

349 Chronic effects of equine growth hormone (eGH) on intake, digestibility and retention of nutrients in aged mares. S. L. Ralston*, R. A. Christensen, K. Malinowski, C. G. Scanes, and H. D. Hals, *Department of Animal Science, Rutgers-The State University of New Jersey, New Brunswick.*

To test the hypothesis that eGH would improve nutrient intake (NI), percent apparent digestibility (PAD) and retention (NR) in aged horses, mares (20-26 yr) were given daily sc injections of eGH (C: vehicle only; L: 6.25 mg; H: 12.5 mg; n = 4, 3, and 5, respectively) for 6 wk. Mares were fed at 120% NRC energy recommendations a 10% protein grain mix and grass/alfalfa mix hay. Feed intakes and 24 hr urine and fecal production were recorded before (-30 d) and on d 21 of eGH administration. Representative feed, fecal and urine samples were analyzed by wet chemistry to determine NI, fecal excretion, and PAD of DM, N, NDF, ADF, Ca, P and Mg and urinary excretion and NR of N, Ca, P and Mg. Preprandial venous blood samples were taken before and weekly during eGH treatment for plasma urea nitrogen (PUN) analysis. Data were adjusted for differences between treatments which occurred in the pre-treatment period. Intake of DM, N, ADF, NDF, Ca, P and Mg did not differ ($P > 0.15$) between treatments. Treatment with eGH did not alter PAD of DM, N, Ca, P, and Mg ($P > 0.15$). Percent apparent digestibility of ADF and NDF were increased 23% ($P < 0.05$) and 35% ($P < 0.1$) in H relative to C. Equine growth hormone reduced urinary excretion of N (C: $5.96 \pm .45$, L: $3.82 \pm .52$, H: $4.60 \pm .40$ g N; $P < 0.05$) and PUN ($P < 0.01$). Calculated percent N retentions, however, did not differ (C: 64.2 ± 2.6 ; L: 69.9 ± 3.0 ; H: 69.0 ± 2.3 ; $P > 0.2$). Retention of other nutrients was not altered ($p > .2$). Daily administration of eGH to aged mares may improve N balance and fiber digestion.

Key Words: Horse, Growth hormone, Nitrogen digestibility, Retention

350 Effect of supplemental chromium picolinate on corpus luteum numbers and carcass traits of gilts under limited feeding. Z. Yi*, R. L. Park, L. E. Orme, R. W. Silcox, and E. W. Hawkins, *Brigham Young University, Provo, UT.*

Crossbred gilts (n = 17; BW = 73 kg; age = 160 d) were used to investigate the effects of supplemental Cr picolinate on their corpus luteum numbers and carcass traits. Pigs were fed in open-fronted house with a computer controlled feeding system and trained for 3 wk before the trial starts. Gilts were given a corn-soybean meal diet (.80% Lys) with (8 pigs) or without (9 pigs) supplemental Cr. Daily feed intake of pigs was allowed from 1.4 to 2.5 kg based on expected BW. The amounts of Cr for individual need from 1.4 to 2.7 mg/d were supplied based on expected feeding days. The total amount of ingested Cr for the treated gilts was 105 (87 to 119) mg/head during the 54 (32 to 82) days test. All the pigs were injected with 5 ml of PG600 at 95 kg of BW. Pigs were slaughtered at 114.5 kg BW, corpus luteum numbers were counted and carcass traits were measured. Results (mean \pm SEM) were shown in the table and carcass values were adjusted to 114.5 kg BW. The limited feeding leads to high loin eye area (LEA) and low tenth rib fat depth. Supplemental Cr increased LEA ($P = .09$) and lean percentage ($P = .06$) in gilts but did not affect other carcass traits and corpus luteum numbers ($P > .10$).

Item	Without Cr	With Cr	P-Value
Corpus luteum number	13.2 \pm 2.9	13.6 \pm 1.9	.29
Loin eye area, cm ²	45.8 \pm 1.6	50.7 \pm 2.1	.09
Tenth rib fat depth, mm	20.2 \pm 1.1	18.2 \pm .68	.15
Lean percentage	39.7 \pm .52	41.3 \pm .60	.06
Dressing percentage	76.4 \pm .44	75.5 \pm .47	.19

Key Words: Gilt, Chromium Picolinate, Carcass

351 Supplemental dietary chromium and fish meal for pigs from weaning to slaughter weight. A. F. Harper* and E. T. Komegay, *Virginia Polytechnic Institute and State University, Blacksburg, VA.*

