

BOOK REVIEW

Nutrition of the Rabbit. 2nd Edition. C. de Blas and J. Wiseman (Eds.). CABI Wallingford and Cambridge, Massachusetts (2010). 325 pp. Hardcover.

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Although rabbit production systems are not spread worldwide, they contribute to meat supply in many parts of the world. The species has many advantages, such as good reproductive performance, rapid growth rate and feeding not very competitive with man, while the meat is recognised as having high dietetic qualities, making rabbit an interesting production for the worldwide diversification of meat supply.

As the authors mentioned in the preface of the first edition, rabbit is “unique”. The species has an unusual digestive physiology with both nutritional and pathological implications, which makes the study of its adequate nutrition especially important for rational rabbit production. This book is a recent contribution to this topic, providing a valuable updated overview of rabbit nutrition, bringing together most of the knowledge in this area under one cover. The editors asked 29 scientists in the field of rabbit nutrition for updates in a second edition “The Nutrition of the Rabbit” after thirteen years, including many authors from the first edition along with almost every scientist who has contributed to rabbit nutrition knowledge in the last decade.

The book is unique in its field and provides an impressive compilation of information structured in 17 chapters.

The first, entitled “The Digestive System of the Rabbit” (18 p.), describes in detail the complexity of the morphology and function of rabbit digestive system, including as main novelty a new section on the development of gut-associated lymphoid tissue in young rabbits.

“Digestion of Sugars and Starch” is described in Chapter 2 (20 p.). The authors dedicate this chapter to a detailed description of the digestion of carbohydrates that are hydrolysable by the endogenous enzymes of the rabbit, including interesting new information on ileal digestibility and flow of starch and the important role of this nutrient on rabbit digestive health.

Chapter 3 deals with “Protein Digestion” (17 p.). This carefully updated chapter includes new recent information about balance, digestibility and flow of amino acids in the rabbit digestive tract. The authors have paid special attention to the protein digestion in young rabbits due to its influence on intestinal health, knowledge of which has increased since the first edition of the book.

The short Chapter 4 deals with “Fat Digestion” (10 p.), updating the knowledge of how fat inclusion, in usually low- or moderate-energy rabbit diets, helps to increase dietary energy concentration in breeding and fattening diets and change the nutrition value of rabbit meat.

Digestion of the major fraction of rabbit diets is analysed in Chapter 5 (17 p.), devoted to “Fibre Digestion”. The importance of fibre in rabbit digestion is assessed, with special emphasis on the different classes of fibre and cell wall constituents. A new section dedicated to the effect of the fibre characteristics (level,

particle size and solubility) on caecal microbial biodiversity and mortality in young rabbits has been included in this second edition.

Chapter 6 deals with “Energy and Protein Metabolism and Requirements” in the book’s longest chapter (36 p.). Initially, the chapter analyses the main factors affecting the energy metabolism and requirements of young and breeding rabbits and some nutritional strategies to improve management of does, introducing new knowledge where body condition plays an important role. In the second part of the chapter, the relevance of properly covering protein requirements is analysed, while considering farm nitrogen balance to reduce the nitrate pollution of surface and underground water.

Chapter 7 deals with “Minerals, Vitamins and Additives” (32 p.), where recommendations for main macrominerals, trace minerals and vitamins have been updated, including the scarce knowledge compiled in rabbits over the last decade in this respect. A selection of main additives authorised by EU legislation and more likely to be used in rabbit feeds (anticoccidials, antibiotics, probiotics, prebiotics and enzymes) is also presented.

Chapter 8 is entitled “Feed Evaluation” (12 p.), describing methodology and recommendations to correctly assess complete diets and feedstuffs in rabbits, mainly from the effort carried out by the European Group on Rabbit Nutrition. The chapter includes one of the treasures of the book, the composition and nutritional value of raw materials commonly used for rabbits, including as main new features soluble fibre values, metabolisable energy corrected for zero nitrogen retention and, apparent faecal and apparent and true ileal digestibility of lysine, methionine and threonine.

Details of the “Influence of Diet on Rabbit Meat Quality” are given in Chapter 9 (16 p.). This completely renewed chapter (contents and authors) presents a freshly updated view of how diet may affect rabbit meat quality and safety, taking into account the high standards demanded by consumers in recent decades [sensory properties, functional foods, fatty acid profile (n-3 and n-6), conjugated linoleic acid, antioxidants and meat safety (pathogens, food additives and chemical residues)].

Chapter 10 covers the “Nutrition and Feeding Strategy: Interactions with Pathology” (21 p.), one of the “hot” topics in current rational rabbit production. This chapter has been thoroughly updated and coordinated with previous chapters, summarising the great amount of knowledge developed in the last decade regarding the consequences of nutrient imbalances on rabbit health. The chapter includes nutritional recommendations for young weaned rabbits to prevent digestive troubles.

The particularities of rabbit “Feed Manufacturing” are shown in Chapter 11 (22 p.). This chapter, completely rewritten by the authors, describes the main processes running in modern feed manufacturing mills in greater detail. The special needs or specifications required during these processes for properly balanced rabbit feed manufacture (particle size, proportion of fines, pellet diameter, durability and hardness...) are given.

Chapter 12 deals with “Feed Formulation” (11 p.). This chapter, one of the most cited in the book’s first edition, deals with nutritional allowances under practical conditions for intensive rabbit production. Firstly, the authors discuss the effect of varying dietary nutrient and energy content on rabbit performance, before going on to establish practical feeding recommendations for intensively reared rabbits from research information and/or practical levels used by the industry.

“Feeding Behaviour of Rabbits” is the title of the new Chapter 13 (20 p.). The chapter shows the unique feeding behaviour of this non-ruminant herbivore, analysing the main factors (age, type of feed, environment...) regulating the feeding behaviour of young, growing and adult rabbits. Special attention is given to describing the feeding behaviour in situations of choice (both in wild and domestic caged rabbits) and feed restriction.

Chapter 14 deals with a topic of primary importance, the reduction in feeding costs to optimise “Feeding Systems for Intensive Production” (14 p.). The author underlines the importance of feeding outlay for rabbit meat production and throughout the chapter describes different possibilities for reducing the feed conversion ratio in intensive rabbit production, both in feed (quality, presentation, number...) and animal (young parent stock, mortality...) management.

“Nutrition and the Climatic Environment” is the title of Chapter 15 (18 p.). Compared to other non-ruminant species where farm environment is highly controlled, rabbit production is characterised by more open productions systems, as the interactions of nutrition with the climatic environment are of great interest in cold climates, and even more so in subtropical and tropical environments. This chapter describes how heat stress affects the nutritional value of feedstuffs and rabbit production, including as main novelty a new section on the effects of heat stress in males intended for artificial insemination.

Finally, the last two chapters focus on the specific requirements of two particular non-meat rabbits. Chapter 16 deals with the “Nutritional Recommendations and Feeding Management of Angora Rabbits” (8 p.), while Chapter 17 is dedicated to “Pet Rabbit Feeding and Nutrition” (20 p.).

On the whole, the book provides a valuable updated overview of the issues cited and is not only aimed at scientists dealing with rabbit nutrition, but also for students of animal nutrition, rabbit nutritionists and all those involved in rabbit production.

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