feces totally collected for the last 10 d. The digestibilities (DM, N and energy), DE and NE content were tested for CM type and flake type. The NE content was estimated by means of a prediction equation based on the DE content and chemical composition of the CM. Dry matter and energy digestibilities were greater ($P < 0.05$) for the YBN and BJ types compared to the BBN type. This could be ascribed to a lower NDF content (162 vs 217 g/kg, respectively) for the yellow-seeded canolas. A higher DE and NE content was observed for YBN and YBJ as compared to BBN ($P < 0.01$). There was no impact ($P > 0.05$) of toasting, or any interaction between toasting and canola type on nutrient digestibility or DE or NE content. In conclusion, toasting had no negative effect on digestibility in growing pigs whereas canola meals from yellow-seeded *B. napus* and *B. juncea* presented higher DE and NE content than the CM of black *B. napus* seeds.

Key Words: pigs, canola meal, digestible energy

98 Chemical composition and nutritive value of yellow-seeded canola for broiler chickens. W. Jia*¹, B. A. Slominski¹, G. Rakow², and D. Hickling³, ¹University of Manitoba, Winnipeg, MB, Canada, ²Agriculture and Agri-Food Canada, Saskatoon, SK, Canada, ³Canola Council of Canada, Winnipeg, MB, Canada.

An evaluation of the chemical composition and nutritive value of meals derived from black- and yellow-seeded *Brassica napus* canola and canola-quality yellow-seeded *B. juncea* was undertaken. Two different seed processing technologies: the conventional prepress solvent extraction process (regular meal) and a new cold process of meal desolventization (white flake) were employed. In comparison with its black-seeded counterpart, and irrespective of the process used, yellow-seeded *B. napus* contained more protein (49.8 vs. 43.8% DM), less dietary fiber (21.3 vs. 27.4% DM) and less glucosinolates (20.0 vs. 30.7 µmol/g). Lower fiber content in yellow-seeded *B. napus* meal was reflected in lower content of nonstarch polysaccharides (15.9 vs. 17.6%) and lignin with associated polyphenols (3.6 vs. 7.1%). *B. juncea* meal showed intermediate levels of crude protein (47.4%), total dietary fiber (24.6%), and the lowest glucosinolate (18.8 µmol/g) content. Regardless of the genotype, the white flake samples contained higher myrosinase activities than the regular meals (0.60 vs. 0.08 U/g). The effects of seed coat color and processing technology on the nutritive value of the meals were investigated in a 2 week broiler chicken trial with 3x2 factorial arrangement of treatments. Birds were fed corn/soybean meal-based diets containing 30% of canola meals. On average, chickens fed diets containing white flakes consumed significantly ($P < 0.01$) less feed (531 vs. 572 g/bird/14 days) and gained less weight (375 vs. 425 g/bird/14 days) than those fed regular meals. Consequently, an inferior FCR was observed (1.42 vs. 1.35). Such a response may have resulted from the myrosinase activity present in the white flake samples. Although different in the nutritive content, similar growth performance data was observed for the meals derived from yellow- and black-seeded canola.

Key Words: yellow-seeded canola, chemical composition, nutritive value

99 Effect of grinding on the digestible and net energy content of field peas (*Pisum sativum*) in growing pigs. C. A. Montoya, K. Neufeld, P. Kish, and P. Leterme*, *Prairie Swine Centre Inc., Saskatoon, SK, Canada.*

An experiment was conducted to determine the effect of the particle size of field peas on their digestible (DE) and net energy (NE) content in growing pigs. A factorial design (11 pea cultivars x 3 screen openings of the mill) was used, with 204 growing pigs (28 ± 2 kg). The 11 pea cultivars were ground at 3 different screen-opening sizes: fine, medium and coarse. The calculated mean particle size was 156, 650 and 1035 µm for the peas ground with fine (0.74 mm), medium (3.28 mm) and coarse (5.4 mm) screen opening size, respectively. A basal diet and 33 pea-based diets (70% basal diet and 30% peas) were supplemented with Celite®, a source of acid-insoluble ash, used as an indigestible marker. After an adaptation period of 10 d, faecal samples were collected by the grab sampling method for 3 d. The total tract digestibility values (DM, N and energy) and the DE and NE content were tested for pea sample and particle size. The NE content was estimated by means of a prediction equation based on the pea DE content and its chemical composition. Differences in digestibility values, DE or NE content were observed among the field peas ($P < 0.05$). The Pekoe pea cultivar presented the lowest values and Mozart the highest (e.g. 3.20 and 3.84 Mcal DE/kg). The digestibility values and energy content increased linearly as the mean particle size decreased from 1035 to 156 µm ($P < 0.001$). The average DE content was 3.84, 3.52 and 3.34 Mcal/kg and the NE content 2.69, 2.47 and 2.34 Mcal/kg for fine, medium and coarse grinding peas, respectively ($P < 0.001$). No difference was observed for the 'pea cultivar x screen opening size' interaction ($P > 0.05$). In conclusion, the DE and NE content of peas in growing pigs increased linearly as the

particle size of pea decreased. Differences in DE and NE content were observed between pea cultivars.

