

should be protected in the same way as vertebrates. ‘Degree of sentience’ is also of course relevant to Replacement of animals considered more complex with animals considered less complex. The sorts of tests that Nielsen describes could potentially provide evidence to close the complexity gap, as good only as the current knowledge available. Finally, it has been argued that asking the animal, in terms of decision-making tests, could provide the ‘gold standard’ for animal welfare (Barnard 2007), thus the standard against which criterion validation could be determined for all other welfare indicators more feasibly used in the field. Since this standard itself depends on the animal understanding the ‘question’ asked and on the validity of data interpretation, Nielsen’s text may contribute to raising the standard of animal welfare research more broadly by providing guidance on how best to ask questions and gain robust data. One final suggestion I have for future editions is that the text would lend itself nicely to an associated online resource of video-examples on ‘how to’ and ‘top tips’, particularly in view of the increasing move to blended learning strategies in higher education and following the Covid19 pandemic. Certainly, I can imagine using it extensively in my teaching. In conclusion, I would definitely recommend this text as a valuable, accessible and concise launch point for understanding and improving behavioural testing across disciplines and species.

References

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Dogs: Understanding Your Very Best Friend

J Bradshaw (2021). Published by Andersen Press, 20 Vauxhall Bridge Road, London SW1V 2SA, UK. 128 pages Paperback (ISBN: 978-1839130878). Price £6.15.

It was a funny but interesting book and I loved its character. I especially liked the chapter ‘Walkies’, it was particularly fascinating and amusing. The part about smell and dogs body behaviour was good, interesting and important to know. I would definitely recommend this book to my friends at school and to other children of my age.

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Broiler Chickens: Welfare in Practice

A Butterworth, I de Jong, J Mench, L Berg and M Raj (2021). Published by 5m Publishing, 8 Smithy Wood Drive, Sheffield S35 1QN, UK. 164 pages Paperback (ISBN: 978-1789180152). Price £14.95.

This book is one in a series of practical books on the welfare of farm animals. It sets out to inform broiler farmers, poultry vets, stockworkers, poultry smallholders, and agricultural students about the factors that affect commercially reared broiler chicken welfare. The aim is to produce a book that is useable around the world, although the book is largely based around European laws regarding housing, killing, and welfare monitoring (in part because there are laws in Europe, of course). The authors use evidence from scientific publications, but the information is written in a concise way for the ‘layperson.’ The book is laid out logically, starting with the welfare of broiler parent stock (broiler breeders), to hatching of chicks, housing and management influences, health and disease impacts, on-farm killing of broilers (from embryos to slaughter age), how to assess welfare in broilers, and future improvements to broiler welfare. The authors are all experienced research scientists who have studied broiler welfare first-hand, and are therefore well placed to write such a book. In addition, they provide their email addresses so that anyone can reach them directly, should you so wish!

The first chapter, on broiler breeder welfare, is a great introduction on what is required to produce broiler chicks, and the welfare challenges faced by the parent stock. Production period housing is described, although the section on page 7 about colony cages seems to include a lot of general information about feeding and drinking systems that apply to any type of housing system. The figures are helpful and aid understanding.

The chapter on hatchery welfare provides a good insight into risks to chick welfare at this discrete phase of their lives. Generally, the figures were useful, however their reference in the text is sometimes odd; for example, referring to eggs stored for too long references to Figure 2.8, a photo of chicks in a hatcher tray, and a sentence on food and water deprivation leading to increased mortality references to Figure 2.9, a photo of chicks. Neither of these particularly illustrates the text. The section on dealing with unwanted chicks would have benefitted from cross-referencing with the chapter on on-farm killing, as they overlap. The insights into the effects and risks of automation were eye-opening, but the section on light would have benefitted from telling the reader how providing light during incubation affects fear responses (reduces or increases?)

Chapter 3 describes how housing and management can influence broiler welfare. This is an informative section describing the different methods of broiler housing and key management factors that can influence broiler well-being, such as litter quality, air quality, and environmental enrichment. Again, the figures are useful and clearly illustrate the