

housing methods and litter quality, although I challenge anyone to get a good photograph of dust! Close-ups of the various types of enrichments shown in Figure 3.7 would have been beneficial for readers, with the current photos being too small or the enrichments too far in the background.

Chapter 4 explains the main diseases of broiler chickens, whether they are due to management, growth rate, or infectious reasons. This provides essential knowledge for the reader about causes and prevention, although defining peritonitis, endocarditis and septicaemia (meanings, clinical signs) would help further. The section describing on-farm killing for some types of diseases would again benefit from cross-referencing with the chapter on on-farm killing, as they overlap (however, a bit of repetition is fine, particularly as people may read some chapters and not others...).

Chapter 5, regarding on-farm culling and emergency slaughter, describes the methods that can be used to kill broilers, with useful accompanying illustrations, although it has a Euro-centric feel due to its heavy reliance on European law, so that should be borne in mind when used as a reference elsewhere. As a text on broiler welfare, it could further guide the reader by providing a reflection on each measure's relative welfare pros and cons, such as time from application to loss of consciousness.

Chapter 6 explains the importance of welfare monitoring of broilers, not only to satisfy legislation and quality assurance schemes, but as a source of information for the farm regarding areas of improvement. It discusses three assessment methods and their pros/cons, such as time to collect the data and their reliability. Understandably, because the assessment methods require training and/or careful understanding by reading the full texts/websites that describe them, further information is required before someone could apply the methods, but this chapter will at least lead the reader towards the right sources, should someone choose to find out more.

Finally, Chapter 7 reflects on how broiler welfare can be improved in the future by focusing on three major areas (breeding/genetics, housing and feeding, and management/care), and reminds those people working directly with the birds on a day-to-day basis of the large influence they can play on broiler welfare.

Unfortunately, the Foreword by the series editor was presumably based on an earlier version of the manuscript, as the chapter references are incorrect, but this does not detract from the book overall. This, along with some other minor edits (for example, in p 7 the top two sentences talk about transport from the production farm to the rearing farm, and group sizes on the rearing farm, but this is surely the wrong way around?) can easily be incorporated into the next edition.

This is a useful book that will be a good reference for anyone working directly with commercial broiler chickens, of all types (slow and fast growing) and in all housing systems. By understanding welfare influences described there, its readers will appreciate how to drive positive welfare with the birds they come into contact with.

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### **Changing Human Behaviour to Enhance Animal Welfare**

Edited by R Sommerville (2021). Published by CABI, Nosworthy Way, Wallingford, Oxfordshire OX10 8DE, UK. 208 pages Paperback (ISBN: 9781789247237). Price £35.00, €40.00, \$US47.00.

*Changing Human Behaviour to Enhance Animal Welfare* comprises chapters from a range of different authors and organisations. Each chapter provides that author's experience and take on an animal welfare issue or situation, and provides useful, real-life case studies. The examples include a wide range of issues, from dancing bears to laboratory rats, as well as a range of contexts and locations across the globe, providing the reader with a holistic view of the animal welfare issues which arise from human-animal interactions. The contributors to the book are experts in their field and deliver a range of interesting and authoritative voices.

The book makes the point that animal welfare can only be improved through working with people, and — importantly — through understanding the context within which those people live. It is clear throughout the book that working in the field of animal welfare is really a human-centric role, and hence understanding people is key to bringing about change. Whether the change is in relation to elephant tourism, broiler welfare, or anything in between, the book clarifies that simply telling people to do things differently will not bring about change, because the animals are a component within complex and integral systems. While this is the message throughout each chapter, it is particularly well-described in Chapter 2, 'Animal welfare, the human element' which gives an overview of the importance of human behaviour change science and its application to animal welfare. Throughout, the book's authors give examples of bringing about change through a range of methods: ongoing community engagement, education, legislation, policy, and many other methods; all based on a foundation of sound research into the issue at hand. A useful table (pp 14–17) gives examples of different methods of bringing about change, and the subsequent chapters provide relevant examples.

Importantly, this book helps to bridge the gap which is often present between research around an animal welfare issue and the changes to real-life (eg campaigns or interventions) which might improve animal welfare. Given that research and campaigns are often undertaken as entirely distinct activities, this book emphasises the need to use research to understand the context and structural factors behind each issue, before using that research pragmatically to bring about change. For example, one case study (Chapter 11), described a previous failure to bring about change in recognition of equine pain in a community despite an intervention. Subsequent research identified a previously overlooked health provider to whom community members were turning for advice, and a structural issue in relation to stocking of pain relief. Once these issues were better under-

stood, the intervention was adapted and subsequently successful. Another important feature mentioned in this case study and throughout is the discussion of the importance of monitoring and evaluating projects to ensure that they have achieved their aim.

There are some particularly interesting and useful aspects covered by the book; for example, a particular highlight was Chapter 4's in-depth exploration of the role of, and methods for, community engagement in relation to animal welfare projects. This chapter explores ways of learning from and working with communities collaboratively and positively, including means of characterising the community, applying behaviour change models, and planning an intervention from start to finish.

This book does not aim to provide a step-by-step or practical guide to researching human behaviour issues around animal welfare, but rather provides an introductory view of the inter-connection between human lives and animal welfare. The text gives as much information on the animal welfare issues themselves, compared to the human behaviour and how it can be changed. Those already familiar with the field of human behaviour change concepts might expect information on topics such as habit formation, human psychology,

behavioural economics, or changes to the physical environment to influence human behaviour; these are mentioned relatively fleetingly. However, the relevant and numerous case studies provide such practical examples and insights into real-life application of behaviour change science and, as such, this book provides an excellent introductory overview to the link between human behaviour and animal welfare.

One particularly enjoyable feature in this book is the inclusion of many authors' background, and information about their life as an animal welfare practitioner. This provides depth to the narratives and examples provided throughout each chapter and may be of particular interest to students or those earlier in their careers, as they explore the range of possible approaches and journeys in animal welfare.

In summary, this book will be an enjoyable and informative addition to the bookshelf of any student or practitioner who works in the field of animal welfare, whether research- or intervention-based. Readers will certainly find themselves equipped with an interesting range of ideas and tools with which to carry out their future work.

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