Institutional Animal Care and Use Committee
Breeding Policy

This policy is established to protect the use of animals in research and adequately assign responsibilities for managing rodent colonies.

All activities involving rodent breeding at UTD must be reviewed and approved by the IACUC. Breeding must be scientifically justified and associated with an approved research protocol. Investigators who wish to obtain approval for rodent breeding must complete and submit the IACUC Application to Establish and Maintain a Breeding Colony.

I. Background:

A. Breeding rodents in a research setting may lead to unique scientific and animal welfare issues. Overbreeding may result in unforeseen logistical problems and expenses. Principal Investigators are responsible for the following when breeding at UTD:

i. Coordinating space allocation for rodent breeding colonies.

ii. Managing rodent colonies consistent with approved research protocols.

iii. Designating a Colony Manager (individuals who have received specific training on managing rodent breeding from the Animal Resource Center, and who will serve as the primary contact person for the lab). The Principal Investigator may designate more than one Colony Manager, but a single point of contact is preferred to simplify communication between the Animal Resources Center staff and the researchers.

iv. Appropriate colony management includes maintaining adequate records. These records include but are not limited to the recording of mating pairings, generations, and the number of animals produced to check against the number of animals allowed in approved protocol documents.

B. The Colony Manager will be responsible for separating animals according to approved cage space allocations as described in parts III, V, and VI of this document.

C. Any recurring problems with rodent colony management must be immediately communicated to the IACUC.
II. Breeding Procedures:

The Colony Manager is responsible for monitoring pregnancies within rodent colonies. Two different breeding schemes are acceptable:

A. Monogamous Pairs:

   i. One male and one female are housed together for mating (only one male is allowed per cage). Nesting material is provided in the cage. Mice are separated when the female becomes pregnant or delivers the pups. Litters are born approximately 21 days apart. The 3-week-old litter must be weaned prior to the birth of the new litter.

   ii. Postpartum estrus occurs within 24 hours of parturition; males should be removed from cages during this period as they may impregnate lactating and nursing females.

B. Harem Mating:

   i. This method houses 2 or maximum 3 females in a cage with one male (only one male per cage is allowed).

   ii. During routine health and breeding checks, pregnant females are removed from their cages, placed in a separate delivery cages, and given nesting material for their pups. Females deliver their pups and nurse for 21 or up to 28 days (with ARC approval). Only one nursing female and litter is allowed per cage. After pups are weaned, the female may be returned to a harem cage.

   iii. Alternatively, when one or more females are noticeably pregnant, males may be removed and housed singly in a fresh cage. The remaining female(s) may deliver their pups and nurse for 21 or up to 28 days (with ARC approval). Please note, housing two nursing females with litters in one cage requires prior ARC approval. After the pups are weaned, the male may be returned to the harem cage.

C. Health Checks:

   i. On a daily basis, the Colony Manager is required to check for pregnancies and births. The health checks must be documented in a lab notebook. When litters are born, cages must be flagged with new litter cards, which should include dates of birth and projected weaning dates. New births identified during routine cage changes will be carded by ARC staff.
D. After Births:

i. After pups are born, the cages must be left undisturbed for at least 3 days, except for replenishing food and water. Cages with overly soiled or wet bedding must be changed sooner. In such cases, the following procedure will be followed:
   a. Females are transferred prior to the litters.
   b. A small amount of the cage bedding should be transferred to the new cage to familiarize the pups with the smell of the original bedding. The same procedure should be followed until the pups are able to move on their own.

III. Weaning of Pups:

A. Age:

i. The weaning age for mouse pups is generally 21 days. In the case of some genetically modified or mutant strains, pups may remain with the female for 28 days.

ii. To extend the nursing time past the 21 day standard, the ARC must be notified immediately, and new litter cards must be added to the cages. The Colony Manager or Principal Investigator must contact the Animal Programs Manager via email when all pups in a breeding line will be routinely weaned at 28 days.

iii. The Colony Manager or Principal Investigator should write “Extended Weaning” and “Date to Wean” on the cage card.

iv. Allowing a 3-week old litter to stay in the cage with a lactating female with newborns is prohibited.

