



Good News for Beekeepers

Low colony losses throughout Europe after last winter

Increased losses of bee colonies during winter are a frequent matter of concern not only for German beekeepers. Losses of up to 10% are commonly regarded as agreeable in beekeeping. Higher losses, however, have to be assessed critically and quickly attract the attention of media and politics as did average colony mortalities of up to 30 percent which were observed in Germany in some recent years. Such figures, however, do not only show aggregated results of extensive regional variations but in addition quite distinct differences between individual beekeepers.

Studies show a differentiated picture

When searching for answers what the causes for increased mortalities of bee colonies after winter could be, it may be helpful to look at our European neighbours. A row of national and international research programmes has been set up to collect data on the issue.

The recently published study of COLOSS (Institute for Bee Health, University of Bern)¹ provides interesting results with regard to the mortality of honey bee colonies throughout Europe following the winter 2013/14. Data from 19 European countries plus Israel and Algeria were assessed. 17,135 beekeepers with 376,754 colonies altogether took part in the study which was based on standardised protocols that were completed by all participants.



How are the bees after winter? (Source: Ratikova)

As expected, colony losses varied to a considerable degree between participating countries. Highest values (14%) were reported from Portugal whereas the lowest values (8%) came from Norway. Germany reported 8%, a value that is rather positive in comparison to the international situation. On average, colony mortality in Europe following the winter of 2013/14 amounted to 9%, which is the lowest result since the onset of data recording by COLOSS in 2007.

¹ [http://www.coloss.org/announcements/losses-of-honey-bee-colonies-over the 2013-14 winter](http://www.coloss.org/announcements/losses-of-honey-bee-colonies-over-the-2013-14-winter)

² http://www.ec.europa.eu/food/animals/live_animals/bees/docs/bee-report:en.pdf

³ <https://www.uni-hohenheim.de/fileadmin/einrichtungen/bienenmonitoring/Dokumente/DEBIMO-Bericht-2011-2013.pdf>

Comparable to COLOSS, the European Union Reference Laboratory for honey bee health (EURL)² also registered markedly higher mortality rates in the previous winter 2012/13 with peak values in Belgium (33.6%), Sweden (28.7%) and England (28.8%). Results from Germany (13.6%) were in the more positive range again. These data are comparable to the results of the German bee monitoring (13.3%)³.

Many causes – one effect

That is a positive outcome on first examination – but can a lasting trend be deduced as a result? How should the sparsely collected data be interpreted? If average colony mortality varies according to circles of the year and regions, it has to be expected that factors which change according to season and region will of course also have effects. Climate plays a central role. A harsh winter can mean stress for honey bees, but such weather conditions will also affect parasites and diseases.



The spring of 2013 was relatively cool, causing a rather late start of larval development and thus a rather late reproduction of the Varroa mite. A multitude of studies have shown Varroa to be the damaging factor no 1 for honey bees.

If the start of the Varroa mites' development is delayed, that will cause populations of the parasite to be also weaker throughout the year compared to an early development start. As a consequence, the damaging potential for the bee colonies decreases. The importance of parasites and diseases which in part are transmitted by Varroa mites is also intensively discussed in the EURL.-study as one focal point of interest. In addition, however, the availability of melliferous plants – in particular during early spring – is another one of the factors that are subject to changes in weather.

Which conclusions are permissible?

In addition to climate effects, also beekeepers' and agricultural practices exert influence on colony development. In light of the vast annual and regional variability of colony losses, it is not conclusive to credit rather constant factors such as the application of plant protection products with noteworthy effects on mortality during winter. Active ingredients of the neonicotinoid group, for example, have been used for decades. The ups and downs of colony mortality which can be observed from year to year do not correspond to the continuous and constant use of these insecticides. The construction of a direct relation between cause and effect must therefore be challenged.

Monitoring data provide important information with regard to possible solutions for various problems in beekeeping. At the same time, these data still leave room for interpretation. That is particularly true when individual experiences of beekeepers are quite different. Such monitorings are indispensable, however, to analyse influences and trends that are observed over wide areas.

Left: Varroa mites in different development stages on a brood-comb (source: Werner Mühlen, LWK NRW)