

**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? .....

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.**