

## <<第七届草食动物营养国际学术研讨会论文集>>

### 图书基本信息

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作者：孟庆翔，任丽萍，曹志军 主编

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## <<第七届草食动物营养国际学术研讨会论>>

### 内容概要

《第七届草食动物营养国际学术研讨会文集》 is my pleasure to welcome you to The Seventh International Symposium on the Nutrition of Herbivores ( ISNH-7 ). The objectives of the International Advisory Committee ( IAC ) are "to provide a forum for development , exchange and promotion of knowledge on the nutrition of terrestrial herbivores in captive and free-living environments". Managing herbivores in commercial and wildlife systems is about more than simply meeting nutrient requirements or manipulating production through nutrition , important as that is. The meeting traverses a spectrum of research which advances the nutritional sciences through novel molecular approaches to problems while promoting their application in the management of the productivity and health of herbivores and the mitigation their impact on the environment. Increasingly , the human health benefits and otherwise of animal food products are a consumer concern and special recognition of the opportunities to enhance food quality through animal nutrition is a new feature of the scope of the plenary programme.

In the current global environment herbivores, because of their unique digestive systems, come under intense scrutiny for their "contribution to greenhouse" gases. What often goes unstated is their ability to harvest biomass otherwise unavailable as a human food source without inputs of fossil fuel an attribute which surely secures their importance for the future well-being of mankind.

The breadth of scientific expertise at this conference is a unique feature of the Symposium Series. Make the most of it, and enjoy the kindness and culture of our hosts.

In this volume, you can find the plenary papers and poster abstracts presented at ISNH-7. The 6-page short papers have been published in the Journal of Animal Feed and Sciences, as special issue ( Volume 16, Supplement 2, 2007 ) .

On behalf of the International Advisory Committee, we wish to thank The Chinese Association of Animal Science and Veterinary Medicine ( CAAV ) for organizing this symposium in Beijing. The committee members also express their special appreciation to Dr Qingxiang Meng and his colleagues at the China Agricultural University to whom we are indebted for their magnificent work during the last 4 years in bringing this scientific programme and conference together. Finally, we wish to thank all the participants at the symposium for their comments, questions and criticisms. Their input has resulted in significant improvements in the papers presented in this symposium.

## 书籍目录

### Plenary Papers

#### SESSION 1: The Role of Herbivores in Mixed/Integrated Agriculture and Agro-Forestry Systems in Asian Countries

1. Herbivores in integrated agriculture and agro-forestry in Asia.

J.K. Ha, J.B. Liang, M. Eslami S.D. Upadhaya

2. Nutrient supply and digestion in indigenous herbivores in China: yaks. B. Xue, S.J. Liu, X.Q. Zhao, L.H. Hu, X.T. Han

3. Forage, crop and tree residues integrated with herbivore production in some Asian regions. Q.X. Meng, D.X. Lu, J.X. Liu, X.X. Wang, L.P. Ren

#### SESSION 2: Gastrointestinal Microbial Ecology in Herbivores

4. Molecular approaches to study bacterial diversity and function in the intestinal tract. R. I. Mackie, I.K.O. Cann, E. Zoetenda, E. Forano

5. Recent advances in microbial ecology of protozoa and fungi in the rumen of herbivores. H. Itabashi H. Matsui

6. Diversity of methanogens and their Interactions with other microorganisms in methanogenesis in the rumen. W.Y. Zhu, S.Y. Mao, J.X. Liu, Y. F. Cheng, M.F. Iqba, J.K. Wang

#### SESSION 3: Assimilation of Carbohydrates and Nitrogen in the Herbivore Intestine

7. The advances in dietary protein and carbohydrate nutrition and the microbial diversity and genomics of the rumen bacteria. D.O. Krause, J.C. Plaizier, G. T. Attwood

8. Protein metabolism in the herbivore gut: old and new perspectives. R.J. Wallace, N. D. Walker

#### SESSION 4: Breeding and Utilization of Forage and Grass in Herbivores

9. Molecular breeding for the genetic improvement of forage plants. G.C. Spangenberg, J.W. Forster, T. Sawbridge, D. Edwards, U. John, A. Mouradov, K.F. Smith

10. Bacterial genome mining to advance enzymology for plant cell wall degradation. I.K.O. Cann, D. Dodd, S. K. Nair, R. I. Mackie, A. Spies

11. Improving genotypes and understanding phenotypes: breeding forages for livestock and the environment. M.K. Theodorou, T. Abberton, A. Kingston-Smith, M. O. Humphreys

