

# Introduction

Enhancement of the well-being of both agricultural animals and humans by agricultural scientists depends directly on research involving experimental animals. Teaching programs to disseminate agriculturally related knowledge may also require the use of animals. The agricultural community has long recognized the scientific and ethical importance of proper animal care and humane treatment of animals. All who use animals in agricultural research or teaching must assume responsibility for the general welfare of the animals in their care. Institutional agricultural animal facilities and programs should be operated in accordance with the requirements and recommendations of this *Guide*, the *Guide for the Care and Use of Laboratory Animals* (ILAR, 1996), and applicable federal, state, and local laws, regulations, and policies as appropriate.

To be eligible for grants from the PHS for research and training projects using vertebrate animals, institutions must file an assurance statement with the Office for Protection from Research Risks. Institutions may choose to restrict their assurance to projects funded by NIH and other agencies or to biomedical research activities in general. However, if an institution files an assurance statement indicating that the total animal care program of the institution will be conducted in accordance with PHS policy and the guidelines put forth in the *Guide for the Care and Use of Laboratory Animals* (ILAR, 1996), then the PHS may scrutinize the entire animal care program—including agricultural research and teaching activities and facilities—if there is an alleged problem in the biomedical area that results in a site visit. Pertinent PHS policy has been published in *Public Health Service Policy on the Humane Care and Use of Laboratory Animals* (PHS, 1996). Agricultural animals used in certain research, teaching, and testing activities are also regulated under the Animal Welfare Act (CFR, 1992), and the facilities and programs related to their use are subject to inspection and review by APHIS.

Both the *Guide for the Care and Use of Laboratory Animals* and the Animal Welfare Act regulations refer specifically and explicitly to agricultural animals in the context of their use in biomedical research and teaching, in which they may serve as models for humans. Scientists at agricultural experiment stations and elsewhere are required to follow the same practices for these animals as those established for nonagricultural species used in similar experiments. The facilities and practices for the care and use of agricultural animals in this category are described and discussed in the *Guide for the Care and Use of Laboratory Animals*.

The recommendations outlined in this *Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching* refer primarily to agricultural animals in a different category. For the purposes of this *Guide*, agricultural animals include any warm-blooded vertebrate animal used in agricultural research or teaching for which the scientific objectives are to improve understanding of the animal's use in production agriculture and that may require a simulated or actual production agricultural setting consistent with consideration of the animal's well-being. Pertinent systems include range or pasture production in naturalistic settings, various degrees of confinement in certain less extensive production systems, including enclosed buildings. Neither this *Guide*, the *Guide for the Care and Use of Laboratory Animals*, nor the Animal Welfare Act is intended to pertain to animals being produced on farms and ranches for commercial purposes.

Depending on the nature of the research or teaching objective, animal scientists and veterinary scientists may use a number of different kinds of animal facilities. Some projects require a carefully controlled environment, but for others the wide range of variables found on actual farms and ranches is an important component of the research. Some scientific use of agricultural animals involves projects and demonstrations that have agricultural objectives in the ultimate, but that require neither the breadth of stimuli present in farm environments nor the degree of environmental control typical of much biomedical research (Tillman, 1994). For research or teaching activities of this type, a blending of guidelines will be necessary, and here especially professional judgment is required (Curtis, 1994).

This edition of the *Guide* is divided into 11 chapters and five appendixes. The first four chapters deal with general programmatic considerations. Chapter 1 focuses on institutional policies, including those designed to provide oversight and monitoring of the animal care and use program, written operating procedures, occupational health and safety, and personnel training. Chapter 2 provides general recommendations regarding agricultural animal husbandry, including information about thermal environments, air quality, animal waste management, environmental enrichment, animal handling and restraint, and transportation. Chapter 3 discusses the veterinary care program for agricultural animals, and Chapter 4 describes general aspects of facilities construction and maintenance. Chapters 5 to 11 provide specific recommendations for the care and use of beef cattle, dairy cattle, horses, poultry, sheep and goats, swine, and veal calves, respectively.

Appendix 1 provides the United States Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training; Appendix 2 Table A-1 lists common zoonotic diseases of agricultural animals, including their means of spread; Appendix 2 Tables A-2 and A-3 provide information about pre-anesthetic, anesthetic, and analgesic agents suitable for agricultural animals as well as appropriate euthanasia methods; and Appendix 3 provides additional information about organizations mentioned in this Guide that can provide useful information about agricultural animal care.

This *Guide* has been deliberately written in general terms so that the recommendations can be applied in the diverse institutions that use agricultural animals in agricultural research and teaching in the United States. In the context of this *Guide*, the verb *must* is used for considerations or practices that are viewed as imperatives. The verb *should* is a strong recommendation, but one for which alternative strategies might be justified after careful consideration. A *recommendation* connotes a practice or policy that is generally preferred, but for which there are acceptable alternatives. It should be emphasized, however, that professional judgment is essential in the application of these guidelines. Veterinarians, ACUCs, and users of agricultural animals must play a critical role in making specific suggestions regarding animal care and use at their institution. The *U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training* of the IRAC (1985; Appendix 1) are endorsed in this *Guide* as a basis for professional judgments about the appropriate treatment and use of agricultural animals in research and teaching activities. These judgments can be validated by third-party peer review, such as that provided by accreditation through AAALAC International.

Nothing in this *Guide* is intended to limit an investigator's freedom to plan and conduct animal experiments and demonstrations in accordance with scientific and humane principles. Agricultural scientists are also encouraged to continue to seek improved methods of animal care and use. Evaluation of improved and alternative methods of animal housing and care may require temporary easing of these guidelines during the evaluation process.

It is important to recognize that the intent of agricultural research and teaching using animals is to advance knowledge that will be of immediate or potential benefit to agricultural animals, agricultural animal producers, and consumers of the products of animal agriculture. However, scientists should continue to develop, foster, and use scientifically valid adjunct or alternative methods to animal use in agricultural research and teaching.

## REFERENCES

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