

# **KSU Institutional Training Program for Animal Care and Use**

## **Training Module 9 – The Guide For the Care and Use of Agricultural Animals in Agricultural Research and Teaching**



**University Research Compliance Office**

# Outcome Based Training

- Training is a **mandatory element** for many core research activities
- A basic assumption must be that training ultimately has a **positive impact** on the activity
- This requires some **verifiable means** of assessing the effectiveness of training



Accordingly, there will be a quiz at the conclusion of the module

In January 1999, The Federation of Animal Science Societies (FASS) published the revised First Edition of the *Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching*, commonly referred to as the “**Ag Guide**.” The most recent revision (third edition) of the **Ag Guide** published in 2010, reflects a simplified name change to, “*Guide for the Care and Use of Agricultural Animals in Research and Teaching*”

**Guide for the Care and Use  
of Agricultural Animals in  
Research and Teaching**

FASS

**Third edition**

January 2010

The new title reflects a new philosophy:

The needs of farm animals do not necessarily change because the objectives of the research or teaching activity. Regardless of the teaching or research objective, **the FAAS Ag Guide should serve as a primary reference for the needs and requirements of agricultural animals.**



# Farm Animals and the Animal Welfare Act

USDA policy #17 states that that farm animals used to test and produce biologicals for nonagricultural animals (e.g. dogs and cats) or humans, are **covered** by the

**Animal Welfare Act**

[Click for link to: Animal Care Policy Manual](#)

**Agricultural animals are important to society. The intent of agricultural research and teaching is to advance knowledge and transmit information that would benefit farm or agricultural animals, care givers, owners and consumers.**



**The agricultural community has long recognized the scientific and ethical importance of proper animal care and humane treatment of animals.**



**Animal users should be familiar with the US Government Principles of Utilization and Care of Animals given in Appendix #1 of the AG Guide.**



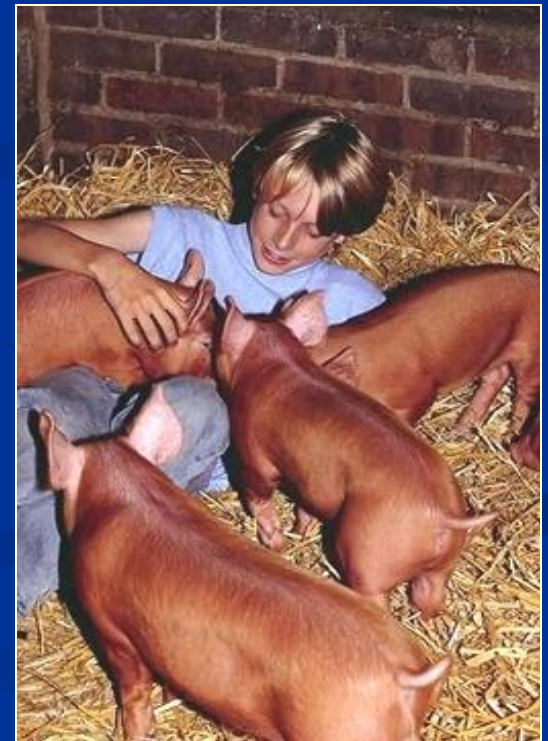
Briefly, the **U.S. Government Principles** hold that:



1. Care and use of animals should be in accordance with applicable laws, regulations, guidelines and policies.
2. A minimum number of animals should be used to address an appropriate research or teaching objective.
3. Discomfort, stress, and pain should be minimized whenever possible.
4. Animals should be humanely euthanized
5. Living conditions, housing and care should be appropriate for the species, and directed by a veterinarian or other scientist trained and experienced with the species
6. Investigators and animal care personnel should be appropriately trained, and they should
7. Activities involving agricultural animals in research or teaching must be approved by the IACUC

Oversight of agricultural animal activities may fall under one of several laws, regulations or guidelines. The **Federal Animal Welfare Act** overseen by USDA, applies to agricultural animals used in biomedical research. However, if farm animals are housed in a farm setting, the Ag Guide is the appropriate set of guidelines. If the farm animal is on a biomedical study with biomedical objectives, then it may be appropriate to use the **ILAR 2011 *Guide for the Care and Use of Laboratory Animals***.

Both the USDA regulations and the 2011 ILAR *Guide* refer to the Ag Guide as the reference resource for agricultural animal use in biomedical research in a farm setting. Other guidelines may be appropriate for different species or for agricultural animals in specialized protocols such as studies used to support FDA approval of products. Several animal industry groups have published guidelines for animals used in commercial products settings.



