

Nutrient Requirements Of Laboratory Animals

Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research
Wildlife Feeding and Nutrition
Nutrient Requirements of Fish and Shrimp
Guide for the Care and Use of Laboratory Animals
Handbook of Laboratory Animal Science, Volume I
The Mineral Nutrition of Livestock
Nutrient Requirements of Domestic Animals: Nutrient requirements of laboratory animals: cat, guinea pig, hamster, monkey, mouse, rat
Nutrient Requirements of Rabbits, Phosphorus and Calcium Utilization and Requirements in Farm Animals
Nutrient Requirements of Sheep
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Swine Nutrition
Nutrient Requirements of Laboratory Animals, Nutrient Requirements of Horses
Vitamins in Animal and Human Nutrition
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The Laboratory Rat
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Guide for the Care and Use of Laboratory Animals
Nutrient Requirements of Laboratory Animals
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Vitamin Tolerance of Animals
The Biology of the Guinea Pig
Nutrient Requirements of Dogs and Cats

Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research

Since 1944, the National Research Council has published 10 editions of the Nutrient Requirements of Swine. This reference has guided nutritionists and other professionals in academia and the swine and feed industries in developing and implementing nutritional and feeding programs for swine. The swine industry has undergone considerable changes since the tenth edition was published in 1998 and some of the requirements and recommendations set forth at that time are no longer relevant or appropriate. The eleventh revised edition of the Nutrient Requirements of Swine builds on the previous editions published by the National Research Council. A great deal of new research has been published during the last 15 years and there is a large amount of new information for many nutrients. In addition to a thorough and current evaluation of the literature on the energy and nutrient requirements of swine in all stages of life, this volume includes information about feed ingredients from the biofuels industry and other new ingredients, requirements for digestible phosphorus and concentrations of it in feed ingredients, a review of the effects of feed additives and feed processing, and strategies to increase nutrient retention and thus reduce fecal and urinary excretions that could contribute to environmental pollution. The tables of feed ingredient composition are significantly updated. Nutrient Requirements of Swine represents a comprehensive review of the most recent information available on swine nutrition and ingredient composition that will allow efficient, profitable, and environmentally conscious swine production.

Wildlife Feeding and Nutrition

Aquafeed Formulation is the only resource that provides summaries with examples and formulation techniques specifically to meet the needs of anyone in the aquaculture industry. As feed is the largest single cost item in aquaculture production, and formulating aquaculture feed requires many combinations of several ingredients and nutrient requirements, this book takes a clear-and -concise approach, providing essential information on formulation and covering relevant available software, feed nutrients, and additives such as enzymes and phytase and conjugated fatty acids, as well as best industry practices to improve aquafeed production. Users will find this to be a one-stop resource for anyone interested or involved in, the global aquaculture industry. Includes the latest software evaluation for calculating protein and amino acid sources, trace minerals, and vitamins for aquaculture diets Provides essential information on formulation, covering feed nutrients and additives such as enzymes and phytase and conjugated fatty acids Presents factors affecting nutrient recommendations for aquaculture diets and nutritional effects on aquaculture nutrient excretion and water quality Covers a broad range of techniques to understand the nutrient recommendations in the NRC guide

Nutrient Requirements of Fish and Shrimp

Each of these popular handbooks contains comprehensive information on the nutritional needs of domestic animals and includes extensive tabular data. All are paperback and 8 1/2 x 11. Some books come with diskettes or Cds that allow users to predict nutrient requirements of specific animals under various conditions and at various life stages.

Guide for the Care and Use of Laboratory Animals

Handbook of Laboratory Animal Science, Volume I

This new release presents the wealth of information gleaned about nonhuman primates nutrition since the previous edition was published in 1978. With expanded coverage of natural dietary habits, gastrointestinal anatomy and physiology, and the nutrient needs of species that have been difficult to maintain in captivity, it explores the impact on nutrition of physiological and life-stage considerations: infancy, weaning, immune function, obesity, aging, and more. The committee also discusses issues of environmental enrichment such as opportunities for foraging. Based on the world's scientific literature and input from authoritative sources, the book provides best estimates of nutrient requirements. The volume covers requirements for energy: carbohydrates, including the role of dietary fiber; proteins and amino acids; fats and fatty acids; minerals, fat-soluble and water-soluble vitamins; and water. The book also analyzes the composition of important foods and feed

ingredients and offers guidelines on feed processing and diet formulation.

