

Editorial news and events

Book review

Animal Nutrition - Advances & Developments edited by U.R. Mehra, P. Singh and A.K. Verma. Satish Serial Publishing House, Azadpur, Delhi-110033 (India); 2012, 810 pp.; Hardcover; 135 US\$, 85 £, 95 €, ISBN 81-89304-89-5

The principles of animal nutrition are the same all over the world. But the production systems in Europe, North America and some other regions are not appropriate for most developing countries. The feeding practices in those countries are based primarily on crop residues and other agro-industrial by-products. Most of the books on animal nutrition describe feeding practices prevalent in agriculturally advanced 'Western countries' implying the use of high quality forages and concentrates. Therefore, there is a need for a text book on advanced animal nutrition for students, advisors and educated farmers from developing countries all over the world. The editors invited scientists mainly from India (59), but also from some other countries (5) to contribute their expertise on the topics of advances and developments in animal nutrition. Altogether the book includes 39 chapters by several authors, some repetition or overlapping of information was inevitable. It is although necessary to mention that, because of the high number of authors and their specific workload, it was not possible to finish all the contributions at the same time. Therefore some papers are really new, while others were submitted very early to the editors and will require an update in the near future.

The chapters deal with the most important fields of animal nutrition, such as fundamentals (protein and energy metabolism), nutrient requirements and feeding of various animal species and categories, feed science inclusive of feed additives, biotechnology in animal nutrition, antinutritive factors in animal feeds, quality and safety of feeds and foods of animal origin, environmental aspects of livestock rearing and some other topics. Of course ruminant species are of the most interest for many authors. The length of the chapters varies between 10 and 38 pages. Because of the large scope of the book, the present review can only cover specific aspects of its content.

The first chapter introduces farming practices in developing countries under special consideration of India. The chapter closes with a challenge for development practitioners to ensure that poor, small farmers can increase the productivity of traditional farming systems. Here they should adopt an effective integrated system that produces usable biomass while conserving natural resources, and therefore be sustainable in the long term.

The next three chapters (2 to 4) describe ‘Recent trends in protein nutrition’, mainly dealing with the protein metabolism of ruminants on the basis of the Cornell Net Carbohydrate and Protein System (CNCPS); the ‘Energy metabolism of ruminants’, and the ‘Calorimetric technique’. Especially the chapter about the energy metabolism of ruminants needs an update.

Nutrient requirements, feeds and feeding of various animal species and categories under specific conditions are the topics of the next 11 chapters (e.g., ruminants, pigs, sheep, goats, equine species, pet animals, poultry, yak, mithun, wild animals). Wild animals mean in this case nutrition of zoo animals. One special chapter deals with the feeding of animals at a high altitude (> 1700 m). Apart from fundamentals of feeding, most chapters also cover aspects of the composition and quality of food of animal origin.

Minerals, including heavy and toxic metals, as well vitamins, are the headlines of the Chapters 16 to 18. Much attention has been devoted to the major and trace mineral nutrition of ruminants in tropics. Arsenic, cadmium, fluorine, lead and mercury are considered as heavy and toxic metals in livestock health and production. Some B-vitamins (B₁, B₁₂, biotin, folic acid and niacin) and the fat soluble vitamins are described in the chapter ‘Vitamins’.

Strategic supplementation of nutrients to optimize livestock production and the use of ligno-cellulosic material and other feed resources are the topics of Chapters 19 to 21, and 29. Much attention has been given to the supplementation of complexes with hemicellulose and cellulose with lignin which are generally deficient in nitrogen and many minerals. Examples for supplementation of such low quality roughages with protein sources (e.g., oil cake, tree foliage, NPN, by-pass protein), energy, minerals and vitamins, also in multinutrient blocks, are described. Further chapters describe methods of improvement of the digestibility, the feed value of low quality roughages and the feeding of by-products to animals.

The next three chapters (22-24) deal with biotechnology (feeds from genetically modified plants; improvement of nutritive value of low quality roughages for ruminants; nutrigenomics and livestock productivity). Some fundamentals and some currently ‘hot’ topics are described in these chapters.

The sequence of the last chapters is less systematic and the chapters deal with various topics such as:

- Feeding rumen protected fat to high yielding dairy cows (25)
- Feeding behaviour of domestic animals (26)
- Quality assurance for livestock production (27)
- Assessing the quality and safety of animal feeds (28)
- Anti-nutritional factors in livestock feeds: Prospects and challenges (30)
- Nutrition - Parasite interaction and animal productivity (31)
- The use of purine derivatives to determine microbial protein in ruminants (32)
- Global warming due to methane emission by livestock and its mitigation strategies (33)
- Recent advances in feed evaluation (34)
- Herbal feed additives – Role in animal nutrition (35)
- Nutrition and immunity (36)
- Protected proteins and amino acids in ruminants (37)
- Environmental issues in livestock rearing and policies (38)
- Probiotics, prebiotics and synbiotics feeding in ruminants (39)

International standards and standard-setting organizations dealing with feed and food safety are described in some chapters in detail. Future research areas such as: ‘Global warming due to methane...;’ ‘Herbal feed additives’ and ‘Probiotics’, etc. are mentioned in some chapters. The chapter ‘Environmental issues in livestock rearing and politics’ covers fundamental aspects of animal production in combination with resource efficiency, emissions, water pollution, biodiversity, etc. At the end of this chapter, ‘What needs to be done?’ is summarized in seven key theses.

All chapters contain extensive lists of references showing adequate research activities in India and the rest of the world. For people outside of India it is very interesting to see the progress in research in animal nutrition in India.

The book is recommended for undergraduate and graduate students in the field of animal science, esp. animal nutrition, people from the feed industry and advisors in the field of feed science and animal nutrition, as well advanced farmers in developing countries. Under consideration of its broad content, the book is also recommended to appropriate people in developed countries.

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