# Varroa mites – the greatest threat to European honey bees

The Verroa mite is originally native to Asia. It was first discovered in 1904 in colonies of the Indian honey bee (apis cerana). Varroa mites are parasitic mites, which require a honey bee host to survive. The Verroa mite reproduces on honey bee brood; it punctures the bee skin to feed on the blood (haemolymph) of both immature and adult bees. Over thousands of years, the Indian honey bee has successfully adapted to the parasite: it detects the mites in the brood cells, uncaps the cells and removes the infested brood. In addition, the Indian honey bee has developed strong cleaning practices, thereby limiting the damage to the colony. It grooms itself and other bees in the hive to keep Varroa mites out of the nest. These two behaviours are effective mechanisms of defense against the Varroa mite, which allow the Indian honey bee to fight and survive Varroa infestation.

Recent research has detected genetic variance among populations of Varroa mites. One subspecies called *Varroa destructor*, which used to predominate on mainland Asia, was imported to Western Europe. It is considered the most devastating parasite of honey bee colonies in existence; it can wipe out entire bee colonies. Beekeepers continue to struggle with Varroa infestations in their hives. Varroosis may even result in the beekeeper finding the hive completely empty as weakened or sick bees by nature leave the colony to die away from the hive to keep the disease away from the hive.

## Tasks

1. Explain in a few words what varroosis is.
2. Come up with hypotheses about which data you could use to detect a suspected Varroa infestation.
3. On BeeBIT’s website (www.beebit.de), look at the following two diagrams in two separate windows:
   1. Beehive: DEU – FKG – 1   
      Time period: 2016/07/05 –2016/07/20   
      Sensor: Weight
   2. Beehive: AUT – GSC – 1   
      Time period: 20106/06/01 – 2016/06/14   
      Sensor: Weight
4. Describe and compare the two graphs.
5. One of the colonies has been infested with Varroa mites. Use the diagrams to explain which of the hives you think is infested.

For the quicker pupils:

1. Spell out why honey bees behave as described below:   
   „Varroosis may even result in the beekeeper finding the hive completely empty as weakened or sick bees by nature leave the colony to die outside the hive.”