

Sugar shake procedure for Varroa

Tips for successful sampling

- Sample ~300 nurse bees ($\frac{1}{2}$ cup) from the brood nest, ensuring the queen is not included.
- Follow the directions below for the required shaking/rolling time, rest period, and repeat steps. Note: These instructions are based on the latest research and may differ from those found on some websites or provided with commercial kits.
- Identifying sampled hives and keep records.

Considerations

- This method uses pure icing sugar; icing sugar mixture is an acceptable substitute without reducing effectiveness.
- This methodology may lead to bee mortality.
- High humidity can cause icing sugar to clump, reducing test effectiveness.
- Avoid testing during honey flows, as nectar also causes clumping.

Equipment required

- Large-mouth jar (shaking jar, ≥ 70 mm wide) with a 2–3.5 mm mesh lid, or a jar with an internal basket and solid lid
- White or clear container with water (receival container)
- Medium-large square plastic tub
- Measuring cup ($\frac{1}{2}$ cup capacity)
- Tablespoon
- Pure icing sugar
- Magnifying glass or camera
- Sample jar with label for suspect mites
- Optional: Filter (fabric or coffee filter paper)
- Optional: 70% Ethanol for preserving suspect mites



Image 1: Varroa mites lodged between the abdominal segments of a honey bee



Image 2: Brood-nest bees coated in icing sugar during a sugar shake test



Image 3: Adding icing sugar to the jar for a sugar shake test

Method

1. Prepare shaking jar: push 1 tbsp icing sugar through mesh to break clumps; prepare receival container with shallow water
2. Remove shaking jar lid in preparation for step 8.
3. Open hive, remove supers and queen excluder to expose brood box.
4. Take 2 brood frames from the brood cluster center with good brood coverage (uncapped and capped) and bees.
5. Check frames for queen, then shake bees into tub (older bees will fly off, leaving mostly nurse bees).
6. Return frames to original position in hive.
7. Tap tub so bees gather in one corner.
8. Scoop ½ cup of bees (approximately 300 bees) into the shaking jar and screw on the mesh lid (return extra bees to hive).
9. Roll the jar at an angle to ensure the bees are coated in icing sugar.
10. Rest jar for 1 minute.
11. Invert jar, shake sugar into water (receival container) for 1 min.
12. Add another tbsp sugar, repeat steps 9–11.
13. Stir water to dissolve sugar for easier mite inspection. Option to filter mixture (fabric or coffee filter) for mite inspection.
14. Inspect receival container for mites (use glasses or a magnifying glass if needed).
15. Record date, location, hive number, and results (including zero mites found).
16. Release bees back into hive and check jar for mites.
17. Submit results (including no mites found) to DPIRDs Mite Reporting Page:



Image 4: Tap the tub corner to cluster bees for easier scooping



Image 5: Roll the jar on its side at an angle to coat the bees in icing sugar while preventing the sugar from escaping through the mesh

Scan the QR code 



Or go to 

dpiird.wa.gov.au/submit-varroa-check

18. If mites are suspected: freeze sample or store in 70% ethanol and report immediately via the **EXOTIC PLANT PEST HOTLINE 1800 084 881**.

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