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Poultry and Eggs titles

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IN AGRICULTURAL SCIENCE



POULTRY

- Reviews the latest research on zoonoses affecting poultry meat and methods for their control, bacterial and viral diseases and advances in poultry genetics
- Summarises advances in understanding and optimising poultry quality, poultry behaviour and welfare and recent research on poultry digestion and nutrition
- Discusses developments on the environmental impact of poultry production, current research on disease management and studies on dietary components

EGGS

- Reviews the latest research on composition and properties of egg shell, white and yolk
- Summarises recent studies on pathogens affecting eggs and methods for their control such as washing and packaging
- Discusses current findings on factors affecting quality attributes such as appearance, shelf-life and nutritional value



'The proposed content of the book is excellent - an outstanding and comprehensive compilation of current knowledge by the world's foremost experts, on a topic that is highly relevant. This will be a must-have reference resource for egg producers, poultry scientists, food scientists, government regulatory agencies, and students. Congratulations - this is a major scholarly contribution to your colleagues and peers everywhere.'
Emeritus Professor Robert F. Wideman, Center of Excellence for Poultry Science, University of Arkansas, USA

POULTRY

Poultry production faces many challenges. This 3 volume collection starts by reviewing safety, including detection, prevention and control of zoonoses in poultry flocks. It also discusses key aspects of quality such as meat flavour and the sustainability of poultry production. Volume 2 discusses breeding and improvements in poultry feed. Finally, the collection reviews health and welfare issues in poultry production.

Achieving sustainable production of poultry meat - Vol.1

Safety, quality and sustainability Edited by: Steven C. Ricke, University of Arkansas, USA

Part 1 Poultry meat safety

1. Zoonoses affecting poultry: the case of *Campylobacter*: Tom J. Humphrey and Lisa K. Williams, Swansea University, UK
2. Zoonoses affecting poultry: the case of *Salmonella*: Sabrina Vandeplass, Adisseo, France
3. Emerging zoonotic diseases affecting poultry: Carol Cordona, University of Minnesota, USA
4. Sampling and detection of pathogens on the poultry farm: Byron Brehm-Stecker, Iowa State University, USA
5. Safety management on the poultry farm: Jungsoo Joo, Aishwarya Pradeep Rao and Debabrata Biswas University of Maryland, USA
6. The problem of antibiotic resistance on poultry farms: Gireesh Rajashekara, Ohio State University, USA
7. Alternatives to antibiotics in preventing zoonoses and other pathogens in poultry: Prebiotics and related compounds: Steven C. Ricke, University of Arkansas, USA, A.V.S. Perumalla, Kerry, USA and Navam. S. Hettiarachchy, University of Arkansas, USA
8. Safety management and pathogen monitoring in poultry slaughterhouse operations: Manpreet Singh and Estefanía Novoa Rama, Purdue University, USA
9. Inspection regimes for poultry slaughterhouse operations: Janne Lundén, University of Helsinki, Finland
10. Ensuring safety in chilling and freezing of poultry meat: Alma Delia Alarcon-Rojo and Ana Luisa Rentería-Monterrubio, Universidad Autónoma de Chihuahua, Mexico
11. Case studies on food safety control of fresh poultry meat: effective control of *Salmonella*: Ivar Vågsholm, Swedish University of Agricultural Sciences, Sweden
12. Food safety control on poultry farms: effective control of *Campylobacter*: Xiang Liu, University of Tennessee, USA, Irene Hanning, Lincoln International Academy, Nicaragua, Sandra Diaz-Sanchez, SaBio IREC, Spain and Jun Lin, University of Tennessee, USA

Part 2 Poultry meat quality

13. Poultry meat quality: an overview: Michael A. Grashorn, University of Hohenheim, Germany
14. Enhancing the nutritional quality of poultry meat: Michael S. Lilburn, Ohio State University, USA

Achieving sustainable production of poultry meat - Vol.2

Breeding and Nutrition Edited by: Todd Applegate, University of Georgia, USA

Part 1 Genetics and breeding

1. Relating genes to functional traits in poultry: Sammy Aggrey, University of Georgia, USA
2. Challenges in the breeding of poultry: Nicholas Anthony, University of Arkansas, USA
3. Developments in marker-assisted breeding of poultry: Paul Hocking, Roslin Institute, UK