The Ag Guide uses the words: **Must, Should** and **Recommend** in certain critical places.

- **Must** is meant as an absolute requirement.
- **Should** is when a strong, but not a mandatory, recommendation is made.
- **Recommend** is used for something that is generally preferred.

←→  
FASS recognizes the need for sound animal care. An animal care program includes design of appropriate facilities, provision of a thermal environment appropriate for each species, good air quality, and a high level of animal husbandry based on science and a safe working environment for agricultural animal users.





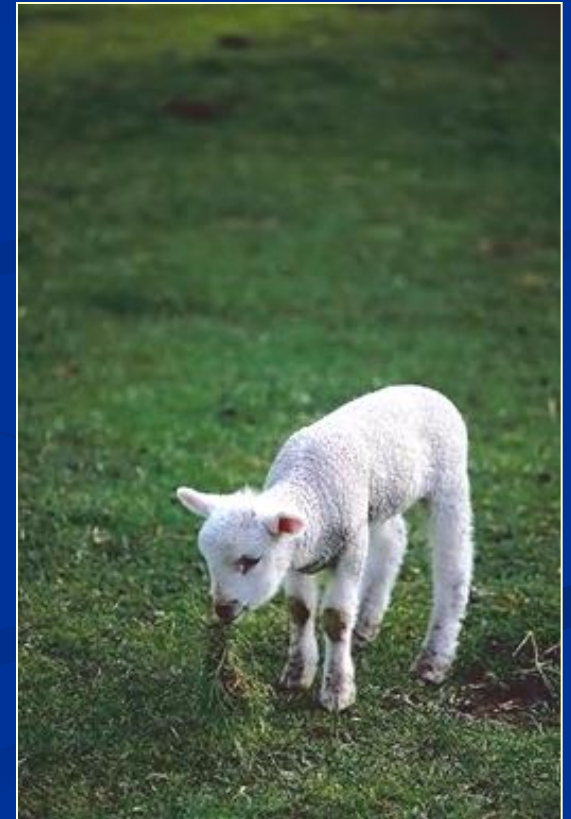
**Facilities and Environment:** Agricultural animals are relatively adaptable to a wide range of environments. It is best to match facilities to the environmental requirements of each species. Environments may include extensive systems such as pasture and ranch lands, or intensive systems such as houses, pens and cages. A well-planned and properly maintained physical plant contributes to sound animal care. An agricultural animal facility should be planned with inputs from agricultural engineers, animal scientists, and veterinarians. The facility should conform to applicable building codes, and support an overall program of sound animal care and use. Agricultural animal performance is the best measure of effectiveness of an animal facility. By performance we mean that the animal's productivity, health and behavior, should be appropriate for the species to be housed, penned or fenced.

Agricultural animal facilities that are intended to reflect models of commercial production should reflect the standard of a modern, well-managed and designed farm. The facility may range from total environmental control, as in modern biomedical facilities, to pastoral settings. The requirements for heating, ventilation and air conditioning depend on the farm setting the research or teaching unit intends to model.



**Temperature, water vapor pressure and ventilation:** Air temperature, humidity and ventilation are important factors of the physical environment of agricultural animals. These factors affect the thermal balance of animals and thus their behavior metabolism and performance.

↔  
Where temperature control is critical, cooling or heating may be required to supplement the ventilation system. Environmental modification such as sun shade or shelters improve the well-being of animals in outdoor environments during weather extremes.



**Air quality** refers to certain aerial gases, particulates, or dust and liquid aerosols, including those carrying microbes. OSHA has established allowable human exposure limits for noxious gases and particulates. In the interest of animal caretakers these limits should not be exceeded.




**Light management** schemes are used routinely in various animal industries to support reproductive and productive performance. Precise lighting requirements are not known for the maintenance of good health of most animals. However, lighting should be sufficient to aid and maintain proper husbandry practices, and allow for adequate inspection of animals.

**Floor space** should be sufficient for normal species-specific postural adjustment, including standing, laying, resting, self-grooming, eating, drinking and eliminating feces and urine. When possible, animals in standing cages and stalls should be allowed to view one another, animal care personnel, and other activities. Specific space recommendations for each species are given in chapters 6 through 11 of the Ag Guide.





