Sticky mat examination

BACKGROUND

Natural mite drop of external parasites, such as Varroa mites, is a proven method of monitoring and surveillance. To determine the natural mite drop, a sticky mat is placed on the bottom board of the hive and removed after 48 hours to examine for any external parasites, such as Varroa mites, Tropilaelaps mites and Braula fly.

Usually, this method also involves the placement of acaricides (miticides) in the colony, to kill pests such as Varroa mites and cause them to fall on the sticky mat for examination. Using miticides with this method is an effective surveillance and monitoring technique. However, miticides are currently only registered in Australia for use in official surveillance programs, such as the National Bee Pest Surveillance Program, which includes sentinel hives that are strategically located across high risk ports in Australia, and therefore these miticides are not available to beekeepers in Australia. Using this method without miticides will only amount to a small percentage of resident mites (5-30%) being dislodged via the grooming behaviour of bees.

Although it is recommended that all beekeepers conduct this surveillance technique as it is a rapid method and very little equipment is needed, it should also be conducted as part of a broader surveillance strategy, including the alcohol wash and sugar shaking methods which are more effective.

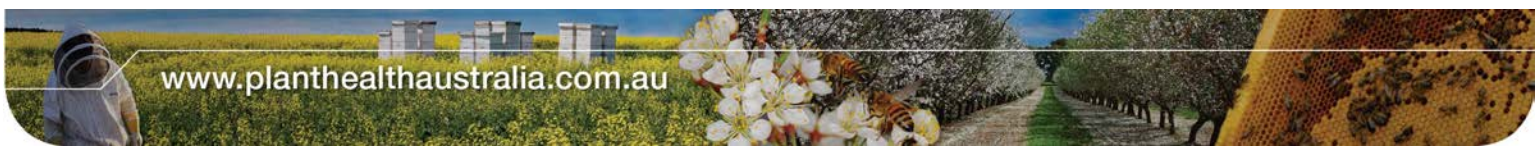
The main advantages of this method are that once the system is set up it is non-invasive, and no bees are killed as is the case with some other surveillance techniques. The disadvantages of this system are that it can be hard to examine the sticky mats if they contain a lot of material brought in by the bees, such as pollen or frass, it requires two trips to the hive, and without miticides it not likely detect low levels of mites present in a colony.

Equipment required

- Protective clothing, smoker and hive tool
- Enough 3mm gauze wire mesh to cover the bottom board
- Pre-made Sticky mat (contact your local department of agriculture for more information)
- A thick piece of white cardboard
- A large jar of petroleum jelly
- Mini-paint roller
- Magnifying lens

Procedure

- If you are unable to buy a commercially available sticky mat, you will have to make your own.
- To do this, buy a thick piece of white cardboard that is large enough to cover the majority of the bottom board. Cut the cardboard to fit the majority of the middle of the bottom board. Width (30cm) and length (46cm) should roughly be the size for an 8-frame and 10-frame hive.
- *Please note:* In wet weather, the cardboard may absorb some moisture and curl up, possibly blocking the entrance of the hive. To avoid this happening, either cut a V into the cardboard and place this near the entrance, or cut the cardboard short enough so that it is not within 10cm of the entrance of the hive.
- Apply petroleum jelly to the sticky may mat with a mini-paint roller.
- At moderate temperatures, petroleum jelly serves as an excellent adhesive for sticky mats.



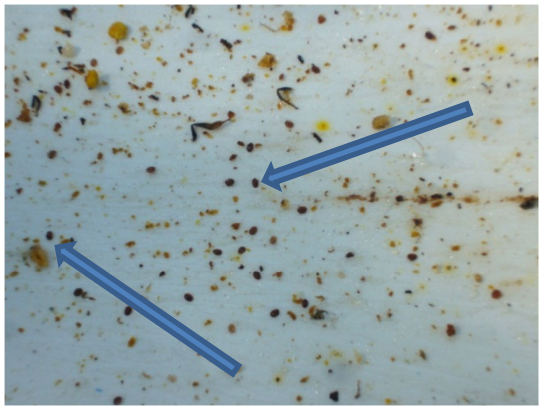
- Cut the 3mm gauze wire mesh so that it covers the sticky mat surface.
- Once your sticky mat and gauze wire mesh have been prepared, light a smoker, open the hive and remove the bottom box of the hive off the bottom board.
- Using your hive tool, scrape away any debris or wax that may have accumulated on the bottom board.
- Place the sticky mat (sticky side up) on the bottom board, and cover with the gauze wire mesh.

A self-made sticky mat on a bottom board, with a mesh screen above to stop bees from getting stuck. Image courtesy The Food and Environment Research Agency (Fera), Crown Copyright.

Applying petroleum jelly to sticky mat. Image courtesy The Food and Environment Research Agency (Fera), Crown Copyright.

A commercially available plastic sticky mat on a bottom board, with a mesh screen above to stop bees from getting stuck. Image courtesy Sabine Perrone, www.bsasp.com.au

- Place the bottom box of the hive back on the bottom board and leave the sticky mat in the hive for up to 48hrs.
- If any external mites are present, they may fall off the bees through the mesh screen and stick to the sticky mat.
- After the 48hrs, return to the hive and remove the bottom box of the hive.
- Carefully remove the sticky mat and gauze wire screen.
- Place the hive back together.
- Take the sticky mat to a location with good lighting, and use a magnifying glass to examine the sticky mat for any external parasites, such as Varroa mites.
- Hive trash, such as pollen and frass can sometimes make it difficult to detect external parasites. Varroa mite is about the size of a sesame seed.



A close up of a typical 48-hr sticky mat from a colony with a high mite load. Two of the Varroa mites on this sticky mat are indicated by the blue arrows. Image courtesy Randy Oliver, www.scientificbeekeeping.com.

To avoid further disturbance of the colony, and if this method is commonly used, it is best to build a purpose screened bottom board so that regular monitoring can be conducted without disturbing the colony.

A close up of numerous Varroa mites using a sticky mat and an open mesh floor. Image courtesy The Food and Environment Research Agency (Fera), Crown Copyright.

Reporting

- If any external parasites, such as Varroa mites, Tropilaelaps mites or Braula fly are suspected, report the finding immediately to the relevant state/territory agriculture agency through the **Exotic Plant Pest Hotline (1800 084 881)** or by directly reporting to the state/territory Chief Plant Health Manager.