National Bee Unit
Southern Region

Integrated Varroa Management 2.

Measurement of Varroa Mite Levels

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. It can thus be seen that 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 how to calculate varroa populations. The sheet 'Varroa Treatment Thresholds' advises on when to take action.

There are two accurate methods. Both require some time so a quick assessment method has been included at the end of this sheet. 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.
2) During summer collect debris for at least 7 days.
3) During winter collect debris for a longer period.
4) No treatment 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*

Remember this result will be approximate only.

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.
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.
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.*

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

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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. .

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If you have a lot of hives check a representative sample.

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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