Plant Propagation Lab Exercise
Module 2

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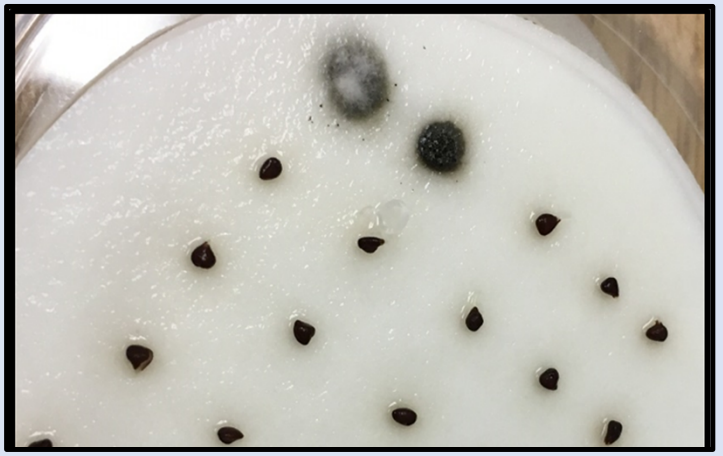

PROPAGATION OF PLANTS FROM SEED
Common germination tests and factors that affect germination

An introduction to plant propagation laboratory exercises by:
Gabriel Campbell-Martinez and Dr. Mack Thetford

LAB OBJECTIVES

- **Review seed germination test protocols**
- **Review common factors in seed germination tests**
- **Demonstrate basic steps in evaluating seed germination**

SEED GERMINATION TESTS

1. Obtain a pure and clean subsample of seed
2. Place seeds in controlled environment
3. Monitor and record germination data
4. Analyze and interpret data

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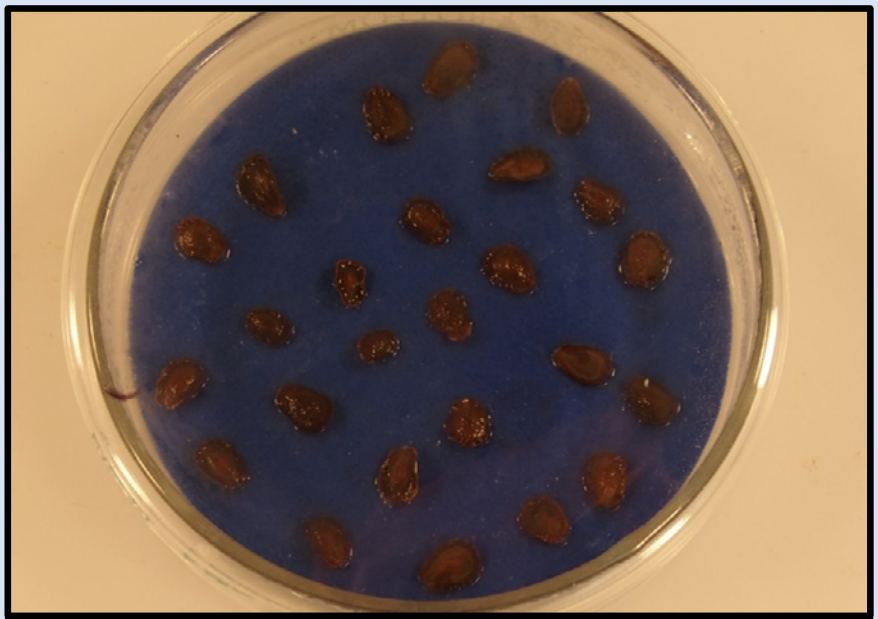

