

## Book Reviews

### ***Advances in Agricultural Animal Welfare: Science and Practice***

Edited by JA Mench (2018). Published by Woodhead Publishing, The Officers' Mess, Business Centre, Royston Road, Duxford CB22 4QH, UK. 269 pages Hardback (ISBN: 978-0-08-101215-4). Price £160.00.

This volume is one of a series of five books reviewing different aspects of farm animal welfare. The other books in the series follow the more conventional approach of providing an in-depth review of current 'hot topics' in the welfare of single species (cattle, pigs, poultry, sheep). In contrast, this volume seeks a much wider perspective on the subject. Its stated aim is to "explore the complexities involved in applying the scientific knowledge gained about farm animal welfare to the production setting" and this makes it much more unique in the field. In trying to address the extensive subject of translating livestock welfare science into practice, it is inevitable that some selection from the many available topics must be made. Whilst it is always tempting to highlight the omissions, the book does present a logical overall structure covering the breadth of subject. The chapters are written by international experts from diverse backgrounds, who are seldom all found together in the same volume, and this makes the book more interesting for established welfare scientists seeking to extend their knowledge.

The first section, focusing on topical scientific areas where newly emerging results are changing our understanding of animal welfare, deals with only cognition and genetics. These topics have seen major advances in the last few years and both chapters do justice to this fact. The chapter on cognition introduces the developing concept of positive welfare and discusses how cognitive enrichment can play an important role in delivering this outcome. The chapter on genetics provides a concise description of basic quantitative genetics, but then expands the discussion into the potential for using new genomic tools to identify and select for welfare-relevant traits and the way in which our growing understanding of epigenetics helps to explain complex genotype-environment interactions. Both chapters are written in a very accessible way for the non-specialist, starting with the basics and introducing the increasing complexity of recent science. They would provide excellent teaching material for an undergraduate course.

The second section deals with the interfaces between animal welfare science and other important disciplines in the sustainability debate. It is rare to see such good interdisciplinary reviews together in one place, and I found this the most interesting section of the whole book. Chapters on ethics, environmental protection and food safety present informed review of both their synergies with animal welfare and the conflicts which can arise when trying to simultaneously satisfy different policy objectives for animal agriculture. It is stimulating to read chapters written by ethicists, environmental scientists and microbiologists in a book on animal welfare, and these would make very valuable reading for policy-

makers needing to understand the complexity of the subject, or for undergraduates as a tool to stimulate class discussions. Because of the importance of these issues in the current animal welfare debate, I would have liked to have seen expansion of this section. For example, the chapter on food safety might usefully have been expanded to consider the interactions of welfare with other aspects of product quality, whilst a chapter written by an economist would also have been of particular interest to complete the picture.

The third section in the book deals with the translation of science into policy and practice. Here, the role of research using commercial farm facilities is reviewed. Whilst studies carried out in the commercial environment are often criticised for their lack of control, they are very important in providing real-world validity when extrapolating laboratory welfare research to farm-scale production systems. The chapter also highlights the opportunities and challenges of using farm survey data in epidemiological approaches to explore welfare questions and the great potential that 'big data' generated by new precision livestock farming techniques will offer for such approaches in the future. In the subsequent chapter in this section, the role of animal welfare science in the formulation of production standards, arising from both compulsory legislation and voluntary farm assurance schemes, is considered. Here, there is useful discussion of the way in which scientific research informs the development of such standards, and of the growing trend to move from simple compliance with resource-based requirements to a more active engagement in monitoring and improvement of animal-based welfare outcomes. The final chapter deals with the role of veterinarians in the different aspects of animal welfare development and delivery. Whilst much of the research into animal welfare has historically been carried out by ethologists and animal scientists, it is the veterinarians who are increasingly tasked with on-farm scrutiny and advice. However, the introduction of animal welfare as a scientific discipline is relatively recent in the veterinary curricula in many countries. The chapter on this is written from an American perspective, describing how the role and training of the US veterinarian has developed in relation to the different national and local animal welfare activities, but would have been interesting to consider in a more international context, reviewing the differences in roles of key actors between different countries. Because of its multi-disciplinary nature, animal welfare will be most effectively advanced by collaboration between a range of different specialists in both policy and practice, and the mechanisms for achieving this in different countries would have been interesting to review.

