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Winter Preps Part 1: Varroa

Bristol Beekeepers

Public Enemy Number 1. Since its discovery in England in 1992, varroa has significantly changed the face of beekeeping from a hobby that could tolerate 'let alone beekeeping', to one that requires careful management of this parasitic mite to ensure colony survival. To prevent mite resistance against any one technique, a range of treatment methods are used; this is called 'Integrated Pest Management' (IPM). IPM consists of 3 distinct branches:

a. Natural varroa prevention methods which are employed throughout the year, such as the use of open mesh floors,

b. Bio-technical methods, such as drone-brood uncapping and queen trapping and

c. Chemical methods, which are the subject here.

When to Treat? Research has shown[1] that honey bees can tolerate a level of varroa infestation provided it is below a particular level. Before considering this level it is worth understanding the cycle of varroa - an excellent description of which can be found in the NBU's leaflet[1]. In short, the maximum number of mites in an untreated colony will occur in the late summer/early autumn. Consequently one of the common times[2] to conduct varroa treatment is after the honey supers have been removed following the main July flow, prior to feeding for the winter (where necessary). This will ensure a low varroa loading prior to going into the winter.

Checking the Level. It is wise to monitor mite levels throughout the season. Observation of the bees will give an indication as to infestation levels. There are a whole range of viruses that are associated with varroa, for example Deformed Wing Virus (DWV). Other techniques, that have been practiced at the apiary days this year include: drone brood uncapping and alcohol washes. BeeBase has an excellent calculator that is useful in determining the action level. This varies throughout the year with the mite population, but in early August an infestation level of 5% requires immediate action[3].

[1] Managing Varroa, National Bee Unit, 2017.

[2] The other common time to treat is when the bees are bloodless (or as close to bloodless as possible) where all the mites will be phoretic (i.e. on the bees). Typically this is at the end of December and an oxalic-acid based method will be used.

[3] Varroa Guide, Veto-Pharma.

Available Chemical Treatments. The UK Veterinary Medical Directorate (VMD) licences varroa treatments for bees. To apply your own varroa concoction for varroa is at best foolish and at worse may result in prosecution. This is entirely unnecessary given the broad range of products currently available, Table 1.

Product Name	Active Agent
Apistan	Tau Fluvalinate
Bayvarol	Flumethrin
Polyvar yellow	Flumethrin
Apitraz	Amitraz
Apivar	Amitraz
Apiguard	Thymol
Apilife Var	Thymol, Camphor, Eucalyptus, Menthol
Thymovar	Thymol
MAQS	Formic acid
Apibioxal	Oxalic acid dihydrate
Oxuvar	Oxalic acid dihydrate
Oxybee	Oxalic acid dihydrate
Varroamed	Formic acid and Oxalic acid dihydrate

Table 1: Currently Licensed Varroa Treatments, Varroacides

Application and Resistance. It is imperative that the treatment's instructions are followed carefully and any artistic licence, such as leaving on over-winter, is avoided as this may well lead to resistance in due course.

The Flumethrin varroacides (in blue) are Pyrethroid derivatives that were initially used in the early 1990s to treat varroa. Unfortunately, sustained use has led to resistance being developed. Various tests are available to detect this (Beltsville and NBU), but as the market for varroacides has increased so their singular use has decreased. Consequently, it is possible that mites may once more be susceptible to these highly-effective varroacides.

Records. Use of varroacides is the one area of beekeeping where records are mandatory. A free to download sheet, which has all the relevant boxes in to ensure compliance, is available[4].

This Year at Honeycomb Farm. Rather than plump for a single varroacide, we have tried 3 different treatments this August. These are: MAQS, Bayvarol and (the newly licensed) Apivar. At the time of application, one of the nucs had a supercedure queen that had just emerged, so use of the fourth varroacide, Apilife Var, was put on hold. It will be interesting to see if there is any marked difference in efficacy of the treatments - this will only become apparent in the spring and will be a combination of the other winter preps that we will be undertaking in the coming weeks too.

[4] http://www.nationalbeeunit.com/downloadDocument.cfm?id=1081