

Oxalic acid – what you need to know

In the light of recent articles in the bee press about the use of Oxalic acid, I have been asked to round-up the situation to try to make the beekeepers position more understandable.

I cannot improve on the advice, regarding the legality of oxalic acid, given by Claire Waring in her article “The 2006 Annual Bee Meeting”, BeeCraft, January 2007, pages 4-7 and I recommend that you read it carefully. However, it appears that VMD will tolerate the use of oxalic acid as a ‘Hive cleanser’.

As to how to treat, I feel that it is imperative that beekeepers use oxalic acid correctly and safely, both for the health of the bees and the beekeeper. When dealing with this acid please remember to wear the correct personal protective equipment, IE acid resistant gloves, goggles and if vaporising/spraying the acid, the correct type of breathing mask.

Oxalic acid is safest used in a liquid form, 3.2% acid mixed in sugar syrup, and this can be purchased ready mixed for use. I recommend that is how you buy it, as it saves any contact with the concentrate acid. Treatment is by dribbling 5 ml of the acid solution per ‘seam’ of bees (max 50 ml per colony) in November or December. Keeping mixed acid can be difficult; it should be stored at 4°C or lower. If kept at higher temperatures, there is a chemical reaction between the oxalic acid and the sugar solution causing high levels of HMF and discolouration. Any mixed acid leftover after treatment should be well diluted and flushed down the drain. This also avoids the dangers of keeping the mixed solution, which could be mistaken for ordinary sugar syrup when found in the bee shed.

Let me expand on the treatment method. You have a colony that has a high level of Varroa that requires treatment urgently, i.e. cannot wait until the active bee season (March/April) begins. How do you know you have a high level of mite infestation? You have been carrying out mite drops using an open mesh floor and the numbers are above the safe level.

So you decide to carry out treatment with oxalic acid. You have been to your equipment supplier and purchased the mixed acid. Some acid is supplied at 6% solution. This needs to be diluted with double the quantity of sugar solution and is clearly marked with this information on the label. You have a graduated syringe to dispense the 5 ml per seam of bees. Open the colony and trickle 5 ml of acid in the gap between each pair of frames that have bees present in them. This can be seen from above. There is no need to remove the frames although it may be necessary to move the frames apart slightly if the bees have built brace comb between the top bars. Close up the colony. Simple and quick. Best done on a cold day so the bees don’t fly, at a time when no brood is present.

The reasoning here is twofold:

A Brood could be damaged by oxalic acid; so treating in a broodless period saves that risk

B Oxalic acid does not penetrate cappings. If brood is present some varroa will be in brood cells and therefore protected from the action of the acid, reducing its effectiveness.

If there is no brood, all varroa in the colony are exposed to the acid and there will be a high percentage knockdown rate.

I hope that this information will help you to use oxalic acid correctly and safely.

Alan Byham, Regional Bee Inspector