

Sugar shaker test to determine *Varroa* levels in a colony

IMPORTANT NOTES

It is good practice to conduct this test twice in the year.

1 - In spring, **before** *Varroa* treatment. Allow some time for the colonies to recover from the overwintering. Preferably test within a month of your first inspection and record the date.

2 - At the end of the season before *Varroa* treatment

PREFERENTIAL BREEDING

Choosing a frame that has enough bees and also has a good quantity of both open and closed brood is important. The choice of a frame that has mainly closed brood could give you a misleading percentage since most of the *Varroa* are likely to be inside the sealed cells. Choosing a frame with plenty of open brood on it means you can have greater confidence in the calculated percentage.

If the colony's *Varroa* mite percentage is **2% or less**, (ie: 3 mites or less if there is brood and 6 mites or less if there is no brood) this should be **preferentially be used for breeding**. It is suggested that you do not treat for *Varroa* in these colonies however the decision is yours.

If the mite percentage is **over 2%**, **do not breed** from these colonies and treat as you normally would. **Try and re-queen** these using offspring of low *Varroa* queens from your own or another apiary.

EQUIPMENT NEEDED FOR SUGAR-SHAKE TEST

Large clean dry bucket or basin to shake or brush the bees into from the frames

A second large, clean white bucket for shaking the *Varroa* mites into. A small amount of water will be placed in this bucket for each colony test hence the need for two buckets. A white background will make it easier to see the mites.

A 2 litre drinks bottle with clean water to refresh the white bucket after each mite count.

1 or 2 sugar shakers with mesh lid. See below for suppliers

A dry bag of icing sugar (additional ingredients of cornstarch or egg yolk should not be a risk for bees)

Bee brush

Inspection checklist and the completion notes if needed.

SUGAR SHAKER METHOD

1. Pour about 1cm or half an inch of **clean water** into the white bucket. If there is water from a test on another colony it should be poured out. **Ensure no mites are left from the previous test.**

2. Open the hive and pull out a frame from the **centre of the brood box or brood area.**

Ensure the queen is not on the frame, so she doesn't end up in the shaker. (Even if the queen ends up in the shaker by mistake, this method should not kill her but best to be safe).

3. **Shake the bees off the frame into the clean dry bucket, keep tapping the bucket gently** to keep the bees disorientated.

Pour or scoop the bees into the shaker and close the mesh lid. Tap the shaker to ensure it is filled with bees up to the pre-marked 100 ml line. If there are too many bees in the shaker, open the mesh lid slightly and let some fly off. Re-tap to check the level.

Ensure the mesh lid is on securely

NB: If there are open honey cells, shaking the frame will release honey along with the bees and they will end up a sticky mess. Either choose an adjacent honey-free frame or **use a bee brush** and gently brush the bees into the dry bucket.

4. Add approximately **two tablespoons of icing sugar** to the shaker and swirl the shaker around to ensure all the bees are well coated in the sugar. Placing the solid lid provided on top of the mesh lid prevents loss of sugar for easier coating of the bees.
5. **Leave for 5 minutes** to allow the mites to get off the bees. It is good to have a second shaker so you can begin working on another hive.
6. Give the bees **a gentle shake** for 10 seconds.

Turn the shaker upside down over the white bucket and shake gently but firmly for one minute. Keep a finger on the edge of the lid to stop it falling off. Keeping the shaker below the level of the bucket rim will reduce the risk of mites blowing away in the wind.

The icing sugar will dissolve immediately and leave the mites floating, if mites are still falling towards the end of the first minute shake for another minute or until all mites stop falling.

The bees can now be returned to the hive.

7. **Count the number of mites** in the white bucket and record it on the inspection sheet **For the percentage,** double the number of mites counted, and divide by 3. However if there is no brood present simply divide by 3