

Estimating Varroa Mite Populations

Varroa infestations are often missed by beekeepers until the infestation is severe. It is therefore important to regularly monitor for the pest and to be able to assess when the infestation is likely to have an impact on the colony. The key to successful varroa control is knowing how many mites are present in a colony and when to take appropriate action.

This sheet explains three methods commonly used to calculate varroa populations. Two give a moderately accurate assessment, and the third is a quick guide. You must remember that the ‘quick guide’ is not an accurate assessment.

Method 1.

Natural Mite Mortality.

The number of mites recovered from floor debris can give an indication of the mite population. The system is accurate in the winter and summer but during March, April, September and October the results are less accurate.

To use this method-

- 1) Use a varroa screen floor or a tray fitted with mesh screen. See Fact Sheet 11.
 - 2) During summer collect debris for at least 7 days.
 - 3) During winter collect debris for a longer period.
 - 4) No treatment or control should be carried out during the sampling period.
 - 5) Collect the debris and count the number of mites+. Divide this figure by the number of days the sample was taken over and you have a daily mite fall figure.
 - 6) Multiply the daily mite fall figure by one of the following
- | | |
|-------------------------------------|-------|
| Winter i.e. November to February | x400 |
| Summer i.e. May to August | x30 |
| March, April, September and October | x100* |

**This result will be approximate only.*

+N.b It is easier to look at hive debris daily and count the mites, which are usually clearly visible. Make a note of the number and clean the insert off before replacing it under the floor. Take an average over 7-14 days.

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Method 2.

Drone Brood Uncapping

- 1) Select an area of sealed drone brood at an advanced stage, i.e. purple eye stage.
- 2) Insert a honey uncapping fork under the cappings and lift out the pupae.
- 3) Mites present will be clearly visible on the pupae. Count the number of pupae with mites on (a), and the number of pupae sampled (b).
- 4) Calculate the number of sealed drone cells present in the colony.
- 5) Divide the number of infested drone pupae by the number of drone pupae sampled. That is (a) divided by (b).
- 6) Multiply the result by the number of sealed drone cells in the colony and multiply that figure by ten to give the mite population

N.B. This method becomes more accurate with a large sample, which should be in the region of 100 pupae.

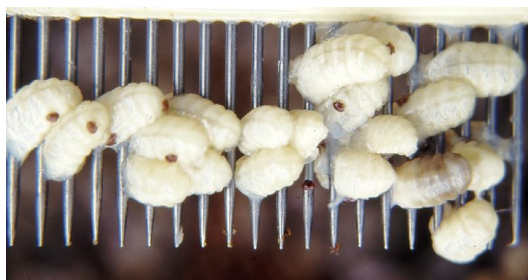
Method 3

Quick Guide.

Fork out a sample of drone pupae as in method 2. If 1 in 50 pupae have mite(s) on them then the infestation is light and will probably need no control, if 1 in 20 then it is medium, if 1 in 10 then it is heavy.

If 15% of drone brood is infested then it indicates that the colony may be at risk of collapse.

Showing mites on seven drone pupae in a sample of twenty indicating a heavy infestation



If you have a lot of hives check a representative sample. Strong colonies and those with high yields often have high infestations.

Other methods.

In other parts of the world adult bee sampling is also used to assess varroa mite population levels. This can be very accurate but requires an accurate assessment of the total population of bees in a colony. Because of this it has not been included on this sheet.

The National Bee Unit Varroa Calculator.

To assist beekeepers with these calculations a computer model is available at the Central Science Laboratory, National Bee Unit website. It is easy to use. The address is www.nationalbeeunit.com

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