Authors

ABOUT THE AUTHORS

DALE E. BAUMAN is Liberty Hyde Bailey Professor in the Department of Animal Science at Cornell University. He received his undergraduate and Master's degrees from Michigan State University and his Ph.D. degree in nutrition-biochemistry from the University of Illinois. Prior to his appointment at Cornell University, he was an associate professor at the Department of Dairy Science at University of Illinois. Bauman's research interests include biochemical and hormonal regulation of nutrient utilization for growth, pregnancy and lactation, nutrition and metabolism of ruminants, mammary gland biology, mechanisms of somatotropin, biology of food-producing animals, and animal agriculture. Bauman and his colleagues crystallized the concept of homeorhesis, the process of long-term regulation of nutrient use during a particular physiologic state such as lactation. His concepts of metabolic regulation are widely accepted and applied to many aspects of developmental biology. In 1988, Bauman was elected to the National Academy of Sciences. He served as chairman of the Board on Agriculture from 1994 to 1997 and was a member of the Board from 1990 to 1994. His service to the Academy has included membership on numerous committees, among them most recently, the oversight commission for *Ensuring Safe Food from Production to Consumption* and the authoring committee for the report, *Metabolic Modifiers: Effects on Nutrient Requirements of Food Producing Animals*.

ROBERT J. COLLIER received his B.S. degree in Zoology from Eastern Illinois University in 1969. After service in the Army Medical Corps, he obtained his Master's degree in zoology from Eastern Illinois University in 1973 and his Ph.D. in physiology from the University of Illinois in 1976. His dissertation research was on the endocrine regulation of lactogenesis in the dairy cow. In January 1976, Collier accepted an NIH postdoctorate in the Dairy Science Department of Michigan State University in the laboratory of Allen Tucker. His research was on the regulation of cortisol uptake in mammary tissue of cattle. In September 1976, Collier joined the Dairy Science Department at the

University of Florida as an Assistant Professor, where he developed a teaching and research program on the environmental physiology of the dairy cow in the subtropics. He also continued his research on the endocrine regulation of lactation in cattle as well as swine. He was promoted to Associate Professor in 1981. In July 1985, Collier joined the Monsanto Company as a Science Fellow and initiated a discovery program in lactation and growth regulation. He was promoted to Dairy Research Director and Fellow in 1987 and until 1999 was Dairy Research Director and Senior Fellow. In that capacity, Collier was responsible for all preclinical and clinical research in North America required for the commercialization of bovine somatotropin as well as research on novel factors regulating growth, development, and lactation of domestic animals. Since 1987, Collier has been an Adjunct Professor of the Dairy Science Department at the University of Missouri. Since 1999, Collier has held a position with the University of Arizona. In 1990, Collier was appointed an Honorary Fellow of the Hannah Research Institute, Ayr, Scotland. In 1991, he received the ADSA Upjohn Physiology Award, and in 1992 he was selected as Alpha Omega Alpha visiting professor at the University of Indiana and Donald Barron Visiting Professor at the University of Florida. He has served on the Biotechnology Advisory Board for the University of Iowa and both the Nutritional Sciences Advisory Committee and the Animal Sciences Advisory Board for the University of Illinois. Presently, Collier chairs the College of Science Advisory Board for Eastern Illinois University. He is author or co-author of 136 journal articles, chapters, and reviews, 99 abstracts, 28 popular articles, and 6 U.S. Patents.

DANNY G. FOX is Professor of animal science at Cornell University. He received his B.S., M.S., and Ph.D. degrees from The Ohio State University, with his graduate training in ruminant nutrition. After earning his B.S. degree and before attending graduate school, Fox was a full-time crop and livestock farmer in Western Ohio. For the past 25 years, Fox's research has been focused on the nutrient requirements of cattle varying in biological type, and the development of computer programs to predict nutrient requirements and performance of cattle with wide variations in cattle type, feed composition, feeding system, environmental and management conditions. While at Cornell since 1977, he has conducted research in cattle nutrition, and he currently teaches a course on "Livestock and the Environment." Over the past 20 years, he and a team of scientists at Cornell have developed the Cornell Net Carbohydrate and Protein System for Evaluating Beef and Dairy Cattle Diets, which is widely distributed in the United States and internationally. Together with his colleagues, Fox has conducted pasture research for 15 years to evaluate pasture quality and matching cattle and forage management systems. In recent years, Fox has become involved in Cornell's Sustainable Agriculture program, and heads multidisciplinary projects on "Integrating Knowledge to Improve Dairy Farm Sustainability" and "Developing Software for Whole Dairy Farm Nutrient Management." His research and extension programs have resulted in over 150 invited presentations

