

Colony examination for Parasitic Mite Syndrome

BACKGROUND

It is critical to inspect all hives on a regular basis, especially the brood. This is an important management practice to determine and monitor the presence or absence of many established pests and diseases within Australia.

It is also an effective method and valuable precautionary measure for beekeepers to identify any exotic pests that may be in their hive, such as Varroa mites.

The following guidelines are for every beekeeper to adopt when inspecting their hives. The following procedure involves pictures and descriptions of what is commonly observed when inspecting hives that may be displaying Parasitic Mite Syndrome (PMS), which is caused when hives are infested with Varroa mites and/or Tropilaelaps mites. It is critical that beekeepers know how to identify each of these mites, as well as know how to identify the symptoms that they cause on honey bees, and the brood.

The main advantage of this method is that it can easily and routinely be incorporated into any colony or apiary examinations. However, the main disadvantage is that colony examination will very rarely ever detect very low levels of infestation of an exotic pest, with exotic pests such as Varroa mite sometimes taking 1-2 years before displaying these symptoms. It is also critical to understand the time lines with PMS. It is quite common that a strong health colony can collapse with PMS within a fortnight.

Another disadvantage of this method is that it is also extremely difficult to visually identify Varroa on adult bees, even when the colony is heavily infested. Therefore, to complement this method it is advised that beekeepers combine this method with regular drone uncapping, sugar shaking or alcohol washing surveillance.

Equipment required

- Protective clothing, smoker and hive tool

Procedure

- In any apiary, focus your inspections on hives that are sick, have dead bees at the entrance or hives where there has been a rapid decline in the honey bee population.
- Light a smoker, open the hive and remove a frame from near the centre of the hive which contains a large portion of brood. If the queen is present place her back in the hive. Shake the remaining bees back into the hive.
- Check the colony's population and level of brood.
- As can be seen in the image below, the colony is quite small and the brood is very small, and also very patchy.

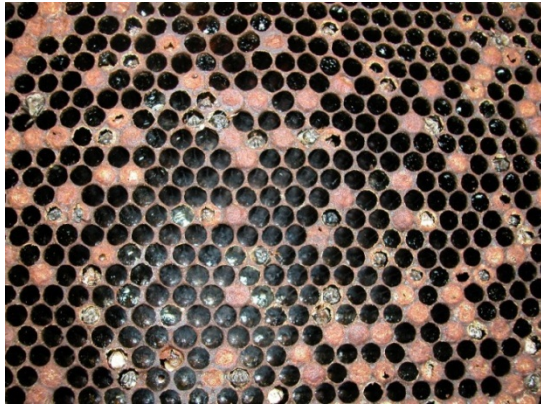


An unhealthy colony displaying symptoms of Parasitic Mite Syndrome. Image courtesy The Food and Environment Research Agency (Fera), Crown Copyright.

Take a closer look at the brood, and look for perforated cappings on the brood, a spotty brood pattern, as well as the brood appearing to have multiple stages of diseases (such as symptoms of American Foulbrood, European Foulbrood and



Sacbrood virus), as shown in the two images below. Look at some of the individual bees, and check for signs of any deformed bees or bees with deformed wings.



A colony suffering from Parasitic Mite Syndrome, displaying a spotty brood pattern and perforated cappings. Image courtesy The Food and Environment Research Agency (Fera), Crown Copyright.



A colony suffering from Parasitic Mite Syndrome, with dead bees in the brood and displaying symptoms of other key pests and diseases. Image courtesy The Food and Environment Research Agency (Fera), Crown Copyright.



Two worker honey bees, indicated with blue arrows, with wing deformities as a result of Varroa mite infestation. Image courtesy The Food and Environment Research Agency (Fera), Crown Copyright.

When inspecting hives, always remember the following symptoms that may be exhibited by PMS:

- Rapid decline in honey bee population
- Sick bees crawling at the entrance
- Bees with deformed wings
- Supersedure of queens
- Brood appears to have multiple diseases e.g. early stages of EFB, AFB and Sacbrood virus
- Spotty brood pattern and perforated cappings
- No distinctive smell

Reporting

- If Varroa mites, Tropilaelaps mites or Parasitic Mite Syndrome 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.