

The use of drugs in food animals: benefits and risks

Compiled by the Committee on Drug Use in Food Animals, National Research Council and Institute of Medicine, USA

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This publication addresses an extremely important and very topical subject for veterinarians involved with food-producing animals. The report was researched and compiled by the Committee on Drug Use in Food Animals, convened by the Panel on Animal Health, Food Safety and Public Health (a joint panel of the Board on Agriculture and the Institute of Medicine) in the United States of America. A committee consisting of members of the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine reviewed the report. In my opinion this is an indication of a well-balanced scientific approach to the information recorded, the conclusions that are drawn and recommendations made. However, one should remember that the work was performed with reference to specific practices in farming, food harvesting, food processing, control over drug use etc applicable in the USA.

Veterinary drugs are critical components in the production of sufficient food from animals to satisfy an ever-increasing demand by a growing consumer population. These chemicals provide many benefits related to animal health, animal welfare and economical return. On the other hand, drugs used in food animal production could be present in food destined for humans and increase the risk of ill health in persons consuming such products.

The committee reviewed the major classes of drugs used in food production in the USA. The members concluded that most drugs pose a relatively low risk to the public as long as the drugs are used responsibly and in accordance with registration instructions. The greatest concern of the committee revolved around the use of antibiotics, for example microbial resistance to antibiotics.

The book comprises 8 chapters. At the end of each, a summary of findings is given and some recommendations are formulated.

An 11-page executive summary is useful for orientation in the subject matter. An overview is given of the use of drugs in food animals over the past 30 years. It refers also to public concerns and perceptions. The current production practices and use of drugs in the USA for each of the major food animal species are described. Reference is also made to the industry-initiated quality-assurance programmes that are in place, as demanded by the consumer. Chapter 3 discusses the primary benefits and hazards to human health of the use of drugs in food animals.

Chapter 4 presents issues related to development of new drugs, the current government approval system and the regulatory process in the USA. Recommendations are offered to improve drug availability and focus resources on public health risks, and reference is made to worldwide harmonisation of drug approvals. Chapter 5 summarises the pertinent features of the drug residue monitoring programme in the USA, explaining that an effective control system is the critical assumption upon which all other strategies rest. Information on microbial contamination in food and results of surveys of pork, beef, lamb and poultry are given.

A entire chapter is devoted to issues related specifically to antibiotics and the concern for their implications for human health. The effects of therapeutic and sub-therapeutic use of antibiotics on bacterial resistance in animals are discussed, as are the mechanisms through which resistance can develop. The committee strongly recommends that the further development and use of antibiotics in human medicine and food animal practices should be supervised by a multidisciplinary panel of experts. Increased education about practices and uses of antibiotics is seen as very important to prevent the misuse of these substances.

Chapter 7 attempts to compute the economic implications of eliminating sub-therapeutic drug use in food animals. A total *versus* partial ban of sub-therapeutic use is compared. Chapter 8 discusses alternative strategies to reduce the need for drug use and highlights promising areas for further research on the effect of nutrition and management practices on immune function and disease resistance. Controlled environmental factors can promote host resistance to disease, *e.g.* keeping milk cows cool to prevent mastitis. Reference is made to developing comprehensive biosecurity programmes to protect animals from pathogen transmission. Selection programmes for specific traits in livestock that have disease resistance and immune-responsive properties are advocated.

This book has a user-friendly index, clear figures and tables and a detailed list of references. It should be useful to the pharmaceutical industry, researchers, drug registration authorities and veterinarians involved with food-producing animals.

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