Part 2 Animal nutrition

4. The cellular basis of feed efficiency in poultry muscle: Walter Bottje, University of Arkansas, USA
5. Understanding feed intake in poultry: Sami Dridi, University of Arkansas, USA
6. Advances and future directions in poultry feeding: an overview: Velmurugu Ravindran and Mohammad R. Abdollahi, Massey University, New Zealand
7. Advances in understanding and improving the role of amino acids in poultry nutrition: William A. Dozier, III, Auburn University, USA and Paul B. Tillman, Poultry Technical Nutrition Services, Georgia, USA
8. Advances in understanding and improving the role of enzymes in poultry nutrition: Bogdan A. Slominski, University of Manitoba, Canada

15. Enhancing the flavour of poultry meat: Dinesh D. Jayasena, Uva Wellassa University, Sri Lanka, and Cheorun Jo, Seoul National University, Republic of Korea
16. Enhancing the colour of poultry meat: understanding, measuring and maintaining product quality: KiChang Nam, Suncheon National University, Republic of Korea, Eun Joo Lee, University of Wisconsin-Stout, USA and Dong Uk Ahn, Iowa State University, USA
17. Enhancing texture and tenderness in poultry meat: Ik Soon Kang - Michigan State University/California Polytechnic, USA and Yuan H. Brad Kim, Purdue University, USA
18. Preventing spoilage of poultry meat: Arthur Hinton Jr., U. S. National Poultry Center, ARS-USDA, USA

Part 3 Sustainability

19. Life cycle assessment (LCA) of intensive poultry production systems: Ilkka Leinonen, Newcastle University, UK
20. Minimizing the environmental impact of poultry production through improved feed formulation: Hector E. Leyva-Jimenez and Christopher A. Bailey, Texas A&M University, USA
21. Energy and water use in poultry processing: D. Luján-Rhenals, University of Arkansas Fayetteville, USA and Universidad de Córdoba, Columbia, R. Morawicki, University of Arkansas Fayetteville, USA, E. J. Van Loo, Ghent University, Belgium and S. C. Ricke, University of Arkansas Fayetteville, USA
22. Waste management and emissions in poultry processing: D. Luján-Rhenals, University of Arkansas Fayetteville, USA and Universidad de Córdoba, Columbia, R. Morawicki, University of Arkansas Fayetteville, USA and E. J. Van Loo, Ghent University, Belgium and S. C. Ricke, University of Arkansas Fayetteville, USA
23. Organic systems for raising poultry: R. Michael Hulet, Penn State University, USA
24. Helping smallholders to improve poultry production: Robert Pym, University of Queensland, Australia; and Robyn Alders, University of Sydney, Australia



Achieving sustainable production of poultry meat - Vol.3

Health and welfare Edited by: Todd Applegate, University of Georgia, USA

Part 1 Animal health

1. Monitoring trends in diseases of poultry: *Brian Jordan, University of Georgia, USA*
2. Bacterial diseases affecting the health of poultry: *Billy Hargis, University of Arkansas, USA*
3. Viruses affecting poultry: *Venugopal Nair, Pirbright Institute, UK*
4. Parasites affecting poultry: *Larry McDougald, University of Georgia, USA*
5. Disease management of poultry flocks: *Peter Groves, University of Sydney, Australia*
6. Understanding and boosting immune systems in poultry: *Rami Dalloul, Virginia Tech, USA*
7. Competitive exclusion treatment to control pathogens in poultry: *Carita Schneitz, Orion Corporation, Finland and Martin Wierup, Swedish University of Agricultural Sciences (SLU), Sweden*
8. Leg disorders in poultry: bacterial chondronecrosis with osteomyelitis (BCO): *Robert F. Wideman, Jr., University of Arkansas, USA*

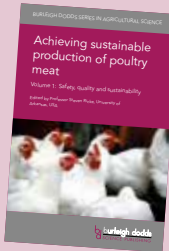
Part 2 Animal welfare

9. Understanding poultry behaviour: *Maja M. Makagon and Richard A. Blatchford, University California-Davis, USA*
10. Ensuring the welfare of poultry: an overview: *Bas Rodenburg, Wageningen University, The Netherlands*
11. Broiler breeding flocks: management and animal welfare: *Ingrid C. de Jong and Rick A. van Emous, Wageningen University, The Netherlands*
12. The effect on incubation temperature on embryonic development in poultry: *Michael S. Lilburn and R Shanmugasundaram, Ohio State University, USA*
13. Enriching poultry housing to minimise stress: *Inma Estevez, Neiker-Tecnalia, Spain*
14. Managing heat stress in poultry: *Brian Fairchild, University of Georgia, USA*
15. Transport and lairage of poultry: *Karen Schwan-Lardner, University of Saskatchewan, Canada*
16. Developments in humane slaughtering techniques for poultry: *Andy Butterworth, University of Bristol, UK*