The Mineral Nutrition of Livestock

Aquaculture now supplies half of the seafood and fisheries products consumed worldwide and is gaining international significance as a source of food and income. Future demands for seafood and fisheries products can only be met by expanded aquaculture production. Such production will likely become more intensive and will depend increasingly on nutritious and efficient aquaculture feeds containing ingredients from sustainable sources. To meet this challenge, Nutrient Requirements of Fish and Shrimp provides a comprehensive summary of current knowledge about nutrient requirements of fish and shrimp and supporting nutritional science. This edition incorporates new material and significant updates to information in the 1993 edition. It also examines the practical aspects of feeding of fish and shrimp. Nutrient Requirements of Fish and Shrimp will be a key resource for everyone involved in aquaculture and for others responsible for the feeding and care of fish and shrimp. It will also aid scientists in developing new and improved approaches to satisfy the demands of the growing aquaculture industry.

Nutrient Requirements of Domestic Animals: Nutrient requirements of laboratory animals: cat, guinea pig, hamster, monkey, mouse, rat

This book contains 10 chapters that discuss phosphorus and calcium metabolism, efficiency of utilization, availability, requirements and excretion in livestock and environmental impact.

Nutrient Requirements of Rabbits,

Phosphorus and Calcium Utilization and Requirements in Farm Animals

AAP Prose Award Finalist 2018/19 Management of Animal Care and Use Programs in Research, Education, and Testing, Second Edition is the extensively expanded revision of the popular Management of Laboratory Animal Care and Use Programs book published earlier this century. Following in the footsteps of the first edition, this revision serves as a first line management resource, providing for strong advocacy for advancing quality animal welfare and science worldwide, and continues as a valuable seminal reference for those engaged in all types of programs involving animal care and use. The new edition has more than doubled the number of chapters in the original volume to present a more comprehensive overview of the current breadth and depth of the field with applicability to an international audience. Readers are provided

with the latest information and resource and reference material from authors who are noted experts in their field. The book:

- Emphasizes the importance of developing a collaborative culture of care within an animal care and use program and provides information about how behavioral management through animal training can play an integral role in a veterinary health program
- Provides a new section on Environment and Housing, containing chapters that focus on management considerations of housing and enrichment delineated by species
- Expands coverage of regulatory oversight and compliance, assessment, and assurance issues and processes, including a greater discussion of globalization and harmonizing cultural and regulatory issues
- Includes more in-depth treatment throughout the book of critical topics in program management, physical plant, animal health, and husbandry.

Biomedical research using animals requires administrators and managers who are knowledgeable and highly skilled. They must adapt to the complexity of rapidly-changing technologies, balance research goals with a thorough understanding of regulatory requirements and guidelines, and know how to work with a multi-generational, multi-cultural workforce. This book is the ideal resource for these professionals. It also serves as an indispensable resource text for certification exams and credentialing boards for a multitude of professional societies Co-publishers on the second edition are: ACLAM (American College of Laboratory Animal Medicine); ECLAM (European College of Laboratory Animal Medicine); IACLAM (International Colleges of Laboratory Animal Medicine); JCLAM (Japanese College of Laboratory Animal Medicine); KCLAM (Korean College of Laboratory Animal Medicine); CALAS (Canadian Association of Laboratory Animal Medicine); LAMA (Laboratory Animal Management Association); and IAT (Institute of Animal Technology).

Nutrient Requirements of Sheep

Forages, Volume 2

Bringing together international expertise in rabbit production, topics covered in this fully updated volume include digestive physiology, feed formulation and product quality, as well as feeding strategies, feed processing, feed management around weaning and the relationship between nutrition and intestinal health. Brand new to this edition, the chapters also discuss the development of immune response and the role of intestinal microbiota, new dietary sources and additives, and feeding behaviour in pasture and organic feeding. A valuable resource for researchers and students of animal nutrition and production, this book provides a comprehensive, research-based review of nutrition for these important animals.

Nutrition of the Rabbit, 3rd Edition

The Biology of the Guinea Pig focuses on the use of the guinea pig as a substrate in research. This book provides a

comprehensive coverage of material related to applied care and management of guinea pigs and their diseases. Topics on guinea pig behavior, genetics, specific pathogen-free technique, biotechnology, and colony husbandry are also covered. This text likewise deals with the noninduced diseases of guinea pigs and use of the guinea pig in nutrition research, otologic research, toxicology, and teratology. This publication is beneficial to the general scientific community that includes investigators using or considering the use of guinea pigs in research, veterinarians, students of veterinary medicine, professionals concerned with the care and management of guinea pigs, commercial producers of guinea pigs, and cavy fanciers.

