M/C Lineage Admixture Assay - Single Colony

Materials

- Stamped Addressed Return Envelope
- Ziplock Bag
- Numbered Sample Tube (containing buffer solution)
- Numbered Sample Information Slip
- Tweezers

Method

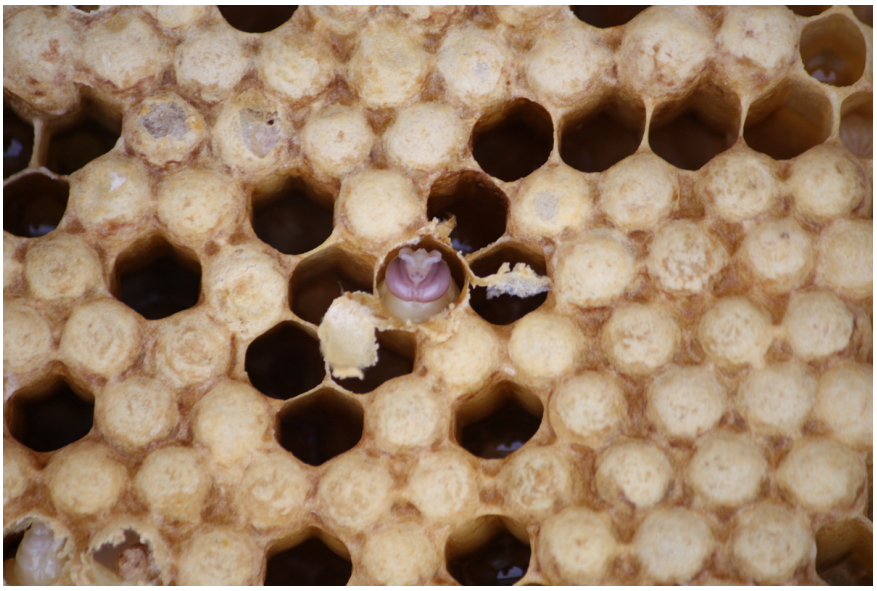
For each colony we sample a single rear leg from 15 individual drone pupae. Drone pupae are used since adult drones in a colony may have come from other hives.
You may wish to use a magnifying glass, reading glasses and a head torch or other bright light when sampling.

1. Remove a frame containing capped drone from the colony and brush or shake off the bees.



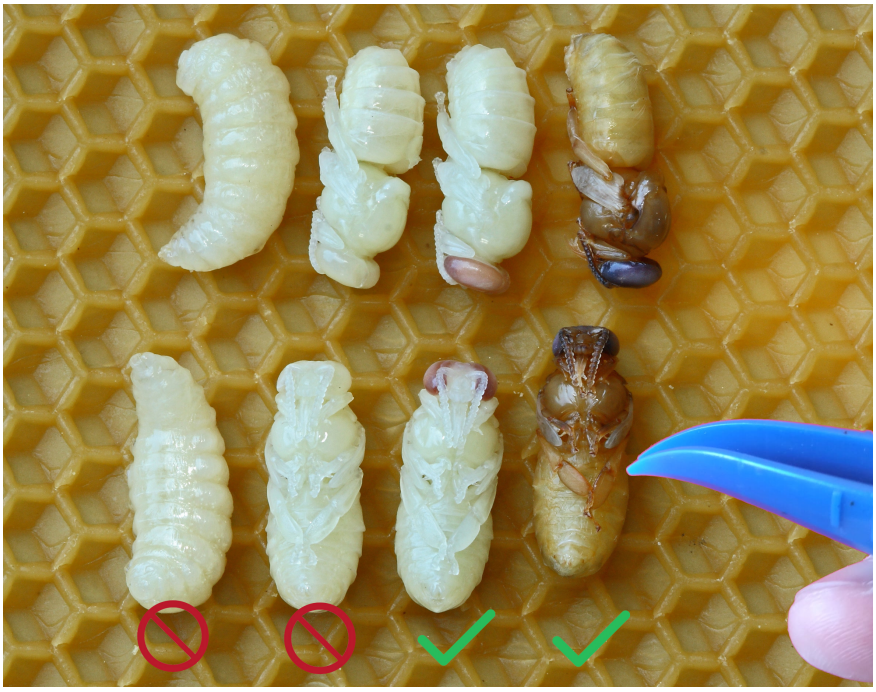
Raised bumps of drone cells at the top, above 'flat' worker cells.

2. Move to a level work surface away from the hive, and position the frame for easy access to the cells.
3. Using the handle-end of the tweezers, carefully remove the cell capping, and inspect the drone pupae. Only sample from drones with coloured eyes (pink or purple).



Drone of the correct age with purple eyes.

4. Carefully insert the open tweezers into the cell, gently grab the sides of the thorax and slowly pull the drone out of the cell.
5. If the drone does not come cleanly out of the cell, move on to a different drone.
6. Using the tweezers, carefully pull one of the rear legs off the drone. You may need to use another clean tool, such as a pin, to stabilise the drone.



Selecting a single leg from a drone - note the eye colour of the suitable drones on the right.

7. Drop the leg into the tube - you may need to tap or wipe the tweezer tip on the side wall, or use another clean tool, such as a pin, to dislodge it.
8. **Do not place any other bee parts into the tube! It is OK if the leg has broken into separate parts.**
9. Repeat steps 3-7 for a total of 15 legs – 1 per drone. Close the tube tightly.
10. Tap the bottom of the closed tube on a hard surface to knock the legs down into the buffer solution.
11. Return the frame to the colony. The bees will empty out and repair any damaged cells.
12. Allow the tube to sit undisturbed in the fridge (below 5C) for at least 6-8 hours with the legs as immersed in the liquid as possible, before returning.

Note: If you are collecting samples from more than one hive you **must** use a different pair of tweezers for each hive, to avoid cross-contamination.

Sending in Samples

1. Place the sample tube(s) and tweezers into the ziplock bag and seal.
2. Place the ziplock bag and completed sample slip(s) into the padded envelope.
3. Seal and return by post.

Notes

- If there is a delay in returning samples, keep them in the ziplock bag in the fridge until ready to post. Do **NOT** freeze the samples.
- Returning the tweezers is optional, but if returned they can be sterilised and reused, reducing our reliance on single-use plastics.
- If you have any problems with your sampling kit or collecting samples, please get in touch:
  email: **contact@beebytes.org**, or telephone: **0131 358 3993**