



Honey bee Health Surveillance Programme (Guidance document)

The Honey bee Health Surveillance Programme aims to provide an efficient disease diagnostic service for beekeepers which will assist beekeepers with the detection of pests and pathogens in the colony even at low levels of infection/infestation. Adult bees will be tested for Tracheal mite, Nosema spp. and clinical symptoms of deformed wing virus. Brood comb samples will be analysed for American foulbrood, European foulbrood and clinical symptoms of chalkbrood, sacbrood virus, parasitic mite syndrome (PMDs) and wax moth. The diagnostics tests will be carried out with reference to the methods recommended by the European Reference Laboratory on Bee health (EURL) and by the OIE (Office International des Epizooties). To further ensure that the analyses are reliable, it is pertinent that beekeepers submit good quality samples which are representative of the colony. Simple instructions on when and to take reliable samples are given below.

When and how to sample

When to sample:


- 1. In apparently healthy stocks, routine sampling is strongly recommended twice annually, late Spring and early Autumn. If this is not feasible, then Spring sampling should be prioritised as it allows the health status of a colony to be determined prior to carrying out various colony manipulations which are essential during the active season.**
- 2. Sampling is also recommended if any suspicious symptoms are observed during routine management of colonies during the active season.**

Numerous pests/pathogens may exist in a colony and indeed in many cases may co-exist. A good working knowledge of the pest/pathogens associated with the different developmental stages of the honeybee (adult bees, brood etc) and their clinical symptoms is essential if early stages of an infestation/infection are to be identified during routine day to day management of colonies. Pests/pathogens may be divided into four main groups, adult bee diseases, brood diseases, diseases that affect both adult bees and brood (primarily viruses) and external predators (pests that attack the colony from the outside). The table below is a list the pathogens associated with each group.



Table 1

Pathogens and diseases associated with the different developmental stages of the honeybee

Adult bees diseases		Brood diseases
<ul style="list-style-type: none">• Varroa mite• Tracheal mite• <u>*Tropilaelaps spp.</u>• Bee louse• Wax moth• <u>*Small hive beetle</u>• Nosema spp• <i>Cniditis mellificae</i>	 Viral diseases	<ul style="list-style-type: none">• <u>*American foulbrood</u>• <u>*European foulbrood</u>• Chalkbrood• 18 viruses known
	External predators	<ul style="list-style-type: none">• Common wasp• Asian hornet• Rodents

The beekeeping sector is regulated by EU and national legislation. Under this legislation, bees are subject to veterinary inspection for four notifiable diseases which include, **American Foulbrood Disease, European Foulbrood Disease, Small Hive Beetle** and the **Tropilaelaps spp.** (all marked with *asterixis above). If a beekeeper suspects an outbreak of any of these disease in their bee hives or colonies, DAFM should be notified immediately at beekeeping@agriculture.gov.ie. An additional exotic pest, the **Asian Hornet** also remains a potential threat. In 2016, the pest was reported for the first time in the UK and subsequently successfully reproduced. To date no sightings of the Asian Hornet have been reported in Ireland although since 2016, DAFM has been continuously monitoring for this pest as part of an ongoing surveillance programme. However, beekeepers themselves also need to remain vigilant and any suspicious specimens should be submitted to the **DAFM laboratories for analysis**.

Sampling and sending adult bees:

1. **A sample size of 30 foragers/older bees is necessary to ensure the sample is representative of the colony. The sample may be taken from the front of the hive or from the peripheral frames in the brood box.**
 - a) Sampling from the front of the hive: *If sampling from the front to the hive during active flying hours, close the hive entrance for 5-10 mins before sampling. Returning foragers will accumulate at the hive entrance and this will make sampling easier. Alternatively, delay sampling until evening when flight has stopped, tap the outside of the hive, large numbers of bees will crawl up the front of the hive, again this will facilitate sampling. Half-open a labelled match box and with sweeping movements take the sample. Avoid sampling drones if possible.*



- b) Sampling from the peripheral frames: Remove the outside the frame, check to ensure the queen is not on the frame. Half-open a labelled match box and with sweeping movements take the sample. Avoid sampling drones if possible.
2. Close and seal the match box at both ends
 3. Place all samples in a household freezer (-18°C) for 24 hrs (this kills the bees humanely).
 4. To post, take the samples from the freezer, ensure the sample boxes are all clearly labelled and place them in a padded envelope.
 5. Complete the sample submission form and attach it to the outside of the envelope (Please do not place the completed sample submission form in direct contact with samples.
6. Send all samples to:

Honey bee Health Surveillance Programme
c/o Dr Mary F Coffey
Department of Agriculture, Food and the Marine
Plant Health Laboratories,
Backweston Laboratory Campus,
W23 X3PH, Ireland

(Note: if possible, avoid sending samples at the end of the week (after Wednesday) as the samples may be blocked in the post and this may compromise or limit the type of analysis)

Sampling and sending brood comb:

A sample size of 15 cm x 15 cm of brood comb is required to carry out a reliable analysis. A sample containing brood only is essential, therefore it is critical that food stores such as pollen nectar and/or honey are avoided when sampling.

The development stage of the brood sample should also be carefully selected: To test for American foulbrood (AFB) sealed brood is required, clinical symptoms of European foulbrood (EFB) are more apparent in open brood, while a brood sample containing open and sealed brood will be tested for AFB and EFB.

Selecting the sample:

If suspicious symptoms are apparent in the colony: the frame containing the suspect cell(s) should be sampled:

Alternatively

If sampling is been carried out as a precautionary measure/routine sampling:



- *Estimate the total number of frames in the colony that have brood present (open and/or sealed)*
- *Select the brood frame in the centre of the brood nest*

Sampling:

1. **Using a sharp knife cut out a piece of selected brood comb (sealed/unsealed or both) measuring 15cm x 15cm (6 inches x 6 inches approximately)**
2. **Avoid sampling honey, pollen or nectar**
3. **Wrap the sampled brood comb in a sheet of newspaper and place in a plastic bag**
4. **Seal the bag with a piece of duct tape or staples**
5. **Complete the sample submission form and attach it to the outside of the envelope (Please do not place the completed sample submission form in direct contact with samples)**
6. **Send samples to:**

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c/o Dr Mary F Coffey
Department of Agriculture, Food and the Marine
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