

Companion Animals: Nutrition and behavior

389 Evaluation of pelleted diets targeted for grazing ruminants housed in zoological institutions. Katherine R. Kerr^{*1,2}, Marcos Zenobi², Rodrigo Gardinal², Jorge Zuniga², Adegbola Adesogan², Charles Staples², and Eduardo Valdes¹, ¹Disney's Animal Kingdom, Lake Buena Vista, FL, ²University of Florida, Gainesville, FL.

Objective was to evaluate the apparent digestibility of 2 commercially prepared pellets targeted for herbivores housed in zoological institutions (Mazuri Wild Herbivore Hi-Fiber Diet, Purina Mills International, Brentwood MO). The pellets, differing primarily in ether extract concentration, were designated low fat (LF; DM basis: 91% OM, 29% ADF, 46% NDF, and 5.9% EE) and high fat (HF; DM basis: 92% OM, 30% ADF, 48% NDF, and 10% EE). Dietary treatments consisted of 30% chopped Bermuda grass hay (*Cynodon dactylon*) and 70% commercial pellets. Using a crossover design, 13 male lambs (45.0 ± 4.8 kg BW) served as a model for ex situ ruminant herbivores. Lambs were offered diets at 90% of ad libitum intake for a 7-d adaptation and the subsequent 7-d fecal collection period. Ten percent of wet feces were retained, dried at 55 C, ground, and chemically analyzed. Daily intake of pelleted feed tended ($P = 0.06$) to be greater in sheep fed LF pellets (1040 vs. 1003 g DM/d); however, intake of total DM did not differ due to treatment (1434 ± 183 g DM/d). Apparent digestibility coefficients of DM (57 ± 1.8%) and OM (57 ± 1.8%) did not differ ($P > 0.10$) due to treatment. Apparent digestibility coefficients of NDF, ADF, and EE were greater ($P < 0.01$) for lambs fed HF pellets (42, 45, and 94%, respectively) compared with those fed LF pellets (36, 42, and 90%, respectively). Blood was collected via jugular vein approximately 4 h after feeding. Plasma concentrations of glucose (70 ± 2.0 mg/dL) and urea nitrogen (21.3 ± 1.1 mg/dL) were not affected ($P > 0.10$) by diet. To provide proper care and ensure optimal health of ex situ wildlife species, a clear understanding of the diet utilization by these species is necessary. Use of appropriate model species (i.e., closely related domestic counterparts) allows researchers to measure physiological data that might be otherwise unattainable due to research limitations when working with ex situ wildlife species (e.g., low numbers, control of variation, and sampling limitations). Herein, we utilized the sheep as a model for ruminants housed in zoological institutions.

Key Words: captive exotic, fiber digestibility, herbivore

390 Serum metabolite profiling to identify biomarkers and mechanistic insight into the metabolic changes associated with weight loss in overweight cats. Marissa R. Pallotto^{*1}, Maria R. C. de Godoy², Kirk L. Pappan³, Preston R. Buff⁴, and Kelly S. Swanson^{1,2}, ¹Division of Nutritional Sciences, University of Illinois, Urbana, IL, ²Department of Animal Sciences, University of Illinois, Urbana, IL, ³Metabolon, Durham, NC, ⁴The Nutro Company, Franklin, TN.

Previous studies have shown that obese and overweight models have increased oxidative stress and lipid metabolism dysregulation. Thus, the objective of this study was to identify metabolite changes and potential biomarkers during weight loss that could be used as indicators of reestablished health. During a 4-wk baseline period, 8 adult neutered male cats were fed to maintain BW. For 18 wk following baseline, cats were fed to lose weight at a targeted rate of 1.5% BW/wk. As expected, mean BW (7.7 ± 0.4 vs. 6.2 ± 0.4 kg) and mean BCS (7.6 vs. 6.0) decreased ($P < 0.05$) at wk 18 vs. wk 0. Daily food intake, twice-weekly BW, and

