***Pasteuria* feeding rate experiment**

***Goal*:** Understand how feeding rates are affected by *Pasteuria* infection. Gigantism can be found in *Pasteuria*-infected animals. Is this due to higher feeding rates? If so, at what stage of infection do infected animals show higher feeding rates?

***Plan*:** Compare feeding rates of infected versus uninfected animals through time.

***Details***: We will expose animals to *Pasteuria* in well plates for 24 hours, then transfer to clean beakers (50mL beakers filled with 30mL filtered lake water) and allow infection to develop for 35 days. We will only have two parasite treatments: infected and uninfected. During the infection period, we will measure feeding rates at least every 5 days. We will follow the same schedule as the within-host growth project (by Stu): sampling on days 5,10,12,15,18,22,25,30,35 using clone Mid 37.

Replicates:

* 9 sampling days x 2 treatments = 18 treatments
* Goal is to have 15 animals per treatment. We will double the number of replicates for the first 3 trials, since we won’t be able to determine infections at that stage. So, 30 animals per treatment for the first 3 trials (= 180 animals) plus 15 animals per treatment for the following 6 trials (= 180 animals) leads to **360 needed for the experiment**. Not all exposed animals will become infected, so throw in an extra 50 exposed animals = **start with 230 exposed animals and 180 unexposed animals (= 410 animals)**.

Measurements: On the day of each feeding trial, we will measure feeding rates, then measure each animal’s length and crush for spore counts. For the first 3 trials, we will crush only half the animals for spore counts (since we may not be able to see anything) and keep the other half until 18 days post-exposure (to see if infections develop). Additionally, we will measure birth rates 3x per week (M,W,F) for animals in the last 3 treatments (25, 30 and 35)

***To do***:

* Pilot feeding assays.
* Make sure we can make standards for the feeding assays very consistently, since assays will be run on different days.

Exposures: Have 180 + 50 animals to infect in 3.5 mL water = 230 animals x 3.5 mL water = 805 mL water. If we want 4,000 spores/mL (high dose to be sure they’re infected), need 3,220,000 spores. If we assume each infected animals has ~50,000 spores, then we’ll need to **crush up about 64 infected animals**. As of 9/17, I have about 140 Mid-37 infected animals.