

BUSINESS/HEALTH AND SAFETY

TIPS FOR COST-EFFECTIVE TUTIN TESTING

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Honey samples can be tested for tutin using either composite or individual testing. While the lower initial cost of testing a sample as part of a 10-sample composite is attractive, it can be a false economy if the composite sample fails and all the samples in it need to be re-tested individually. If there is a moderate or unknown risk of tutin being in samples, consider testing samples in composite groups of five rather than 10. If there is a high risk of a sample containing tutin above MPI's maximum residue limit, consider testing that sample individually from the start.

As 2018's honey season gets under way, many beekeepers in the North Island and upper South Island will be needing to test for tutin in their honey as part of MPI's requirements.

There are two ways of testing for tutin in honey:

- composite testing, where up to 10 individual samples are combined (by the lab) into a single sample for analysis; or
- individual testing of samples.

Composite testing is often preferred, because the initial cost per sample is much lower than individual testing. But composite testing may not prove to be a low-cost option in the long run if the composite sample fails, and the samples in it need to be analysed individually. Give some thought to the risk that samples may contain tutin before choosing your testing option—it can save you time and money!

Choose composite testing if you believe there is a low risk that the honey samples will contain high levels of tutin

The lab makes a composite sample by preparing an extract from each of the individual samples to be included, and accurately mixing an equal amount of them together. Anywhere from two to 10 samples can be tested as a composite sample.

The composite test result is an average of the samples that were included in the composite group. If this average result is low, you can be confident that none of the samples included in the composite group will be above MPI's maximum residue limit of 0.7 mg/kg. It's a great way of meeting your tutin testing obligations at a low cost.



Scolytopa australis (passion vine hopper) on a tutu (Coraria) bush, showing the adult and juvenile ('fluffy bum') stages of scolytopa. Photo: Frank Lindsay.

However, if the average result is too high, there is a chance that one of the individual samples contains more than MPI's limit. This must be confirmed by testing the samples individually—which is expensive.

If you include honey samples in composite groups that you know could have high tutin levels, you run the risk of having to spend more money testing all of the samples individually if the composite result fails.

If you have samples that are at risk of containing high levels of tutin, individual testing may well be your best option

Results for individual testing can be directly compared with MPI's requirements. Rather than including samples which are likely

to have high tutin residues in composite samples, you are probably better to just test them individually from the start. It can save a lot of money re-testing failed composite samples.

Consider using smaller composite sample group sizes

While up to 10 samples can be tested together in a composite group, there are advantages in testing fewer samples in a group than that.

- Sometimes you can get a 'false positive' result from a composite test, because a number of samples in the group have low levels of tutin in them that trigger a failed composite result when added together.

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Honey bee on tutu. Photo supplied by Ministry for Primary Industries.

Smaller numbers of samples in a composite group reduce the risk of a false positive.

- If you do get a failed composite result, the samples in the composite group need to be re-tested individually. There are fewer samples to re-test in a smaller composite group.

If you are sure that your honey won't contain tutin, there is no harm in having larger composite groups. However, if you are uncertain, then testing in composite groups of five rather than 10 could prove to be more cost effective in the longer run.

Further information

MPI has published its requirements for tutin in the Food (Tutin in Honey) Standard 2016. You can access the Standard and a guide to compliance here: <https://tinyurl.com/tutininhoney>

For queries about these requirements, contact animal.products@mpi.govt.nz

You can also view an educational video on tutin here: <https://tinyurl.com/toxichoney>

Hobby and small scale beekeepers—contact your local beekeeping club to see if they intend sending groups of samples to a laboratory for testing, if you don't want to do so yourself.

[Editor's note: refer also to the four-page information sheet 'Understanding tutin and the risks', produced by Apiculture New Zealand and the Ministry for Primary Industries. This was published in the December 2017 journal, pages 24–27.]

What is tutin?

Tutin is the plant toxin collected by bees from the native plant *Coriaria arborea*, commonly known as tutu. It can cause poisoning in humans. Tutin is not found in the nectar or pollen collected by bees when tutu is flowering. In warm summer weather, sucking insects like the passion vine hopper (*Scolytopa australis*) suck sap from the stem of tutu plants, and secrete a sugary honeydew once they have taken what they need from the sap. This honeydew contains tutin, and is attractive to bees (especially if there is not much other nectar to be found in the area). The risk periods for tutin are summer and autumn, which coincides with the time when sucking insect numbers are peaking, and other nectar sources may be declining.



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