

Sugar Shake Test for Detection of Varroa Mite

Introduction

When varroa mites are dusted with pure icing sugar, the fine granules stick to their pads (feet) and they are no longer able to grip the surface on which they cling. The dusting of adult bees with icing sugar causes mites to fall off the bee into the white sugar where they are more easily seen. The simple sugar shake detection method is now used by many beekeepers throughout Australia.

The collection of bees from hives, as described below, may agitate hive bees including guard bees.

It is essential that adequate protective clothing, including a bee veil, is worn and techniques for safe handling of bees are understood before opening a hive and collecting bees for the sugar shake test.

Equipment

- Sugar Shake Jar
- pure icing sugar (do not use icing mixture)
- plastic tablespoon for measuring icing sugar
- sheets of newspaper
- light coloured bucket (white or other light colour)
- fine close-weaved household cleaning cloth or coffee filter paper
- bee smoker, hive tool and protective clothing
- magnifying lens (if available)

Method



Photo 2. Shake some bees from 3 combs on to newspaper



Photo 3. Pour about half a cup of bees into the jar

- half fill the bucket with clean water
- place a heaped tablespoon of icing sugar into the jar after removing
- light a smoker and open a hive to be tested
- shake some bees from three combs containing honey bee brood onto a double thickness of newspaper or upturned hive lid placed on the ground. If brood is not present, shake bees from one comb taken from the centre of the cluster of bees. If you find the queen on these combs, place her back into the hive
- scoop or pour about 300 bees (half a cup) into the jar.
- place the lid on the jar to prevent bees from escaping

- gently rotate the jar for 2 minutes ensuring all bees are dusted with sugar.
- Wait 2-3 minutes, and rotate the jar a second time for 2 minutes. Be careful not to lose any sugar. (The hive may be reassembled during this waiting period)
- gently shake the icing sugar (and any mites) through the holes in the lid into the bucket half filled with water. The sugar will dissolve and any mites will float on the surface of the water. Do the shaking in a sheltered position protected from strong wind that could blow mites away
- release the bees from the jar onto the ground close to the hive.

Looking for varroa and collection of specimens

- examine the empty shaker jar and lid for varroa. If you wear glasses to read, wear them while looking for varroa. The mites are reddish-brown; 1.1 mm long and 1.7 mm broad
- inspect the water surface for varroa, other mites and insects.
- alternatively, pour the water through a piece of light coloured fine close-weaved household cleaning cloth, or coffee filter paper. Inspect the cloth or filter paper for varroa, other mites and insects.



Varroa (brown spots) covered in icing sugar collected in a white tray after being shaken off honey bees.