Key Words: pig, field peas, digestible energy

100 Various levels of guar meal supplementation on growth performance and meat quality in growing-finishing pigs. P. S. Heo, S. W. Lee*, D. H. Kim, G. Y. Lee, K. H. Kim, and Y. Y. Kim, *Seoul National University, Seoul, Korea.*

The objective of this experiment was to evaluate different levels of guar meal supplementation on growth performance and meat quality in growing-finishing pigs. Treatments were : 1) CON - basal diet(NRC, 1998), 2) GM3 - basal diet + guar meal 3%, 3) GM6 - basal diet + guar meal 6%, 4) GM9 - basal diet + guar meal 9% and 5) GM12 - basal diet + guar meal 12%. A total of 120 crossbred ([LxY]xD) pigs with initial body weight 29.72 ± 0.1 kg, were allotted in 5 treatments based on body weight and sex by a RCB design with 6 replicates and 4 pigs per pen. During the whole experimental period, GM12 treatment was significantly lower in body weight ($P < 0.01$, 103.93, 100.97, 100.36, 97.67 and 90.14 kg for CON, GM3, GM6, GM9 and GM12, respectively) and ADG ($P < 0.05$, 757, 727, 722, 693, and 616g for CON, GM3, GM6, GM9 and GM12, respectively) than other treatments. There was no significant difference in ADFI among treatments. Inclusion of guar meal over 6% resulted in a lower G:F ratio than other treatments ($P < 0.01$), (0.320, 0.316, 0.300, 0.309 and 0.287 for CON, GM3, GM6, GM9 and GM12, respectively). Carcass weight of GM12 treatment was significantly lower than that of other treatments ($P < 0.05$), (91.30, 89.62, 89.98, 89.24 and 86.48kg for CON, GM3, GM6, GM9 and GM12, respectively). However, dressing percentage ($P < 0.01$), (76.34, 76.35, 76.26, 76.40 and 77.21% for CON, GM3, GM6, GM9 and GM12, respectively) and initial pH of the loin ($P < 0.01$), (5.66, 5.64, 5.52, 5.62 and 5.99 for CON, GM3, GM6, GM9 and GM12, respectively) in GM12 treatment was significantly higher than those of other treatments. No significant differences were observed in meat color, cooking loss and backfat thickness after slaughtering. In conclusion, these results suggested that the inclusion of guar meal up to 6% has no negative effects on growth performance and 12% supplementation of guar meal in pig's diet may reduce growth performance but pork quality was not affected by guar meal treatments.

Key Words: guar meal, pig, growth performance

101 Prediction of barley grain feed value for swine using near infrared reflectance spectroscopy (NIRS). M. L. Swift*¹, L. Oatway¹, R. T. Zijlstra², W. C. Sauer², and J. H. Helm¹, ¹*Alberta Agriculture and Rural Development, Lacombe, AB, Canada,* ²*University of Alberta, Edmonton, AB, Canada.*

A rapid and accurate prediction of feeding value would enable grain and livestock industries to fairly evaluate the economic value of barley. Barley breeders use near infrared reflectance spectroscopy (NIRS) to evaluate feed value of new cultivars. Original calibrations to predict the apparent total tract digestibility (ATTD) of energy and DE content were based on mobile nylon bag (MNB) studies using 270 and 30 samples of hull-less and hulled barley, respectively. Recently, 175 hulled and 26 hull-less barley samples were collected. In-vitro digestibility of DM (IVDMD) and energy (IVED) was determined using a 3-step assay. In-vivo ATTD of energy was determined for a subset of 55 (39 hulled,

16 hull-less) samples. Calibration models were compared using cross validation statistics, namely 1-VR (1 minus ratio of unexplained to explained variance) and standard error of cross validation (SECV). The 1-VR for IVDMD and IVED were 0.92, 0.88, respectively; the SECV was 1.02 and 1.21 for IVDMD and IVED, respectively. The SECV in predicting the DE content of barley calculated using the IVED data was 62 with a 1-VR of 0.86. The model for ATTD of energy and DE content had a 1-VR of 0.83, 0.81, and SECV of 1.12 and 72, respectively. To merge the original MNB and new IV data into a new calibration model, a variable was added to indicate the specific methods used to predict ATTD of energy. The IVED values were adjusted using the formula $Y = 1.23x - 25.33$ to predict ATTD of energy. The best model for ATTD of energy had a 1-VR of 0.83 and a SECV of 1.87. The best model for DE content had a 1-VR of 0.66 and a SECV of 99.3. This data set is the first large scale validation to show that NIRS can predict ATTD of energy and DE content of barley with prediction errors less than 100 kcal/kg. The combined model using MNB and IV data sets can be used to screen new barley cultivars for energy digestibility.