Nutrient Requirements of Dogs and Cats

Expanding on the National Research Council's Guide for the Care and Use of Laboratory Animals, this book deals specifically with mammals in neuroscience and behavioral research laboratories. It offers flexible guidelines for the care of these animals, and guidance on adapting these guidelines to various situations without hindering the research process. Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research offers a more in-depth treatment of concerns specific to these disciplines than any previous guide on animal care and use. It treats on such important subjects as: The important role that the researcher and veterinarian play in developing animal protocols. Methods for assessing and ensuring an animal's well-being. General animal-care elements as they apply to neuroscience and behavioral research, and common animal welfare challenges this research can pose. The use of professional judgment and careful interpretation of regulations and guidelines to develop performance standards ensuring animal well-being and high-quality research. Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research treats the development and evaluation of animal-use protocols as a decision-making process, not just a decision. To this end, it presents the most current, in-depth information about the best practices for animal care and use, as they pertain to the intricacies of neuroscience and behavioral research.

Scientific Advances in Animal Nutrition

This edition is a thorough revision of the previous. There are 3 chapters on general principles, natural sources of minerals, and detection and correction of mineral imbalances in animals. Individual chapters are given to Ca, P, Mg, Na and Cl, K, S, Co, Cu, I, Fe, Mn, Se, and Zn. Three final chapters cover occasionally beneficial elements (B, Cr, Li, Mo, Ni, Si, Sn, V), essentially toxic elements (Al, As, Cd, F, Pb, Hg), and design of supplementation trials for assessing mineral deprivation.

Bioavailability of Nutrients for Animals

Dietary Reference Intakes

Wildlife Feeding and Nutrition fills a serious gap in the wildlife and animal nutrition literature by providing a discussion of the basic principles of nutrition and their application to the broader field of wildlife ecology. This book is based on lectures presented in an upper-level wildlife nutrition course taught at Washington State University. The book opens with an introductory chapter on wildlife nutrition. This is followed by separate chapters on general nutrient and energy requirements; protein, water, vitamin, and mineral requirements; impact of nutrition on reproductive characteristics; gastrointestinal anatomy and function; and digestion and nutrient metabolism. The text will be invaluable to wildlife biologists, to those who are interested in captive animal nutrition and management, and to those who are interested in improving the feed supply and nutrition of free-ranging wildlife. It should also be helpful to undergraduate and graduate students as well as teachers of biology and wildlife management. The book will be a useful reference for all who are interested and concerned with wildlife throughout the world.

The Welfare of Laboratory Animals

A respected resource for decades, the Guide for the Care and Use of Laboratory Animals has been revised by a committee of experts, based on input from scientists and the public. The Guide incorporates recent research on commonly used species, including farm animals, and includes extensive references. It is organized around major components of animal use: Institutional policies and responsibilities. The committee discusses areas that require policy attention: the role and function of the Institutional Animal Care and Use Committee, protocols for animal care and use, occupational health and safety, personnel qualifications, and other areas. Animal environment, husbandry, and management. The committee offers guidelines on how to design and run a management program, addressing environment, nutrition, sanitation, behavioral and social issues, genetics, nomenclature, and more. Veterinary care. The committee discusses animal procurement and transportation, disease and preventive medicine, and surgery. The Guide addresses pain recognition and relief and issues surrounding euthanasia. Physical plant. The committee identifies design and construction issues, providing guidelines for animal-room doors, drainage, noise control, surgery, and other areas. The Guide for the Care and Use of Laboratory Animals provides a framework for the judgments required in the management of animal facilities--a resource of proven value, now updated and expanded. This revision will be important to researchers, animal care technicians, facilities managers, administrators at research institutions, policymakers involved in research issues, and animal welfare advocates.

Effect of Environment on Nutrient Requirements of Domestic Animals

Many feedstuffs and forages do not provide the dietary vitamins necessary for optimum growth and development, making

supplementation necessary. This volume offers a practical, well-organized guide to safe levels of vitamin supplementation in all major domestic species, including poultry, cattle, sheep, and fishes. Fourteen essential vitamins are discussed with information on requirements in various species, deficiency symptoms, metabolism, indications of hypervitaminosis, and safe dosages.

Metabolic Modifiers

This book examines the general principles of laboratory animal maintenance and experimental use as well as factors that have to be taken into account when good research is done with animals. In addition, it provides species specific coverage, concentrating on the species most used as laboratory animals. The book gives a comprehensive description of the welfare questions considered to be important for each species under laboratory conditions.

