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How Challenging to Apivar Field Treatments Are Amitraz-Tolerant Varroa Populations?

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Portuguese beekeepers depending on blind and repeated use of amitraz in fighting Varroa have meant a selection pressure towards amitraz-tolerant Varroa populations. Some of these Varroa populations were recently pin pointed during a nationwide monitoring effort (by field and laboratory testing), allowing for investigating the practical meaning such increased levels of tolerance have to properly applied Apivar field treatments and how quickly those populations regress to normal levels of susceptibility to amitraz.

Samples of amitraz-tolerant Varroa populations were collected in capped worker brood left to emerge in newly artificially built colonies. During the following 4 months, experimental colonies were treated twice (with Apivar and Apistan) and periodically assessed for (i) levels of apparent Varroa infestation in capped worker brood and adult bees, and (ii) daily rates of dead mature Varroa that had fallen to protected hive bottom boards. Finally, thymol (Apiguard) was applied to all experimental colonies and bees and brood samples were collected to account for Varroa that could eventually have survived previous acaricide applications.

The main results we obtained mean that Varroa populations that stood out, in field and laboratory tests, as being highly tolerant to amitraz, quickly revert to a status of high susceptibility to a properly applied Apivar treatment (overall mean efficacy of 78 %) if removed, for a few months, from contexts where amitraz applications are excessively recurrent.