at conferences and symposia, over 500 research and extension publications, and 15 microcomputer programs. He has served on many national committees, including the National Integrated Resource Management Committee, and the National Research Council's Committees on Animal Nutrition and Feed Intake, and Subcommittee on Beef Cattle Nutrition.

JANE GOODALL is the world's foremost authority on chimpanzees, having closely observed their behavior for the past quarter century in the jungles of the Gombe National Park Game Reserve in Tanzania. Her observations and discoveries are internationally heralded. Her research and writing continue to make revolutionary inroads into scientific thinking regarding conservation and evolution. Goodall received her Ph.D. from Cambridge University in 1965. She has been the Scientific Director of the Gombe Stream Research Center since 1967. In 1984, she received the J. Paul Getty Wildlife Conservation Prize for "helping millions of people understand the importance of wildlife conservation to life on this planet." Her other awards and international recognitions fill pages. Goodall's scientific articles have appeared in many issues of National Geographic. She has written scores of papers for internationally known scientific journals. Goodall also has authored many books including *In The Shadow of Man* and *Through a Window*. Goodall attributes her dedication and insight to her work and her mission in life to her mother, internationally known author, Vanne Goodall. In 1985, Goodall's twenty-five years of anthropological and conservation research was published, helping us all to better understand the relationship between all creatures. She has now devoted over thirty years to her mission. Goodall expanded her global outreach with the founding of the Jane Goodall Institute in 1977, which is now based in Silver Spring, Maryland. She teaches and encourages young people to appreciate chimpanzees and all creatures great and small. Goodall lectures, writes, teaches and continues her mission in many inventive ways, including the Roots and Shoots environmental and humanitarian education program for young people.

DONALD B. JUMP is the Director of Research and Graduate Studies for the Department of Physiology at Michigan State University, East Lansing, Michigan. He is jointly appointed in the Department of Biochemistry and holds the rank of Professor in both the Physiology and Biochemistry Departments. He received his Ph.D. degree in biochemistry from Georgetown University in 1979. Afterward, he was a postdoctoral fellow with Jack Oppenheimer in the Endocrinology and Metabolism Section, Department of Medicine at the University of Minnesota in Minneapolis. He was appointed to assistant professor of medicine at the University of Minnesota in 1982. In 1985, Jump moved to the Physiology Department at Michigan State University. He has served on the editorial board for the Journal of Biological Chemistry and has served as an ad hoc reviewer for several NIH study sections and international granting agencies. Jump has co-chaired sessions at scientific meetings on nutrients and gene expression. He has authored more than 80 peer-reviewed journal articles, invited

chapters, and reviews. His research has been funded by NIH, USDA, the American Diabetes Association, and the Michigan Agriculture Experiment Station. His research focuses on dietary fat regulation of gene transcription, with particular emphasis on fat effects on lipid metabolism in liver and white adipose tissue. His studies were the first to document fatty acid-regulated-*cis*-regulatory elements in genes encoding proteins involved in hepatic lipid synthesis.

KIRK C. KLASING is Professor of avian nutrition at the University of California, Davis. He received a B.S. degree at Purdue University and a Ph.D. at Cornell University in 1982. Since 1985, he has been in the Department of Avian Sciences at the University of California, Davis. His research interests include the interactions between nutrition and the immune system of animals, for which he has received the Poultry Science Research Award from the Poultry Science Association, the BioServ Award from the American Institute of Nutrition, and the Lilly Animal Scientist Award. Klasing serves on the editorial boards of Poultry Science, Animal Biotechnology, and Amino Acids. He is the author of a book on Comparative Avian Nutrition, as well as 75 refereed and 115 non-refereed articles and 6 book chapters.

