

# Kentucky Equine Research Hosts 10th Annual Equine Nutrition Conference for Feed Manufacturers

BY CATHERINE ANNE HUDSON, KENTUCKY EQUINE RESEARCH, INC.

Over 200 international researchers and feed manufacturers from 22 countries assembled for the 10th annual Kentucky Equine Research (KER) Nutrition Conference for Feed Manufacturers held May 4 - 5 in Lexington, Kentucky. The number of people attending this conference continues to grow each year along with its bevy of international speakers. KER president Dr. Joe Pagan along with KER nutritionists and researchers Drs. Kathleen Crandell, Steve Duren, Ray Geor, and Peter Huntington assembled a wide range of veterinarians and equine nutritionists for this series of concentrated talks and poster presentations.

Host for the conference, Dr. Pagan introduced the four information-packed sessions which focused upon nutrient requirements for the 21st century and feeding practices around the world. Dr. Pagan's conglomeration of speakers introduced the fundamentals of equine nutrition, specifically the topics of energy, protein, vitamins, microminerals and macrominerals.

The first program speakers were Dr. Gary Cromwell, Professor of Animal Sciences at the University of Kentucky, and Dr. Harold Hintz, Professor of Animal Nutrition at Cornell University, who gave an overview of the National Research Council (NRC) role in the development of nutritional requirements for animals. Discussion included recently derived values for swine and the serious need for equine nutrient values to be clarified and updated in a similar man-

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ner. Hintz emphasized the importance of formulating new values from international equine research journals that may otherwise be overlooked due to language translation difficulties. Dr. Hintz pointed out the excellent research presented in such journals as *Pferdeheilkunde*, *Veterinarski Arhiv* and *Folia Zoologica* to show the value of finding a way to interpret this work for the use of researchers around the world.

Dr. Laurie Lawrence, Professor of Animal Sciences at the University of Kentucky and author of over 50 research papers, three book chapters and more than 75 articles, spoke about energy content of the equine ration. Data were presented concerning requirements for maintenance, growth, gestation and lactation, confirming previously published values in the NRC (1989). However, Dr. Lawrence highlighted the need to enhance the digestible energy (DE) recommendations possibly by the development of multilevel modeling techniques similar to those discussed by Dr. Cromwell.

Dr. Edgar Ott, Professor of Animal Nutrition at the University of Florida, discussed the protein requirements and importance of amino acids in the growing and exercising horse. The emphasis was on the quality of protein fed to horses. Dr. Ott addressed the need for NRC values to be updated by incorporating new studies and possibly looking at newly derived



*Dr. William Martin-Rosset, Director of Equine Research at the National Institute for Agricultural Research in France, and Dr. Ray Geor, Director of Research and Development for Kentucky Equine Research, discuss the two major feeding systems used in France.*

methods to link requirements of lysine with recommended levels of other essential amino acids.

Kentucky Equine Research's Virginian nutritionist, Dr. Kathleen Crandell, presented information about the importance of vitamins for normal metabolic and physiological processes. Dr. Crandell stressed the practical need to further investigate and consider optimum vitamin recommendations and not minimum requirements. This would be more beneficial to the horse owner as research may provide optimal levels for growth, performance, health, feed utilization, and body reserves.

Attempting to consolidate research on trace minerals over the last 11 years since the latest NRC recommendations, Dr. Pagan utilized scientific data and practical experience to explain the importance microminerals play on a wide range of biochemical systems. NRC published values were directly compared with KER recommendations. The overall findings were that NRC trace mineral levels of intake are too low, especially for growing horses and pregnant mares.

Dr. Hintz highlighted the macrominerals calcium, phosphorus and magnesium. Main factors were the consideration of these macrominerals in proper bone formation and the need for different levels in growing horses, lactating mares and pregnant mares. The necessity for more in-depth research linking macrominerals to musculoskeletal injuries in performance horses was also emphasized. Dr. Jill McCutcheon of the Department of Pathobiology at the University of Guelph expanded upon this theme in her talk

about macrominerals, her emphasis being on sodium, potassium and chloride, which are important to the physiological well-being of the horse. McCutcheon stressed the importance of supplementing electrolytes to all horses and the possible addition of potassium to horses that are provided with loose salt or a salt lick. The supplementation of

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potassium to racehorses may also be necessary due to their increased consumption of grain and decreased consumption of forage (which can reduce intake levels of potassium) and profuse sweating. It should also be noted that potassium losses might be exacerbated for horses running on furosemide (Lasix) or other diuretics. There is a concern that using electrolyte pastes without high quality dietary fiber could cause digestive upsets or colic.