Aquafeed Formulation

With the aim to improve clinicians' understanding of the important effects nutrition can have on maternal health and fetal and neonatal development, Maternal-Fetal Nutrition During Pregnancy and Lactation defines the nutritional requirements with regard to the stage of development and growth, placing scientific developments into clinical context.

Animal Nutrition Made Easy

Within the last few years, knowledge about vitamins has increased dramatically, resulting in improved understanding of human requirements for many vitamins. This new edition of a bestseller presents comprehensive summaries that analyze the chemical, physiological, and nutritional relationships, as well as highlight newly identified functions, for a

Handbook of Vitamins

Nutrient Requirements of Nonhuman Primates

Forages: The Science of Grassland Agriculture, 7th Edition, Volume II will extensively evaluate the current knowledge and information on forage agriculture. Chapters written by leading researchers and authorities in grassland agriculture are aggregated under section themes, each one representing a major topic within grassland science and agriculture. This 7th edition will include two new additional chapters covering all aspects of forage physiology in three separate chapters,

instead of one in previous editions. Chapters will be updated throughout to include new information that has developed since the last edition. This new edition of the classic reference serves as a comprehensive supplement to An Introduction to Grassland Agriculture, Volume I.

Guide for the Care and Use of Laboratory Animals

Laboratory animal testing provides most of our current knowledge of human physiology, microbiology, immunology, pharmacology, and pathology. From studies of genetics in fruit flies to studies of cellular processes in genetically modified mice to recent dramatic developments in genetics, translational research, and personalized medicines, biomedical

Swine Nutrition

Swine Nutrition is a comprehensive text-reference that deals with the various aspects and knowledge in swine nutrition. The book is basically about nutrient utilization by swine. The topics discussed concerning this subject are factors influencing swine nutrition, nutrient bioavailability, appetite and feeding behavior, physical forms of feed, environment and management, immunocompetence, genetic and sex considerations, mycotoxins, and intestinal microbiology. Major and unique feedstuffs, feeding regimen in different stages of growth, and techniques in swine nutrition research are also elaborated. The text will be useful to students of advance swine nutrition courses as well as those seeking information in swine nutrition.

Nutrient Requirements of Laboratory Animals,

Table of Contents - The Golden or Syrian Hamster - Historical Perspectives and Taxonomy. Morphophysiology. Clinical Chemistry and Hematology. Care and Management. Biomethodology. Viral Diseases. Bacterial and Mycotic Diseases. Parasitic Diseases. Neoplastic Diseases. Noninfectious Diseases. Drugs Used in Hamsters with a Review of Antibiotic-Associated Colitis. Experimental Biology - Use in Oncologic Research. Experimental Biology - Use in Immunobiology. Experimental Biology - Use in Infectious Disease Research. Experimental Biology - Genetic Models in Biomedical Research. Experimental Biology - Other Research Uses of Syrian Hamsters. Appendix - Selected Normative Data for the Syrian Golden Hamster. The Striped or Chinese Hamster - Biology and Care. Diseases. Use in Research. The European Hamster - Biology, Care, and Use in Research. Other Hamsters - Biology, Care, and Use in Research. Index.

Nutrient Requirements of Horses

Proper formulation of diets for horses depends on adequate knowledge of their nutrient requirements. These requirements depend on the breed and age of the horse and whether it is exercising, pregnant, or lactating. A great deal of new information has been accumulated since the publication 17 years ago of the last edition of Nutrient Requirements of Horses. This new edition features a detailed review of scientific literature, summarizing all the latest information, and provides a new set of requirements based on revised data. Also included is updated information on the composition of feeds, feed additives, and other compounds routinely fed to horses. The effects of physiological factors, such as exercise, and environmental factors, such as temperature and humidity, are covered, as well. Nutrient Requirements of Horses also contains information on several nutritional and metabolic diseases that horses often have. Designed primarily as a reference, both practical and technical, Nutrient Requirements of Horses is intended to ensure that the diets of horses and other equids contain adequate amounts of nutrients and that the intakes of certain nutrients are not so excessive that they inhibit performance or impair health. This book is primarily intended for animal nutritionists, veterinarians, and other scientists; however, individual horse owners and managers will also find some of this material useful. Professors who teach graduate courses in animal nutrition will find Nutrient Requirements of Horses beneficial as a textbook.