weekly BCS were recorded throughout the study. Fasted (~15 h) blood samples were collected at wk 0, 1, 2, 4, 8, 12, and 16. Serum was stored at -80°C until GC-MS and LC-MS/MS analyses. A total of 535 named biochemicals were identified, with up to 269 metabolites altered (P - and q -values < 0.05) at wk 16 vs. wk 0. Principal component analysis showed a continual shift as weekly weight loss progressed. Component 1 and 2 explained 14.3% and 10.3% of the variability, respectively. There was a significant and dramatic reduction of bile acids (cholate; taurocholate; deoxycholate) with weight loss. A reduction in numerous free fatty acids (FFA) and an increase in ketones (acetoacetate; 3-hydroxybutyrate) and monoglycerides suggest a shift toward lipolysis and hepatic FFA oxidation. Decreased markers of inflammation and oxidative stress were indicated by reduced pro-inflammatory oxylipids, eicosanoids, and oxidized biomarkers following weight loss. Markers of collagen degradation, such as proline-hydroxyproline and proline-glycine, and muscle protein turnover, such as 1-methylhistidine, increased. Mevalonate was significantly decreased after wk 8 compared with baseline, which agrees with the reduced bile acids without altering cholesterol. This may suggest upregulation of hepatic ketogenesis through activation of HMG-CoA lyase. Considering these results, global metabolomics was useful to potentially identify biomarkers of systemic changes in response to caloric restriction of a high-protein, high-fiber diet.

Key Words: feline, metabolomics, obesity

391 Behavior assessment of dogs fed soybean hulls. Mariana Scheraiber^{*1}, Tabyta Tamara Sabchuk¹, Tatiane Ramos¹, Juliana Regina da Silva², Lidiane Priscila Domingues¹, Ana Vitória Fischer da Silva¹, and Ananda Portella Felix¹, ¹Federal University of Paraná, Curitiba, Paraná, Brazil, ²Federal University of Santa Catarina, Florianópolis, Santa Catarina, Brazil.

The behavior of dogs is influenced by dietary effects on satiety. Dietary fiber may prolong the gastric emptying time, slow the absorption of nutrients and dilute the energy of the diet. Thus, the development of strategies to increase satiety may be desirable to help to increase socialization and decrease undesirable behaviors of the animals. Soybean hulls (SH) is an alternative fiber source for dog food, due to the soluble and insoluble fiber portions resulting in benefits in the animal's health. Thus, this study aimed to evaluate the behavior of dogs after ingestion of diets without (0%SH) and with 16%SH. Twelve adult Beagle dogs (6 males and 6 females) in a completely randomized design were used. Dogs were individually housed in concrete kennels with solarium (2 m wide × 5 m long) and received the diets for 28 d. The behavior of dogs was evaluated on the 28th day, for 24 h continuously, at intervals of 10 min between each observation. The behaviors assessed were: alert, walking, scratching, sleeping, stereotypies, hygiene, lying idle, standing idle, sitting leisure and socialization. The results were expressed as the behavior occurrence frequency (%) (number of observations of the behavior / total number of observations × 100). Data were analyzed using the Mann-Whitney-Wilcoxon test, with $P < 0.10$. There was a decrease in the behavior of scratching ($P < 0.05$; 9.3% 0%SH to 3.7% 16%SH) and stereotypy ($P < 0.10$; 8.3% 0%SH to 4.8% 16%SH) in dogs fed 16%SH, in comparison with the 0%SH diet. The other behaviors did not differ ($P > 0.05$) between diets. Diets with SH, as fiber source, can decrease stereotypy behaviors of dogs.

Key Words: dog nutrition, feeding behavior, fiber

392 Evidence for a cat pheromone that modulates kitten scratching.

John J. McGlone^{1,2} and Rebekkah R. Plummer²,
¹Laboratory of Animal Behavior, Physiology and Welfare, Texas Tech University, Lubbock, TX, ²McGlone Enterprises Inc., Lubbock, TX.

Inappropriate scratching is a behavioral problem among kittens and cats in homes. Tools to modulate (increase or decrease) scratching would be valuable for cat owners and cats. Anecdotal literature suggests that cats have pheromones in their paws or claws, or in their saliva that they transfer to their claws. These pheromones are reportedly used to mark territory or objects. Through evaluation of cat scratchers, we noticed effects over time that suggested saliva, claw, or paw pheromones may modulate kitten scratching. We used the highly preferred S-shaped cardboard scratcher and 6 kittens (<3 mo of age) per study in 2 studies with the objective of finding evidence that supports pheromones may be present. In study 1, we compared kitten scratching with paired access to a previously used cat scratcher compared with a new cat scratcher. Using a 20-min evaluation period, kittens spent more ($P < 0.05$) time interacting (scratching and playing) with a previously used cat scratcher than with a new cat scratcher (33.1 vs. 20.6 ± 6.3 s). In study 2, new S-shaped cardboard scratchers were evaluated alone or with catnip, catnip oil, or cat hair added (clipped from adult donor cats and allowed to fall between the cracks of the cardboard scratcher). Kittens spent more ($P < 0.05$) time interacting with the S-shaped cardboard scratcher with added cat hair than with a control scratcher (16.0 vs. 8.3 ± 2.7 s). Adding dried catnip plants or catnip oil did not cause a change in scratching compared with the control ($5.0, 10.2$ vs. 8.3 ± 2.7 s). In conclusion, we provide evidence that kittens touching cardboard cause future kittens to interact more with that material. Second, we show that catnip plants and oil are not effective at increasing use of a scratcher by kittens. Finally, we show that cat hair (odor) induces enhanced interactions (scratching and play) with a cardboard scratcher. These findings can be used as a basis to discover new pheromones that modulate kitten and cat behavior.

