

meat quality and fecal odor emission gases in finishing pigs. The total of sixty four [(Landrace×Yorkshire)×Duroc] pigs (65.42±1.16 kg in average initial body weight) were used in 10 weeks assay. Dietary treatments included 1) NC (antibiotic free diet), 2) PC (NC diet + 6 weeks 44ppm of tylosin/ 4 weeks 22ppm of tylosin) 3) RE1 (NC diet + 100ppm of RE), 4) RE2 (NC diet + 200ppm of RE). There were four dietary treatments with four replicate pens per treatment and four pigs per pen. During the overall periods, there were no significant differences in ADG (Average daily gain), ADFI (Average daily feed intake) and gain/feed ratio among treatments ($P>0.05$). Dry matter and nitrogen digestibility were higher in RE2 treatment than other treatments ($P<0.05$). Also, energy digestibility was higher in RE2 treatment than PC and RE1 treatments ($P<0.05$). At the 6th week WBC (white blood cell) was significantly increased ($P<0.05$) in RE1 treatment than NC and RE2 treatments. L^* value of *M. logissimus dorsi* muscle color was significantly increased ($P<0.05$) in rare earth supplementation treatments compared to NC treatment ($P<0.05$). In fatty acid contents of leans, total MUFA was significantly higher in RE2 treatment than others treatments ($P<0.05$). Also, total UFA was significantly increased in RE2 treatment compared with NC and PC treatments ($P<0.05$). In fatty acid contents of fats, total SFA of rare earth supplementation treatments were lower than in PC treatments ($P<0.05$). UFA:SFA ratio was significantly higher in rare earth supplementation treatments than PC treatment ($P<0.05$). In fecal odor emission, NH_3 was significantly decreased ($P<0.05$) in rare earth supplementation treatments compared to NC and PC treatments. In conclusion, the results of the experiment was affected by rare earth supplementation on digestibilities, meat quality, fatty acid and fecal odor

Key Words: Rare Earth, Growth Performance, Fecal Odor Emission Gases

TH123 The effect of different copper (inorganic and organic) and fat (tallow and glycerol) sources on growth performance, nutrient digestibility, and fecal excretion profile in growing pigs (regional study). Y. Huang^{*1}, J. S. Yoo¹, H. J. Kim¹, Y. J. Chen¹, J. H. Cho¹, Y. K. Han², and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Sungkyunkwan University, Suwon, Korea.

A 2 × 2 trial was conducted to investigate the effect of different copper (inorganic and organic) and fat (tallow and glycerol) sources on growth performance, nutrient digestibility, gas emission, diarrhea appearance, and fecal Cu concentration in growing pigs. The trial used 96 pigs (63 d of age) with an average initial weight of 28.36 ± 1.14 kg. Pigs were assigned to four treatments: 1) basal diet with 134 ppm Cu (Korea recommendation) as CuSO₄ + tallow; 2) basal diet with 134 ppm Cu as CuSO₄ + glycerol; 3) basal diet with 134 ppm Cu as CuMet + tallow; 4) basal diet with 134 ppm Cu as CuMet + glycerol. During the entire experimental period, there were no differences among treatments in the magnitude of improvement for ADG (average daily gain), ADFI (average daily feed intake) and G/F (gain: feed) ratio. Nitrogen (N) digestibility of pigs fed diets with organic copper was improved compared with those of pigs fed diets with inorganic copper ($P<0.05$). The interaction of Cu × fat was observed on both nitrogen ($P<0.05$) and energy ($P<0.01$) digestibilities. Ammonia emission was significantly lower in organic copper added treatments than inorganic copper added treatments ($P<0.05$). Mercaptan and hydrogen sulfide emission were decreased by the addition of glycerol ($P<0.05$). Neither main effects of Cu or fat source nor their interaction was observed on diarrhea appearance during all the experimental period. The copper concentration in feces was significantly lower in organic copper source treatments than

that in inorganic copper source treatments ($P<0.05$). The result of this experiment indicate that substitute organic copper for inorganic copper in diet has less fecal Cu excretion, while it has no effect on the growth performance. The different fat (tallow and glycerol) source have interaction with different copper source on nutrient digestibility. Glycerol supplementation could decrease sulfuric odorous compound concentrations in different source of Cu.

Key Words: Copper, Fat Source, Growing Pig

TH124 The effects of 200 ppb added chromium from chromium propionate on the growth performance and carcass characteristics of finishing pigs. J. R. Bergstrom^{*1}, M. D. Tokach¹, S. S. Dritz¹, J. L. Nelssen¹, R. D. Goodband¹, J. M. DeRouchey¹, J. D. Hahn², and F. R. Valdez², ¹Kansas State University, Manhattan, ²Kemin Industries, Inc., Des Moines, IA.

A total of 1,207 pigs (initial BW = 30.7 kg; PIC, 337×1050) were used in a 103-d experiment to evaluate the effects of 200 ppb Cr from KemTRACE[®] (KemTRACE[®] is a registered trademark of Kemin Industries, Inc.) brand Chromium Propionate (CrPr) on growth performance and carcass characteristics. There were 22 pens per treatment with 25 to 28 pigs per pen evaluating CrPr from d 0 to 84; and 11 pens per treatment evaluating CrPr (0 and 200 ppb) and Paylean[®] (0 and 10 ppm) in a split-plot arrangement from d 84 to 103. Pigs were randomly allotted to a corn-soybean meal-based diet with 3% added choice white grease (control diet) or the control diet with 200 ppb Cr from CrPr. Treatments were fed in three 4-wk phases (d 0 to 28, 28 to 56, and 56 to 84). On d 84, pigs fed the control or Cr treatment were allotted to a fourth dietary phase containing either 0 or 10 ppm Paylean[®]. For the d 0 to 84 period, growth performance of pigs fed the control or 200 ppb CrPr was not different (915 vs 916 g/d ADG). From d 84 to 103 and overall (d 0 to 103), pigs fed diets containing Paylean[®] had increased ($P<0.01$) ADG (1143 vs 969 g/d and 951 vs 926 g/d, respectively) and final weight (128.3 vs 124.5 kg). However, a CrPr × Paylean[®] interaction ($P<0.04$) was observed for d 84 to 103 ADFI and G:F and overall (d 0 to 103) G:F. From d 84 to 103, adding Paylean[®] to the control reduced ADFI (2833 vs 2711 g/d); whereas, adding Paylean[®] to diets containing CrPr increased ADFI (2744 vs 2845 g/d). Added CrPr alone increased G:F from d 84 to 103 (0.35 vs 0.34) and overall (0.393 vs 0.387) compared to the control; whereas, pigs fed both Paylean[®] and CrPr had lower G:F than those fed Paylean[®] alone from d 84 to 103 (0.41 vs 0.42) and overall (0.397 vs 0.403). Neither Paylean[®] or CrPr influenced any of the carcass characteristics measured. Using the high energy diets in this trial, there was no observed response to the dietary inclusion of Cr from CrPr in grow-finish pigs.

Key Words: Chromium, Lysine, Ractopamine HCl

TH125 Evaluation of organic and inorganic trace minerals for pigs. Y. L. Ma^{*}, M. D. Lindemann, G. L. Cromwell, R. B. Cox, and G. Rentfrow, University of Kentucky, Lexington.

Crossbred pigs weaned at 21 ± 3 d (n = 144; BW = 7.4 ± 0.28 kg) were used to assess an organic form of several trace minerals to standard inorganic forms on performance and meat quality when trace minerals were deleted for various times preslaughter. Pigs were allotted to 24