Vitamins in Animal and Human Nutrition

Vitamins in Animal and Human Nutrition contains concise, up-to-date information on vitamin nutrition for both animals and humans. The author defines these nutrients and describes their fascinating discovery, history and relationship to various diseases and deficiencies. Discussion of vitamins also includes their chemical structure, properties and antagonists; analytical procedures; metabolism; functions; requirements; sources; supplementation and toxicity. Vitamin-like substances, essential fatty acids and vitamin supplementation considerations are also examined. This book will be useful worldwide as a textbook and as an authoritative reference for research and extension specialists, feed manufacturers, teachers, students and others. It provides a well-balanced approach to both animal and clinical human nutrition and compares chemical, metabolic and functional aspects of vitamins and their practical and applied considerations. A unique feature of the book is its description of the implications of vitamin deficiencies and excesses and the conditions that might occur in human and various animal species.

Maternal-Fetal Nutrition During Pregnancy and Lactation

Nutrient Requirements of Swine

In the past decade, animal scientists have learned that administering recombinantly derived somatotropin (growth

hormone) to cows improves milk production and that giving beta-adrenergic agonists to meat animals improves productivity and leanness. In order for these metabolic modifiers to yield benefits, however, sound management of the animals' nutrition is necessary. This volume reports on how these substances work in the animals' metabolism, what effects they might have on nutrient requirements of domestic livestock, and what information should be developed further by investigators. The book explores the current understanding of the biology, structure, mechanisms of action, and treatment effects of somatotropin, beta-adrenergic agonists, and anabolic steroids. A companion volume to the Nutrient Requirements of Domestic Animals series, this authoritative volume will be required reading for animal scientists, researchers, veterinarians, livestock farmers, and faculty and students in university animal veterinary science programs.

Nutrient Requirements of Laboratory Animals

Widely regarded as the classic reference work for the nutrition, dietetic, and allied health professions since its introduction in 1943, Recommended Dietary Allowances has been the accepted source in nutrient allowances for healthy people. Responding to the expansion of scientific knowledge about the roles of nutrients in human health, the Food and Nutrition Board of the Institute of Medicine, in partnership with Health Canada, has updated what used to be known as Recommended Dietary Allowances (RDAs) and renamed their new approach to these guidelines Dietary Reference Intakes (DRIs). Since 1998, the Institute of Medicine has issued eight exhaustive volumes of DRIs that offer quantitative estimates of nutrient intakes to be used for planning and assessing diets applicable to healthy individuals in the United States and Canada. Now, for the first time, all eight volumes are summarized in one easy-to-use reference volume, Dietary Reference Intakes: The Essential Reference for Dietary Planning and Assessment. Organized by nutrient for ready use, this popular reference volume reviews the function of each nutrient in the human body, food sources, usual dietary intakes, and effects of deficiencies and excessive intakes. For each nutrient of food component, information includes: Estimated average requirement and its standard deviation by age and gender. Recommended dietary allowance, based on the estimated average requirement and deviation. Adequate intake level, where a recommended dietary allowance cannot be based on an estimated average requirement. Tolerable upper intake levels above which risk of toxicity would increase. Along with dietary reference values for the intakes of nutrients by Americans and Canadians, this book presents recommendations for health maintenance and the reduction of chronic disease risk. Also included is a "Summary Table of Dietary Reference Intakes," an updated practical summary of the recommendations. In addition, Dietary Reference Intakes: The Essential Reference for Dietary Planning and Assessment provides information about: Guiding principles for nutrition labeling and fortification Applications in dietary planning Proposed definition of dietary fiber A risk assessment model for establishing upper intake levels for nutrients Proposed definition and plan for review of dietary antioxidants and related compounds Dietitians, community nutritionists, nutrition educators, nutritionists working in government agencies, and nutrition students at the postsecondary level, as well as other health professionals, will find Dietary Reference Intakes: The Essential

Access Free Nutrient Requirements Of Laboratory Animals

Reference for Dietary Planning and Assessment an invaluable resource.

The Laboratory Rat

This fully updated and revised third edition provides everything students need to know about nutrition in poultry, rabbits, and laboratory animals.

Laboratory Hamsters

General aspects of nutrition; Nutrient requirements of the laboratory rat; Nutrient requirements of the mouse; Nutrient requirements of the gerbil; Nutrient requirements of the guinea pig; Nutrient requirements of the hamster; Nutrient requirements of the vole; Nutrient requirements of fishes.

