

Nosema Apis

I was recently asked by one of our members to perform a Nosema check on a colony that had not survived the winter.

The process is a simple one

First, collect a sample of 30 older adult bees. These are the foragers. If you are collecting them outside the hive then block the entrance and collect them with an open matchbox from the alighting board. If you are taking them from inside the hive then the older bees will be on the outer frames away from the brood nest.

Why 30 bees ? It has been calculated that 30 is a statistically significant enough sample to determine if the colony is infected. It is possible to do a Nosema check on a single bee – but this may not be a true reflection of the level of infection in the colony.

Once you have your sample of 30 bees then you need to kill them. This can be done by putting them in the freezer overnight. However, it is best to work with fresh bees if you can.

The only part of the bee that you need is the abdomen. So with scissors or tweezers remove the 30 abdomens and place them in a mortar.



Add a little distilled water and grind the contents of the mortar to a paste with the pestle.



Pipette a little of the paste onto a microscope slide and apply a coverslip. Examine the sample at x400 magnification.

Unfortunately in this instance the sample was positive for *Nosema apis*.



The white 'rice grain' like shapes are the *Nosema apis* spores.



The photo is taken at x400 magnification.

Nosema apis is a fungus and the spores are 'rice grained' shaped with a double nucleus. This would be classed as a heavy infestation.

The course of action I would advise, had the colony survived, would have been to change all of the combs. I would do this by either shook swarm or by a Bailey comb change.

It is thought that *Nosema apis* is now endemic and, therefore, present at some level in most honeybee colonies. There are no outward signs of *Nosema* but in some cases there can be associated dysentery and the colony will be slow to build up in the spring. Like *Varroa destructor*, *Nosema apis* is a vector for viruses. It is the viral infection that would cause a colony to completely collapse.

If you would like a *Nosema* analysis or further instructions on how to do it for yourself then please get in touch.