#### SESSION 5: Novel Development in Herbivore Nutrition: Molecular and Cellular Aspects

12. Host and intestinal microbiota negotiations in the context of animal growth efficiency. H. Rex Gaskins

13. Diet and physiological state influence gene expression in herbivores. L. Cassar-Malek, C. Leroux, D. Gruffat, M. Bonnet, L. Bernard, D. Morgavi, Y. Chilliard, J.F. Hocquette

#### SESSION 6: Stress Factors Associated with Herbivores

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Nutrition

14. Transdisciplinary studies of plant secondary metabolites: lessons from ecology for animal science and vice versa. W. Foley, G. Iason, H. Makka

15. Opportunities to control herbivore nematodes through manipulation of the grazing environment. A.R. Sykes, L. Kyriazakis

SESSION 7: Nutritional Practice

16. Nutritional manipulation of functional foods derived from herbivores for human nutritional benefit. T.C. Wright, N.E. Odongo, N.D. Scollan, B. W. McBride

17. Nutritional disorders in the horse. R. A I Jassim

18. Nutritional control to reduce environmental impacts of intensive dairy cattle systems. J. Dijkstra, A. Bannink, J. France, E. Kebreab

SESSION 8: Nutritional options to secure environmental and food safety based on intensive animal production systems

19. Antimicrobial resistance genes in livestock production systems: concepts and consequences. Z.T. Yu, M. Morrison

20. Contamination of the food chain with pathogens derived from ruminant production systems. B. A. Vanselow, C. S. McSweeney

21. Comparative greenhouse gas emissions from herbivores. A.V.Klieve, D. Ouwerkerk

Poster Abstracts

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## 章节摘录

插图：The growth rate of yaks generally is not constant from birth to slaughter, especially on the Qinghai-Tibet plateau where the annual nutrient supply of grassland varies greatly with the season. In the first year of the spring-born yaks in Su-Nan County, the BW increased steadily until the first cold season (Figure 3 and Table 17). From January through May (winter through spring), BW decreased due to the severe cold of the winter/spring season, which produces temperatures that fall below yak thermo-neutrality, and a shortage of forage supply in spring. From May through October (summer through autumn), BW again increased. The ADG of grazing yak during this warm season was 0.42 kg/d, compared with the 0.25 kg/d reported by Xue et al. (1994) for feedlot yak (weighed in morning before feeding) fed a high-concentrate diet. Grazing yak thus showed highly efficient compensatory growth relative to feedlot yak. Compensatory growth is the term coined by Bohman (1955) to describe the accelerated or more efficient growth that commonly follows a period of growth restriction. The effects of a previous plane of nutrition on subsequent growth of domestic livestock have been documented extensively (Wilson and Osbourn, 1960; Allden, 1970; Moran and Holmes, 1978). The phenomenon of compensatory growth is of considerable practical significance to grassland livestock production. The efficacy of compensatory growth in a segmented production system is based on the differences in market value and growth efficiency between compensating and non-compensating animals. In an integrated yak production system such as that on the Qinghai-Tibet Plateau, actual input costs for each phase of production should be considered. Our data documenting the BW loss in grazing yak in the cold season demonstrated that the decline in BW during the first weight loss season consumed 25.7% of the total BW accumulation of the first (preceding) growing season, and that BW decline during the second weight loss season consumed 29.9% of total BW accumulation during the second growing season. Although daily BW loss did not differ between the first (0.101 kg/d) and second cold seasons (0.104 kg/d), total BW loss was greater in the second cold season (18.8 kg) than in the first (12.1 kg). However, this difference was primarily due to a longer second cold/weight loss season of 7 mo (November to May), compared with 5 mo (January to May) for the cold season following birth. Therefore, a prolonged period of growth suppression appears to have no benefit for either the economic income of herders or the efficient utilization of the natural resource. Herders could instead exploit the compensatory growth of one-year-old yaks following the first weight loss season, and rear yaks to 18 months for market or harvest. In most countries, cattle typically are slaughtered at weights substantially less than mature weight (Owens et al., 1995). Yaks in Qinghai-Tibet plateau are typically slaughtered at 5 yr old. Our results indicate that, in the grassland yak production system in Qinghai-Tibet plateau, there is no reason for a marketing/harvesting standard of 3 to 5 yr of age.

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### 编辑推荐

《第七届草食动物营养国际学术研讨会文集》：Proceedings of the,7th International Symposium on the,Nutrition of Herbivores,Herbivore Nutrition for the,Development of Efficient, Safe,and Sustainable Livestock Production.

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