'This is a timely book that provides not only a valuable account of modern food safety management in poultry

production and processing, and enhancement of product quality, but also covers the key elements of sustainable production systems for a world now seriously threatened by climate change. With its appropriate international scope, Professor Ricke's book will make a major contribution to this important subject and become essential reading for all those concerned.' **Geoffrey Mead, Emeritus Professor, The Royal Veterinary College, University of London, UK**



Author Biographies

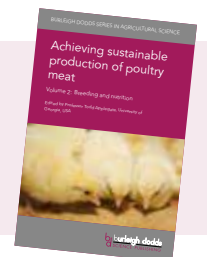
Volume 1

Dr Steven Ricke is the Donald 'Buddy' Wray Chair in Food Safety and Director of the Center for Food Safety in the Institute of Food Science and Engineering at the University of Arkansas, USA. His awards include the University of Arkansas John White Outstanding Research Award, the Poultry Science Research Award and the American Egg Board Award, as well as being named an Arkansas Association for Food Protection Fellow, for his outstanding contributions to food safety research.

Volumes 2 & 3

Professor Todd Applegate is Head of the Department of Poultry Science at the University of Georgia, USA. He was formerly Professor of Animal Sciences at Purdue University, USA. Professor Applegate is a former President of the Poultry Science Association (PSA). Amongst other honours, he is a recipient of the PSA's Evonik Degussa Award for Achievement in Poultry Science, American Feed Industry Association's Poultry Nutrition Research Award, and the Mapleleaf Farms Duck Research Award.

The proposed list of authors is impressive and these will certainly be excellent publications in poultry science.' **Professor Mike Lilburn, Ohio State University, USA**



'Increasing food production to address the nutritional needs of an expanding world population requires a combined effort from experts in genetics, nutrition, health, and welfare. The well-known editor has assembled world leaders in these fields to communicate their detailed knowledge for the benefit of the research community.' **Robert L. Taylor, Jr., Ph.D., Director and Professor, Division of Animal and Nutritional Sciences, West Virginia University, USA**



EGGS

This collection begins by looking at egg composition and chemistry. Part 2 discusses pathogenic contamination of eggs and methods for its prevention, detection and control. Volume 1 concludes by assessing factors affecting egg appearance, shelf-life, nutritional value and other quality traits. Volume 2 reviews nutrition, welfare and other aspects of husbandry affecting laying hens as well as the sustainability of egg production.

Achieving sustainable production of eggs - Vol.1

Safety and quality Edited by: Julie Roberts, University of New England, Australia

Part 1 Egg composition and chemistry

1. Composition and properties of eggshell: *Maureen Bain, University of Glasgow, UK*
2. Composition and properties of egg white: *Kaustav Majumder and Yoshinori Mine, University of Guelph, Canada*
3. The nutritional and physiological functions of egg yolk components: *Yasumi Horimoto, University of Guelph, Canada and Hajime Hatta, Kyoto Women's University, Japan*

Part 2 Safety

4. Pathogenic bacteria affecting eggs: *Kapil Chousalker, University of Adelaide, Australia and Kylie Hewson, Australian Chicken Meat Federation, Australia*
5. Mechanisms for transmissions of pathogens into eggs: *Sophie Jan and Florence Baron, Agrocampus Ouest-INRA, France*
6. Sampling and detection of salmonella in eggs: *Richard K. Gast, ARS-USDA, USA*
7. Enhancing natural defences against pathogens in eggs: *Nicolas Guyot, INRA, France*
8. Safety and quality management systems in egg production: *Oscar Garrison, United Egg Producers, USA*
9. The effects of housing systems for laying hens on egg safety and quality: *Deana R. Jones, ARS-USDA, USA*
10. Egg washing to ensure product safety: *Margaret Sexton, Southern Australia Research and Development Institute (SARDI), Australia*
11. Advances in egg pasteurisation: *Ahmed Yousef, Ohio State University, USA*