Such a review would also have given a nice link to the next section, which takes a global view of animal welfare standards and focuses particularly on the recently increasing activity of the World Organisation for Animal Health (OIE). First, the history of animal welfare within OIE and the current development of implementation tools and strategies

is reviewed. There are interesting examples of implementation in different countries and a detailed case study example of stray dog population management is given. However, it might have been more relevant to the readership of this book to have used a farm livestock example. The following two chapters review animal welfare developments in regions of the world where this is a relatively new science and policy area — in Asia, Far/Middle Eastern countries and Oceania, and in Latin America. These chapters also lean heavily on the influence of OIE initiatives, resulting in some repetition, but it is interesting to read about the policy development and current welfare landscape in countries with diverse agricultural, economic and religious backgrounds, and where animal welfare activities have been little considered in past literature. Again, it would have been nice to have had a more rounded international picture by inclusion of similar chapters on other regions. This would have provided a useful reference source and also allowed readers to compare and contrast with approaches taken in Europe, North America and, in particular, China where major animal welfare initiatives are now taking place. The role of NGOs in promoting welfare change in different regions could also have received more consideration.

The final section of the book deals with ‘emerging issues.’ The two selected for this volume are slaughter without stunning and urban agriculture. The first of these has long been a contentious topic because of the potential conflict between animal welfare and religious freedom. This subject has been extensively reviewed in the past, and the current chapter provides an in-depth update on the scientific issues and strategies to minimise animal welfare compromise. In contrast, the second topic is relatively novel and deserving of wider discussion. The resurgence in the small-scale keeping of animals by non-professional people, both in urban agriculture and ‘good life’ farming, poses many challenges to safeguarding health and welfare of both the animals and those caring for them. These issues are interestingly reviewed in this chapter from a sociological perspective. However, once again, the emphasis is primarily on the North American experience and a more international consideration would have been of great interest.

Overall, the publishers and editor are to be commended in producing a unique book which explores some of the challenges surrounding the application of animal welfare science to production agriculture. They have brought together a team of authors with differing disciplinary expertise and the result is a set of chapters which will widen the perspective of any reader. As such, the book will be of interest not only to students, but also to established welfare scientists and to those engaged in policy formulation. Many of the chapters or sections could usefully have been further elaborated to give a more complete picture, but perhaps both breadth of topic and comprehensive coverage of each is asking too much of a single volume. Many readers will be left asking for more, which can be the sign of successful engagement.

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### ***Marine Mammal Welfare: Human Induced Change in the Marine Environment and its Impacts on Marine Mammal Welfare***

Edited by A Butterworth (2017). Published by Springer Nature, Tiergartenstrasse 17, 69121 Heidelberg, Germany. 625 pages Hardback (ISBN: 978-3319469935). Price £159.99.

The idea behind the book *Marine Mammal Welfare: Human Induced Change in the Marine Environment and its Impacts on Marine Mammal Welfare*, edited by Andy Butterworth, is urgent and timely. For too long those who work to protect wildlife have focused almost exclusively on conservation of populations — how do we save species, populations, biodiversity, habitat? These are clearly vital and essential issues, but what about the individual animals who make up a species or population? What impact are human activities having on their quality of life? A compassionate society should care about this and regretfully we often do not, especially when it comes to policy.

The impacts our activities can have on wildlife well-being and their daily lives can be severe, even if their numbers do not decline. (Often, of course, poor welfare and declining numbers go hand-in-hand). But, poor welfare suffered by individuals can be a harbinger of a slide toward threatened or endangered status for a species and, thus, the two are interlinked, yet this connection is too often ignored by managers and scientists. For small, critically endangered populations of marine mammals, such as the 15 or so vaquita porpoises (*Phocoena sinus*) in the Gulf of California, Mexico, or the 70 or so Taiwanese white dolphins (*Sousa chinensis taiwanensis*) in the Eastern Taiwan Strait, each individual — and his or her welfare — matters not just to that individual but to the population and the species. The need to shift at least some policy and scientific attention to wildlife welfare, especially when negative welfare impacts are human-caused, is overdue. This book rightfully seeks to generate ideas and plans for how to accomplish this shift for marine mammals moving forward.

Some might wonder why an entire 33-chapter volume should be dedicated to the welfare of marine mammals as a distinct ecological group of wildlife. The reason also underlies why the United States and New Zealand have passed separate statutes protecting these species; marine mammals are difficult to study in the wild and their maintenance in captivity is expensive and controversial. Much remains unknown about them and damage, to their welfare and their conservation status, can occur before humans notice. Policy approaches should therefore be precautionary, but the more they can be supported by science, the more likely effective protections are to be adopted. This book, which notes that to-date the scientific literature on marine mammal welfare is sparse, is an attempt to jumpstart the process of generating the data needed to improve the lives of these animals, in the ocean and in captivity.