Key Words: cat, behavior, scratch

393 The use of varying strengths of gelatin and the effect on physical properties of extruded pet food.

Analena E. Manbeck*, C. Greg Aldrich, and Sajid Alavi, Department of Grain Science and Industry, Kansas State University, Manhattan, KS.

Previous work with low-bloom gelatin demonstrated an increase in hardness and durability when incorporated into extruded kibbles. The objective of this experiment was to determine the effect of gelatin bloom strength on extruded kibble physical properties. Four nutritionally complete diets (30% protein) were formulated with no gelatin (control) or with 10% gelatin from 50, 175 and 250 bloom strength sources (Pro-Bind 100, PigSkin 175, and PigSkin 250) exchanged with chicken by-product meal. All diets were produced on a Wenger X-20 extruder through a circle die (3mm diameter) then a triangle die (5.3mm base \times 4.9mm height). Products were analyzed for bulk and piece density, throughput, cross-sectional expansion, hardness, and pellet durability index (PDI). Experimental treatments were arranged as a factorial with main effects separated using statistical software (SAS 9.4). Kibble shape had an effect on hardness, cross-sectional expansion, and piece density, but this was likely due to a slight difference in die open area. The interaction of gelatin strength and kibble shape also had effects on hardness, PDI, and density, but these can be attributed to changes in bloom strength. Relative to the control, hardness increased with 50 bloom gelatin but decreased with 175 and 250 bloom gelatin ($P < 0.05$; 5.93, 7.38, 4.57, 3.59kg, respectively). Relative to the control, PDI was the same for 50 bloom but decreased with both 175 and 250 bloom gelatin (88.49%, 87.57%, 64.55%, and 30.01%, respectively). The main effect means

of cross-sectional expansion and specific length increased with bloom strength (3.05, 3.54, 4.29, 4.92mm²/mm² expansion and 4.27, 4.26, 4.49, 4.74cm/g length for 0, 50, 175, 250 bloom, respectively). The main effect means for bulk and piece density became lighter with increasing bloom (0.56, 0.48, 0.39, 0.33g/cm³ piece density and 347.6, 310.7, 242.4, 212.3g/L bulk density for 0, 50, 175, 250 bloom, respectively). There were no treatment effects on throughput. Low-bloom gelatin may improve expansion while increasing product hardness and durability, making it a potential structure-enhancing ingredient.

Key Words: pet food, gelatin, extrusion

394 Digestibility and palatability of diets containing crude corn oil in dogs.

Tabyta T. Sabchuk*¹, Daniele C. Lima¹, Cleusa B.M. Brito¹, Larissa Barrile², Ananda P. Félix¹, Simone G. Oliveira¹, and Alex Maiorka¹, ¹Federal University of Paraná, Curitiba, Paraná, Brazil, ²Cargil Agrícola SA, Uberlândia, Minas Gerais, Brazil.

Crude corn oil (CCO) has large amount of linoleic acid, an essential fatty acid for dogs. Furthermore, CCO has less variation in composition and quality than animal fats. The objectives were to evaluate the apparent total-tract digestibility (ATTD), ME, and palatability of diets containing CCO in dogs. Four diets were evaluated: a control diet (with 12% poultry fat, PF), and 3 diets containing: 4, 8, and 12% CCO, replacing the PF. Diets were sprayed with the fat sources. Eight Beagle dogs were assigned in a replicated Latin square (4×4), totaling 8 replicates per treatment. The experimental diets were offered for a 5-d adaptation period, followed by 5 d of total fecal collection per period. The results were submitted to analysis of regression and orthogonal contrasts (PF vs. CCO). Palatability tests were performed using 2 pair-wise comparisons: 12% PF vs. 12% CCO, both diets with (Test 1) or without (Test 2) palatability enhancer (liquid chicken liver hydrolyzed). Palatability was determined by measuring intake ratio (IR) between the foods offered to 15 adult dogs. Each test was repeated for 3 d ($n = 45$). The IR data were analyzed by Student's *t*-test. The ATTD of DM (80.0, 80.4, 78.2, and 79.2%), CP (80.8, 81.7, 79.4, and 80.0%), GE (84.2, 83.7, 82.3, and 83.5%), and ME (15.68, 15.58, 15.32, and 15.55 MJ/kg DM) of diets 12% PF, 4, 8, and 12% CCO, respectively, did not differ ($P > 0.05$). The IR did not differ ($P > 0.05$) between diets with palatability enhancer (0.53 to 12% CCO vs. 0.47 to 12% PF) and without palatability enhancer (0.52 to 12% CCO vs. 0.48 to 12% PF). The use of CCO as a lipid source in diets for dogs does not change the digestibility and the palatability of the diet, even in diets without palatability enhancer, when compared with the PF.

