

Occurrence of abnormalities and diseases in newly mated and old honey bee queens

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Observation of nonacceptance, frequent replacements and reduced performance of honey bee queens (*Apis mellifera ligustica*), induced to analyse newly mated and old bee queens to detect the causes. The study was carried out on 99 newly mated bee queens, from queen breeders, and on 109 older bee queens or at the end of their career, which showed a poor efficiency and were obtained from beekeepers. The bee queens were dissected to check their reproductive system status and/or the presence of various problems. Anomalies and/or diseases were observed in 39.39% of newly mated bee queens and in 75.23% of older ones. Absence, hypoplasia or atrophy and melanosis of ovaries; absence of oviducts; egg anomalies; missing, abnormally shaped, double or discoloured spermathecae; absence of or abnormal sperms; and enteroliths; also in association with a change in tissues were common. *Nosema* spp. spores were detected in five bee queens and in most of the accompanying workers when present. Ciliate protozoa were present in the spermatheca of 22 newly mated and 2 older bee queens. The observed differences permitted to highlight the causes of the reduced performance of the bee queens and of the hives they came from. The information obtained would prove useful to improve queen breeding techniques.