



## Mid-Season Varroa Checks and Controls

This is the first of three bulletins throughout the coming year summarising advice on how to check and control Varroa, the mite which parasitises *Apis mellifera* brood and adult bees.



*Oval body 1.6mm x 1.1mm*



*phoretic mites*

This article assumes a level of knowledge of the varroa life cycle, and its harmful effects, such as deformed wing virus (DWV), on colonies if poorly managed. We highly recommended that you download a copy of [Managing Varroa from National Bee Unit](#) which gives a comprehensive overview.

This bulletin is about mid-season (April to June) checks and controls.

The generally accepted approach to varroa control is a late summer (August/September) treatment to protect the rearing of the winter bee population, followed by a mid-winter (November/December) oxalic-acid compound treatment to rid the colony of phoretic mites.

No treatment is 100% effective. The mid-winter treatment is 95% effective but only if the colony is entirely broodless. This would leave perhaps as few as 10 mites in the colony at the start of the season, and the mite population would remain below a harmful threshold throughout the season until late summer. However, with milder winters, and perhaps a later than intended treatment, we cannot be certain that the colony is completely broodless, which would allow more mites to survive. A starting population of, say, 100 mites would quickly build to harmful levels much earlier in the season.

For this reason, April is a good month to check varroa levels: your bees have over-wintered and are building for the season ahead – so too are varroa. The aim of checking is to help you work out varroa population levels in your colonies and whether treatment is indicated. The threshold recommended by National Bee Unit (NBU) is a hive population of 1000 mites.



## How to check varroa levels?

### **Monitoring board**



*photograph enlarged on a screen aids counting*

The simplest check is using a monitoring board which is placed under an open mesh floor for 7 days. A daily mite drop (DMD) is calculated by dividing the number of dead mites on the board by the number of days.

The calculation of hive population is based on the time of year and returns for April to June are:

0 to 1 DMD is an acceptable level

2 to 8 DMD consider light control

9+ DMD requires urgent treatment using an effective control

*This method gives an indication rather than an accurate result, and a high count would be more serious in a small colony than a large one*

### **Drone brood sampling**



Varroa mites have a preference for reproducing in drone brood. Use a capping fork to draw out 100 sealed drone brood in advanced stage of development and count the number of mites. The recommended sample for a more accurate result is 300:

For April to June:

0 to 2 mites is an acceptable level

2 to 4 mites consider light control

5+ mites requires urgent treatment using an effective control

*This method may be used in combination with the monitoring board for a more accurate result.*

### **Alcohol wash and Sugar roll**

Place a sample of 300 nurse bees in a container with alcohol or powdered sugar. The mites detach from the bees and can be counted.



For April to June:

0 to 3 mites is an acceptable level

4 mites consider light control

5+ mites requires urgent treatment using an effective control

*These methods are the most accurate.*

Watch a demonstration of the alcohol wash [here](#)

### **What are mid-season (April to June) Varroa control options?**

The aim of any control is to keep the mite population below the harmful threshold of 1000 mites.

If your winter treatment has been effective, you may find the mite population is at an acceptable level and will manage through to the late summer treatment without any controls.

With a less than effective winter control, light control might be needed to slow the growth of the varroa population and see the colony through to the late summer treatment.

If your colony requires treatment now, you will need to choose an effective control to markedly reduce the mite population and prevent a condition called parasitic mite syndrome.

Whichever treatment you apply, it is good practice to check the mite level before and after treatment so see if it has been effective.

**Chemical treatments using varroacides\*** for effective control.

**No chemical treatments can be applied with honey supers on** which can be challenging during the spring nectar flow.

Apivar has a prolonged application time of up to 8 weeks. Although it works at all temperatures, it is optimal at 10+°C when the bees are more active within the hive.

Thymol-based treatments require a consistent temperature of 15°C and are not a good mid-season choice.

Formic acid based treatment, Formicpro, requires temperatures in a range of 10 to 29.5°C and has a shorter application period of 14 days. However, colony size is important and it must not be used on colonies with fewer than 6 full frames of bees. Ventilation is very important during treatment. Brood and bee loss can occur, as well as queens going off the lay and/or supersedure. It may not be suitable in spring if your colony is yet to build up or temperatures below 10 °C.

An effective control option would be a **shook swarm with a chemical treatment**. This approach would be appropriate for a strong colony. Bees and queen are provided fresh brood box, frames and new foundation and syrup to encourage the bees to draw comb for brood. The original brood (and mites in cells) is discarded. Combine with an oxalic-acid compound treatment while still broodless to kill phoretic mites, or Apivar if no supers will be put on. Although disruptive, if carried out when there is a nectar flow and warm enough for comb to be drawn, colonies can quickly rebuild.

**Biotechnical methods** for light control reduce the population by trapping the mites in brood which is removed and destroyed. Since these methods are not combined with a chemical, supers can be left on.



**Drone brood removal** is straightforward and takes advantage of the mites' preference for drone brood. Introduce a shallow frame within the brood nest and the bees will draw drone comb in the space below. When it is fully capped, remove it and destroy it. Timing is key to remove before the drones – and varroa – emerge.

**Comb trapping** is more complex and requires a level of beekeeping skill. You can read more about it in [Managing Varroa](#)

**Broodless periods** occur naturally mid-season and provide an opportunity to rid the colony of phoretic mites:

- between a new queen being mated and beginning to lay refer to David Evans, The Apiarist, webinar Preparing for the Season Ahead, available to download [here](#)
- recently collected swarms
- swarm control manipulations

Use an **oxalic acid compound** treatment to kill phoretic mites.

or

a **bait comb** to trap phoretic mites. Select a frame of open brood from another colony and insert into the broodless colony. The mites will seek out the open brood. Once capped, after 9 to 12 days the frame can be removed. It has a 90% efficacy but with the loss of loss of one frame of brood.

Careful attention to dates and good record keeping are essential to be able to intervene at the right time as **there is no point in applying either of these methods if there is capped brood.**

Whilst varroa presents a challenge to the honeybees and the beekeeper, with routine checks and treating, when necessary, you can enjoy healthy colonies and honey harvest.

Remember to contact the DSBA Mentoring Team via the Members only section of the website if you need advice about your bees.

Tell us what you would like to know more about by email to [bee-health@dunblanebeekeepers.com](mailto:bee-health@dunblanebeekeepers.com).

Happy Beekeeping.

The Bee Healthy Team

\*There are restrictions on the use of authorised varroacides and we are bound by the Veterinary Medicines Directorate so please read application instructions for their handling and use, including length and number of permissible applications. The law also requires you to keep a written record of the purchase, use and disposal of them (available to download from [Bee Healthy](#) page).

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