

phytase activity when compared to all other products at all conditioning temperatures. In summary, increasing conditioning temperatures decreased phytase stability regardless of product. In addition, Microtech 5000 Plus had decreased residual phytase activity (% of initial) when compared to all other products.

Key Words: conditioning temperature, pelleting, phytase stability

215 Effects of grinding corn through a 2-, 3-, or 4-high roller mill on pig performance and feed preference of nursery pigs. J. T. Gebhardt^{*1}, J. A. De Jong¹,

M. D. Tokach¹, J. C. Woodworth¹, J. M. DeRouchey¹, R. D. Goodband¹, K. F. Coble², C. R. Stark¹, C. K. Jones¹, S. S. Dritz¹, ¹Kansas State University, Manhattan, ²New Fashion Pork, Jackson, MN.

A total of 410 pigs were used in 2 experiments to determine the effects of grinding corn through various roller mill configurations on feed preference and performance of nursery pigs. In Exp. 1, 320 pigs (DNA 400 × 200; initial BW = 10.7 kg) were randomly allotted to 1 of 4 dietary treatments with 16 pens/treatment and 5 pigs/pen for a 21-d growth trial. The 4 dietary treatments used the same corn-soybean meal-based formulation that were mixed from the same batch of ingredients. Corn was ground through the same 4-high roller mill, but using different roller configurations including feed with corn fraction ground to 650 µm using 2 sets of rolls (2-high), feed with corn fraction ground to 495 µm using 3 sets of rolls (3-high), feed with corn fraction ground to 340 µm using 4 sets of rolls in a fine grind configuration (4-high fine), and feed with the corn fraction ground to 490 µm using 4 sets of rolls in a coarse grind configuration (4-high coarse). In Exp. 2, 90 pigs (PIC 327 × 200; initial BW = 12.2 kg) were randomly allotted to 1 of 3 diet comparisons to determine feed preference. The 3 diets compared were the 2-high, 4-high fine, and 4-high coarse configurations. Each pen contained 2 feeders, each containing 1 of the 3 treatment diets. Feeders were rotated once daily within each pen for the 7-d study, with 5 pigs per pen, and 6 pens per comparison. In Exp. 1, there were no differences in ADG, ADFI or G:F between roller mill configurations. Similarly, no differences were observed for caloric efficiency or economics among roller mill configurations. In Exp. 2, when given a choice, pigs consumed 67% ($P < 0.05$) of the diet containing corn ground through the 2-high roller mill when compared to the diet containing 4-high fine corn. There was no difference in feed consumption comparing diets with 2-high roller mill corn or corn from the 4-high roller mill in a coarse configuration. When comparing corn from the two 4-high configurations, pigs consumed 63% ($P < 0.05$) of the diet manufactured in the coarse configuration and 37% when manufactured in the fine grind configuration. When given a choice, pigs preferred diets manufactured using a mill configuration producing coarser ground corn (490 to 650 µm) to fine

ground corn (340 µm); however, roller mill configuration did not affect performance.

Key Words: roller mill, nursery pigs, feed preference

216 Coating dog kibble with a commercial liquid acidifier reduces the risk of *Salmonella* cross-contamination. A. R. Huss^{*1}, A. Deliephan¹,

J. C. Fuller, Jr.², C. K. Jones¹, ¹Kansas State University, Manhattan, ²Metabolic Technologies Inc, Ames, IA.

In recent years, several pet food recalls have been attributed to *Salmonella* contamination. In addition to the negative impacts on animal health, pet foods contaminated with *Salmonella* have been linked to infection in humans. To help reduce the risks to humans, the Food and Drug Administration has set forth a zero-tolerance policy for *Salmonella* in pet foods. Typically, the preconditioner and extruder operate at sufficient temperatures to destroy pathogenic bacteria. However, there is the potential for post-processing cross-contamination to adulterate the product. One potential method to reduce the risk of *Salmonella* cross-contamination in pet foods is through the addition of chemical additive coatings. The objective of this research was to evaluate the ability of the liquid acid, β -hydroxy- β -methylbutyric acid (HMB; Metabolic Technologies Inc, Ames, IA), to reduce cross-contamination of dry extruded dog kibble with *Salmonella*. Liquid HMB was applied to a single formula of dog kibble at inclusion levels of 0, 0.9 and 1.5% (w:w) using a laboratory-scale mixer. The coated kibbles were then inoculated with *Salmonella enterica* subsp. *enterica* Seroovar Enteritidis (ATCC 13076), grown in trypticase soy broth (TSB). Inoculated kibbles were enumerated for *Salmonella* on d 0, 1, 2, 7, and 14 post-inoculation. For enumerations, a subsample was collected, serially diluted and spread plated to Xylose Lysine Deoxycholate (XLD) agar. All inoculated plates were incubated at 37°C for 24 h, after which black colonies, typical for *Salmonella*, were counted and cfu/g calculated. The effects of HMB concentration, enumeration day and their interaction were all significant ($P < 0.0001$) on the resulting *Salmonella* concentration. *Salmonella* counts from Day 0 were 6.99, 5.59, and 4.88 log₁₀ cfu/g for 0, 0.9 and 1.5% HMB, respectively. For HMB levels of 0.9 and 1.5%, counts were below the detectable limit for d 1, 2, 7, and 14. For 0% HMB, the *Salmonella* counts were found to decrease over time to 4.80, 3.99, 2.80, and 3.14 log₁₀ cfu/g for d 1, 2, 7, and 14, respectively. Overall, the HMB coating was effective at reducing *Salmonella* artificially inoculated to dog kibbles. Further research is warranted to evaluate the minimum effective dose of HMB to reduce *Salmonella* in dog and cat kibbles.

Key Words: *Salmonella*, cross-contamination, petfood