Commentary

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Mechanism of National Animal Nutrition Program

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Description

The World Organisation for animal health (continuing to use its historical acronym OIE) is responsible for improving animal health and welfare worldwide. Created in 1924 as the Office International des epizooties, it is one of the oldest and, with its 180 Member Countries, one of the most representatives of all intergovernmental organisations.

Present on all five continents through a network of regional and sub-regional representations and offices, and around 300 reference centres, the OIE manages the world animal health surveillance and alert system and plays a key role in veterinary scientific research and information, including animal disease control methods, veterinary public health and sanitary safety of international trade of animals and animal products. As the leading international organisation for animal welfare, the OIE publishes standards and guidelines on the subject. At the interface between animal health and human health, the OIE acts upstream and alongside international institutions that support and finance the fight against animal diseases and help its members to prevent, control, and eradicate them.

Animal Nutrition Program

The National animal nutrition program “National research support project” supports efforts in livestock nutrition, including the National research council’s committees on the nutrient requirements of animals. Our objective was to review the status of experimentation and data reporting in animal nutrition literature and to provide suggestions for the advancement of animal nutrition research and the ongoing improvement of field-applied nutrient requirement models. Improved data reporting consistency and completeness represent a substantial opportunity to improve nutrition-related mathematical models. We reviewed a body of nutrition research; recorded common phrases used to describe diets, animals, housing, and environmental conditions; and proposed equivalent numerical data that could be reported.

With the increasing availability of online supplementary material sections in journals, we developed a comprehensive checklist of data that should be included in publications. To continue to improve our research effectiveness, studies utilizing multiple research methodologies to address complex systems and measure multiple variables will be necessary. From the current body of animal nutrition literature, we identified a series of opportunities to integrate research focuses (nutrition, reproduction and genetics) to advance the development of nutrient requirement models. From our survey of current experimentation and data reporting in animal nutrition, we identified key opportunities to advance animal nutrition knowledge: Coordinated experiments should be designed to employ multiple research methodologies; systems-oriented research approaches should be encouraged and supported; publication guidelines should be updated to encourage and support sharing of more complete data sets; and new experiments should be more rapidly integrated into our knowledge bases, research programs and practical applications.

As the international reference organisation for animal health and zoonoses, the OIE elaborates intergovernmental sanitary standards that safeguard food safety and world trade in animals and animal products within the framework of the World Trade Organization agreement on the application of sanitary and phytosanitary measures. The OIE provides support for the world's Veterinary Services, which activities are now recognized as a global public good, and sees their good governance and compliance with OIE quality standards as a priority for public investment.

Traditional halal slaughter and other forms of religious slaughter are still an issue of debate. Opposing arguments related to pre-slaughter handling, stress and pain associated with restraint, whether the incision is painful or not, and the onset of unconsciousness have been put forward, but no consensus has been achieved. There is a need to strike a balance between halal bleeding in the light of science and animal welfare. There is a paucity of scientific data with respect to animal welfare, particularly the use of restraining devices, animal handling, and efficient halal bleeding. However, this review found that competent handling of animals, proper use of restraining devices, and the efficient bleeding process that follows halal slaughter maintains meat eating quality. In conclusion, halal bleeding, when carried out in accordance with recommended animal welfare procedures, will not only maintain the quality and wholesomeness of meat but could also potentially reduce suffering and pain. Maintained meat quality increases consumer satisfaction and food safety.

Several milk metabolites are associated with breeds or species of dairy animals. A better understanding of milk metabolites from different dairy animals would advance their use in evaluating milk traits and detecting milk adulteration. The objective of this study was to characterize the milk metabolite profiles of Chinese Holstein, Jersey, yak, buffalo, goat, camel, and horse and identify any differences using non-targeted metabolomic approaches. Milk samples were tested using Nuclear Magnetic Resonance (NMR) spectroscopy and liquid chromatography–tandem mass spectrometry (LC-MS). Data were analyzed using a multivariate analysis of variance and differences in milk metabolites between Holstein and the other dairy animals were assessed using orthogonal partial least-squares discriminant analysis.

Differential metabolites were identified and some metabolites, such as choline and succinic acid, were used to distinguish Holstein milk from that of the other studied animals. Metabolic pathway analysis of different metabolites revealed that glycerophospholipid metabolism as well as valine, leucine, and isoleucine biosynthesis were shared in the other ruminant animals (Jersey, buffalo, yak, and goat), and biosynthesis of unsaturated fatty acids was shared in the non-ruminant animals (camel and horse). These results can be useful for gaining a better understanding of the differences in milk synthesis between Holstein and the other dairy animals.