Key Words: companion animal nutrition, fat source, food preference.

395 Effects of androstenone on reduction of leash pulling in dogs.

Glenna M. Pirner* and John J. McGlone, Texas Tech University, Lubbock, TX.

Behavioral problems are the primary reason owners relinquish dogs to animal shelters. Interomones are olfactory cues produced by one species that elicit a response in another species. The objective of this study is to determine the effects of androstenone acting as an interomone to reduce leash-pulling behavior using a model of dog walking. Androstenone is a swine sex pheromone capable of eliminating jumping and barking in dogs; as such, it may also reduce leash pulling. This study took place at a local animal shelter using adoption dogs surrendered by owners due to behavioral issues, providing an exceptional model for this study. A researcher walked each dog on a standard nylon neck collar and leash 53 m around an enclosed yard (average time $76.0 \pm$

11.6 s). Leash pulling was defined as pressure exerted on the leash by the dog resulting in the researcher's inability to walk comfortably. Each dog was walked twice with 90 min of rest between walks. On the first walk the researcher did not respond to leash pulling (NOT). On the second walk the researcher responded to each leash pull by spraying the designated treatment 46 cm from the dog's head. Treatments were water (H₂O, n = 8), androstenedione+water (ANH, n = 9), or InteroSTOP (Meridian Animal Health, Omaha, NE) (INT, n = 10). The study was designed so each dog was walked twice: once with NOT, and once with H₂O, ANH or INT. Walks were video recorded and observed by researchers blind to the treatments. The observers counted number of leash pulls during each walk and noted reactions to sprays. Data were analyzed using a 2-tailed Student's *t*-test, with number of leash pulls during the walk with NOT as the control for each treatment. ANH and INT reduced the number of leash pulls by 84% and 86%, respectively, compared with H₂O ($P < 0.001$). There was no difference in reduction of leash pulling between ANH and INT ($P > 0.05$). INT reduced leash pulling; however, the compressed air sound accompanying the spray frightened many dogs when sprayed from behind. These findings may be beneficial in developing behavioral modification training tools for dogs, thereby improving the human-animal bond and possibly reducing the desire of owners to relinquish ownership of dogs.

Key Words: behavior, canine, interomone

396 Effects of graded dietary HP 300 concentrations on apparent total-tract macronutrient digestibility, fecal characteristics, and fecal fermentative end-products in healthy adult dogs. Alison N. Beloshapka*¹, Maria R. C. de Godoy¹, Katelyn B. Detweiler¹, Ingmar S. Middelbos³, George C. Fahey Jr.^{1,2}, and Kelly S. Swanson^{1,2}, ¹University of Illinois at Urbana-Champaign Department of Animal Sciences, Urbana, IL, ²University of Illinois at Urbana-Champaign Division of Nutritional Sciences, Urbana, IL, ³Hamlet Protein Inc., Findlay, OH.

