

**The University of Tennessee
Office of Laboratory Animal Care**

Mouse Cage Density Policy

I. Purpose

Breeding cages exceeding the listed limits are considered to be overcrowded cages. Preventive measures can be taken to avoid an overcrowded cage by weaning animals in a timely manner and by removing dams prior to giving birth. The capacity is also set to reduce the incidence of morbidity and mortality due to trampling by older animals in the cage. Because of the health concern, overcrowded cages are considered to be an animal welfare issue.

This policy is based on guidelines given in the National Research Council's *Guide for the Care and Use of Laboratory Animals (Guide)* and has been designed to ensure that mice are housed in a manner that promotes their health and well being and avoids overcrowding. Cage overcrowding usually occurs in mouse breeding colonies when litters are not weaned on time, excessive number of breeder animals are housed in a small cage, or weanling mice are not separated as they get older.

Density recommendations in the *Guide* (see pp 25-28) are for a 75 square inch cage which would allow up to 5 adult mice, 2 adult mice with up to 7 offspring, less than 10 grams body weight (weaning age) or 3 adult mice with up to 5 offspring, less than 10 grams body weight. Density recommendations for a 157 square inch breeder cage would allow 10 adult mice or 3 adult mice with up to 18 offspring. However, the UTK OLAC recommends the following:

II. UTK OLAC Cage Density Guidelines

1. The *Guide* recommendations of 15 square inches floor space per adult mouse will be followed for all mouse cages housing adult animals.
2. Mouse breeding schemes which can be utilized in small (75 square inch) mouse cages include:
 - a. Continuous breeding of monogamous pairs. Prompt weaning of offspring should preclude overcrowding. Guidelines for number of pups/cage will be the same as for other breeding schemes (ie up to 12 offspring less than 10 grams body weight).
 - b. Trio breeding schemes (1 male with 2 females) and up to 12 offspring less than 10 grams body weight are allowed in a 75 square inch cage. This allows for the presence of at least 2 litters containing 6 or fewer pups per litter, or one large litter of 12 or fewer pups.

- c. If other breeding schemes are used (1:3, 1:4 or 2:3), then all pregnant females must be removed to a separate cage, prior to parturition (ie, no pups are allowed to be born into the adult only cage).
3. The *Guide* recommendations of 15 square inches floor space per adult mouse and 6 square inches floor space per neonate less than 10 grams will be used for mice housed in breeder boxes (157 square inch cages).

III. Management Techniques

To prevent excessive soiling of caging or overcrowding in 75 square inch mouse cages, the following management techniques may be utilized by research and animal husbandry personnel:

1. Professional judgment about cage conditions and utilization of an increased frequency of cage changing will be used by husbandry personnel when more than one litter is present in the cage, a single large litter is present, or all 12 pups are approximately the same age and approaching weaning size.
2. If litter size is expected to be greater than 6 pups/litter, and a litter of 6 or more pups is already present in the cage, then the second pregnant female must be removed from the cage, prior to parturition.
3. Investigators will be encouraged to decrease litter size, by culling of unwanted offspring, prior to day 14 of age. This would entail early culling of mice with undesired phenotypes, of undesired sex, or of undesired genotypes.
4. When cage density guidelines for the small cage are exceeded, husbandry personnel will automatically place the animals into larger mouse breeder boxes (with prior agreement from the researcher).
5. Investigators will be encouraged to increase vigilance of their breeder cages, and to wean pups promptly, to prevent more than 2 litters being present in the cage at one time.

IV. Policy Implementation

1. Exceptions to this policy are considered to be an exception to the *Guide* and require a written request submitted to the IACUC and subsequent approval by the IACUC. The “exception request” must provide adequate scientific justification for not following the *Guide* and will be reported, as required, to accreditation and regulatory agencies.

2. Husbandry personnel will monitor cage density as part of their routine duties, and facility managers will notify researchers and/or their designated contact person, via email. Cages that are overcrowded for any reason will be tagged with an “overcrowding” card. Overcrowded cages must be dealt with as soon as possible within 48 hours of being tagged.
3. If there is no response from the investigator within 48 working hours, husbandry personnel will take appropriate action to correct the problem (ie remove post-parturient females and their newborn pups from adult only or overcrowded breeding cages, move the entire cage of mice into larger breeder boxes, wean animals, etc). A per-cage charge will be levied for each cage set up.
5. If three instances of non-response by a single investigator and/or their staff occur within a three-month period, OLAC personnel will notify the IACUC promptly.
6. OLAC reserves the right to separate immediately, or change the cage of any animals when animal welfare concerns exist. As a result, OLAC will not be responsible for errors in separated cages.