Dos and Don’ts of Mouse Breeding

170509SC Edited

* Do minimize the amount of noise and traffic in your mouse room. Try to always have the same person(s) take care of your mice. Ultrasonic noise, in particular, can disrupt normal mouse behavior (especially mating behavior), and can be produced by something as innocuous as a dripping faucet or vibrations from a phone.
* Do get to know your husbandry staff and maintain a good working relationship with them. They will usually be the first people to notice when something is wrong with your mice.
* Do allow male mice a little time (e.g. a day) to get used to a new cage before expecting them to mate successfully. Males like to mark their territory before mating.
* Do keep records of breeding performance for each mouse so time and resources aren’t wasted on unproductive mice. Not all mice will breed successfully, even among standard strains.
* Do cycle females through a male’s cage to maximize production from a small number of males. The estrus cycle is 4-5 days long, so females should be left in the cage at least this long, unless you are checking for copulation plugs.
* Do use a white “watch for pups” card on the cages of gestating females with expected date of birth to minimize disturbances a few days before and after birth. If a cage needs changing right before or after the birth, you are responsible for changing the cage.
* Do separate the dam and sire before pups are born, unless your protocol specifically calls for monogamous breeding.
* Do use dirty bedding from a male’s cage to stimulate estrus in females. Females group-housed for long periods can go into anestrus, i.e., they will stop cycling normally. This is reversed by exposure to male pheromones present in the urine.
* Do check for vaginal plugs if you want to know exactly when a female has mated successfully. This is best done in the morning (before 7am is best) because the plugs will start to fall out after a few hours. The presence of a plug is not a guarantee of pregnancy, but it is a reliable indicator. On the other hand, the absence of a plug is not a guarantee that the female isn’t pregnant.
* Do communicate with the vivarium manager and husbandry staff about any special precautions for your mice, e.g., autoclaved water, cages, and bedding, and irradiated (or autoclaved) feed for immunocompromised mice. Special diets are available and those that aren’t can be custom made by the manufacturer.
* Do give your mice some environmental enrichment. Nestlets are an inexpensive choice – they are compressed cotton squares that mice love to tear apart and fluff up into a warm nest. Other options include plastic huts or cardboard tubes, or “shelters”. Nesting material of some sort should be given to all breeding females.
* Do keep your mice on a regular light / dark cycle with at least 12 hours of light. Periodically check that the lights actually come on and go off as scheduled. Avoid entering mouse rooms during dark periods. A red light can be used to minimize impact on the mice if you have to work in the room during dark hours.
* Don’t bang cages around or jostle the mice any more than necessary. Handle them calmly and quietly.
* Don’t let mice get too old prior to first mating, if you are planning to breed them. It’s best to give them at least some practice within four months of birth.
* Don’t expect breeding females to be productive after more than six months of age, although they can have litters well beyond that. Males can be productive at least a year, but decrease in productivity after six months. Maximize production of pups by replacing your breeders with younger mice on a regular schedule.
* Don’t cycle males through a female’s cage – pheromones from new males can disrupt pregnancies initiated by previous males.
* Don’t disturb gestating females any more than necessary, especially a few days before and after birth.

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