

and mechanical damage, fungal abundance). Mycotoxin production can occur pre-harvest, post-harvest and under storage conditions. Information is included on management techniques to avoid mould growth and mycotoxin production in agricultural crops. Options for decontamination and detoxification (chemical, biological and physical methods) of mycotoxins in feedstuffs are presented together with current advances for mycotoxin sequestering substances, which can be incorporated into animal diets to limit mycotoxin intestinal absorption (eg silicate materials, yeast cell wall-derived agents).

Many of the chapters review details of mycotoxin exposure relevant to a particular species or group of animals. Aspects such as differential species susceptibility, particularly in poultry and farmed fish species, and key mycotoxin-related syndromes in different taxa are included. Examples of the latter include zearanelone toxicity in swine, leukoencephalomalacia attributable to fumonisins in horses, hepatocellular carcinomas attributable to aflatoxicosis in farmed rainbow trout and Balkan endemic nephropathy caused by ochratoxicosis in humans.

Dietary variation between animal groups alters the likely sources and types of mycotoxin exposure (eg grain-based diet, fresh and preserved forage, legumes, bedding). For example, the disease perennial ryegrass staggers and fescue toxicosis are potentially important conditions for grazing livestock feeding on fresh forage in some regions, versus aflatoxicosis in poultry fed a cereal-based diet. Mycotoxins are described as one of the major factors suppressing commercial poultry productivity with the potential to cause reduced growth and feed conversion rates, decreased egg production, leg problems, carcass condemnation and immune suppression predisposing to secondary infectious disease.

The chapter on ruminants notes the importance of bacterial fermentation in the rumen for degrading and metabolising dietary mycotoxins and how the toxins' effects differ from those in the monogastric species. The section on domestic pets reinforces the importance of ensuring that dogs are not allowed to scavenge on mouldy domestic produce (eg cheese, bread, rotten fruits) and provides clinical details of acute toxicity and the management of these cases.

The additional importance of chronic mycotoxin exposure in horses, domestic pets and humans, when compared with production farm animals, is highlighted due to their anticipated longer lifespan. The differential importance of various routes of mycotoxin exposure in humans are discussed, including direct exposure through the consumption of contaminated feedstuffs (not only cereals and oilseeds, but also wine, beer, coffee and other crops), and indirect exposure through meat, eggs or milk.

Although the referencing and indexing of the book are excellent, I found the order of chapters to be rather confused as they did not appear to follow a logical plan. For example, the grouping together of the chapters covering details of sampling feeds for mycotoxin analysis and the principles of mycotoxin analysis would perhaps have been more intuitive. Similarly, the taxa-specific chapters would have been more

sensibly grouped as a section, and the use of a similar template of subheadings could have facilitated more rapid access to comparable information between these chapters.

The Mycotoxin Blue Book is certainly comprehensive; however, I was disappointed to see that there was no chapter dedicated to the effects of mycotoxin exposure on free-ranging wildlife. Brief mention was made of the results of the small number of studies screening pet and wild bird foods for aflatoxin and/or ochratoxin A residues in the chapter on companion animals. However, no details were given of the few cases where multiple mortalities of wild birds have been documented as attributable to mycotoxicosis; for example, acute aflatoxin exposure in waterfowl in North America and fusariotoxicosis exposure in sandhill cranes. Furthermore, the recent literature includes debate regarding the potential significance of supplementary provisioning of free-ranging wildlife as a source of mycotoxin exposure, for example, in wild turkeys (*Meleagris gallopavo silvestris*) and white tailed deer (*Odocoileus virginianus*) in North America, and reference to this topic may also have been worthwhile.

Altogether, criticisms of the book are few and this text represents excellent value for money, to be recommended for libraries and individuals alike. It is clear that exposure to mycotoxins has the potential to adversely impact the health and welfare of a wide range of vertebrate species across various geographical regions. Access to the detailed information within this authoritative guide will assist decision-making for diagnosis and help to mitigate the effects of mycotoxin exposure in the future.

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Responding to the Livestock Revolution — The Role of Globalisation and Implications for Poverty Alleviation (BSAS Publication 33)

Edited by E Owen, T Smith, MA Steele, S Anderson, AJ Duncan, M Herrero, JD Leaver, CK Reynolds, JI Richards and JC Ku-Vera (2004). Published by Nottingham University Press, Manor Farm, Main Street, Thrumpton, Nottingham NG11 0AX, UK. 370 pp Paperback (ISBN 1 904761 51 8). Price £37.50.

The term 'livestock revolution' refers to the emerging pattern of milk and meat production in the developing world. Demand for these products is predicted to grow at about 8 times the rate expected for developed countries, almost 3% annually, ie demand will double by 2020. Will this demand be met by local production, which would clearly benefit local livelihoods, or will global trade take over the markets?