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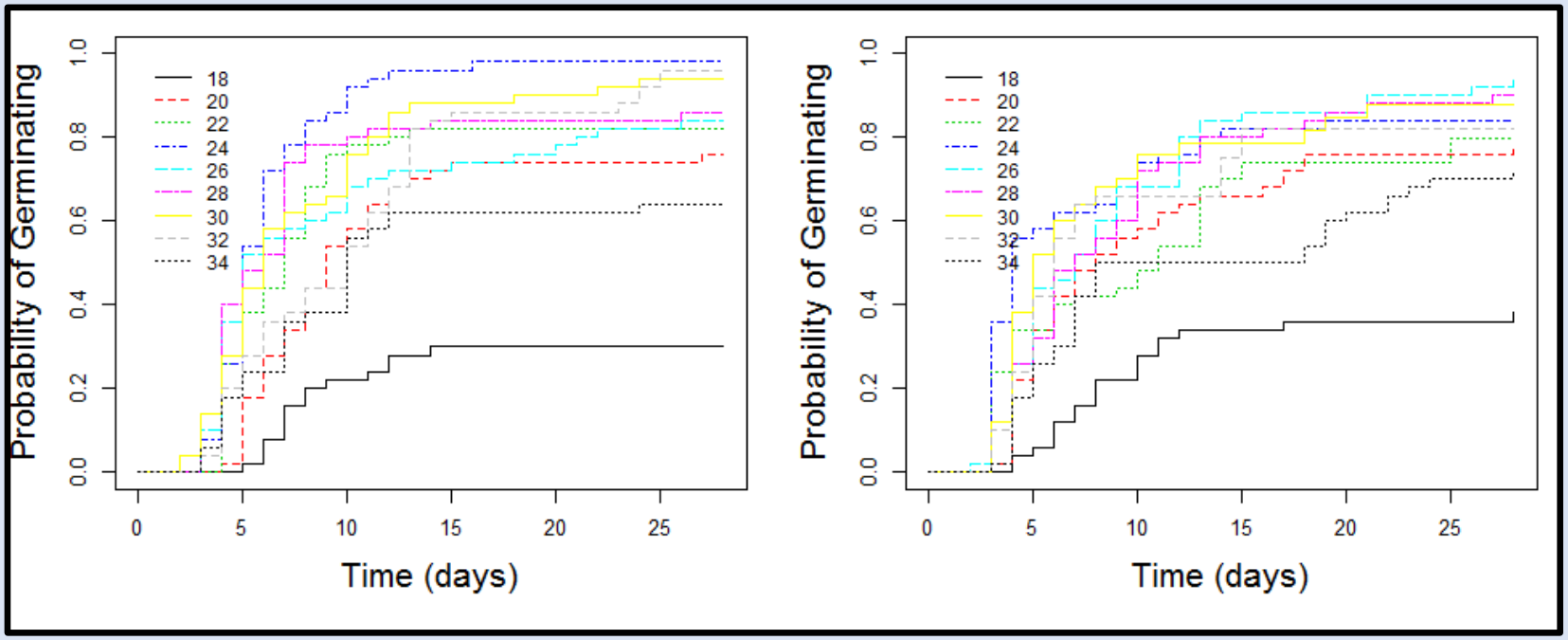
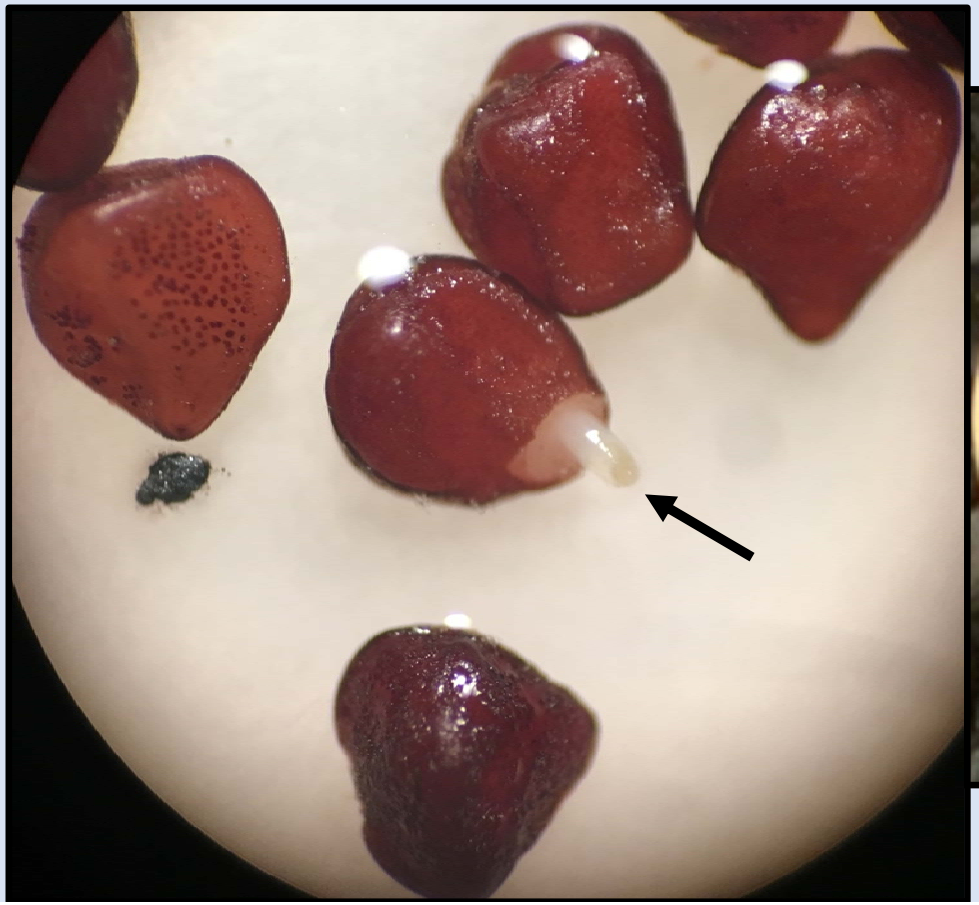


