

11. How Honey Bees Cope with the Varroa Mite

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(EN - ohne Übersetzung)

Since the eighties of the last century the Varroa mite has become a major threat to the honeybee and must be controlled by regular application of organic acids even by biodynamic beekeepers. However, in a number of regions in Europe colonies have developed resistance against or tolerance for the mite. Some of the mechanisms studied have a genetic basis. Since experimental colonies with resistant queens and non-resistant worker bees fail to cope with the mite it is likely that inheritance is a necessary but not sufficient prerequisite. Two hypotheses to understand what happens can be tested. First, the colonies that co-exist with the mite have originated from locally adapted ancestors. Since adaptation indeed improves the bee vitality the Varroa tolerance/resistance (VT/R) trait could be the result of such an adaptation process. Second, VT/R behaviour is not innate but must be acquired. With the advent of epigenetics inheritance the transmission of acquired traits from one generation to the next is a plausible mechanism. In addition, a different VT/R behaviour can be envisaged. Transmission of the VT/R trait by imitation could be a possibility. Here, younger sisters in a colony would copy the behaviour from the older ones – as a kind of learning process.