Animal proteins, such as poultry by-product meal (PBM), are commonly used in extruded dog foods. Plant-based proteins have a more consistent nutrient profile than animal sources but may contain anti-nutritional factors (ANF), including trypsin inhibitors and oligosaccharides. The test protein, HP 300, is a proprietarily processed soy-based product with very low ANF concentrations and high nutritional value. The objective was to evaluate if HP 300 can be an effective PBM replacement in pet food and if there are practical limits to its use. We tested the effects of 0% (control), 4%, 8%, 12%, 24%, and 48% HP 300 on apparent total-tract macronutrient digestibility, fecal characteristics, and fecal fermentative end products in healthy adult dogs. All 6 diets were formulated to meet AAFCO nutrient profiles with approximately 30% crude protein and 16% fat. Forty-eight healthy adult beagle dogs (20 females, 28 males; mean age: 3.4 y; mean BW: 10.0 kg) were studied in a completely randomized design. The treatment period consisted of a 10-d diet adaptation phase followed by a 4-d fresh and total fecal collection phase. Stool output (both on as-is and dry matter basis [DMB]) did not differ from control until 48% HP 300 ($P < 0.01$). Fecal output per unit food intake (DMB) differed ($P < 0.01$) from control only at the 24% and 48% HP 300 inclusion rates. Notably, no effect of HP 300 inclusion was found for stool consistency scores. Digestibility of DM, organic matter and energy did not differ from control at any inclusion rate, except for a decrease ($P < 0.01$) at 48% HP 300, which is likely due to increased dietary fiber concentrations. Crude protein digestibility was not affected by treatment and ranged from 82.9 – 86.2%. Short-chain fatty acid production increased ($P < 0.01$) compared with control only at 24% and 48% HP 300. Conversely, branched-chain fatty acids

were reduced ($P < 0.01$) compared with control at inclusion rates of HP 300 of 8 – 48%. Overall, these data suggest that HP 300 is a suitable replacement for PBM in canine diets up to at least a 24% inclusion rate.

Key Words: canine, digestibility, soy protein

397 Characterization of hindgut microbiota during the onset of obesity in adult domestic cats. Maria R. C. de Godoy*¹ and Kelly S. Swanson^{1,2}, ¹Department of Animal Sciences, University of Illinois, Urbana, IL, ²Department of Veterinary Clinical Medicine Sciences, University of Illinois, Urbana, IL.

In humans, gastrointestinal microbiota of obese subjects harbor a less diverse bacterial community and a lower ratio of Bacteroidetes:Firmicutes phyla. However, these relationships have not been examined in the domestic cat. Thus, the objective of this study was to characterize the hindgut microbiota of domestic cats transitioning from a lean to an obese phenotype. Nine domestic male cats (mean age = 8 ± 0.3 yr; mean BW = 4.5 ± 0.4 kg, mean BCS range = 5.0 ± 0.5) were ad libitum fed a complete and balanced experimental diet for 36 wk. Food intake was measured daily, while BW and BCS were measured weekly, fresh fecal samples were collected at 0, 6, 12, 24 and 36 wk. Amplification of fecal bacterial DNA was performed using targeted primers and a Fluidigm Access Array. Illumina sequencing was performed utilizing a MiSeq2000 using v3 reagents. High quality (quality value >25) sequence data derived from the sequencing process were analyzed using QIIME 1.8.0. Resulting sequences were clustered into operational taxonomic units (OTU) using closed-reference OTU picking against the Greengenes 13_8 reference OTU using a 97% similarity threshold. Data were analyzed as repeated measurements, with post-hoc Tukey adjustment. $AP < 0.05$ was considered statistically significant. A total of 9,145,663 reads were generated in the current data set, with an average of 203,236 reads per sample used to provide diversity estimates. Cats incrementally changed from a lean phenotype (mean BCS = 5.0) at baseline to an overweight phenotype with a mean BCS of 7.5 at 36 wk. Similar to overweight observed in humans, overweight cats had a lower ratio of Bacteroidetes (e.g., Bacteroides; Prevotella) to Firmicutes (e.g., Lactobacillus) phyla. However, microbial diversity and species richness was not altered by BW gain (~250 species). Body weight gain resulted in a gut microbiota shift depicted by unweighted UniFrac-based PCoA analysis between cats at baseline and 6 wk vs. 24 and 36 wk. Proteobacteria (e.g., Succinivibrionaceae) and Fusobacteria (Fusobacteriaceae) were decreased ($P < 0.05$) by BW gain. These data demonstrate the transition from a lean to an overweight phenotype alters the GI microbiota in cats.

Key Words: feline, microbiome, obesity

398 Evaluation of cat scratcher efficacy. John J. McGlone*^{1,2} and Rebekkah R. Plummer², ¹Laboratory of Animal Behavior, Physiology and Welfare, Texas Tech University, Lubbock, TX, ²McGlone Enterprises Inc., Lubbock, TX.