GERMINATION AND EMERGENCE



CALCULATE GERMINATION PERCENTAGE

Germination (%) =

100 × (# germinated seed/ # total seed)

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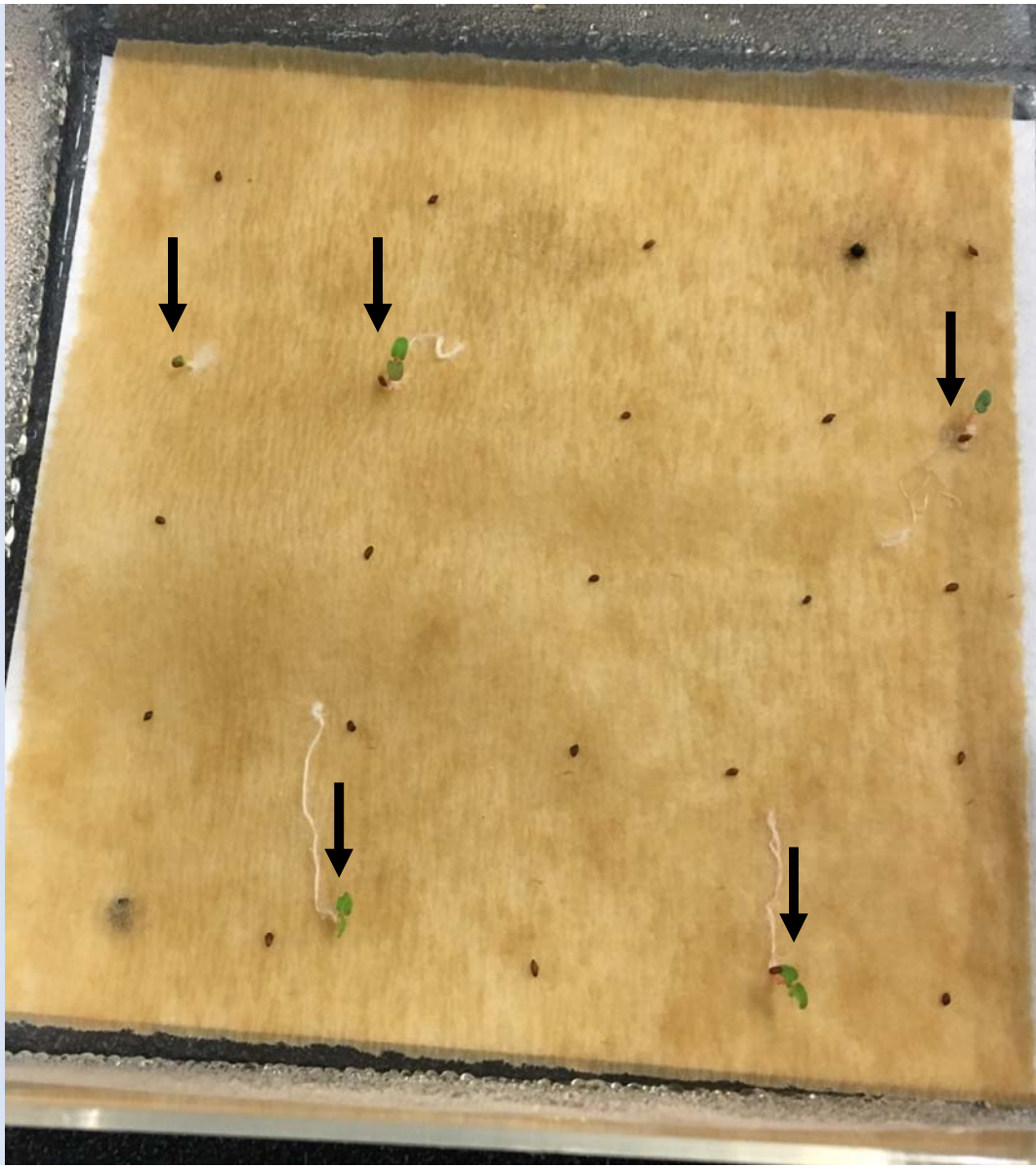


COMMON FACTORS IN SEED GERMINATION TESTING

1. **Temperature**
   - **Constant vs fluctuating**

Daily fluctuating temperatures(°C)

