

Tutu Bush and Toxic Honey

What is Toxic Honey?

Toxic honey is produced when bees collect honeydew from Tutu (*Coriaria arborea*) bushes. Tutu is a widely distributed poisonous native plant species found throughout New Zealand, particularly along streams and in regenerating native bush. The toxin, called tutin, is in the sap of the Tutu bush. This sap is eaten by the passion vine hopper (*Scolypopa sp*), but not all is digested. The undigested sap which contains a lot of plant sugars as well as tutin is excreted as honeydew onto the leaves of the bush. Bees then gather the honeydew and toxic honey is the result. Bees have been observed foraging on tutu leaves even when there is no visible honeydew present so if vine hoppers are present it has to be assumed that honeydew is available for bees to collect

Tutin is a member of the picrotoxin group of poisons. The toxin has no effect on bees, and honeydew honey is chemically very similar to floral honey and cannot be distinguished by taste, sight or smell from other non-toxic honeys. The toxin cannot be degraded by any heating or processing of honey. The toxins are believed to be very stable and poisoning cases have resulted from people eating honey that was several years old.

Both comb honey and extracted honey can be poisonous. Comb honey poses a greater risk because it is eaten directly off the comb, increasing the chance of consuming honey with a high concentration of Tutin.

Extracted honey is often bulked or blended with other honey, thereby reducing the concentration of toxin.

To produce toxic honey, the following conditions are required:

1. significant numbers of Tutu bushes.
2. significant numbers of vine hoppers, which typically occur from January onwards throughout the North Island and in the top part of the South Island
3. presence of honey bees (*Apis mellifera*) being managed for honey production.

Managing the Risk:

In all areas where significant amounts of tutu and the vine hopper are present, beekeepers should minimise the possibility of toxic honeydew being stored in the hive.

Bees will forage 5 km or more from their hives, especially in dry years, and toxic honeydew may be present in an area even if it is not obvious in the immediate vicinity of the apiary.

If you are going to sell your honey, then you must comply with the Food (Tutin in Honey) Standard 2010, available on the MAF food safety web site at www.foodsafety.govt.nz

If you are not going to sell your honey, one or more of the following options should make sure your honey is safe to eat if your hives are in a risk area. (ie the parts of the country Passion Vine Hoppers are found in - the North Island and top of the South Island).

1. Take all honey for eating off your beehives by the end of December.
2. Don't collect comb honey after the end of December.
3. Only take honey off hives after December if they are in areas where bees cannot forage on tutu. This will require a thorough check over a wide area to make sure there is no significant amount of tutu present. (This option is not guaranteed to produce tutin-free honey because bees may travel long distances to forage or go where you cannot check.)
4. If you do collect honey from an area where tutu is present after the end of December extract it and get it tested. Mix it thoroughly to make sure that any tutin present is spread evenly through the batch. Then send a sample of the honey to be tested. (Details of testing laboratories are found on the NBA web site at www.nba.org.nz)
5. If you test honey from your apiaries over a few seasons and find no tutin then it's reasonable to assume that it

won't be an issue in your area. Some beekeepers have found that they have tutin some years and not in other years so don't rely on a single year's results.

If any honey produced in the risk periods is to be stored and used for bee feed later in the season, frames of suspect honey must be carefully marked so they are not inadvertently extracted.



Wasp on Tutu plant



Tutu with "Honey Dew"