Of the 24 chapters in this stimulating book, 15 have at least one co-author who is based in a developing country; work is reported from Bolivia, Nepal and Vietnam, as well as from countries that are more familiar in the development literature. Summarising the main papers presented at important conferences in Mexico and the UK in 2002 and 2003, the book considers the economic, geographic and ecological

contexts of livestock production and takes account of issues of animal production (including 'micro-livestock'), disease control, training and education, and the enhancement of rural livestock. This book goes a lot further than being a 'production agriculture' text; there is a good balance of case studies and of synoptic reviews, a refreshing lack of jargon and a stimulating interdisciplinary approach.

But what of animal welfare? With grassland-based systems contributing only 9.3% of total meat output and 7.9% of cow's milk, clearly the important systems are, and will continue to be, those based on crop-livestock integration or intensive housing-based systems. Given the market opportunities for exporters of breeding stock, one can predict strong economic incentives to use high input — high output exotic breeds, leading, probably, to challenges of a nutritional and production disease nature. Veterinary care would undoubtedly be withheld from animals of little monetary value.

Therefore, the livestock revolution in the developing world may well challenge those 'freedoms' that relate to physical conditions of husbandry — the freedoms from hunger and thirst, from discomfort, and from pain, injury and disease. However, in smallholder systems, one might expect human-animal interactions to be generally positive and imprinting of young animals on their keepers might be expected; therefore, two Freedoms, namely from fear and distress, and the expression of normal behaviour might be better assured than in many developed world systems.

Animal welfare is not mentioned in any detail by any of the authors, but what this book admirably succeeds in providing is an authoritative overview of the way livestock husbandry is evolving in a developing world context. I would have liked to see a chapter on appropriate breeding strategies for developing-world livestock, for example, selection for fertility appears misguided until the survival of juvenile animals has been improved, and the disease resistance of local breeds needs to be studied and exploited. Generally though, it appears that welfare interventions in these livestock systems are only likely to be introduced if they show a clear financial return. This book is highly recommended for all livestock scientists.

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Swan Keepers Handbook — A Guide to the Care of Captive Swans

GR Gardner, FF Funk, SA Bolin, R Webb Wilson and SA Bolin (2003). Published by Kreiger Publishing Company, Kreiger Drive, Malabar, Florida 32950, USA. 133 pp Hardback (ISBN 1 57524 199 4). Price £31.50.

This is an easy to read and very well illustrated title, which will prove most valuable to veterinary students, as well as swan carers and rescuers. The book has sections on the history of the mute swan; appearance and general habits of swans; captive swan husbandry; hazards of captivity for swans; diseases and infections (that includes lead

poisoning, clostridial infections including botulism, foot damage and the deformity angel wing); nutrition; plants that may be safely used alongside swans (including a list of toxic plants); providing accommodation for swans; breeding; incubation; rearing; veterinary care; genetics; legal aspects (that relate primarily to differing legislation in US states); identification and details of other swan species.

The book is written by US authors and is based on many years of detailed research and experience working with a large flock of swans at the Orange Lake Resort and Country Club in Orlando. Some aspects detailed in the book relate more to the US situation than the UK; however, this does not detract from this delightful and useful book.

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TNR Past Present and Future — A History of the Trap-Neuter-Return Movement

EP Berkeley (2004). Published by Alley Cat Allies, 7920 Norfolk Avenue, Suite 600, Bethesda, MD 20814-2525, USA. 116 pp Paperback (ISBN 0 9705194 2 7). Price US \$16.00.

When cats congregate, their group behaviours of breeding, marking, fighting, feeding and even becoming ill can reach pest proportions if they overlap with people, which of course colonies of feral cats often do in holiday resorts, in ports or other areas where food is available. How do you tackle the problem in a humane way that provides a long-lasting solution and which does not bring you up against people who care for cats? Many authorities and governments have had to consider this problem and have often resorted to poisoning or killing with the aim of removing all the feral cats. Only 50 years ago this response was not surprising and there was no real alternative. However, the development of the TNR — trap-neuter-return — method for the control of feral cats has proved that it can tick all the boxes associated with control and welfare. But such a neat solution does not arrive by magic; it took feline knowledge, behavioural research, veterinary cooperation, trapping skills, community communication and cooperation, and no small doses of determination on the part of many cat lovers in many countries to make it happen and to make it successful.

Ellen Perry Berkeley is the ideal person to tell this story — she understands the need for scientific publication and academic proof, together with the zeal, determination and practical application of the rescue worker and the compassion of the cat lover, and weaves their stories with great skill. On reading of the ups and downs, successes and failures, and of the devotees and opposers, it is clear how much effort was required to find a way to deal with animals that are, to all intents and purposes wild — giving little thanks but engendering great loyalty and satisfaction for those who work for their welfare.

The TNR method is being adopted worldwide thanks to the work of groups like Alley Cat Allies, the publishers of this fascinating little book, who have made it into a science all of its own. The book is a must for all of those who work to help