Policy: SC-31-103
Date: 12/20/2023

Purdue University Laboratory Animal Program Standards of Care

Title: Mouse Breeding Colonies

I. Purpose:

The purpose of this policy is to outline the minimum standards of care for rodent breeding colonies based on Public Health Service Policy, and the ILAR ***Guide for the Care and Use of Laboratory Animals.***

II. Policy:

All units providing animal care for breeding colonies of rodents must meet or exceed these minimum requirements. Any deviation from these standards must be described in the animal use and care protocol and approved by the IACUC.

It is the responsibility of the Principal Investigator, the Husbandry staff and the Veterinary Staff to ensure proper breeding techniques, and that appropriate weaning and cage densities are adhered to. The Principal Investigator and his, or her, delegates have primary responsibility for maintaining the breeding colony; however, if they fail to meet these minimum standards, the Vivarium husbandry staff has secondary responsibility to ensure the standards are met per the procedures outlined below and will ensure the approved standards and operating procedures are adhered to.

Failure to meet these standards can result in loss of the privilege to maintain rodent breeding colonies at Purdue University. The facility, veterinary staff, or other campus entities providing breeding management services may charge the Principal Investigator's account for labor related to breeding, weaning, and separating of mice or for corrective action taken on the Principal Investigator's behalf to bring all aspects of the breeding program into compliance. For example, if the husbandry staff must separate multiple litters in a cage, the facility may charge labor rates for the time spent performing this function.

III. Procedure:

Breeding Schemes and Management:
Breeding management will be performed by facility staff, the Principal Investigator, or a combination of the two as determined prior to colony development and outlined in an IACUC approved protocol.

Refer to IACUC policy #310 Mouse and Rat Housing.

In standard caging, two litters may not be present at the same time. For trio breeding, pregnant females should be separated and placed into their own cages with appropriate nesting/enrichment materials prior to giving birth. This can be accomplished via palpation or visualization at E15 (15 days of gestation) or after mating when a plug is identified. If a female gives birth while in the trio cage, the male and remaining females should be removed to a separate cage leaving the female with her litter undisturbed. When pregnant females are separated, the male may remain with only one female, can be moved to another breeding cage, or housed separately based on the needs of the colony/protocol. This procedure applies to cages designed to house 4 to 5 adult mice. Cages designed for more than 5 adult mice can house up to two females with two litters. The male may remain or be removed based on the cage density established by the facility.

When breeding in pairs (one male to one female), the dam and sire may remain together throughout gestation and lactation. Breeding pairs often breed during post- partum estrus (immediately following parturition) so pairs with litters near weaning age must be monitored closely for the arrival of a new litter. Ideally, the current litter should be weaned just prior to the birth of the new litter. However, if a new litter arrives early, the older litter must be weaned even if it is not yet 21 days old or the new litter humanely euthanized.

Weaning:
Mice should be weaned at 21 days of age. Litters may also be left with the dam for an extended time when underweight or small of stature or as long as another litter is not present with veterinary approval. Some transgenic, inbred, or specialty strains do not mature as quickly as normal wild type mice and require an extended nursing period up to 28 days, with protocol approval.

In cases of delayed weaning, pups are maintained with the dam until they are mature enough to be weaned and a notation is made on the cage label. When strains commonly require an older weaning age, this exception should be described in the approved animal care and use protocol and is discussed with the husbandry staff and facility manager in advance.

Weanling mice are separated by sex and housed in a density appropriate for the facility and caging. When genotyping, the IACUC policy on identifying and genotyping rodents must be followed. If the Principal Investigator fails to wean a litter or has multiple litters in a cage, husbandry staff will wean and separate the overcrowded cages. A 24 hour notice may be given to the Principal Investigator for overdue litters. *Cages with multiple litters and/or more than one dam should be separated when discovered immediately.*

Record Keeping for all rodent colonies:
Breeding records are kept by the Principal Investigator. When required by the facility, cage specific breeding cards are to be used to track breeding/pairing dates, plug dates (if known), birth dates and wean dates. These may be required by the facility manager on an individualized or facility wide basis. Individual facilities should develop specific procedures for tracking breeding progress, births, and weaning dates. CMAF can help set up these programs/procedures and tailor them to facility specific needs. **Animals born to a breeding protocol are recorded in breeding logs kept by the Principal Investigator and added to the room census sheet at weaning.**

Space Coordination:
Prior to setting up any breeders the Principal Investigator or designated protocol staff must formulate a breeding and space plan with the husbandry staff and facility manager. Principal Investigators must maintain their colonies within their allotted space. A facility designated percentage of cages or discreet number allotted for breeding will be left available for weaning and separating litters.

Principal Investigators that are unable or unwilling to abide by facility procedures or this policy for weaning and separating will lose the privilege of maintaining their own breeding colonies.