The Companion Animals Symposium titled “Nutrition special needs— the relationship between novel ingredients, environment and gene expression” was held at the Joint Annual Meeting of the American Society of Animal Science (ASAS), American Dairy Science Association, Canadian Society of Animal Science, Asociación Mexicana de Producción, and the Western Section of the American Society of Animal Science in Phoenix, AZ, July 15 to 19, 2012. The committee for this symposium was comprised of J. L. Cline (K9 Crazy Consulting, Pine Bluff, AR), K. R. Kerr (University of Illinois, Urbana), and M. R. C. de Godoy (University of Illinois, Urbana). The purpose of the symposium was to explore the potential health benefits of novel ingredients and to review the published evidence supporting their use in dogs and cats. Recent biotechnological advances, including genomic tools that may identify specific mechanisms by which novel ingredients function, were also discussed within the context of their application to companion animal nutrition and health.

The first speaker of the symposium was G. Aldrich (Pet Food & Ingredient Technology Inc., Topeka, KS) whose presentation was titled “Alternative ingredients: Which have scientific merit”? (Aldrich, 2012). The basis of his talk was that pressure continues to mount for the development of alternative ingredients and their inclusion in pet foods. However, the use of such ingredients requires that their safety, efficacy, and utility be demonstrated.

The symposium continued with the next speaker, M. R. Lappin (Colorado State University, Fort Collins), discussing the “Benefits of probiotic supplementation in stressful situations in companion animals” (Lappin, 2012). He indicated that there are many products on the market that contain probiotics and claim to be beneficial for dogs or cats. Results of studies with humans, however, vary substantially and he emphasized that biological effects of individual probiotics can vary greatly. He stated that each probiotic should be carefully evaluated in well-designed controlled experiments to determine their value for use in pets. He indicated further that whereas some probiotics have been shown to be beneficial, many products currently marketed as probiotics have not been tested experimentally and, thus, may not meet the claims on the product label. Finally, he presented results of 2 studies demonstrating the beneficial effect of a probiotic on pets under stress.

The third presentation, by K. R. Kerr (University of Illinois, Urbana) discussed the role of dietary modifications for the treatment and prevention of lower urinary tract signs (LUTS) in cats (Kerr, 2013). She stated that cats with LUTS exhibit many symptoms of inappropriate urine elimination. Dietary manipulations to prevent LUTS are designed to promote increased volume of more dilute urine, decreased formation of specific types of urinary stones, and promotion of healthy microbial populations in the gastrointestinal and urogenital tracts. She indicated further that experimental studies on LUTS in cats are limited and that specific recommendations for dietary
management of LUTS in this species are frequently extrapolated from results of studies on other species.

The next presentation was provided by I. S. Middelbos (Novus International Inc., St. Charles, MO) and was titled “Functional nutrition: Novel ingredients and new findings” (Middelbos, 2012). He discussed the multibillion dollar functional food and beverage industry and how functional foods target delivery of specific benefits beyond standard nutrition, based on their ‘functional’ ingredients. He indicated that there is a strong drive to bring functional ingredients into the pet food market. Many functional ingredients used in both humans and pets have ingredients targeting improvement of joint health and digestive health. Functional ingredients include both novel ones as well as those having well-established benefits. A common feature of the conditions targeted by functional food ingredients is the involvement of the immune system, and the most successful functional ingredients generally appear to modulate the immune response.

The symposium concluded with a presentation by K. S. Swanson (University of Illinois, Urbana) titled “Nutrigenomics: Using gene expression and molecular biology data to understand pet obesity” (de Godoy and Swanson, 2013). He discussed how the various fields of genomic biology have advanced substantially over the past decade and that the emerging field of nutrigenomics aims to elucidate how specific dietary ingredients influence gene expression. He stated that most genomic studies in companion animals have focused on adipose tissue and conditions leading to obesity. Because dogs and cats have an array of hormones and adipokines involved in control of appetite, metabolism, and fat deposition that are generally similar to other species, he indicated that nutrigenomics may be utilized in the future to better understand and manage obesity in pets.

The 5 speakers at the Companion Animals Symposium on nutrition special needs highlighted the consumer and manufacturer demand for functional ingredients in pet foods. Such ingredients may not only provide nutritional support, but also possess additional health benefits for the aging pet population. Similar to humans, ingredients supporting the health of the gastrointestinal, skeletal, immune, and urogenital systems have been the most commonly studied. Although some data were presented, it was apparent that the potential for novel ingredients currently outweighs the actual published evidence, thereby justifying further research on their efficacy and safety in the future.

**LITERATURE CITED**


