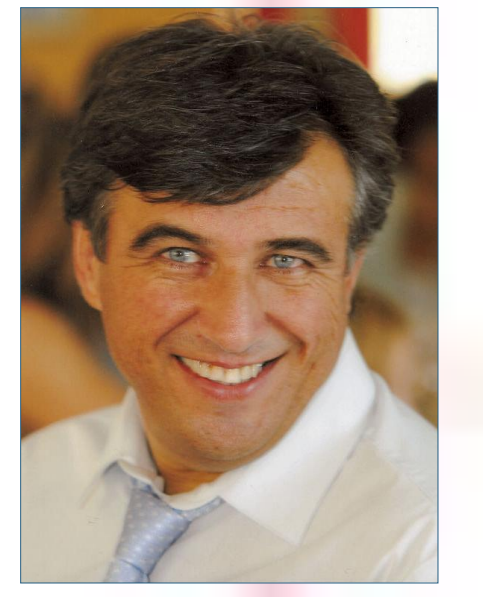


Fluvalinate-tolerant Varroa populations rapidly loose their lead against Apistan

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Introduction

Since early nineties, many Portuguese beekeepers have used various ways of applying fluvalinate into their honey bee colonies, meaning a strong selection pressure towards fluvalinate-tolerant Varroa populations. Some of these were recently pin pointed during a nationwide study (using field and laboratory testing), opening up the possibility (i) to challenge them against properly applied Apistan treatments, as well as (ii) to estimate how promptly those populations could be expected to move back to normal susceptibility levels.

Results

After approximately 4 months of population growth in host colonies that received no fluvalinate applications, Varroa previously identified as highly fluvalinate-tolerant displayed a very high mortality (mean treatment efficacy of 86%) after a correctly applied Apistan treatment (Figure 1).

The very high negative impact of Apistan on these Varroa populations was also made evident from the after-Apistan treatment residual levels of apparent Varroa infestation that was left on both worker brood and adult bees of the host colonies (Figure 2).

Conclusions

If absent from contexts where contact with fluvalinate applications is excessively recurrent/inappropriate, Varroa populations previously identified as being highly tolerant to fluvalinate, tend to quickly go back to a status of very high susceptibility to a proper treatment with Apistan.

Materials and methods

Eighteen samples of previously identified Apistan-tolerant Varroa populations were collected on capped worker brood and left to emerge in practically Varroa-free colonies (in early autumn).

In these host colonies, Varroa were allowed to reproduce during approximately 4 months before beginning the experiment in mid February. During the following 4 months, treatment colonies were treated twice (with Apistan and, later on, with Apivar) and periodically assessed for (i) daily rates of dead mature Varroa fallen to protected hive bottom boards and (ii) levels of apparent Varroa infestation on capped worker brood and on adult bees. A final Apiguard treatment was applied to all treatment (n=12) and control (n=6) colonies.

Figure 1 (Mean \pm s.e.m.)

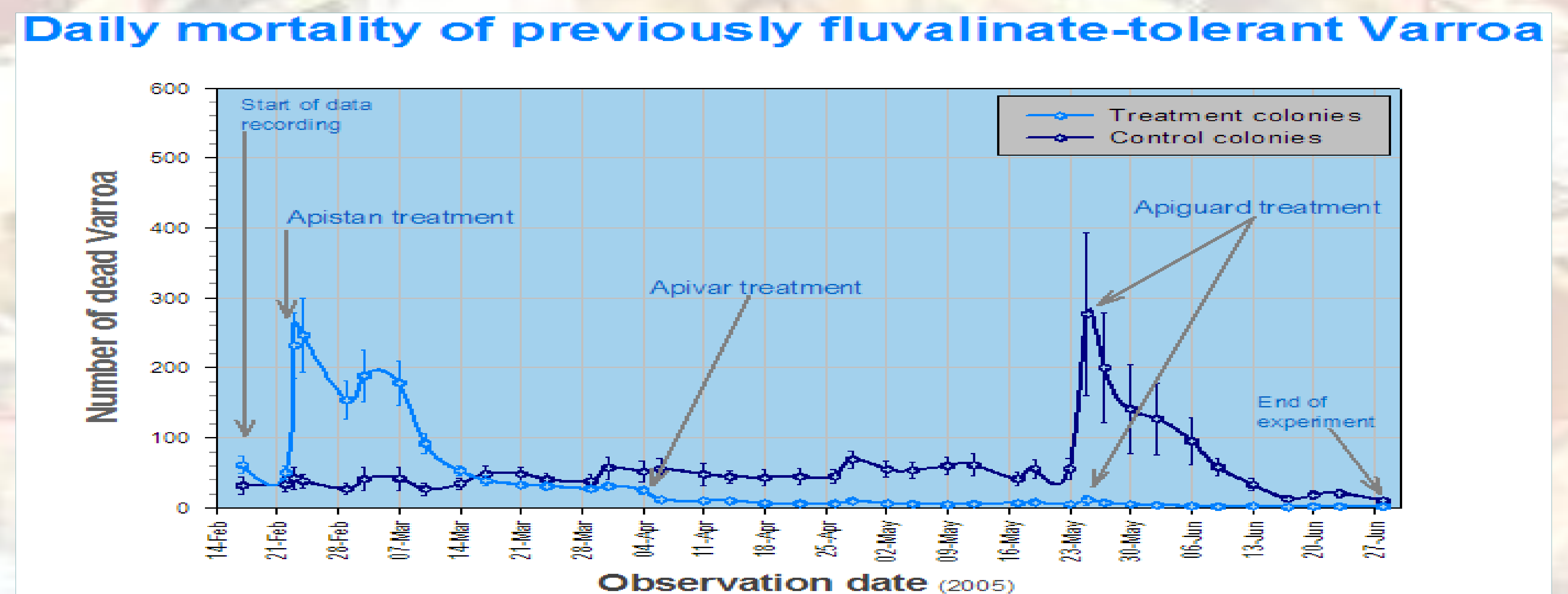


Figure 2 (Mean \pm s.e.m.)