Ninety-six pigs (5.9 kg avg initial BW) were utilized in a growth trial to determine the effects of dietary supplementation of chromium (Cr) from chromium picolinate and menhaden fish meal (FM) from weaning to 102 kg BW. Dietary treatments were arranged in a 2x2 factorial design with 6 replicate pens of 4 pigs each per treatment. Treatments were 1) no Cr, no FM; 2) 200 ppb Cr, no FM; 3) no Cr, 5% FM; 4) 200 ppb Cr, 5% FM. Diets were corn-soybean meal based; crystalline lysine and soybean oil were added to make the diets isolysin and isocaloric. Diets were reformulated according to pig requirements after d 14, d 35 and when avg pig wt per replicate reached 59 kg. Feed and water were available ad libitum. All pigs were slaughtered at the conclusion of the growth trial for carcass evaluation. For the initial 35d starter phase, daily gains were 351, 341, 357 and 347 g, daily feed intakes were 591, 603, 694 and 685 g, and gain:feed ratios were .60, .56, .51 and .51, for diets 1, 2, 3 and 4, respectively. There was no Cr by FM interaction, but FM supplemented pigs had greater feed intake ($P < .01$) and poorer gain:feed ($P < .001$). For the total trial, daily gains were 777, 774, 775 and 766 g, daily feed intakes were 2111, 2014, 2132 and 2133 g, and gain:feed ratios were .37, .38, .36, and .36 for diets 1, 2, 3 and 4, respectively. The main effect of FM in reducing gain:feed was significant ($P < .04$). Adjusted tenth rib backfat depth was 3.35, 3.24, 3.43 and 3.32 cm and loin muscle area was 34.1, 34.9, 34.9 and 32.5 cm² for diets 1, 2, 3 and 4 respectively. A Cr by FM interaction for loin muscle area was observed ($P < .04$). Under the conditions of this experiment, supplementation of 5% dietary FM produced slight depressions in feed utilization in the starter and starter to finisher period. In contrast to our previous work, supplementation of 200 ppb Cr did not elicit positive responses in performance or carcass quality.

Key Words: Pigs, Chromium, Fish meal

352 An evaluation of several diet acidifiers commonly used in pig starter diets to improve growth performance. J. R. Bergstrom*, J. L. Neissen, M. D. Tokach, R. D. Goodband, *Kansas State University, Manhattan.*

A 28 d growth trial was conducted to compare the effects of several diet acidifiers on weaning pig growth performance. At weaning, 270 pigs (14 \pm 2 d of age and 4.4 \pm .5 kg) were blocked by weight and allotted to each of five acidification treatments, with 9 pigs per pen and six pens per treatment. The trial was divided into three phases, d 0 to 7 postweaning (SEW), d 7 to 14 postweaning (Transition), and d 14 to 28 postweaning (Phase II). The corn-soybean meal based SEW diet contained 25% dried whey (DW), 7.5% spray-dried plasma protein (SDPP), 6% select menhaden fish meal (SMFM), 5% lactose, and 1.75% spray-dried blood meal (SDBM), and was formulated to 1.7% lysine and .47% methionine. The Transition diet contained 20% DW, 2.5% SDPP, 2.5% SMFM, 5% lactose, and 2.5% SDBM, and was formulated to 1.5% lysine and .41% methionine. The Phase II diet contained 10% DW and 2.5% SDBM, and was formulated to 1.35% lysine and .37% methionine. The five dietary treatments included: 1) Control, 2) Syneracid[®] (.35% in SEW and Transition phases, .225% in Phase II), 3) Lupro-mix[®] (.4% in all phases), 4) Digest Acid[®] (.2% in all phases), and 5) Kemgest[®] (.2% in all phases). The acids replaced corn starch in the basal diet. From d 0 to 7 postweaning, there were no differences ($P > .10$) in ADG or ADFI, but pigs fed the acidified diets had improved ($P < .05$) G/F. No differences in growth performance were observed during the Transition and Phase II periods (d 7 to 14 and 14 to 28 postweaning, respectively), or for the overall trial period (d 0 to 28 postweaning). In conclusion, addition of a low inclusion acidifier to a complex SEW diet improved G/F in the early-weaned pig. However, dietary acidification is not necessary when semi-complex diets are fed during subsequent growth phases.

Item	Control	Syneracid [®]	Lupro-mix [®]	Digest Acid [®]	Kemgest [®] CV
d 0 to 7					
ADG, g	168	186	177	195	195
ADFI, g	191	181	168	181	181
G/F ^a	.88	1.01	1.03	1.07	1.09

^aControl vs. acidified ($P < .05$).

Key Words: Pigs, Acidification