

## RESEARCH

# REPRESENTATIVE HONEY SAMPLING: AVOID UNEXPECTED SURPRISES

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You will get the best possible information from laboratory testing by sending a sample that is a good representation of the honey it has been taken from. The better job you can do of this, the lower the risk that future tests from the same batch will give you an unexpected result.

From time to time a laboratory will get a query from a customer about a test result that is not what they expect it to be. Errors can occur within the lab which may explain an unusual result, but in our experience the way that samples are collected, stored, and submitted often provides reasons for the unexpected result.

In this article, I will share a few experiences that may help those who are collecting and sending samples to labs.

**Collecting a sample from the honeycomb** will **not** give a representative sample for a drum or batch of honey. Bees will fill a frame (and a box) over a period of time, using nectar from a number of flowers. Honey in one section of a frame is likely to be different to other parts of the frame, and different to other frames. Collecting a comb honey sample from a frame may give you a general indication of the honey being collected by the bees at that time. However, once the honey is extracted and blended it is unlikely that the test results for the batch will be the same as the sample taken from the frame.

**Drum samples** can be collected more reliably, especially if the honey has been well blended (or homogenised) before separating into drums. Even then, our observation is that honey can separate into layers over time and may be different near the outside of the drum compared to the centre. Therefore different results may be produced. The best way of collecting a drum sample is therefore to use a corer and sample from the top to bottom of the drum, then thoroughly mix it before sending to the lab.

**Batch samples** should only be collected after the batch has been very well mixed. When multiple drums are included in a batch, a sub-sample taken early in the mixing process may well represent one of the drums more than the overall batch. If retested later, you may get quite different results.

Once the sample is in a container for sampling, chemical reactions are still occurring. This is especially important in manuka honeys, where the DHA (dihydroxyacetone) is converting to MG (methylglyoxal), and then MG to other compounds. **Make sure your sample is stored in similar conditions to the drum or batch it has been taken from!** Leaving a sample on the windowsill in the autumn sun for a month while the drums are in a cool shed will give a different result for the sub-sample compared to the drum.

If you want to stop the chemical reactions from taking place in your honey, you need to refrigerate (or even better, freeze) the sample. I recall one situation where a client had collected a sample at extraction, and another sample from the drum after a few months of storage. They sent them both in for testing at the same time to see how the honey had changed over time. The results for HMF (hydroxymethylfurfural) were identical, even though the initial sub-sample should have been much lower. After a few questions, we realised the initial sub-sample had been stored on top of the drum, in the same conditions. No wonder the results were almost the same!



*Pictured is a good example of a sample container.*



## Some recommendations when sending a sample to a lab

Testing laboratories need a minimum amount of sample to test. About 50 g of sample is sufficient for common tests—as a rough rule of thumb, a 100 mL jar will hold about 140 g of honey due to the density of honey.

Samples should be placed in screw-top containers. Avoid using plastic wrap to seal the top of containers, and our occasional experience with samples in snap-lock bags has not been good!

If you want a lab to test your honey, try to send them only honey. Large amounts of wax can cause problems with tests, and in some cases will not be accepted.

Samples should have a unique name or ID written clearly on the side, and match the name or ID written on the submission form.

Labs will usually keep your samples for 4–6 weeks, and then dispose of them. If you want them saved, write this clearly on the submission form. In many cases, your lab will happily return them to you for the cost of postage and handling.