

# Oxalic Acid Treatment for Varoa Mites Extended-Release Towel Method.

(Courtesy of Dave Wells – Marlborough beekeeper – following several years of experimentation and experience to discover what worked for him.)

Advantages in the use of Oxalic Acid Treatment.

- High Efficacy even when brood is present.
- Minimal or no adverse effects on colony
- Can be applied when honey supers on hive
- Can be used in hot weather
- Easy and safe to apply in the hive with correct clothing:
- Will not contaminate Wax
- Inexpensive
- Considered Organic

This is a proactive treatment rather than being used once mite counts are high. The treatment can take up to six weeks to be fully realised.

The Glycerol is the carrying agent for the Oxalic Acid. The glycerol dies out once in the hive exposing the Oxalic acid which will re crystallised. The bees will chew the towel absorbing small amounts of the oxalic acid changing the Ph of the Haemolymph (bee blood) making the bees less desirable as a food source of the mites. Contact with the towels is also lethal to the mites.

The re-introduction of towels can be undertaken once the older towels have been removed or chewed into small pieces. Often chewed towels can be seen outside the entrance.

## Materials required:

- Accurate electronic scales.
- Plastic container with sealing lid approx size 300mm length 100mm wide and 80mm deep.
- A roll of blue Dux dish cloths.
- Oxalic Acid 99% 500 grams
- Glycerol 500 grams (the oxalic acid and glycerol can be purchased online)
- Rubber gloves to use when making mix and placing in the hive. (NOT LEATHER – the acid will damage them and is absorbed by the leather)
- Metal tongs to assist in placing in the hive

## Prepare Towels:

- Cut the towel roll into three equal parts using a hacksaw.
- Pull the cut roll apart at the serrations and lay in your soaker tray.
- Offset towels slightly to make separation easier when wet.

### **Method of mixing:**

#### **ENSURE THIS IS DONE IN WELL VENTILATED AREA or OUTSIDE**

- Measure Equal weight of Glycerol and Oxalic acid powder.
- Set the Oxalic Acid aside.
- Heat glycerol in an old pot to below boiling point.
- Add equal measure by weight of Oxalic acid and gently stir until glycerol becomes clear.
- Pour over pre stacked towels in the container.
- Once towels are saturated pour of excess liquid into a sealable container and mark as being oxalic acid and poison. (Excess can be reheated and used)
- **Note: Do not allow to boil.**

Once the towels have been soaked and drained of excess take a sample towel and weigh. This will establish the number of towels needed per brood box.

51 grams is the maximum exposure rate at any given time in a double brood hive. If each towel weighs 10 grams, it would be safe to place four towels in a strong hive. (Double brood box.)

Single brood box two towels or 20 grams total.

It is important to note that hives that are two boxes of brood honey boxes on top may need an extra couple of towels. This is due to the space available to the bees. Due to the space available it is very unlikely an overdose situation would occur.

For the long-term control of varroa mites in bee colonies continual use in 30-day exposure repeated 30 days later.

If you have a hive with high varroa count it may take a couple of treatments to get back to a manageable level.

Outliers is the term used for hives that do not respond to treatment. About 1 in 10 must be treated more often until varroa numbers are in check. Treat these hives for longer periods or back-to -back treatments.

Hives with high mite loads MAY need other treatment to knock them back to a level that the oxalic towels can maintain/treat. Use the usual miticide strips or use Oxalic vaporisation of the hive for a fast quick knock down. (Contact the Marlborough Bee Association regarding accessing a vaporiser)

The towels will take several weeks to work effectively depending also on ambient temperatures and hive humidity. Observe how the bees are eating the towel from the edges and how the towel will dry out. A dry towel is as effective as a wet towel in the control of varroa.

Some hives endeavour to cover towels with propolis, normally only the top where draped over the frame. Once a year I clear out the base of the hive from partly broken-down towels. Any towels dragged out of the hive I will also leave as bees will walk over and continue to discard. Pets and children would need to be a consideration to any discarded towels at hive entrance.

**Please Note:** Oxalic Acid can be harmful if exposed to skin eyes or inhaled. Always wear rubber gloves vapour mask and safety glasses when making mixture and soaking towels. Rubber gloves when placing in hive.

**Be aware vapour may rise when you re-inspect on a warm or hot day.**

**Give vapour a minute to clear.**

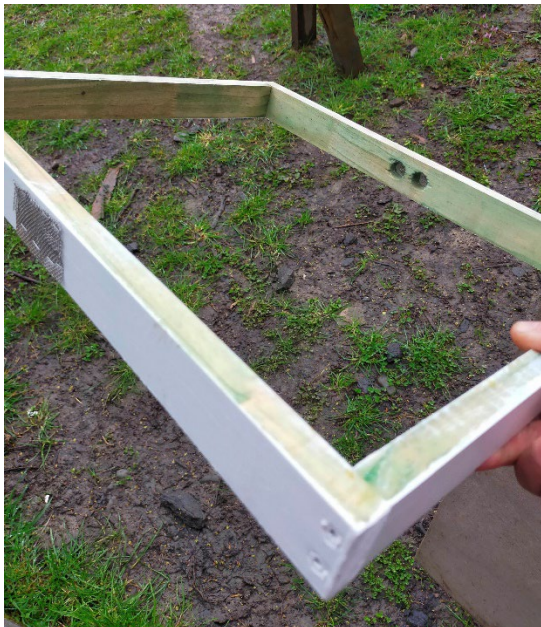
**Oxalic acid can be neutralised with a mixture of water and baking soda.**

### **Ventilation:**

You **MUST** ventilate the hive well and allow airflow for efficacy of this treatment.

Install a ventilation rim on top of the hive below the top board.

Eg 30mmx15mm timber made to a frame to fit on top of box. Drill 2 x 20mm holes on each side and cover with mesh. (Remember to use **UNTREATED** timber).



Also, to improve airflow remove a frame from each box - use 9 frames per box rather than 10. Move frames to the centre then space outside frames evenly to allow a little extra airflow around the sides of the hive.

Maybe even only run 8 frames in honey supers leaving lots of airflow. Helps with drying out/ripening the nectar also and the bees tend to make the comb thicker and this in turn makes de-capping simpler when extracting.

Contact Marlborough Beekeepers Association about options for accessing small amounts of Oxalic Acid and Glycerol as part of bulk purchase.

Indicative price in Sept2022 for 1litre plus 1kg is around \$25.

END