Guide for the Care and Use of Laboratory Animals

The science of animal nutrition has made significant advances in the past century. In looking back at the discoveries of the 20th century, we can appreciate the tremendous impact that animal nutrition has had on our lives. From the discovery of vitamins and the sweeping shift in the use of oilseeds to replace animal products as dietary protein sources for animals during the war times of the 1900s-to our integral understanding of nutrients as regulators of gene expression today-animal nutrition has been the cornerstone for scientific advances in many areas. At the milestone of their 70th year of service to the nation, the National Research Council's (NRC) Committee on Animal Nutrition (CAN) sought to gain a better understanding of the magnitude of recent discoveries and directions in animal nutrition for the new century we are embarking upon. With financial support from the NRC, the committee was able to organize and host a symposium that featured scientists from many backgrounds who were asked to share their ideas about the potential of animal nutrition to address current problems and future challenges.

Nutrient Requirements of Laboratory Animals

Updating recommendations last made by the National Research Council in the mid-1980s, this report provides nutrient recommendations based on physical activity and stage in life, major factors that influence nutrient needs. It looks at how nutrients are metabolized in the bodies of dogs and cats, indications of nutrient deficiency, and diseases related to poor nutrition. The report provides a valuable resource for industry professionals formulating diets, scientists setting research agendas, government officials developing regulations for pet food labeling, and as a university textbook for dog and cat

nutrition. It can also guide pet owners feeding decisions for their pets with information on specific nutrient needs, characteristics of different types of pet foods, and factors to consider when feeding cats and dogs.

Applied Nutrition

Updating recommendations last made by the National Research Council in the mid-1980s, this report provides nutrient recommendations based on physical activity and stage in life, major factors that influence nutrient needs. It looks at how nutrients are metabolized in the bodies of dogs and cats, indications of nutrient deficiency, and diseases related to poor nutrition. The report provides a valuable resource for industry professionals formulating diets, scientists setting research agendas, government officials developing regulations for pet food labeling, and as a university textbook for dog and cat nutrition. It can also guide pet owners feeding decisions for their pets with information on specific nutrient needs, characteristics of different types of pet foods, and factors to consider when feeding cats and dogs.

Management of Animal Care and Use Programs in Research, Education, and Testing

In the years since the third edition of this indispensable reference was published, a great deal has been learned about the nutritional requirements of common laboratory species: rat, mouse, guinea pig, hamster, gerbil, and vole. The Fourth Revised Edition presents the current expert understanding of the lipid, carbohydrate, protein, mineral, vitamin, and other nutritional needs of these animals. The extensive use of tables provides easy access to a wealth of comprehensive data and resource information. The volume also provides an expanded background discussion of general dietary considerations. In addition to a more user-friendly organization, new features in this edition include: A significantly expanded section on dietary requirements for rats, reporting substantial new findings. A new section on nutrients that are not required but that may produce beneficial results. New information on growth and reproductive performance among the most commonly used strains of rats and mice and on several hamster species. An expanded discussion of diet formulation and preparation--including sample diets of both purified and natural ingredients. New information on mineral deficiency and toxicity, including warning signs. This authoritative resource will be important to researchers, laboratory technicians, and manufacturers of laboratory animal feed.

Vitamin Tolerance of Animals

The third edition of The Laboratory Rat features updated information on a variety of topics, including rats as research models for basic and translational research in areas such as genomics, alcoholism, diabetes, metabolic syndrome, obesity, neuroscience, spinal cord injury, traumatic brain injury, regenerative medicine, and infectious disease. New information

related to the husbandry and veterinary care of rats is provided including topics related to nutrition, reproduction, anesthesia and surgery, infectious and noninfectious disease, and the care of surgical and other fragile models. It is a premier source of information on the laboratory rat, this book will be of interest to veterinary and medical students, senior graduate students, postdocs and researchers who utilize animals in biomedical research. New chapters on the care of surgical and fragile models and on the use of rats in research areas such as alcoholism, regenerative medicine, spinal cord injury, traumatic brain injury, and others are included. All chapters were written by scientific and veterinary experts. This book condenses information from many sources on topics related to the care and use of rats in research. It is the premier source of information on the laboratory rat.

The Biology of the Guinea Pig

Nutrient Requirements of Dogs and Cats

This practical book provides crucial information necessary to formulate diets with appropriate amounts of amino acids, minerals, and vitamins. The factors that influence how well animals obtain these critical nutrients and methods for determining bioavailability are reviewed in this comprehensive text. In addition, data from both ruminants and nonruminants are included as well as established estimates of bioavailability for particular feed stuffs and feed supplements.

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