Inappropriate scratching is a behavioral problem among kittens and cats in homes. Many models of cat scratchers are available but there is little objective work that evaluates efficacy of cat scratchers. A model was developed to evaluate cat scratching using kittens in a controlled setting. Four studies were conducted. The first study used 12 kittens (<3 mo of age) in a completely random design with 2 scratcher types per study. A power test revealed 6 kittens gave sufficient power for a scratcher evaluation; therefore, studies 2 to 4 used 6 unique kittens each. In a given study, a kitten was given simultaneous access to 2 cat scratchers for 20 min. Kittens spent an average of 95 s scratching and

playing with cat scratchers. Preference studies examined cat scratchers. The key measure was the time kittens spent interacting (scratching and playing) with each scratcher. In study 1a, kittens spent more ($P < 0.05$) time with a cardboard bed than with a hemp post (99.3 vs. 14.9 ± 15.9 s) while in study 1b, a carpeted tall post and cardboard bed induced similar scratching (24.2 vs. 20.2 ± 23.3 s). In studies 2a-c, a screen was placed in either horizontal or vertical positions. In study 2a, kittens spent more ($P < 0.05$) time with the screen in the horizontal compared with the vertical position (21.7 vs. 10.5 ± 2.8 s). In study 2b, kittens spent similar time with the horizontal screen compared with the cardboard scratcher (25.0 vs. 29.8 ± 8.6 s). In 2c, kittens preferred ($P < 0.05$) the cardboard scratcher to horizontal bubble wrap (31.0 vs. 9.0 ± 5.1 s). In study 3a, kittens spent more ($P < 0.05$) time with cardboard than with screen (37.5 vs. 7.8 ± 7.9 s) and in 3b more time with cardboard vs. carpet (37.5 vs. 5.0 ± 6.7 s). In studies 4a-c, kittens spent more ($P < 0.05$) time with an S-shaped cardboard than with long-flat, rectangular-flat, or boat-shaped cardboard scratchers ($20.6, 6.2, 6.3, 11.3 \pm 3.9$ s). In conclusion, kittens prefer cardboard and carpet over screen, bubble wrap, or hemp-type scratchers. Second, kittens had a clear preference to play and scratch with cardboard scratchers in an S-shape. Finally, scratchers vary considerably in their ability to interest kittens in scratching.

Key Words: cat, kitten, behavior

399 Evaluation of pork and pork by-products in raw meat diets for African wildcats. Cayla J. Iske*¹, Cheryl L. Morris^{1,2}, and Kelly Kappen², ¹Iowa State University, Ames, IA, ²Omaha's Henry Doorly Zoo and Aquarium, Omaha, NE.

Primarily, only 2 protein sources (beef or horse) are commercially used for raw meat diets fed to carnivores managed in zoos. An additional protein source such as pork has potential to mitigate some gastrointes-

tinal issues and provide dietary variety. Concerns with high levels of microbial populations in raw meat diets and possible zoonoses also have been expressed. The objectives of this study were to determine if a pork-based diet had similar apparent total-tract macronutrient digestibility and fecal scores in African wildcats as standard zoological carnivore diets formulated with either horse or beef and to characterize the microbial counts among the diets. Four African wildcats were used (2 males, 2 females) in a randomized crossover design consisting of 4 raw meat diets: horse (H), beef (B), beef/horse blend (HB), and pork (P) all fed isocalorically to maintain body weight. Data were analyzed using the Mixed models procedure of SAS. All diets were highly digestible, especially for fat where digestibility values ranged from 98.58 (H) to 99.73% (HB) and were not different. Digestibility of OM was higher ($P < 0.05$) when cats consumed HB (97.15%) compared with P (93.10%). Crude protein digestibility was highest ($P < 0.05$) for HB (98.08%) and lowest for B (93.44%). Fecal scores (1 = hard, dry feces to 5 = liquid/watery feces) were higher ($P < 0.05$) for cats fed B (2.63) compared with cats fed H (1.55) or P (1.91). Microbial counts varied and included E. Coli ranging from 110 to 10,000 cfu/g for HB and B diets, respectively; total coliforms from 150 to 28,000 cfu/g for HB and B diets, respectively; yeast from 20 to 4,000 cfu/g for P and HB, respectively; mold counts were not detectable for all diets except B that contained 10 cfu/g and aerobic plate counts ranged from 23,000 to 26,000,000 cfu/g for H and HB diets, respectively. Staphylococcus aureus was not detected in any of the diets. Salmonella was presumptive positive in the P and HB diets; however, these values were not enumerated or quantified for specific strains. In conclusion, a pork-based diet can be utilized by exotic small cats and included among dietary options for felid management. Raw meat diets do contain variable levels of microbes and should be handled and managed appropriately.

Key Words: raw meat diet, cat, exotic animal