was greater (P<.05), and fat free lean index lower (P<.10), for pigs fed naked oats. Carcass yield and percent lean values were similar among the three test grains. Addition of 10% canola seed, as a methionine source, resulted in nearly equal growth performance. Diets containing canola seed reduced fat depth (P<.05) and increased fat-free lean index (P<.05). Pigs with field peas adequately supplied protein and energy for the growing-finishing pig, while dietary inclusion of canola seed may enhance carcass quality.

Key Words: Pigs, Field peas, Canola seed

168 Nutritional value of genetically improved high-lysine, high-oil corn for young pigs. P. R. O’Quinn1, J. L. Nelssen2, R. D. Goodband1, D. A. Knabe1, J. C. Woodward1, M. D. Toth1, P. R. O’Quinn*1, D. A. Knabe1, J. C. Woodward1, M. D. Toth1, A. T. E. Lohrmann1, A. Monogastric Research Centre, Massey University, Palmerston North, New Zealand, 2Alltech, Inc., Nicholasville, Kentucky, USA

Three hundred male pigs (initial BW 46.9 kg) were used to test the hypothesis that addition of an enzyme complement (Allzyme Vegpro, Alltech, Inc.) to diets containing soybean meal (SBM) and canola meal (CM) would increase apparent fecal nutrient digestibility. Pigs were blocked by weight and randomly assigned to four barley-based dietary treatments in a 2 x 2 factorial arrangement of vegetable protein source (SBM, 250 g/kg; and CM, 340 g/kg) and enzyme (0 and 100 mg/kg Vegpro). A basal diet consisting of barley with added vitamins and minerals, in the presence and absence of enzyme complement, was also fed. Pigs were group-housed but individually fed twice daily an amount equivalent to 10% W0.75. The amount fed was adjusted weekly, and diets were fed in meal form. Water was available ad libitum. Chronic oxide was added as an indigestible marker (4 g/kg). After an adaptation phase of 21 and 27 days, respectively, for each pig each day for the ensuing five days. Feces were then pooled, freeze-dried, and analyzed for GE, N and OM. Apparent fecal digestibility coefficients for both the complete diet and the vegetable protein source per se were calculated. No interactions between vegetable protein source and enzyme occurred. However, main effects of vegetable protein source and enzyme on apparent fecal digestibility coefficients were observed. For the type of vegetable protein ingredient, digestibility coefficients of GE (83.1 vs. 57.8%), OM (80.7 vs. 55.5%) and N (83.4 vs. 69.5%) were higher (P<.001) in SBM than in CM. Addition of the enzyme improved the digestibility of GE (73.2 vs. 67.7%, P<.008) and OM (71.1 vs. 65.0%, P<.01) but not that of N (77.3 vs. 75.5%, P=.19). These data suggest that the efficiency of utilization of vegetable protein sources commonly fed to pigs can be improved by the use of an enzyme complement.

Key Words: Pigs, Fecal digestibility, Enzyme

170 The influence of hydrolysis time, hydrochloric acid concentration and measurement method on the determination of amino acid levels in soy products used in swine diets. D. M. Albin1, J. E. Wuben2, and V. M. Gabert, University of Illinois, Urbana, IL

Accurate determination of amino acid (AA) levels in soy products used in swine diets facilitates selection of diet formulation and AA supplementation. A study was carried out to investigate the effect of hydrolysis time, acid concentration and method of AA measurement on AA levels. Correction factors to standardize AA levels to 24 h of hydrolysis were also determined. The samples evaluated were: whole soybeans, soybean hulls, soybean meal (SBM), soy protein concentrate (SPC) and soy protein isolate. Hydrolysis was carried out in an oven at 110°C for 0, 2, 6, 10, 16, 24, 32, 44, 56 or 72 h. In the second part of the study, samples were hydrolyzed for 24 h in 1, 3, 6, 9 or 12 M HCl. Ion-exchange chromatography (IEC) was used to determine AA levels in SBM and SPC. Pre-column derivatization with phenyl isothiocyanate (PITC) was used to determine AA concentrations in all of the samples. After 24 h of hydrolysis, lysine in SBM was higher (P<.01) when determined with PITC (3.27% DM) than with IEC (2.77% DM). Lysine level for SPC, determined with PITC (4.47% DM), was higher (P<.05) than that determined with IEC (3.83% DM). Both hydrolysis time and acid concentration affected (P<.05) AA levels. Use of 6 M HCl did not always provide the highest AA levels in the samples. In SBM, lysine level was highest (P<.05) after 32 h (3.38% DM) of hydrolysis. After 24 h of hydrolysis, lysine level in SBM was 3.27% DM. The correction factor for this sample was 1.03. In SBM, 6 M HCl provided the highest (P<.05) threonine level (2.53% DM), however the highest (P<.05) arginine level (4.89% DM) was obtained with 9 M HCl. In conclusion, measurement of hydrolysis time and acid concentration are important factors which affect AA levels. Standard hydrolysis conditions do not always