The Jackson Laboratory
Leading the search for tomorrow's cures

BREEDING COLONY SIZE PLANNING WORK SHEET

Determine your Research Needs

Line 1….How many mice do you need? ..... ☐

Line 2….What age range is acceptable for your experiments?
If they all must be born in the same week, enter 1
If age range is 2 weeks, (e.g., 5-6 weeks of age), enter 2
If age range is 4 weeks (e.g., 5–8 weeks of age), enter 4..... ☐

Line 3….How often do you need the mice?
If needed weekly, enter 1
If needed every other week, enter 2
If needed once a month, enter 4..... ☐

Line 4 … Divide Line 1 by the smaller of Line 2 or Line 3
(round *up* to the nearest whole number)..... ☐

Line 5….What gender do you need?
If only one gender is needed (i.e. either male or female), enter 2
If both genders can be used, enter 1..... ☐

Line 6….What breeding scheme are you using to maintain the colony?
If homozygote x homozygote, enter 1
If heterozygote x homozygote, (or the reciprocal) enter 2
If heterozygote x heterozygote, enter 4..... ☐

Line 7….Can you do your experiment with fewer mice?
If yes, enter 1
If no, enter a "fudge factor" to ensure sufficient production of the mice you will need (e.g., if you need 10% over, enter 1.1)..... ☐

Calculate the Number of Mice you Need to Produce Weekly

Line 8…..Multiply the following: Line 4 x Line 5 x Line 6 x Line 7
(round *up* to the nearest whole number)..... ☐

Determine your Breeding Colony Productivity

Line 9…..What is the average number of pups weaned per litter? ..... ☐

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Line 10….How many litters are produced by each breeding female? (hint: a female will *usually* produce a litter ~every 2 months, if left with her mate continuously)…..

Line 11….What is the breeding lifespan of your matings (in weeks)? .....

Calculate the Number of Weaned Pups per Female Each Week

Line 12….Divide Line 10 by Line 11, multiply by Line 9 (round to nearest hundredth)……

Calculate the Number of Breeding Females Needed

Line 13….Divide Line 8 by Line 12 (round *up* to the nearest whole number)……..

Refining your Breeding Colony Size:

To ensure a consistent inventory of weaned mice, remove non-productive breeders (i.e. no pregnancy and no weaned pups by 60-90 days after mating or successfully weaning a litter) and/or breeders at the end of their breeding cycle:

- Replace equal numbers of mice weekly or monthly
- Raise enough mice to produce breeders as well as meet your experimental needs

Calculate Number of Breeding Females Needed to Maintain Colony

Line 14…..To determine the number of replacement female breeders needed weekly, divide Line 13 by Line 11 (round *up* to the nearest half)…….

Line 15…..To determine number of additional females needed as breeder replacements, multiply line 14 by 2 then divide by line 12 (round *up* to the nearest whole number)……..

Line 16……..**Final Number of Breeding Females** needed to maintain colony *and* provide sufficient mice for experiments**,** add Line 13 and Line 15……

Note: There are situations in which this worksheet is less accurate, such as colonies maintaining sub-lethal genes or stocks with gene penetrance issues.

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