

## **Non-Chemical Control of Varroa**

The guest speaker at a recent Avon AGM was Mr Hasan AL Toufalia who is studying the effectiveness of different treatments for Varroa at Sussex University. His conclusion was that, at 97% effective, heating oxalic acid and fumigating each colony was by far the most efficient method. However, this hazardous method needs expensive and specialised equipment, including a gas mask for the beekeeper!

*The method described below from Bob Needs* - which he assures me is also 97% (tongue in cheek) effective - is cheap, safe and does not need any expensive equipment. It therefore may be a more viable option for most small-scale beekeepers! Bob's method combines two common methods employed by today's hobby beekeeper- SUGAR DUSTING and COMB-CHANGE.

Sugar dusting (an inert powder method) is where fine white icing sugar is generously applied over all the bees in the hive, the intention being to cover the Varroa mites and bees with the inert dust so that the bees remove the mites themselves while preening. The mites also may not be able to cling to the bees because of the dust and will therefore fall through the mesh floor of the hive. It is most effective when there is no *sealed brood* in the hive - ie when the Varroa mites are phoretic, clinging to the adult bees and not inside sealed cells. Recent research has shown that during the active brood season about 5% of the Varroa in the colony are out of the cells between brood cycles, so dusting at inspection times will only remove a small portion of mites. The best time to get a good Varroa knock down is dusting a swarm, three weeks after a swarm has left a hive, when shaking bees onto fresh foundation, and any other time that the colony is brood less.

**ADVANTAGES** – An inexpensive, simple application, organic, readily available and highly effective at removing mites from bees. It will not contaminate the honey, no residue is left, it can be used at any time of year as long as bees are not in a tight cluster, there are no side effects on the bees and it can therefore be repeated without risk to the colony. Varroa mites are unlikely to build up resistance to this treatment.

**DISADVANTAGES** - Can attract ants and initiate robbing during the nectar dearth. As it will not affect mites in sealed brood or the foraging bees, it therefore needs repeat applications if it's the sole method of control. So timing is very important and repeat applications would be needed every 3 days for 21 days.

### **METHOD**

**Step one:** Dust all your bees with icing sugar. [By dusting Bob means covering...not just a sprinkle in-between the frames.] Each frame of bees needs to be well and truly covered, though the only bee you should try to avoid is the queen.

**Step two:** In the original brood box, remove enough of the outer frames of the old brood to allow you to position two frame feeders either side of the brood nest. Fill with sugar syrup [thick 1 pint of water to 2 lb of sugar.] This will have two benefits, firstly it will crowd the brood, and secondly it will give the bees fuel to draw new foundation in the new brood box.

**Step three:** Place the new brood box on top of the old dusted brood box with the queen excluder in-between the two brood boxes. Then put the crown board and roof back on.

**Step four:** Check your hive after a week for an arch of pollen at the base of the new frames in the top brood box and for Queen cells in the congested lower brood box. This arch of pollen will tell you that your colony beneath is full to the brim and the top edge of the cluster has spread into the top box. This is now bridging the gap between the two brood boxes.

**Step five:** Reassemble the hive with both brood boxes. Continue feeding with syrup until some more of the new foundation is drawn. Check carefully at this point as end combs may need to be turned around or moved one frame into the chamber, this is because bees find it hard to cluster and create wax on frames adjacent to the side of the brood box. (This stage, and waiting 7 days prior to shaking the bees is optional).

**Step six:** After 7 days, examine the old brood chamber and find the queen. Place the queen between the combs of the new brood box in a queen cage; she can be released into the new chamber when you have completed shaking the bees. Move both the old and new brood box to one side and place the Queen excluder onto the hive floor followed by the new brood chamber. Remove several frames from this chamber, and shake the bees from the old box into the new one, dusting as you go. Replace the frames, release the queen and reassemble the hive.

**Step seven:** Destroy all the old wax and brood. Freeze, boil or scorch old frames, and scorch old brood box.