Part 3 Sensory and nutritional quality

12. New developments in packaging of eggs to improve safety and quality: *Pietro Rocculi, University of Bologna, Italy*
13. Egg quality: consumer preferences and measurement techniques: *Bart De Ketelaere, Katholieke Universiteit Leuven, Belgium; Koen De Reu, Institute for Agricultural and Fisheries Research (ILVO), Belgium; and Steven Vermeir, Katholieke Universiteit Leuven, Belgium*
14. Determinants of egg appearance and color: *C. Hamelin, DSM, France and F. Cisneros, DSM, Switzerland*
15. Understanding and improving the shelf-life of eggs: *Juliet R. Roberts, University of New England, Australia*
16. The nutritional role of eggs: *Tia M. Rains and Mitch Kanter, Egg Nutrition Centre, USA*
17. Nutraceutical benefits of eggs: *Hoon H. Sunwoo and Naiyana Gujral, University of Alberta, Canada*
18. Enhancing the nutritional profile of eggs: *Erin M. Goldberg and Neijat Mohamed, University of Manitoba, Canada and James D. House, University of Manitoba and the Canadian Centre for Agri-Food Research in Health and Medicine, Canada*
19. Molecular breeding techniques to improve egg quality: *Anna Wolc, Iowa State University, USA; and Janet E. Fulton, Hy-line International, USA*



Achieving sustainable production of eggs - Vol.2

Animal welfare and sustainability

Edited by: Julie Roberts, University of New England, Australia

Part 1 Animal health and welfare

1. Laying hen nutrition: optimising pre-laying nutrition, egg mass and weight: *Yves Nys, INRA, France*
2. Laying hen nutrition: optimising hen performance, bone and eggshell quality: *Yves Nys, INRA, France*
3. Welfare of laying hens: an overview: *Tina Widowski, Teresa Casey-Trott, Michelle Hunniford and Krysta Morrissey, University of Guelph, Canada*
4. Welfare standards for laying hens: *Andy Butterworth, University of Bristol, UK*
5. The use of enriched caged systems to improve the welfare of laying hens: *Darin Karcher, Michigan State University, USA*
6. Welfare issues affecting free-range laying hens: *Dana L.M. Campbell, University of New England and CSIRO, Australia, Sarah L. Lambton, University of Bristol, UK, Isabelle Ruhnke, University of New England, Australia and Claire A. Weeks, University of Bristol, UK*

7. Beak trimming of laying hens: welfare costs and benefits: *Dorothy McKeegan, University of Glasgow, UK*
8. Maintaining the health of laying hens: a practical approach: *Richard M. Fulton, Michigan State University, USA*
9. Managing laying hen flocks with intact beaks: *Thea van Niekerk, Wageningen University, The Netherlands*

Part 2 Sustainability

10. Improving the sustainability of egg production: *Angela Green, University of Illinois, USA*
11. Waste management in egg production: *Ruihong Zhang, University of California-Davies, USA and Hamed M. El-Mashad, Mansoura University, Egypt*
12. Assessing the sustainability of organic egg production: *Jacqueline Jacob and Anthony Pescatore, University of Kentucky, USA*



Author Biography

Dr Julie Roberts is Associate Professor in the School of Environmental and Rural Science at the University of New England, Australia. She is internationally-renowned for her research on egg production, particularly egg shell quality. She has been awarded the Australian Poultry Award for her outstanding contribution to poultry science.

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climate•SMART•publishing IN AGRICULTURAL SCIENCE

What is 'climate-smart-publishing' and how is Burleigh Dodds Science Publishing achieving it?

Let's start with 'climate-smart'. It is widely recognised that agriculture is a significant contributor to global warming and climate change. It has been estimated that agriculture is responsible for 10-12% of greenhouse gas emissions. This figure rises as high as 24% if forestry and other land use is included, taking into account such factors as deforestation to clear land for more crops and livestock.

Agriculture needs to reduce its environmental impact and adapt to current climate change whilst still feeding a growing population i.e. become more 'climate-smart'. Burleigh Dodds Science Publishing is playing its part in achieving this by bringing together key research on making the production of the world's most important crops and livestock products more sustainable. Our aim is to build a foundation of knowledge on which researchers can build to meet the challenge of climate-smart agriculture.

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In these ways we are using 'smart-publishing' to help achieve 'climate-smart' agriculture.



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