QUINTON R. ROGERS serves as a Professor of physiological chemistry in the Department of Molecular Biosciences in the School of Veterinary Medicine at University of California, Davis. After receiving his B.S. degree in agriculture from University of Idaho in 1958, he completed an M.S. and a Ph.D. degree in biochemistry at University of Wisconsin, Madison by 1963. Following predoctoral and postdoctoral N.I.H. fellowships, Rogers progressed from the position of research associate to assistant professor of physiological chemistry in the Department of Nutrition and Food Science at Massachusetts Institute of Technology. In 1966, he was appointed assistant professor of physiological chemistry in the department where he currently serves, and by 1976 had achieved a full professorship. Rogers's research interests include biotechnology in nutrition and metabolism, experimental nutrition and metabolism of amino acids, control of food intake, feline and canine nutrition, and taurine nutrition. In 1986, Rogers received the Ralston Purina Small Animal Medicine Research Aware in Nutrition, and in 1992, the School of Veterinary Medicine at University of California, Davis conferred its Faculty Research Award on him. The American Society of Nutritional Sciences honored him with the Osborne Mendel Award. Rogers serves as an Honorary Diplomate of the American College of Veterinary Nutrition.

MICHELLE C. ROSS received the degree of Doctor of Veterinary Medicine and a Master of Science degree in physiology from Colorado State University in 1981. In 1995, she completed her Ph.D. in the physiology department of the John Burns School of Medicine at University of Hawaii. She practiced as a large animal veterinarian from 1981 to 1985. Since 1986, LTC

Ross has served in the United States Army Veterinary Corps, where she is chief of the Drug Assessment Division at U.S. Army Medical Research Institute of Chemical Defense in Aberdeen, Maryland. From 1995 to 1996, she acted as principal investigator, cardiac pathophysiology, for a project to assess clinical parameters of cardiac damage following nerve agent exposure. Previously, she served as director of preventive medicine and senior marine mammal veterinarian at the Naval Ocean Systems Center in Kailua, Hawaii from 1987 to 1992.

PHILIP A. THACKER was born in Vancouver and received his B.Sc. in 1974 and his M.Sc. in 1978, both from the University of British Columbia. He was awarded a Ph.D. in 1982 by the University of Alberta for his work on the effects of dietary propionate on lipid metabolism in growing swine. Thacker increased his awareness of the swine industry as a regional swine specialist with Alberta Agriculture after graduation. In 1984, he was appointed Assistant Professor in the Department of Animal Science at the University of Saskatchewan. He was promoted to Associate Professor in 1987 and Full Professor in 1991. Thacker is active in research, teaching, and extension. He is the author of over 110 refereed publications in scientific journals, including four scientific reviews. Other publications include conference proceedings, abstracts, and many technical reports. During his career, he has made 28 conference and 41 extension presentations. He co-authored a book on general swine nutrition for swine producers and edited a book on Non-Traditional Feed Sources for Use in Swine Production. Thacker's main areas of research center on evaluating new feed sources for use in swine production and in developing methods to increase the reproductive efficiency of the sow herd. He has evaluated the potential of alternative feeds such as buckwheat, hulless barley, rye, wild oat groats, and fish silage, as well as the potential to use enzymes to improve their value. In addition, he has conducted studies to determine the effectiveness of growth hormone, relaxin and gonadotropin-releasing hormone as a means of improving the reproductive performance of swine. Thacker is widely sought after as a speaker for swine extension meetings. He provides scientific information in an understandable format that is appreciated by swine producers across Canada. In addition, he served on the National Research Council's Committee on Animal Nutrition Subcommittee on Swine Nutrition, which recently published the tenth revised edition of *Nutrient Requirements of Swine*. He received the Young Scientist Award from the Canadian Society of Animal Science in 1989.