B. Monogamous Pairs:

i. With lactating pregnant females, pups are weaned at 20-21 days of age, prior to new litter being born.

C. Harem Mating:

i. If a singly housed lactating female is alone in a cage with her litter, weaning is less urgent with monogamous pairs. However, mouse pups are routinely weaned at 21-days of age unless an exception has been approved by the ARC.

ii. ARC approval is required if two females raising pups together in a single cage. Each female with a litter must be singly housed no later than two weeks after birth of pups.
D. Separation of Sexes:

i. Male and female pups are separated at weaning. Mice of each sex should be placed in separate cages.

ii. If a litter contains only one pup of a given sex, provisions must be made to house this pup with others of the same sex. Newly weaned pups must not be housed singly. Possible housing options include:
   a. A single female pup may remain with the mother.
   b. A single male pup may be placed with other male pups from a different litter of the same age.
   c. If the parents are a monogamous pair, a single male pup may be housed with the father, both being separated out into a new cage.
   d. A single male pup may be housed with female siblings up to 6-weeks of age (adulthood).
   e. More than one male pup may NOT be housed with female siblings.
   f. It is recommended that sexing of the pups be verified one week later.

E. Feeding:

i. At the time of weaning, a small amount of rodent feed must be provided on the cage floor for the subsequent seven (7) days.

IV. Overcrowded Cages (O/C):

A. ARC staff monitors cages for overcrowding and pregnancy when performing daily health checks and cage changes. Cages that are overcrowded are marked with a Problem Notification – O/C card, dated and initialed.

i. When overcrowding is noted, the Colony Manager or Lab Head, is contacted via email and provided 72-hours to correct the problems based on the severity of the overcrowding. NOTE: WEEKENDS AND HOLIDAYS COUNT AS DAYS AND ARE NOT EXEMPT. If overcrowding is not addressed within the allotted time, ARC staff will separate the mice and provide an incident account to ARC manager.

ii. Fighting or wounded males will be promptly separated.

iii. When a harem housed female is noticeably pregnant (usually around 14 days gestation), she should be separated within 48 hours following the observation. However, if a female is about to give birth, she should be promptly separated.

iv. When two litters are in one cage, they should be separated as soon as possible. Designated staff separates the older pups into separate cages and provides food pellets, or supplementary gel packs, on the cage floors. Female and newborn pups are left in breeding cages. Cages are marked with an O/C card, and other pertinent information required for identifying the mice.
v. Any time cages are significantly O/C and the welfare of the animals are in jeopardy; the animals are promptly separated into acceptable group sizes.

vi. The Colony Manager or the person who separates the mice must documents additional and updated cage numbers on the census sheet.

vii. When the overcrowding is corrected, the O/C card is removed.

V. Review Requirements:

A. The IACUC carefully reviews breeding colonies to assure proper colony management, appropriate breeding schemes, weaning ages, and methods for identification of individual animals.

B. The IACUC requires that the number of unusable animals be minimized to the greatest extent possible. Principal Investigators are encouraged to work with ARC veterinarian and staff to make unusable animals available to other researchers when appropriate. In addition, if the species/strain is commercially available, the production of the animals must be scientifically justified. Cost and convenience are NOT considered valid justifications for developing a breeding colony.

VI. Breeding Limitations and Justifications:

A. Investigators wishing to establish a breeding colony are required to submit a separate breeding protocol, Application to Establish and Maintain a Breeding Colony Form. This application includes an outline of projected breeding totals through the use of statistical analysis to ensure that the minimum numbers of animals are used to obtain valid results (NIH, Public Health Service Policy, revised August 2002). All requests to add a breeding colony to an existing protocol require full IACUC committee review.

   i. This guideline limits each investigator to a total of 6 active breeding cages at any given time. Exceptions require approval by the IACUC.

   ii. Investigators with transgenic lines may request up to 6 active breeding cages per strain at any given time. Exceptions require approval by the IACUC.