Future Opportunities and Challenges in Equine Nutrition

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The improvements in applied equine nutrition have been substantial in the 40+ years I have worked professionally in the equine industry as a trainer, instructor and technology manager. There are opportunities and challenges remaining for the future to focus on optimal performance nutrition instead of on minimum nutrient requirements.

Energy Sourcing for Optimum Performance in Different Disciplines

Horses derive Digestible Energy (DE) from digestible fat, digestible neutral detergent fiber (NDF), digestible non-structural carbohydrates (NSC, primarily starches and sugars) and residual energy from digestible protein. There is an opportunity to improve how energy is provided from the different sources for different disciplines in order to optimize performance while continuing to reduce the risk of metabolic disturbances. A Nutrient Model where the total DE requirement for classifications of horses is expressed as an energy requirement from each source would perhaps be very useful solution. This is also a difficult solution based on the amount of research required for the animal model and for the ingredient assessment. There is have some evidence that current thinking may have focused too much on dietary starch and sugar reduction for animals where this reduction is not required and may not be appropriate to support performance and recovery. There has been substantial progress in improved use of vegetable oil and highly digestible fiber as energy sources.

Ideal Amino Acid Model for Horses

Equine nutrition is behind commercial species in that crude protein is still widely used in diet evaluation, particularly by consumers, with limited use of the concept of an Ideal Amino Acid model for horses. Beyond lysine, there are not well defined publicly available essential amino acid requirements for horses. This is a key opportunity to improve the understanding of the impact of essential amino acids. The required animal and ingredient research and testing is very expensive and may not be a high priority in public research.

Functional Ingredients

There are excellent opportunities to improve the use of prebiotics, probiotics, specific fatty acids (Omega 3, 6 and 9 in particular), anti-oxidants, organic trace minerals, and a host of nutraceuticals to improve specific functions and provide nutrient solutions to help optimize safety and performance. The challenge is to conduct the research and development to support the use of these ingredients and nutrients and document the benefits with adequate data.