Key Words: barley, energy, NIRS

102 Prediction of metabolizable energy value of meat and bone meal for swine using near infrared reflectance analysis. O. A. Olukosi* and O. Adeola, *Purdue University, West Lafayette, IN.*

The study was conducted to investigate the possibility of developing a prediction equation for apparent metabolizable energy (AME), and apparent nitrogen-corrected metabolizable energy (AMEn) for 33 meat and bone meal samples (MBM) for growing pigs using Near Infrared Reflectance Analysis (NIRA). Thirty-three MBM samples, used in previous AME assays with pigs were used for NIRA. The samples were scanned using a FOSS 6500 scanning monochromator. Duplicate scanning per sample was conducted in reflectance between 400 and 2500 nm at 2 nm increments. The data were transformed to log of inverse reflectance and average spectra of duplicate scans were used to develop calibrations. Spectra were mathematically corrected for light scattering by using standard normal variate and detrend corrections. Calibration performance was calculated as the multiple coefficient of determination (R^2) and standard error of cross validation (SECV). Multivariate calibration was performed with partial least squares regression. The coefficient of determination was greatest for GE (0.89) and lowest for AME (0.10). In addition, R^2 was greater for AMEn compared to AME (0.45 vs. 0.39, respectively). Other parameters for NIRA including standard error of calibration (SEC) and SECV were greater for AME and AMEn compared to the values for GE of the samples. The averages of AME and AMEn for the MBM samples were 2,962 and 2,885 kcal/kg, respectively. The standard error of calibration was 301 for AME and 296 for AMEn. Similarly SECV was 368 for AME and 367 for AME. Both values were greater than the values for GE. Sample number of only 33 is too small to generate a robust NIRA prediction equation for AME and AMEn, however the high values obtained for the parameters of NIRA with regards to GE, CP, fat, Ca, and P indicate the promise of NIRA as an alternative to wet chemistry. In conclusion, these data show that NIRA may be useful in predicting AME and AMEn values for MBM, but this will require the use of much greater sample numbers.

Key Words: near infrared reflectance spectroscopy, meat and bone meal, metabolizable energy

103 Nutritive value of distillers dried grains with solubles (DDGS) for poultry. A. Rogiewicz*, B. A. Slominski, M. Mogielnicka, C. M. Nyachoti, and K. M. Wittenberg, *University of Manitoba, Winnipeg, Canada.*

An evaluation of the nutritive profiles of several samples of wheat, wheat/corn, and corn DDGS was undertaken. On average, and in comparison to corn, wheat DDGS were found to be higher in protein (40.7 vs. 30.5% DM), and non-phytate P (0.9 vs. 0.6% DM), similar in lysine (1.0% DM), but lower in fat (4.5 vs. 10.7% DM), carbohydrates (7.1 vs. 10.5% DM) and total fiber (33.3 vs. 35.5% DM) contents. The wheat/corn (70:30 wt/wt) DDGS sample revealed intermediate values for protein (36.7% DM), non-phytate P (0.7% DM), fat (6.4% DM), carbohydrate (8.2% DM), but was higher in lysine (1.05% DM) and total fiber (37.6% DM). In comparison to wheat, high fat and carbohydrate contents of corn DDGS was reflected in higher ($P < 0.01$) AME_n (2,428 vs. 2,097 kcal/kg DM) and TME_n (3,488 vs. 3,160 kcal/kg DM) values. The wheat/corn DDGS sample showed intermediate values for AME_n (2,136 kcal/kg DM) and TME_n (3,238 kcal/kg DM). Substantial differences between the AME_n and TME_n values observed for wheat and corn DDGS (i.e., around 1,000 kcal/kg) would indicate that the energy utilization by broiler chickens of 3-wk of age would be much lower than that of adult birds. Little or no detectable levels of mycotoxins were observed in the DDGS samples. Three experiments were conducted to evaluate the effect of dietary inclusion rate of wheat, corn or wheat/corn DDGS (0, 10, 15 or 15% with carbohydrase addition) on growth performance of chickens (1-21d). Each treatment had 10 replicate pens, 5 broilers per pen. No significant differences ($P > 0.05$) in growth performance were observed between treatments. When compared with the 10% DDGS diet, however, a small but consistent increase in FCR (from 1.38 to 1.41), irrespective of the type of DDGS used, was observed for the 15% DDGS diets. This potentially negative effect was reversed when the 15% DDGS diets were supplemented with enzymes. The improvement in FCR with enzyme addition averaged 2.1% and 2.8% for wheat and corn DDGS, respectively, with the FCR values being similar to those of 10% DDGS diets.