35/25

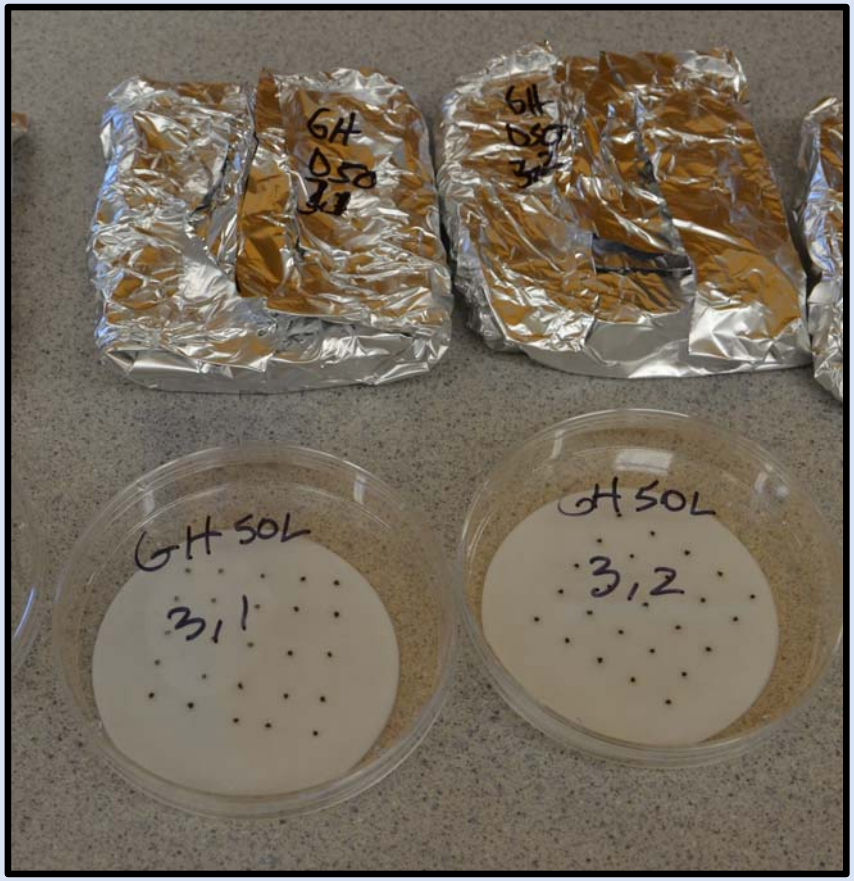
30/20

25/15

20/10

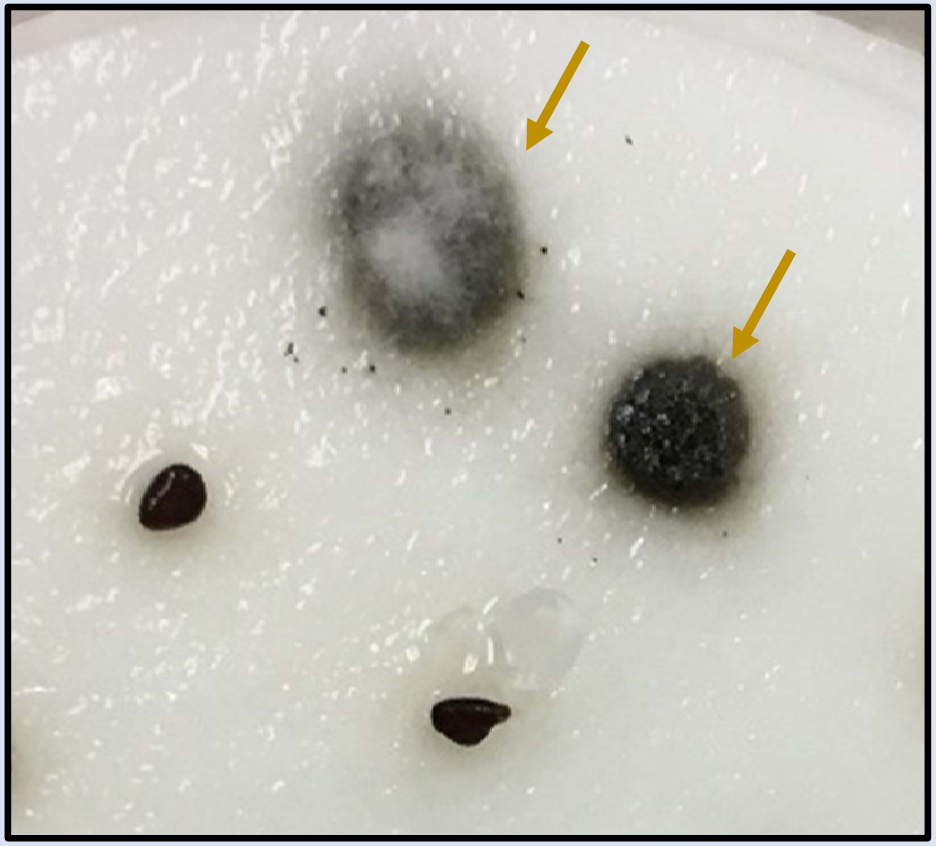
COMMON FACTORS IN SEED GERMINATION TESTING

2. **Light**
   - **Photoperiod**
   - **Light characteristics**
     (quality and quantity)



ISSUES WITH GERMINATION TESTS

- Fungi, bacteria, etc. contamination
- What if germination is low but seeds are viable?



