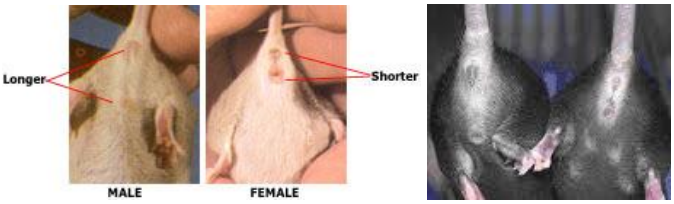
# Colony Maintenance and Breeding Tips

## Environmental Factors:

- Breeder chow has increased protein and fat, which is proven to help nursing moms. The facility offers this diet at no additional charge. Simply flag your cages with an "Extruded Diet" Lithgow card and mark "Breeder chow."
- Enrichment helps decrease stress and increase pup survival. Mouse huts and paper towel rolls can be found in the clean side hallway or through your room care tech at either facility.
- Light cycle, temperature and humidity are controlled in mouse housing areas; however, many rodent colonies experience a drop in production during the winter months (October-March). This seasonal variation may result in smaller litter sizes, irregular estrous cycles, and lower conception and wean rates. If your colonies regularly experience this drop, you may need to set up more breeding pairs to ensure a continuous supply of younger breeders during these months.
- Avoid dark cycle interruptions. Mice usually mate 5-6 hours after dark cycle begins.

## Setting Breeders:

- Ages for setting up breeders (can vary depending on strain).
    - **Mice & Rats**
        - Females: 5 weeks and can continue to 8-10 months.
            - Litter size will begin to decrease as female ages.
            - Females not mated before 3 months of age may have decreased fertility.
        - Males: 6 weeks and continue until 12-18 months.




    - Both mice and rats can start estrous around 35 days, cycling every 4-5 days with estrus lasting about 12 hours.
- Remove non-producing breeders ASAP.
    - No litter produced within 60 days from mating, 90 days for "slow starters."
    - No new litter 60 days from last born date.
    - No wean from 2 consecutive litters.
- New breeding pairs should be set in a clean cage.
- If possible, breeders should be placed in areas where there is the least amount of disturbance- away from doors on back racks in the room as well as on the bottom of a rack.
- Continuous matings work well since you can take advantage of the post-partum estrous cycle; however there is a possibility of two litters in the cage, so pups need to be weaned before the 2nd litter is born.
- Triad breeding schemes have limitations:
        - Females need to be sisters and introduced to the male at the same time.
        - If females are not related, only one will be pregnant at a time.
        - Requires protocol approval.
        - Male is rotated between cages and will miss females' post-partum estrous.
- DO NOT retire old breeding pairs until you have confirmation that your new pairs are breeding.
        - Staggering your setup of breeders can help to ensure that you always have a pair producing.
        - To retire old breeders, you may end up setting new breeding pairs a month prior than planned to ensure successful breeding before ending old pairs.

## Maintaining a Litter:

- Reduce litter size when applicable. If you only need one sex or phenotype (nu/nu), remove the others to reduce competition.
- Avoid extra handling of animals and cage disturbance until pups are at least 3 days old.
- When placing animals into a clean cage, transfer at least half of the old nest with the pups and place a small amount of the old bedding into the new cage.
- Limit strong scents (perfumes, after-shaves, deodorants etc).
- Consider fostering litters for difficult strains.
- Keep environmental noise levels "even."
- Genotype tail snips before 21 days without anesthesia by using pup pad tattoos or ear tags for identification.

## Troubleshooting:

- Stress to females can cause pup death by neglect or cannibalism. Some examples are:
    - Disturbing the cage environment by opening the cage, adding/removing enrichment, or cage furniture.
    - Removing male right before or after pup birth.
    - Separating females from cage right before or after pup birth.
    - Manipulating pups- touching pups within a week of birth. If pups must be handled always use gloves and apply the mothers scent by rubbing the glove with feces/dirty bedding or the mother's urine.
        - **Please remember that you must remain compliant with the IACUC rodent overcrowding policy. If multiple litters are in the cage, you are obligated to separate them for animal welfare reasons regardless of the risk of cannibalism or maternal neglect. Therefore, it is essential that you separate mothers prior to the litter being born.**
- Problems can be due to external factors such as:
    - Odor from staff working with animals (heavy perfume/cologne, cigarette smoke)
    - Entering the housing room after hours (8p-6a)
    - Volume of conversations/music in the housing room
    - The number of lab personal working in the room daily
    - Shoving cages into cage slots on the racks
    - Inexperienced /unconfident handling of the mice

**If you need further assistance, please contact:
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