

This article was published in Issue No 7, March 2017, of "Beekeepers News",
an online newsletter published by E.H. Thorne Ltd.

This has been slightly edited from the original.

"How do you process and manufacture your beeswax foundation?"

We are always being asked how we process and manufacture our beeswax foundation. This should answer some of your questions.

In 1965 we bought our first wax plant and started to make our own foundation. Leslie Thorne collected one ribboning machine and one embossing machine from Germany on a purpose built trailer behind his favourite Jaguar.



It is all very well buying the machinery, but making them work for you is another matter! Besides the machines we needed steam jacketed pans to melt the wax and a steam boiler to provide the fuel. This was quite an expense in itself. We were lucky enough at the time to

employ two respected and experienced beekeepers, who were also pretty useful with machinery. Arthur Adams and Bernard Mobus (on the left in the picture, who also designed the Mobile Nuc/Observation Hive). After a few weeks of burning the midnight oil we had our wax plant up and running.



The next big challenge was to get the wax wired. All wax in mainland Europe was sold unwired. We had seen how Lees of Uxbridge wired their foundation and thought we could improve on the system. Arthur Adams put his mind to it and developed our manual/electric wiring boards. All ten are still in use today. Besides the original machines we have also invested heavily in semi-automatic wiring equipment. These electric machines run on compressed air, microprocessors and a great deal of ingenuity! We have two so far and are busy building a third in our own R & D workshop.



In 2010 when we moved from our Wragby site to Rand, two miles away, we were faced with the challenge of moving the wax plant without loss of production. By then, we had two embossing machines and it was obvious if we built up stock of flat beeswax ribbons we could make the move comparatively easily and this proved to be the case. We realised though that being so reliant on one ribbon machine was risky. If it broke down we could get months behind with production, so we invested in another ribbon machine. Since then we have also built ourselves another embossing machine (without buying from Germany!)



Our wax is now liquefied in powerful electric vats, 1500kgs at a time. Most of the time we clean the

wax by simply floating it on water. By this simple and effective method of sedimentation it is possible to clear the wax of all solid debris. Nothing is added to our wax to change its colour, odour or consistency. What you see is what you get! Once liquid the clean wax is pumped through insulated hoses to two insulated holding tanks that feed the reservoirs of the Ribbon machines.



These machines turn the liquid beeswax in to a solid in the form of a 3mm thick and 460mm wide ribbon. The wax is rapidly cooled by pressurised, recycled chilled water running through the centre of the drum. The cooling wax is automatically scraped off the drum by a knife in the heated block and extruded through a narrow slot in the front of the machine. The ribbon is coiled up at the end of the machine via a sliding clutch mechanism. The 30kg. ribbons are now ready for embossing with the *apis mellifera mellifera* 5.4mm hexagonal cell shape. We also have rollers for drone base, *apis mellifera scutellata* 4.7mm (African honeybees) and 4.9mm small cell size.

honeybees) and 4.9mm small cell size.

We normally have three embossing machines running at any one time; one on Premier grade (mainly UK and Ireland sourced wax) and one on Standard grade (carefully sourced from a variety of countries) and the third processing sheets for thin super. The embossed cell of the latter is slightly different having far thinner walls and less wax per sheet. These machines run well if the ribbons are flat and true and the air temperature is not too oppressive. On very hot days however, and if the ribbons are not true, then they can be very challenging to run.



The machines are all fully adjustable to length and width of sheets and can be altered quite quickly. The weight must also be correct. You may occasionally find your sheets are a fraction longer, or shorter than you would like. This is down to the temperature at which it is milled. As temperatures rise, the sheets can become longer and as they reduce they can become shorter. We make frequent checks and, sometimes, it is necessary to adjust the machines to ensure everything is absolutely correct in weight and size.

We process well over 100 tonnes of beeswax per annum, mainly for beekeepers through our virtual or real shops but also Conversions and 'Straight Swap' at various exhibitions and shows. If you are interested in seeing the Wax Plant running we do arrange tours for interested groups and associations. There is also an opportunity to see the machines at our Rand Open Day.

This has been downloaded or printed from Dave Cushman's website. www.dave-cushman.net