Lab concepts practice slides

- You will be shown slides of seed experiment to help you practice the procedures described in this lab introduction.
- The correct answers are provided in the subsequent slides
  - You may with to pause the presentation to allow you to evaluate the images and compute the answers before the results are presented in the next slide.

CAN YOU SPOT THE CONTAMINATED SEED?

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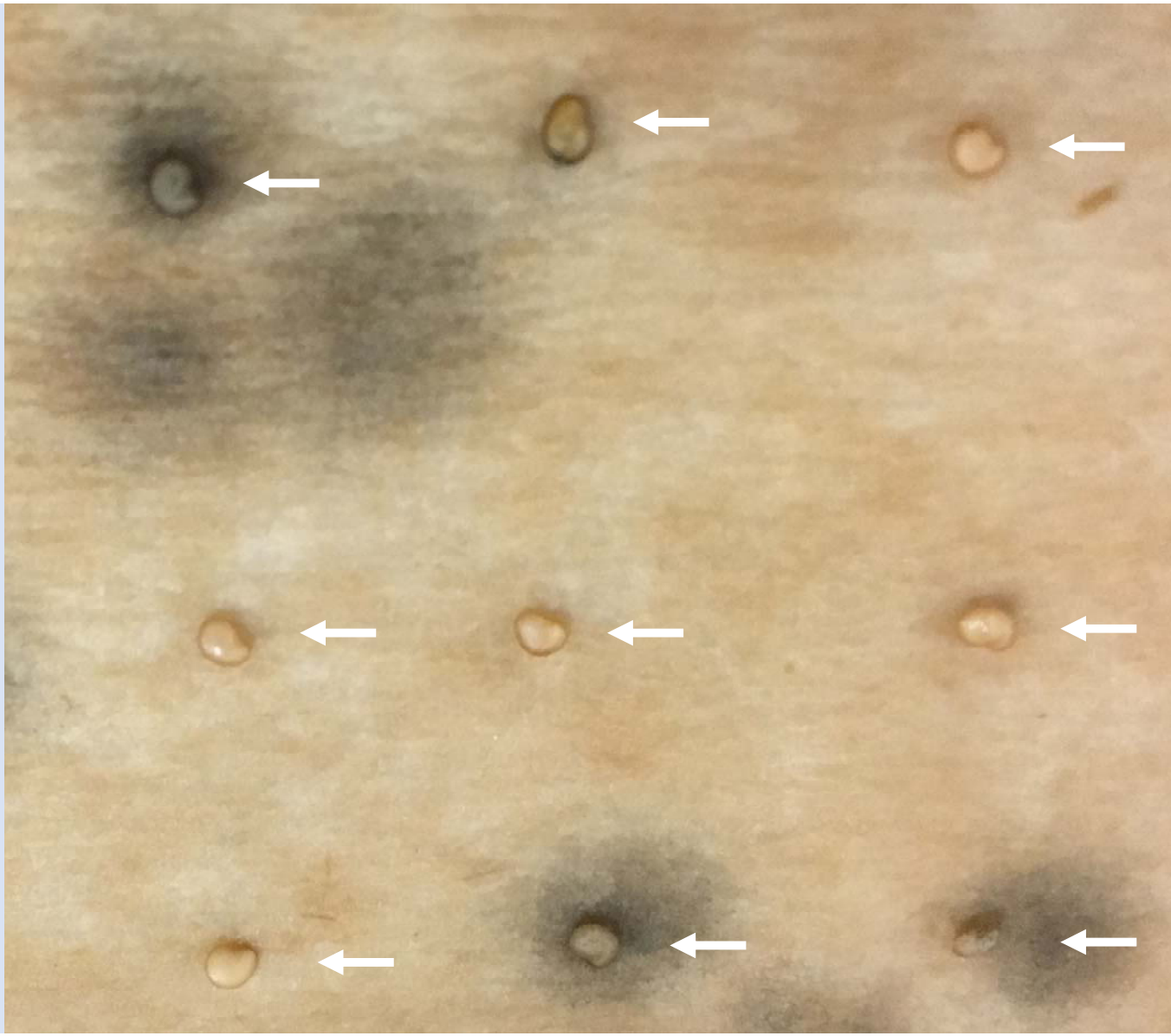