As part of the second day's program Dr. Ray Geor, Director of Research and Development at KER, detailed feeding practices designed to help the sick horse during recovery from illness and surgery. Guidelines for nutritional management were supported by a sound explanation of metabolic effects of fasting and severe illness.

The remainder of the conference essentially dealt with international feeding practices. Prior to this in the first session, Dr. William Martin-Rosset, Director of Equine Research at the National Institute for Agricultural Research (INRA) in France, set a high standard for the international speakers to follow when he discussed the "French view" of nutrient requirements for horses. Dr. Martin-Rosset described the vast number of horses used in 1990 to test the two major feeding systems for energy (UFC/horse feed unit) and protein (MADC/horse digestible crude protein) in France. Martin-Rosset described the ration calculation package, The Chevalration, that was developed by teachers at INRA as the most accurate for balancing rations. The INRA handbook is used in South, North and East European coun-



Photo by Robin Stanback

*Dr. Pat Harris, of WALTHAM Centre for Pet Nutrition in Leicestershire, England, Dr. Manfred Coenen, Chairman of Animal Nutrition and Dietetics at the Veterinary Medicine Hospital in Hannover, Germany, and Dr. Peter Huntington, Director of Nutrition at KER Australasia, enjoy visiting after the conference.*

tries also. Comparing INRA values to those of NRC confirmed results highlighted by other speakers that some NRC values may be too low.

Dr. Yo Asai, Chief of the Equine Science Division of the Hidaka Training and Research Center (a part of the Japanese Racing Association), initiated the second session with an extremely interesting presentation concerning Japanese Feeding Standards. After studying a number of different options, Japanese researchers chose to adopt NRC recommendations with certain practical horse management issues peculiar to Japan taken into consideration. For example, unseasonable weather, high humidity levels, and volcanic soils which are high in acidity and deficient in some nutrients were factored into the final recommendations. In addition to Dr. Yo Asai, two of his associates presented posters concerning the nutrient intake from milk and pasture in nursing foals and establishment of normal growth rates of Thoroughbreds in Japan.

Discussion of worldwide feeding practices continued with a concise presentation by Dr. Manfred Coenen, Chairman of Animal Nutrition and Dietetics at the Veterinary Medicine Hospital in Hannover, Germany. Precise data were presented from the German Society for Nutritional Physiology (1994), which includes research collections from throughout the world. Dr. Pat Harris, WALTHAM Centre for Pet Nutrition in Leicestershire, England, highlighted the differences between practices in Germany and those in the United Kingdom. Kentucky Equine Research's West Coast nutritionist, Dr. Steve Duren explained regional feeding strategies throughout the USA. Comparative feeding practices emphasized the importance of forage evaluation in regions when feeding within compliance with NRC recommendations. Paul Sirois, manager of Dairy One Forage Lab of Ithaca, New York, detailed the most efficient methodology for meaningful forage sampling. Future revision of the nutrient content of forages may include local calibrations alongside global databases. Dr. Peter Huntington, Director of Nutrition at KER Australasia, also emphasized the importance of forage analysis in the Southern Hemisphere. Analyses are fundamental for the detection of high oxalate content, poisonous plants and high levels of selenium in tropical grasses, which can cause toxicity. Dr. Huntington also discussed the continued use of straight grains, especially oats, in Australia. Problems from overfeeding are now being recognized on the breeding farms, and in New Zealand increased awareness of advances in equine nutrition have changed feeding practices towards commercially prepared programs in the last ten years.

During breaks in the program, attendees were given the opportunity to review poster presentations from universities and research facilities around the world. Young scientists shared their new research from Kentucky and as



*Dr. Joe Pagan, President of Kentucky Equine Research, discusses the importance of microminerals to the equine diet.*

far afield as Finland, Ontario and Wales. Among these were posters from the previously mentioned Japanese presenters and two well-respected researchers, Dr. Coenen and Dr. Sarah Ralston of Rutgers University.

The conference was followed by a Kentucky Derby party, which was held at one of KER's offices in Versailles. The event was made especially interesting for all attending as at least seven of the horses competing in the race were on feeds formulated by KER nutritionists. The winner, Fusaichi Pegasus, was one of these. Farmers Feed Mill in Lexington, Kentucky is the official feed supplier for the National Racing Association and can claim yet another Kentucky Derby winner was fueled by their carefully designed feeds.

The proceedings for the 10th annual KER Nutrition Conference for Feed Manufacturers are available directly from KER, 3910 Delaney Ferry Road, Versailles, KY 40383 or call 1-800-772-1988. 