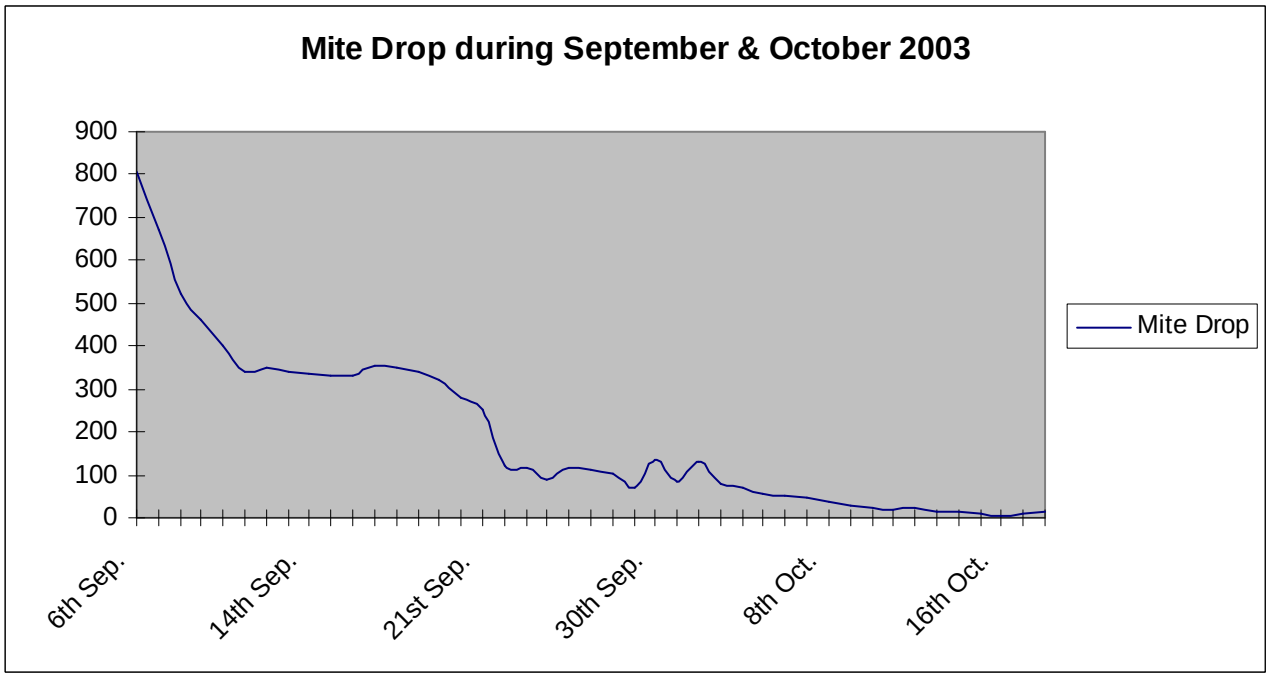
Thymol Over-frame Evaporator: by John E. Dews

Since finding varroa in my hives in April 1997 I have used thymol crystals as my preferred method of treatment. This is effective, less expensive than commercially produced treatments and also, I believe, less likely to leave harmful residues in the hives. I originally used the thymol frame from Thornes which allows the vapour from the thymol crystals to escape through narrow slots in the wooden frame. These slots rapidly became clogged with propolis in my hives. The Brooks/Knight thymol frame described in an early Bee Improvement Magazine has wire mesh sides which take longer to propolise. The thymol frames are placed at the side of a cold way brood chamber, or at the back if the combs are arranged warm way.

The rate of vaporisation varies with temperature – higher temperatures – more vapour. I found the thymol in these frames killed three times as many varroa when the outside air temperature was 18C than when it was 12C. I formed the opinion that the critical temperature was 15C. I then reasoned that if the thymol could be suspended above the brood nest, or the cluster of bees, that the temperature of the thymol would be higher than when placed at the side or back. The evaporator described in this article is still effective in my apiary even when the outside air temperature is only 10C. Care should be taken if the air temperature rises above 25C as the concentration of vapour might drive the bees out of the hive. This is not likely to be a problem in this area as I normally treat when the bees are reduced to a single brood chamber in September/October and again in April, if necessary, before supers are added. All my hives are well insulated, having a sheet of expanded polystyrene 20mm thick on top of the glass quilts to conserve heat and reduce condensation with a further 35mm thick sheet of Thermapitch TP 10 in the roof. If hives have mesh floors, they should have the floor trays fitted to prevent the rapid escape of the thymol vapour.

Using this design of evaporator 8340 varroa mites dropped through the mesh floor in one hive that was badly affected by varroa during the period 6th September to 18th October 2003, see graph below.



The evaporator frame is made of 12mm by 6mm strips of wood obtainable in 8ft lengths from DIY stores. Note the way the different lengths used in the two halves overlap for simple assembly.
The two halves are assembled one on top of the other with tightly stretched butter muslin or nylon mesh sandwiched between. The top and bottom of the completed frame has 3mm wire mesh fitted so that the bees are unable to come into direct contact with the thymol. The frame is placed over the brood nest, the feet on the underside of the frame keep the wire mesh clear of the brood frames. 10 - 15 ml (2 – 3 level teaspoonsful) of thymol is sprinkled on to the top mesh, this falls through on to the butter muslin. A one inch thick frame of wood is fitted over the walls of the brood box to make sure there is a bee space between the top of the evaporator and the glass quilt. This gives clearance over the evaporator for air to circulate.

The reader should be aware of the safety precautions necessary when using thymol crystals, taking particular care to work in a well ventilated place and to protect the eyes and any open cuts or wounds on the skin.

John E Dews – 26th November 2003

Note:
John Dews died in 2011. He had kept bees for over 65 years and was an acknowledged expert on the native honey bee *Apis mellifera mellifera*.
John kept his bees on the bleak North York Moors, so the temperature was cooler than many areas. I have been told by many beekeepers that the temperature is too cold for thymol varroa treatments to work, but John Dews managed it.
This article was sent to me in personal communication. I see there is a later version in the booklet "Whitby & District Beekeepers Association - A local history of varroa and breeding tolerant black bees", but with little addition.
Roger Patterson.

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The wire mesh has been omitted from the drawing for clarity. The wire mesh is fitted both on top and on the underside of the frame