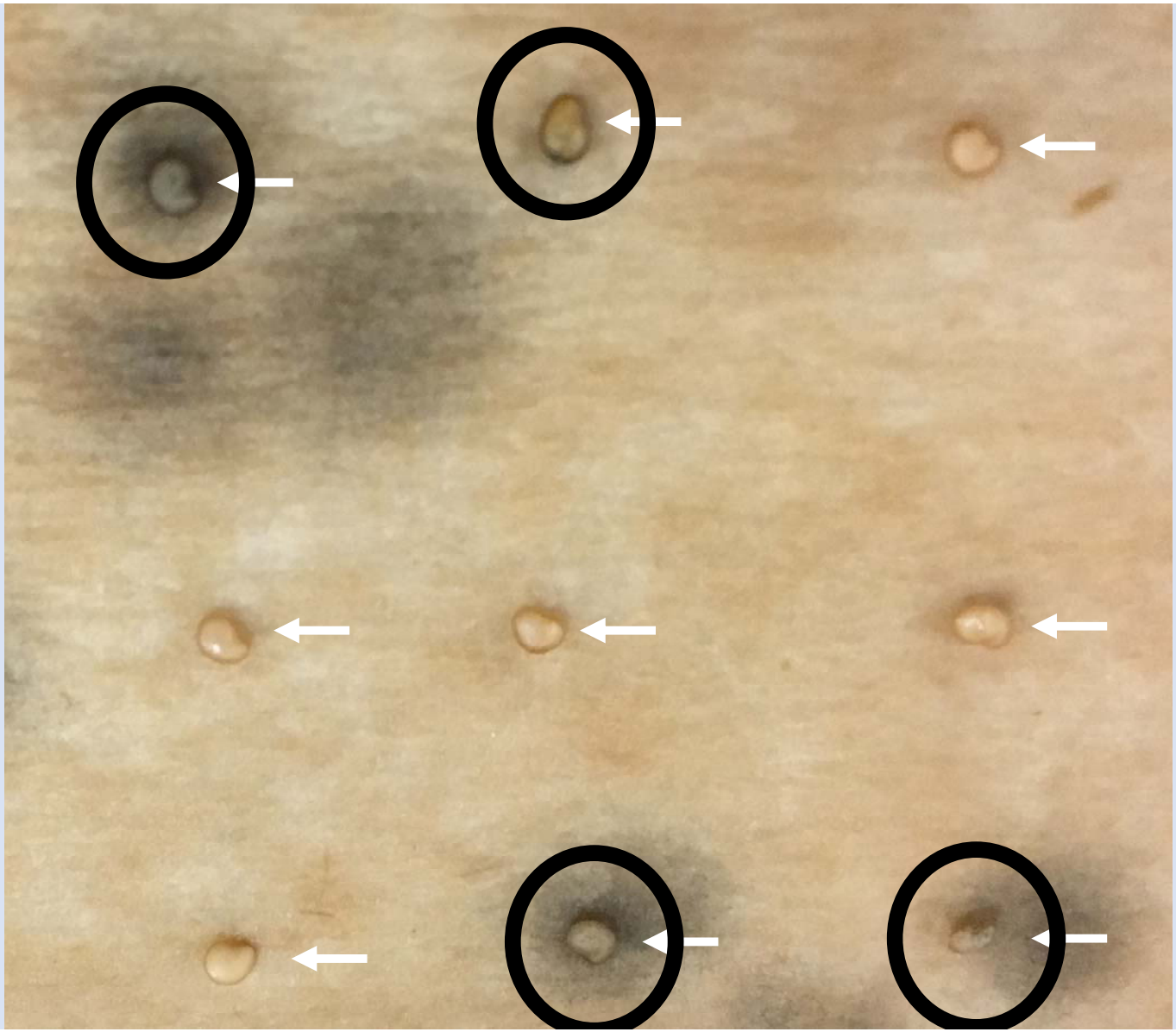

CAN YOU CALCULATE EMERGENCE?

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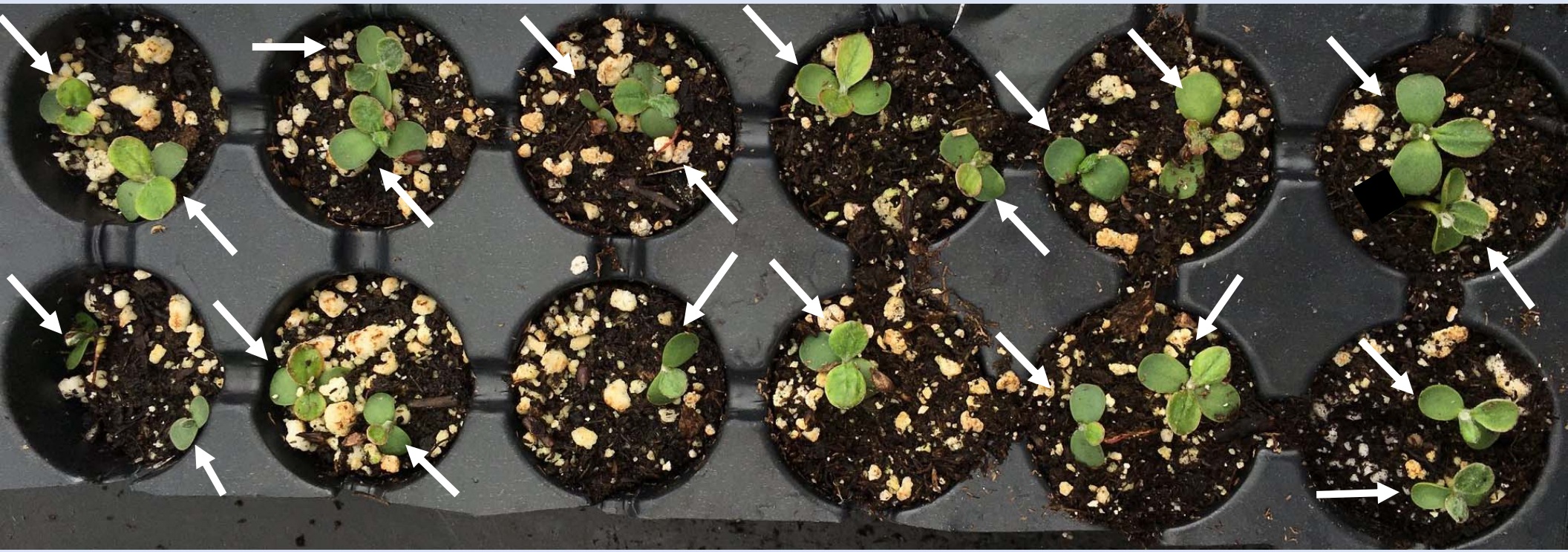

Lab exercise

- Your lab instructor will provide you with a data set from a seed experiment to test the effects of light and temperature on seed germination.
- Use the information provided to describe the light and temperature treatments and calculate the germination or emergence for each treatment. Depending on the treatments and the data set you may have to calculate this for multiple dates.
- Graph the data and evaluate the results of the treatments. In your lab report, draw conclusions on the optimum treatments for seed germination.