**Excreta management and sanitation:** Proper sanitation is essential in intensive animal facilities. A plan should be followed to insure animals are kept reasonably dry, clean, and are provided with a comfortable, healthy surrounding. In intensive facilities such as dry lots, waste materials may need to be removed. Elimination of muddy areas and pastures may not be possible, but reducing the stock density is an option.



**Feed and Water:** Animals should be provided with clean feed and water in a consistent manner, on a regular schedule, and according to NRC guidelines. Feeders and waterers should be designed and situated to allow all animals easy and complete access. Feed should be stored in appropriate areas with an effective program of vermin control in place. For example feed sacks should be stored off the floor on pallets or racks, with each container clearly labeled.



**Social Environments:** Most agricultural animals are social by nature and isolation is a stressor. Agricultural animals should be housed in pairs or groups whenever possible. Socialization with humans, and regular positive human contact may also be beneficial.

←→

**Environmental Enrichment** refers to modifications in the environment that improve animal's biological functioning, enhances their physical, psychological, and/or social well-being. Appropriate enrichment features for agricultural animals should be considered for each species. Some examples of environmental enrichment are given in the Ag Guide.

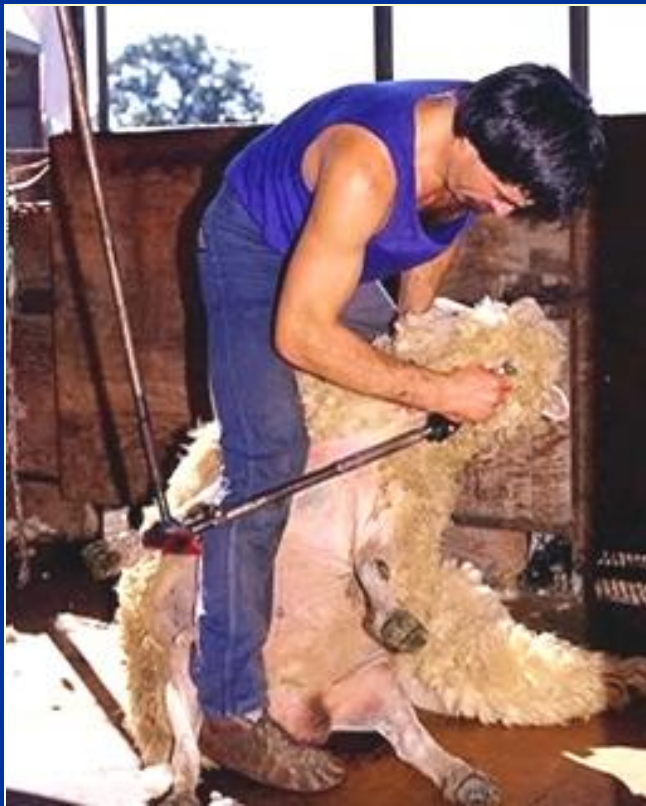


**Husbandry:** The principal scientist or animal management supervisor should make all animal care personnel aware of their responsibilities, both during normal work hours or in an emergency. An emergency or disaster plan should be developed that includes appropriate veterinary care and a reliable supply of feed and water. An experienced caretaker should observe animals housed in intensive facilities daily. Under range and pasture conditions observation should be frequent enough to ensure animal health, to recognize the need for emergency action, and to ensure continuity of feed and water supplies.

Animals should be identified by a permanent method that could be easily read. Individual records are needed for some animals, but in some cases, animals can be identified on a pen basis. Animal records should contain information such as birth date, sex, pedigree, origin, owner, location, production data, and medical history.



During the **handling and restraint** of animals, care should always be exercised to prevent injury to animals, or to personnel. Animals should be handled quietly but firmly. Handling and restraint training of animal care personnel should include consideration of the well-being of the animals.



←—————→

Properly designed and maintained facilities operated by trained personnel, greatly facilitate efficient movement of animals.

The **transport** of livestock involves a complex of operations, including handling, loading and unloading, and unfamiliar environments. In some cases, isolation, social disruption, confinement, loss of balance, fluctuations in environmental temperature and humidity, exposure to truck exhaust, feed and water deprivation, and other factors are involved. The safety and comfort of the animals should be the primary concern during transportation of any animals.

Non-ambulatory, weak or unhealthy animals must not be loaded or transported unless necessary for medical attention. If animals become injured during transport, appropriate steps should be taken immediately to segregate such animals and care for their special needs.





