

# MORE IS BETTER

## VERSIY<sup>®</sup> DRIED YEAST



The saying “if some is good then more is better” is not always applicable in nutrition. However, recent research shows this adage applies directly to Versity<sup>®</sup> dried yeast. In 2018, ADM launched Versity<sup>®</sup> as an alternative protein source for the pet food industry. It was supported by results from dog and cat feeding studies showing foods with 10% Versity<sup>®</sup> were highly palatable and digestible compared with control foods without Versity<sup>®</sup>. Subsequent research more fully characterizes the nutritional value of Versity<sup>®</sup> by assessing amino acid bio-availability and evaluating its 30% inclusion in a nutritionally-complete dog food. The results show the essential amino acids in Versity<sup>®</sup> are highly digestible and dogs can effectively use foods containing 30% Versity<sup>®</sup>.

Versity<sup>®</sup> is composed of inactive, dried yeast (*Saccharomyces cerevisiae*) and contains no added carriers or known anti-nutritional components. It is a light brown, flowable granule with a bulk density ranging from 40 to 48 lbs./cu. ft. and is AAFCO-defined (96.1 Dried Yeast). Versity<sup>®</sup> is cost-competitive and high-quality with a consistent profile of essential amino acids and inherently low levels of fat, calcium and magnesium making it highly versatile in pet food applications.

Versity<sup>®</sup> currently fills a variety of formulation needs as it is neither a meat- or plant-based ingredient. It functions as an alternative, non-traditional ingredient for the ever-changing needs of today’s pet food industry. Versity<sup>®</sup> was initially positioned as a replacement protein to fill the protein void created by the “no corn, soy, wheat, or animal by-products” ingredient craze. However, recent research demonstrates Versity<sup>®</sup> has additional applications for manufacturers wanting to reduce or eliminate legume-based proteins in grain-free dog and cat formulas.

Versity<sup>®</sup> has an essential amino acid profile comparable to egg and research using the cecectomized rooster assay shows these amino acids are highly digestible. Digestibility values averaged 92% for all essential amino acids and ranged from 86% (threonine) to 95% (arginine). When compared with legume-based proteins, Versity<sup>®</sup> contains more than twice the amount of methionine which is 20% more digestible than methionine in the tested legumes. Digestible indispensable amino acid (DIAA) scores also classify Versity<sup>®</sup> as high-quality when calculated using AAFCO amino acid recommendations for adult dogs and cats. Regardless of species, all Versity<sup>®</sup> DIAA scores were 100% or more indicating it can meet all essential amino acid needs of adult dogs and cats. Specifically, Versity<sup>®</sup> has a methionine

DIAA score of 100% for dogs while none of the legume-based proteins had methionine DIAA scores achieving 100%. Six of the legume-based proteins had methionine DIAA scores less than 50% which is indicative of low-quality protein, while five were classified as moderate-quality proteins based on methionine DIAA scores between 51% and 74%.

Versity<sup>®</sup> was tested in a dog feeding study using a nutritionally-complete, extruded food containing 30% Versity<sup>®</sup> and a comparable control food with 33% poultry by-product meal. The food with 30% Versity<sup>®</sup> was well-accepted as there were no differences in food consumption or stool quality compared with control. Fecal output was greater ( $P < 0.05$ ) for Versity<sup>®</sup> resulting in a slight reduction ( $P < 0.05$ ) in apparent dry matter digestibility compared with control. Apparent protein digestibility was also numerically lower ( $P > 0.05$ ) for Versity<sup>®</sup> than control. It is likely that Versity<sup>®</sup> digestibility values were under-estimated as fecal output was not corrected for microbial protein contribution in this study. Fecal short-chain fatty acid levels indicate hind-gut fermentation was greater for Versity<sup>®</sup> than control. This will contribute more microbial protein in the feces resulting in apparent nutrient digestibility values to be under-estimated. Fecal acetate and butyrate levels were significantly higher ( $P < 0.05$ ) for Versity<sup>®</sup> compared with control. Specifically, fecal butyrate levels were two-times greater implying a food containing 30% Versity<sup>®</sup> may help improve intestinal health as butyrate is the primary fuel source for intestinal cells. Fecal phenol levels were also lower with Versity<sup>®</sup> implying a reduction in putrefactive compounds that may reduce fecal odor and provide an indirect benefit for pet owners. Overall, these results demonstrate dogs can safely consume foods with 30% Versity<sup>®</sup> and they may benefit from the intestinal health benefits associated with greater hind-gut fermentative activity.

These new data expand our understanding of the nutritional value of Versity<sup>®</sup> as a protein source for dogs and cats especially when compared with legume-based proteins. This provides a new opportunity to use Versity<sup>®</sup> as a viable replacement protein in grain-free dog and cat foods. Furthermore, the positive feeding response to the food with 30% Versity<sup>®</sup> adds additional versatility in the pantry of ingredients available to formulators. As pet food manufacturers seek alternative protein ingredients to address consumer demands, these findings show that more Versity<sup>®</sup> can be included in pet food formulations to provide more essential amino acids to dogs and cats which supports the adage that “more is actually better” with Versity<sup>®</sup> dried yeast.



### DR. GARY DAVENPORT, COMPANION ANIMAL TECHNICAL MANAGER

Gary is responsible for providing technical support, nutrition training, formulation services and new product development for ADM’s customers in the pet food industry. He has more than 33 years of animal nutrition experience as a research nutritionist. Gary previously held positions with the IAMS Company and as a research & teaching faculty member at Auburn University, Animal & Dairy Science Department. His research interests and activities have included protein and amino acid nutrition, skin and coat health, sporting dog nutrition, nutrigenomics, hairball nutrition and successful aging. At Auburn his research and teaching focused on animal nutrition and the relationship between nutrient availability and the hormonal regulation of growth. Gary received his undergraduate and graduate degrees from the University of Kentucky. He has numerous scientific publications and granted patents.