DUANE E. ULLREY is professor emeritus of animal science, fisheries, and wildlife at Michigan State University, and is Chair of the Committee on Animal Nutrition's Subcommittee on Nonhuman Primate Nutrition. He also serves as research associate for the Jennings Center for Zoological Medicine in San Diego, and the Smithsonian Institution's Department of Zoological Research at the National Zoological Park in Washington, D.C. Ullrey has devoted significant efforts throughout his career to improving dietary management for the

betterment of animal health, welfare, and conservation of endangered species. His research interests include quantitative nutrient requirements of various domestic and wild species and analytical methods applicable to their study, mineral and vitamin metabolism, nutrition and immunologic response. As a professor and mentor of many students, Ullrey has contributed to the basis for education of many professionals throughout the world in nutrition. Ullrey has devoted almost two decades to National Research Council committee activities, as chair of the Committee on Animal Nutrition and as a member and chair of numerous subcommittees. He has also served on panels and committees for the National Science Foundation, the American Institute of Nutrition, the American Society of Animal Science, the National Institutes of Health, and the Smithsonian Institution.

DANIEL F. VILLAMAR holds a bachelor's degree in Agriculture (Food Science) from the University of Maryland, a master's degree in Biology from California State University, and a Ph.D. in Animal Science from Texas A&M University. His graduate research was focused on marine shrimp larval development and nutrition. Since joining Cargill, Villamar has received the Corporate Achiever's Circle Award, Cargill's highest honor for technical excellence, and has been granted a U.S. patent for developing LiquaLife®, the world's first liquid shrimp feed. Currently, Villamar leads the development of Cargill's aquaculture product line in the United States, Latin America, East Asia, and Eastern Europe with the deployment of Cargill AquaFeed™ products for finsfish and *Crustacea*. Before joining Cargill, Villamar worked in the U.S. feed industry as Research Manager, Research Scientist, and principal investigator on USDA, NSF, and privately-funded projects ranging from development of artificial kelp for abalone to more conventional pelleted, extruded and flake feeds.

BRUCE A. WATKINS is professor of food science and nutrition at Purdue University, and adjunct professor of anatomy in the Department of Anatomy, School of Medicine, Indiana University Purdue University Indianapolis. He received both his B.S. and M.S. degrees in nutrition from Colorado State University, and his Ph.D. degree in nutrition and physiological chemistry from the University of California, Davis, in 1985. He received the a National Research Award for his work on biotin metabolism in 1990, and in 1994 was presented the BioServ Award from the American Society of Nutritional Sciences (ASNS) for his research on the biochemistry of fatty acids in bone. His research interests include: food lipids, lipid biochemistry, eicosanoid and growth factor regulation of bone modeling, antioxidant nutrient interactions in chronic disease, plant phytochemicals, nutrient-gene regulation and molecular biology. Watkins is the author of more than 100 publications, which include refereed manuscripts, book chapters, and reviewed proceedings. He has given more than 30 national and international invited talks since 1991. Watkins serves on three editorial

boards for nutrition and food science related journals. He is a Food Science Communicator for the Institute of Food Technologists and a member of the Guide of Experts in Lipid Metabolism for the ASNS and American Society for Clinical Nutrition. He teaches courses on lipid chemistry, nutritional sciences, and functional foods.

SUSAN YANOFF received her D.V.M. degree from Cornell University in 1980. After three years of private practice, she entered active duty in the Army Veterinary Corps. In 1991, she completed a residency in small animal surgery, as well as a master's degree, at Texas A&M University College of Veterinary Medicine. Yanoff is a Diplomate of the American College of Veterinary Surgeons and the American Board of Veterinary Practitioners. Her assignments include, Commander of the 51st Medical Detachment in Germany, Chief of Clinical Services at the Department of Defense Military Working Dog Veterinary Service at Lackland Air Force Base in San Antonio, and Commander of the National Capital District Veterinary Command at Ft. Belvoir, Virginia. She is currently stationed in Heidelberg, Germany as the Deputy Commander for Theater Support at the 100th Medical Detachment.