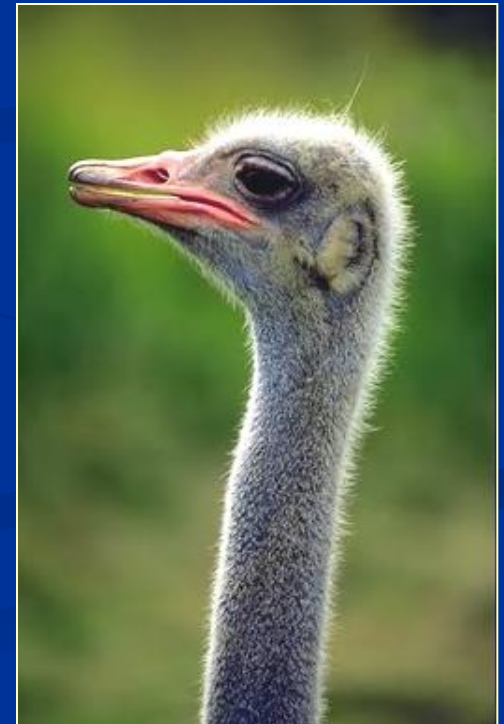
A well-managed agricultural **animal health care program** includes a written and implemented program for disease prevention, surveillance, diagnosis, and treatment. The objective of the animal health program is always to minimize pain and suffering, and to maintain animal health and production.





The **attending veterinarian** should work with the IACUC to establish educational programs to recognize and alleviate pain and distress. Relief from unnecessary pain and distress is a primary goal of animal users. The attending veterinarian should work in concert with the IACUC, and species experts, as well as experts in experimental or surgical procedures to minimize the risk of animals experiencing pain or distress. The animal health program should also include training animal users in humane restraint and avoidance of contaminating residues.

It is especially important that there be a mechanism for direct, frequent, and regular communication between the persons responsible for daily animal care, the principle scientist or teacher, and the veterinarian. An important component of the animal health program is the use of accurate records of animal health events, signs of injury and disease, and summaries of animal health and performance.



**Sick, injured and dead animals** should be segregated from the main group when feasible, observed at least once daily, and provided with appropriate veterinary care. Incurably ill or injured animals in chronic pain and distress should be humanly euthanized at the earliest opportunity.



**Disposal of dead animals** should be promptly accomplished by a commercial rendering service or other appropriate means such as burial, composting, or incineration in accordance with applicable ordinances or regulations. Postmortem examination of animals may provide useful health information.



An **Occupational Health and Safety program** must be established for people working with Ag animals. The Occupational Health and Safety program should be based on an assessment of the hazards in the environment and their associated risk to human health. The Occupational Health and Safety training program should include at least the following areas:

- **Allergies:** Some people become allergic to farm animals. Early detection of symptoms and use of effective personnel protection can lower the risk of illness
- **Physical Injury:** Training to avoid physical injury is important for people working with agricultural animals
- **Zoonoses:** Zoonoses are diseases that people can get from animals. Appendix 2, table A1 of the Ag Guide lists several zoonotic agents for farm animals.





Other **Occupational Health and Safety** issues include protection from loud noises, and respiratory protection in poor air quality environments. A good program includes maintaining documents on occupational health and safety records, work assignments, dates and times of injuries, and unusual illnesses. In some cases, special precautions are needed to protect people from hazardous materials. Potential hazardous materials may include chemicals, microbes and radioactive components.

In these cases, a biosafety or other appropriate committee, should assure that personal protection is in place to reduce risks of human health problems.



**Alternatives:** The principles of a sound animal care and use program should indicate the need to consider what is called the “3 R’s” in animal research and teaching.

- 1) **Reduction:** We must try to avoid repetitive or duplicative experiments. We must reduce the number of animals used in studies, particularly when the study involves pain or distress
- 2) **Replacement:** We must replace animals with alternative non-animal models where possible.
- 3) **Refinement:** Where possible, research methods and practices should be refined to decrease pain and distress





**Team Effort:** The overall animal care and use program is maintained at a high level when a close working relationship among the investigators and teachers, the farm staff, the IACUC, and the attending veterinarian is achieved.

←—————→

Together, they can assure a high level of animal welfare when keeping the institution in compliance with laws, regulations and guidelines.





**This presentation has been prepared by the University Research Compliance Office (URCO). The URCO and the IACUC are responsible for oversight of animal care and use at KSU. If you have questions or comments about this or any other issue concerning animal research, testing, or teaching, please contact us at 785-532-3224, [comply@ksu.edu](mailto:comply@ksu.edu), or visit the Animal Care and Use Program Home Page through URCO Online.**