

Records

If you have open mesh floors you will be able to monitor the mite drop over the next few days. Oxalic acid applied this way will normally kill up to 90% of the varroa mites on adult bees. It will have no effect on any mites that are in brood cells. This is the reason for not applying it when there is significant brood in the colony. It is NOT appropriate to apply the oxalic acid a second time as this could damage the bees.

Do not forget to record in your hive record book that you have used oxalic acid on the hive, giving the overall dose and the date on which the solution was applied.

Shelf Life

The solution has a short shelf life once mixed with sugar because the HMF level in the solution rises and can become toxic to bees. Our advice is to use the solution once in winter and then safely dispose of the remainder down the drain. The solution remains effective longer if it is kept out of the light and at low temperatures (say less than 10°C) but do not try to store for more than 6 months.

Safety Advice



Oxalic acid is poisonous; also the fumes can severely damage lungs if breathed in. If any solution is spilt on the skin it should be washed off with copious quantities of water and medical help should be sought.



Mixing oxalic crystals with water to produce an appropriate concentration can be dangerous. BBKA advice is to buy oxalic acid solutions that have been prepared for application to control varroa.

Some advisory notes from other sources advocate the use of evaporators to heat oxalic acid crystals within the hive so that it sublimates as a deposit on to the bees in the colony. There is no evidence that this approach is significantly more effective than the use of a solution of oxalic acid. The use of an evaporator can subject the operator to additional hazards and is not recommended by the BBKA for use by beekeepers inexperienced in the

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Oxalic Acid Cleansing



Oxalic acid is a naturally occurring substance and is normally found at very low concentrations in Honey.

Oxalic acid cleansing has been shown to be effective at controlling varroa numbers in a colony of bees. It is used extensively in Europe, USA and New Zealand as part of a programme of Integrated Pest Management when resistance to the pyrethroids (Apistan and Bayvarol) has been found.

How Oxalic Acid operates

There have been a number of articles written about the methods of application of Oxalic Acid to control varroasis. This advisory leaflet has been produced to give simple, effective and safe guidance on one method of application because oxalic acid can be dangerous to bees and humans and inappropriate use could contaminate honey.

In common with all acids it is corrosive to organic material. It is harmful if swallowed, inhaled or absorbed through the skin. Dilute formulations have a reduced corrosive effect. Research has shown that using very small doses of acid will damage the claspers on the proboscis of the varroa mites, preventing them from sucking the haemolymph from the bees. This, coupled with damage to the mites respiratory apparatus kills them. This small dose will cause minimal harm to the bees.

The oxalic acid should only be applied once per year because the bees themselves could be harmed by continuous application or by using too much Oxalic Acid.

Oxalic acid does not penetrate wax so it will not kill mites on capped brood.

It does dissolve in honey and indiscriminate use could produce unacceptable levels in honey stores. So it should not be used on stores of honey that may later be extracted.

Integrated pest management

Oxalic acid should only be used as PART of a process of Integrated Varroa Management. This is based on the knowledge that Varroa will not be eradicated in the hive but can be kept below a level that causes damage to the colony. The latest advice from the National Bee Unit (NBU) indicates that there should be less than 750 mites in the colony for this condition to be reached. In simple terms if you find more than 7 mites dropping onto a screen floor each day then there is a need to remove some mites from the colony. The NBU has produced an advisory leaflet on Integrated Pest Management for the control of Varroa . This approach should be followed once you are aware that pyrethroid resistant mites exist in your colonies.

Obtaining the oxalic acid

Because the concentration is very critical the BBKA advice is to obtain a PREPARED SOLUTION of Oxalic Acid in sugar. There are some available on the market from bee suppliers such as:

Oxalic Acid from Endolapi SRL (Italy) which is 6% of oxalic acid in a 30% sugar solution

Oxivar from Andermatt. Which is a 3% solution of oxalic acid supplied with sugar to make up the desired concentration for application to the colony.

Storage

The oxalic acid should be kept in the container in which it is supplied and this should be placed in a plastic sealed container and stored in a safe, dark, cool place. It should be supplied with a 50 ml plastic syringe that is used to dribble the solution onto the bees. Keep the equipment together and safely sealed until needed.

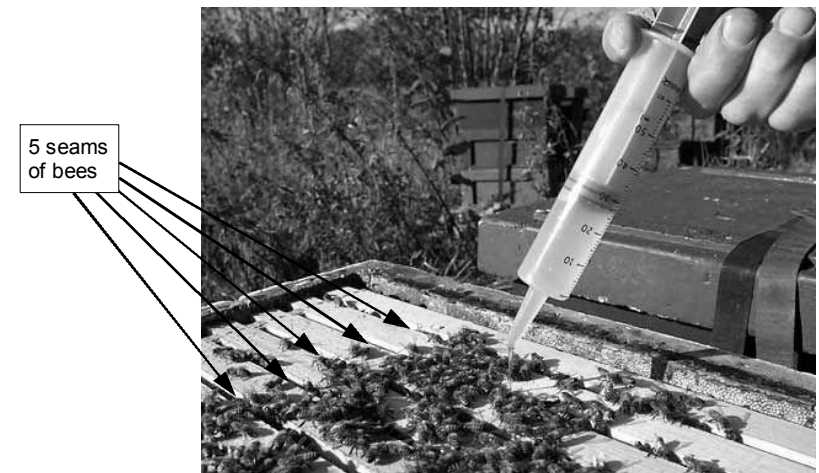
When to use

Oxalic acid should only be used in the WINTER when the quantity of brood in the colony is at its lowest levels or non existent. Choose a bright and warmish day when the bee cluster is breaking up.



The operation

- Before opening the container put on your bee suit, Wellingtons and rubber (washing up gloves) so that you are protected from the bees and also protected from any inadvertent spillage of the solution.
- The solution should be lukewarm to avoid chilling the bees so if necessary stand the acid bottle in a bucket of hot water for a few minutes.
- The colony should be lightly smoked and opened to expose the brood nest. Bees will be seen between the top bars of the hive. Each gap between the top bars is called a 'seam'. The dosage required is 5 ml (millilitres) per seam of bees. This can be achieved by counting the number of seams where there are significant numbers of bees. Multiply this figure by 5 and this will give the quantity in ml of oxalic acid solution that should be applied to the colony.
(e.g. 5 seams of bees = 25 ml [or cc] of solution).



- Draw this quantity into the syringe supplied with the solution from the container, making sure not to spill any acid on you, your bee suit or anywhere else that might come into contact with you or the bees. Never point the nozzle of the syringe towards you or any other person and always remember that the solution is harmful to your skin and clothing.
- The solution should then be dribbled gently over the seams of bees. Once complete the syringe should be placed into the safe receptacle and the colony closed with as little disturbance as possible.