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COLLEGE OF AGRICULTURAL & ENVIRONMENTAL SCIENCES

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Foundation Plant Services
Protecting agriculture through clean plants

UCB#1 Stratification & Germination

Foundation Plant Services,
University of California, Davis, CA

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Contents

1. Purpose/Scope

This document details the procedures used to germinate UCB-1 seed. This procedure is conducted on harvested seeds annually to calculate germination rates and determine the appropriate overage to be included in customer orders each year.

2. Materials

See Procedures section below for materials required in each stage of the procedure.

3. Responsibilities

The Testing & Therapy Process Manager is responsible for ensuring that the procedure is followed. The Senior Nursery Technician is responsible for performing the procedure as written.

4. Procedure

Seed Stratification

Materials

- UCB#1 seed
- Gloves
- Small plastic container
- Clean water
- ZeroTol solution at a rate of 1:100
- 12 x 12 Ziploc bags
- Paper towels
- Writing utensil (Sharpie)
- 49-cell flat holding tray

Methods

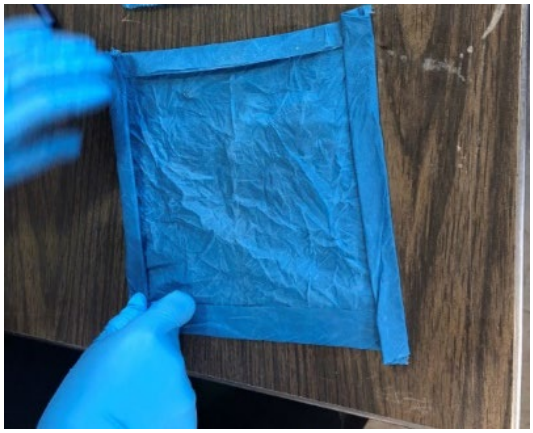
1. Count **160 seeds**.
2. Place the seeds in a small plastic container and rinse. Soak them in clean water at room temperature for **48 hours**. The water will likely become murky during soaking.
3. After 48 hours, drain the water and gently rinse the seeds until the runoff is clear.
4. Soak the seeds in the prepared **ZeroTol solution** for **5 minutes**.
5. While the seeds are soaking, prepare at least **six paper towels** by soaking them in the ZeroTol solution and wringing out excess fluid. The towels should be saturated but not dripping when squeezed.
6. After the 5-minute soak, remove the seeds from the ZeroTol solution and place them on **two layers** of ZeroTol-soaked paper towels. Pat dry.

7. Stack **two layers** of ZeroTol-soaked paper towels and spread the seeds evenly across them.
8. Place another **two layers** of ZeroTol-soaked paper towels over the seeds, aligning them with the bottom layers.
9. Fold and close all four edges of the paper towels to secure the seeds inside.
10. Label a **12 × 12 Ziploc bag** with the following information:

    - Year of Harvest + UCB#1 Stratification (e.g., *2023 UCB#1 Stratification*)
    - Begin Stratification Date
    - End Stratification Date

11. Place the secured seeds into the labeled Ziploc bag. Remove all air from the bag and seal.
12. Place the sealed bag on a **49-cell flat holding tray**.
13. Store the trays under **cold storage conditions (2–4 °C / 36–39 °F)** for **6 weeks**.

Step 9



Seed Planting

The Seeds are to be planted at the end of the 6-week stratification.

Materials

- Gloves
- 49-cell flats
- 49-cell-flat holding tray
- BM6 substrate
    - Premium selected coarse grade peat moss, Coarse grade perlite, Dolomitic and calcitic limestone, Non-ionic wetting agent, Standard fertilizer starter charge
- Masking tape
- Writing utensils
    - Sharpie
    - Pen
- ZeroTol
- 1-gal bucket or similar container
- Peracetic Acid test strip
    - Insta-Test Analytic Peracetic Acid by LaMotte
- Cart
- Vermiculite
- Record logs:
    - Watering log
    - Germination log
- Colored tag labels

Methods

Prepare flats
(IMPORTANT: This step needs to be done two to four days prior to the end of stratification to allow adequate drainage of soil.)

1. Place **3 flats of 49-cell flats** in their own holding trays. Fill the flats with **BM6 soil**.
2. Write the following information on a piece of masking tape and adhere to flats:

    - Year of Harvest + UCB#1 Germination (e.g. 2023 UCB#1 Germination)
    - Flat number
    - Stratification end date

3. Set up **ZeroTol solution** through the **Dosatron** in GH MPP:
    a) Prepare a container of ZeroTol near the Dosatron.
    b) Close the valve of one of the two fertilizer tanks.
    c) Adjust the Dosatron injection rate to **1:100**.

d) Remove the siphon of the fertilizer tank that has an open valve.
e) Clean the surfaces of the tube and siphon.
f) Fill a bucket with clean water.
g) Place the siphon into the clean bucket of water.
h) Run the hose for one minute to clean within the tube and siphon.
i) Remove siphon from the bucket.
j) Drain excess water from siphon.
k) Uncap the ZeroTol container and place the cleaned siphon inside.
l) Run the hose until the exiting fluid has abundant bubbles and has an acidic odor. Verify with a **Peracetic Acid test strip** to confirm the presence of ZeroTol.

4. Water flats thoroughly with the ZeroTol solution delivered through the Dosatron; excess solution should drain freely from the bottoms of the flats.
5. Allow the soil to drain excessive water until ready for use.

Plant Seeds

1. Remove seeds from stratification (cold storage).
2. Plant seeds:
    a) Plant **1 seed per cell**, **0.5–1 inch deep** from the soil surface. This will leave a hole in the soil.
    b) **Leave the planting holes open** until all seeds are planted. Do **NOT** make holes in advance, and do **NOT** close holes until every seed has been placed. This prevents errors such as skipped cells or flats; accuracy is critical.
    c) Once all holes are closed, cover the surface of each flat with **a layer of Vermiculite**, ensuring no soil is exposed.
3. Do **NOT** water immediately after planting. Monitor moisture levels and water only as needed, using **ZeroTol solution** through the Dosatron. Record each watering event.
4. After approximately **1 month**—once seedling emergence has ended and existing seedlings have strengthened—**begin fertigation**.

Record Germination

1. Once germination has visibly begun, inspect the flats daily. **Insert colored tags** into the cells with seedlings, using a different color each day. Record the corresponding date for each color used in every flat.
2. Each day, count the colored tags in each flat and **record the numbers**.

The germination protocol provided here is based on practices that have been effective at Foundation Plant Services (FPS); however, environmental, cultural, and operational factors differ widely among growers. FPS does not guarantee germination rates, establishment success, or the performance of UCB1 seedlings produced using this procedure. This information is offered “as is” for general guidance only, and FPS assumes no liability for any losses or outcomes associated with its use.