

## IACUC POLICIES, PROCEDURES, and GUIDELINES

### Social Housing and Environmental Enrichment

#### 129.1 Purpose

This document establishes policies and provides guidelines regarding social housing and environmental enrichment involving agricultural and laboratory animal species maintained at the University of Kentucky and used in education, research, or testing. The intent of this document is to define the IACUC's policy and to provide guidance to investigators.

#### 129.2 General Guidelines

##### 129.2.1 Social Housing

“Appropriate social interactions among members of the same species (conspecifics) are essential to normal development and wellbeing (Bayne et al. 1995; Hall 1998; Novak et al. 2006). When selecting a suitable social environment, attention should be given to whether the animals are naturally territorial or communal and whether they should be housed singly, in pairs, or in groups. An understanding of species-typical natural social behavior (e.g., natural social composition, population density, ability to disperse, familiarity, and social ranking) is key to successful social housing.”(1)

The vast majority of animals used in biomedical and agricultural research, education, and testing are social species. Not all members of a social species, however, are necessarily socially compatible. Housing of incompatible animals in social environments can result in chronic stress, physical injury, and death. In some species, the establishment of a stable social hierarchy will necessitate some antagonistic interactions and physical aggression. The risks of social incompatibility are greater when introducing adult animals so consideration should be given to introducing animals at a younger age to reduce the aggressive interactions. Cage complexities and important resources (e.g., perches/shelves, visual barriers, refuges, food, water, shelter, litter boxes, enrichment devices) should be provided in such a way that they cannot be monopolized by dominant animals or elicit aggression between animals. The social stability of newly created groups should be carefully monitored for excessive aggression and incompatible individuals separated.

In general, social animals must be housed in stable pairs or groups of compatible individuals. **Social housing will be considered the default method of housing unless otherwise justified based on scientific necessity, social incompatibility resulting from inappropriate behavior, or veterinary concerns regarding animal well-being.**

In these cases, single housing of social animals should be limited to the minimum period necessary, and where possible, visual, auditory, olfactory and tactile contact

with compatible conspecifics should be provided. In the absence of other animals, enrichment should be offered, such as safe and positive interaction with the animal care staff, as appropriate to the species of concern, and supplemental enrichment items or the addition of a companion animal in the room or housing area.

The need for single housing based upon experimental requirements is the exception and must be scientifically justified in the animal use protocol and reviewed and approved by the IACUC. Single housing of social species based upon veterinary medical concerns should be documented in the medical records, reviewed on a regular basis, and approved by the veterinarian.

### **129.2.2 Environmental Enrichment**

“Environmental enrichment involves the enhancement of an animal’s physical or social environment.” (2) The goal of an environmental enrichment program is to 1) increase the number and range of normal behaviors shown by the animals; 2) prevent the development of abnormal behaviors or reduce the frequency or severity; 3) increase the positive utilization of the environment (e.g., the use of space); and 4) increase the animal’s ability to cope with behavioral and physiological challenges such as exposure to humans, experimental manipulation, or environmental variation.  
(2)

Well designed enrichment programs provide animals with choices and a degree of control over their environment. Components of an enrichment program may include:

1. Social enrichment consisting of either direct or indirect (visual, olfactory, and auditory) contact with conspecifics or humans,
2. Occupational enrichment encompassing both psychological enrichment and enrichment encouraging exercise,
3. Physical enrichment including altering cage size and complexity or adding objects,
4. Sensory enrichment including visual and auditory stimulation, and
5. Nutritional enrichment involving varied or novel foods or methods of food delivery.

Not all items added to an animal’s environment are beneficial and some enrichment items may actually be detrimental by leading to excessive stress or injury. Enrichment programs, like other environmental factors, affect the animal phenotype and may alter the experimental outcomes. As such, these programs should be considered as variables and appropriately controlled in the experimental design.

Environmental enrichment programs should be designed by individuals knowledgeable of the individual species’ behavior and assessed at regular intervals by trained individuals to ensure that the program is effectively meeting the intended

goals. Input from caretakers, researchers, research technicians, and veterinarians should be sought during program design. The environmental enrichment program should be documented and reviewed at appropriate intervals by the IACUC and the Attending veterinarian.

**References:**

1. **Institute of Laboratory Animal Resources (U.S.).** 2011. *Guide for the Care and Use of Laboratory Animals*. Washington, D.C.: National Academy Press.
2. **Federation of Animal Science Societies.** 2010. *Guide for the Care and Use of Agricultural Animals in Research and Teaching*. Champaign, IL: Federation of Animal Science Societies.

Approved and Adopted by the  
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