

approach. Similar to the chapter exploring mindreading is Chapter 10 on 'Theory of mind'. This chapter uses a quite 19th century language style which is quite distracting to the point that the reader can feel that the author is searching for the next obscure word or phrase which could be expressed much more simply. This chapter is a very detailed exploration of evidence of non-verbal 'mind reading' in very young children and some evidence of similarities in apes, trying to establish what some may see as very obvious.

The following chapter on respectful coexistence citing communities on Sumatra as examples is a useful exploration of spiritually held attitudes leading to respecting not only animals, but the whole environment. This respect entails the assignment of souls not only to animals but to canoes and rope which somewhat decreases its cogency as a rationale for animal respect. This section concludes with a rather quirky 'multispecies ethnography' or interspecies love directed at an ecologically successful ant species called Roger which seems not to easily connect to any other idea stream elsewhere in the book.

Part III chapters on respectful coexistence begin with a rather esoteric and obscure chapter on the human/primate interface followed by two chapters adding examples of rain-forest conservation and coexistence and conflict.

The subject matter and tone then changes dramatically, reporting on the 'cultural politics of poultry' exposing the developing significance of home-grown food, particularly the backyard poultry movement on the United States. This chapter discusses the significance of the chicken coop tourism phenomenon and seems to stray significantly from the major themes of the book.

Entangled empathy is discussed by Lori Gruen, exploring the ethical challenges of other beings with which we are in many ways entangled, focusing on similarities rather than differences. In a similar vein, the following chapter uses protections afforded to vulnerable humans in research as the ethical basis for the development of the same protections for animals.

The final chapter discusses issues of legal personhood and transforming common law rooted in common morality; arguing that a non-human can possess a legal right. It is in this chapter that this rationale is applied only to species with particular similarities to human traits. The inconsistencies and extent of this logic is most obvious in this chapter.

Reading this book is likely to provide the reader with some useful examples and perspectives of animal ethical challenges. As stated earlier, the structure of the book means that chapters that offer challenge and interest are interspersed with ones which are narrow, quirky and lacking any connection to an overall theme. While the contribution of these authors could well have found a valuable niche at a three-day exchange of ideas, they seem less valuable in the context of this book. Unfortunately, the last chapter provides a pertinent reminder of some of the less-convincing elements of this interesting but inconsistent compilation.

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Livestock Housing: Modern Management to Ensure Optimal Health and Welfare of Animals

Edited by A Aland and T Banhazi (2013). Published by Wageningen Academic Publishers, PO Box 220, 6700 AE Wageningen, The Netherlands. 496 pages Hardback (ISBN 978-90-8686-217-7). Price €84.00, US\$125.00.

The rationale behind the lay-out and content of this book is logical and well-thought out, ie from animals' needs and nuisances to solutions for improvement. It starts with an historical introduction and covers general aspects of livestock buildings, preparing the reader for more involved issues concerning feed, water, bedding and waste management, ventilation and thermal environment. These aspects, which received most attention in the past, have become increasingly associated with airborne pollutants, hygiene and cleanliness, which are also of concern in relation to occupational and community health aspects of animal production. Recent technological developments in managing livestock facilities are also presented, including animal- and environmental-based monitoring systems.

The main objective is expressed by the subtitle, stating that livestock housing is to ensure optimal health and welfare of animals. However, for the reader, it is not clear what definition of animal welfare is aimed for. The implicit option of choice for animal production seems to be intensive livestock housing, since housing systems in combination with open-air production are not mentioned. Hence, readers interested in freedom systems and expecting to learn more about technologies aimed at creating maximal health and welfare, might be surprised.

Some authors deal with the cost-benefit aspect of investments related to livestock housing. However, after having read this book, a farmer might not have found a solution to his or her complex problem: which issue is the greatest priority to improve in order to keep the livestock farm in durable operation? A society in which there is no shortage of food, but rather suffering with health problems from overeating, does not care only about animal welfare, but also about food safety, living environment and the carbon footprint of a production system. These aspects, whether or not quantified with lifecycle analyses, are not covered in this book.

The short history of livestock production, introduced in Part 1 of this book, shows that the principle of semi-intensive livestock production system has been in place since 2000 BC for poultry and pigs. The basic principles for housing livestock, which are still applied today were actually developed in the 17th century as non-grazing systems became operational. The impact of permanent housing on health and welfare of dairy cows is outlined in Part 2. After a general introduction, the development of a cow comfort monitoring scheme is explained, based on milk yield as opposed to cow behaviour since the objective is to have a tool to increase milk production. Laying and walking surfaces are considered significant as regards the health and well-being of cattle, pigs and poultry. Therefore, it is rather surprising that, especially for pigs, the literature dealing

with the important effect of ventilation pattern as a trigger mechanism used by pigs for choosing their lying and dunging area is not worked out. Moreover, battery cages are still mentioned as a housing system for poultry. A scientific-based example for designing a crate for pregnant and lactating sows based on the animals' needs is also discussed. Facilities for eating and drinking in cattle, sheep, pig, rabbit and poultry houses are explained in relation to aspects of waste management, hygiene and health (Part 3). Housing design needs optimisation not only in relation to an animal's thermal environment (Part 4) — the working conditions for the stock people — but also in relation to the changing needs of high-producing animals. The latter aspect is developed in relating the management of thermal stress in feedlot cattle to environment and animal susceptibility from a US perspective. It is important to make the distinction between financial losses on the population and the farm level. The mechanisms of heat exchange are clearly explained in relation to building design and animal comfort through examples with cattle, pigs and poultry. A case-study of piggeries, which creates an improved thermal environment under hot climatic conditions, was based on results from a field survey carried out in 1999, and includes knowledge generally accepted in the scientific literature.

The impact and risk of airborne pollutants, originating from emissions within livestock buildings is clearly explained in

relation to health, welfare and production results (Part 5). The methods to apply in order to reduce that risk are also discussed. The impact of dust is based on a number of conference papers that were published in 2007.

The generally accepted principles in relation to hygiene and cleanliness in livestock buildings are refreshed in Part 6, with focus on the practical evaluation of cleaning methods and modelling of influencing hygiene conditions.

Part 7 deals with technological tools for managing livestock facilities. Animal-based monitoring can improve overall welfare in dairy cattle and prevent lameness through early detection. Analysing real time sound recordings can detect the onset of respiratory diseases in pigs.

Occupational and community health aspects of animal production are discussed in Part 8, which can also be considered as an eye opener when looking through the windows and doors of the livestock buildings. Although, the competition between land for crop production and keeping animals in free-range systems is ongoing, a general conclusion outlining future research in solving livestock housing problems is, unfortunately, not developed.

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