

VARROA IN SCOTLAND RESISTANT TO PYRETHROIDS

By Ian Craig and Alan Teale

This spring the Scottish Government Rural Directorate (SGRD) Bee Inspectors carried out a survey of bee colonies in Dumfriesshire, Perthshire and Angus to determine the presence of Varroa mites that had become resistant to pyrethroid treatments.

Fifteen beekeepers volunteered to take part in the survey covering both commercial and hobby beekeepers. In the end, samples were taken from colonies belonging to nine of the volunteers.

Between them the volunteers managed some 1855 colonies and samples were taken from twenty of these. The results of testing indicated that resistant mites were likely to be present in one colony, resistance was probably present in six colonies and not proven in thirteen colonies.

Because of the Data Protection Act, SGRD were unable to give the exact location of the pyrethroid resistance but it can be assumed that the confirmed colony was in Dumfriesshire and the likely colonies were in Central Perthshire.

Beekeepers in these areas and other areas which have had Varroa for a number of years and have been using either Apistan or Bayvarol on a regular basis must assume that pyrethroid resistance is a possibility. Beekeepers are ADVISED TO CHECK THEIR COLONIES as pyrethroids may have ceased to become effective in killing a high enough percentage of Varroa. The only remaining APPROVED miticide is Apiguard and it is only claimed by the manufacturer to be effective at above 15degC. This will prove to be a real problem for beekeepers who take colonies to the heather and do not take off their honey crop until September or later. In our opinion, Varroa treatment should ideally be commenced by mid to late August in order to avoid your 'winter bees' carrying a significant Varroa infestation that could compromise their ability to survive until, and be productive in, the following Spring.

The following methods of **TESTING FOR PYRETHROID RESISTANCE** have been taken from *Managing Varroa, published by DEFRA/CSL in 2005*. Your Local Association Secretary should have two copies. For those with internet access the document is available for download at <http://www.defra.gov.uk/hort/Bees/pdf/varroa.pdf>

American Beltsville Test

1. Cut a 9mm by 25mm piece from an Apistan strip and staple it to the centre of a 75mm by 125mm index card. Place card in a 500ml jar with strip facing inwards.
2. Prepare a 2-3mm light metal mesh cover for the jar.
3. Shake bees from one or two combs of a colony into an upturned roof. Scoop 1/4cupful of these (about 150) and place in jar.
4. Place a sugar cube in jar. Cover with mesh lid and store upturned in dark, at room temperature.
5. After 24hours hit the upturned jar with your palm three times over white paper. Count the dislodged mites.
6. Place upturned jar in a freezer until the bees are dead (4hrs). Count the remaining mites.
7. Calculate the % mite kill. Less than 50% indicates that you may have resistant mites.

This method gives a crude indication of resistance. Discard results if the total mites per jar is below five.

NBU Resistance Test

The NBU field resistance test is a modification of the Beltsville test using a purpose made test cage and low dose 'Package Bee Strips'. The method used is similar, however, a larger number of bees are taken (approx 200). The test takes 4hrs and the bees are killed by immersion in soapy water after which dead mites and bees are separated with a stream of water in course and fine sieves.

Checking post treatment varroa mite mortality

1. Maintain colony on a mesh varroa floor with collection tray beneath.
2. Treat as usual with pyrethroid strips for six weeks.
3. Clean tray and check daily mite drop immediately after treatment finishes.

Significant mite drop indicates that a mite population remains and therefore your treatment may not have been effective, thus requiring further investigation.