Key Words: DDGS, nutritive value, broiler chicken

104 Effects of distillers dried grains with solubles on the digestibility of energy, DM, AA, and fiber, and intestinal transit time in a corn-soybean meal diet fed to growing pigs. P. E. Urriola* and H. H. Stein, *University of Illinois, Urbana.*

An experiment was conducted to measure the effect of distillers dried grains with solubles (DDGS) on the digestibility of energy, DM, AA, NDF, and total dietary fiber (TDF), and the transit time of digesta in a corn-soybean meal diet (control) fed to growing pigs. Sixteen pigs (initial BW: 38.0 ± 1.6 kg) were prepared with a T-cannula in the distal ileum and another T-cannula in the cecum. Pigs were allotted to 2 treatments with 8 pigs per treatment. In period 1, all pigs were fed the control diet, but in periods 2, 3, and 4 pigs were fed the control diet or the control with 30% DDGS. Rate of passage of digesta at the end of the ileum, to the cecum, and over the total tract was measured at the end of period 4. Apparent ileal digestibility (AID) of energy, DM, AA, NDF, and TDF,

and the apparent total tract digestibility (ATTD) of energy, DM, NDF, and TDF were measured. Concentration of VFA and pH were analyzed in ileal, cecal, and fecal samples. The AID of Lys (74.1%) was lower ($P < 0.05$) in the DDGS diet than in the control diet (78.6%). The AID of GE, NDF, and TDF were not affected by the inclusion of 30% DDGS in the diet, but the AID of DM in the diet containing 30% DDGS (71.2%) was lower ($P < 0.05$) than the AID of DM in the control diet (74.0%). The ATTD of GE (81.0%), NDF (57.2%), TDF (55.5%), and DM (82.6%) were also lower ($P < 0.05$) in the diet containing DDGS than in the control diet (86.0, 69.3, 66.0, 88.1%, respectively). The concentration of VFA in ileal, cecal, and fecal samples was not different between diets. The pH of ileal and cecal digesta of pigs fed the diet with 30% DDGS (5.48 and 5.48) were greater ($P < 0.01$) than for pigs fed the control diet (5.34 and 5.35, respectively). There was no effect of inclusion of 30% DDGS on the pH of feces. The transit time of digesta from the mouth to the ileum, the cecum, or over the total tract was not affected by DDGS. In conclusion, addition of DDGS to a corn-soybean meal diet fed to growing pigs resulted in a reduction in digestibility of Lys, energy, NDF, and TDF.

Key Words: distillers dried grains with solubles, digestibility, pigs

105 Copra meal and palm kernel meal on growth performance, blood urea nitrogen concentration and meat quality in growing-finishing pigs. Y. H. Choi, G. Y. Lee*, K. H. Kim, S. W. Lee, P. S. Heo, D. H. Kim, H. K. Oh, and Y. Y. Kim, *Seoul National University, Seoul, Korea.*

The objective of this experiment was to evaluate the effect of copra meal and palm kernel meal on growth performance, blood urea nitrogen concentration and meat quality in growing-finishing pigs. Treatments were: 1) CON - basal diet (NRC, 1998), 2) C5 - basal diet + copra meal 5%, 3) C10 - basal diet + copra meal 10%, 4) P5 - basal diet + palm kernel meal 5%, 5) P10 - basal diet + palm kernel meal 10%. A total of 120 crossbred ([Landrace \times Yorkshire] \times Duroc) pigs with an initial body weight of 26.97 ± 0.3 kg, were allotted in 5 treatments based on body weight and sex by a RCB design with 6 replicates and 4 pigs per pen. At the end of the experimental, C5, C10 and P5 treatments were numerically similar with CON in body weight (99.75, 98.52, 98.58, 98.53 and 94.60 kg for CON, C5, C10, P5 and P10, respectively) and ADG (792, 769, 770, 770, 727 g for CON, C5, C10, P5 and P10, respectively). The P10 treatment showed lower G:F ($P < 0.02$, 0.3574, 0.3463, 0.3485, 0.3553 and .3371 for CON, C5, C10, P5 and P10, respectively). There were no significant differences in ADFI or blood urea nitrogen (BUN) concentration among all treatments. No significant differences were observed in TBARS value, drip loss, cooking loss, pH of the loin and meat color between CON and other treatments containing copra meal or palm kernel meal. In conclusion, these results suggested that copra meal and palm kernel meal could be supplemented up to 10 or 5%, respectively with no detrimental effects on growth performance, BUN concentration or pork quality. Moreover when copra or palm kernel meal was utilized in growing-finishing pig's diets, approximately 3 to 5% feed cost could be reduced based upon the results of this experiment.

Key Words: copra meal, palm kernel meal, pig