



AEEC Policy Policy for Mouse Breeding

Objective	To provide information for the proper maintenance of mouse breeding colonies
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The purpose of this policy is to address the health and well-being of mice by ensuring safe breeding schemes and population densities. Specifically, the primary goal of the policy is to avoid multiple litters present simultaneously in a cage.

Overcrowding can be a significant animal welfare issue and is in direct violation of the AEEC policies and The Guide for the Care and Use of Laboratory Animals.

All breeding procedures must be described in the approved AEEC protocol.

Policy

The principal investigator is responsible to designate a primary user to manage the colony, including pregnancy and birth checks, cage card documentation and for separating and weaning according to the policy described below.

1. The standard breeding set up is monogamous (pair) breeding. The male mouse should be removed prior to the female giving birth. The female should remain in the original breeding cage and the male should be single housed in a clean cage.
2. Continuous breeding is acceptable; however, the 3-week-old litter must be weaned prior to the birth of the new litter to prevent overcrowding. Simultaneous presence of two or more litters in a single cage is not permitted.
3. If trio breeding (two females and one male) is approved in the breeding protocol, each noticeably pregnant female must be separated into her own cage for delivery of litters. The male may be kept with one of the females to take advantage of postpartum estrus but must be removed at the first cage change after parturition. Only one nursing female and litter is allowed per cage.
4. Nesting material must be provided for every animal cage unless scientifically justified and approved in the AEEC protocol.
5. All litters must be weaned by 23 days of age. Pups must be separated by sex into individual male or female cages.
6. In certain circumstances it is acceptable to delay the weaning of individual pups if they are considered undersized (8 grams or less). The other litter mates should still be weaned as normal

7. Breeding males should be singly housed after being separated due to their aggressive nature after breeding.
8. Breeding Cage card must include the following information:
 - a. Name of PI
 - b. AEEC approval number
 - c. Name and contact of the designated user
 - d. The number of females in the cage
 - e. The date the breeding cage is set up
 - f. Date of birth of litters (DOB)
 - g. Weaning date

Overcrowding

A litter over 23 days of age will need to be weaned and placed into new cages.

If significant overcrowding is noted by LASEC staff or veterinarians, the user on the cage card will be contacted and issued a non-compliance category A warning. Users are responsible for weaning and/or separating the animals within one day after receiving the notification.

A repeated instance of overcrowded status may lead to escalation of non-compliance status and project suspension. Non-compliance can be prevented with timely weaning of animals as described in the AEEC protocol and this policy. Researchers are recommended to consult LASEC veterinarians regarding to any breeding issues noted in your colony.

AEEC Recommendations

The recommendations below are guidelines to help ensure healthy colonies. Researchers should contact LASEC veterinarians if they have any questions or concerns regarding their breeding colony.

- Allow animals to be co-housed until signs of pregnancy are noted
- Certain strains may have small litters or do not lactate well so it may be beneficial to house two lactating females together in one cage so they can raise their litters cooperatively. This must be stated in the AEEC protocol.
- After pups are born, the cage should be left undisturbed for at least three days except to replenish food and water as needed.
- Newly weaned pups should be provided with accessible food and water. Providing longer sipper tubes with water bottle is recommended.
- Adult females may be recycled into a breeding cage with a male for production of another litter.
- The optimal reproductive age span is 2~10 months. The AEEC recommends replacing breeders between 8 to 12 months of age.

Foster Mothers

- For transgenic mice, fostering may be required if the lactating females do not take care of the pups. If poor mothering of their mouse strain is expected, PI should include lactating females in their AEEC application. In emergency, LASEC is able to provide lactating females, PI should inform AEEC for an amendment.
- Fostering steps are recommended as below:
 - a. Remove the foster mother from her home cage temporarily.
 - b. Before adding new pups to the existing litter of the foster mother, roll the new pups with soiled bedding in a new cage to increase the scent on the pups to be fostered.
 - c. Return the foster mother to her litters and observe closely.
 - d. This practice is most successful when performed within the first few days of life and transferred pups to foster mother with pups of the same approximate age.

References

Lambert M R. (2009) Strategies for Maintaining Colonies of Laboratory Mice: A Jackson Laboratory Resource Manual

National Research Council (US) Committee for the Update of the Guide for the Care and Use of Laboratory Animals. (2011) Guide for the Care and Use of Laboratory Animals. 8th edition. Washington (DC): National Academies Press (US)