

'RAPID BROOD DECAPPING' TO ASSESS THE RECAPPING BEHAVIOUR IN HONEY BEE COLONIES

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Abstract

Recapping is the ability of honey bee workers to uncap and recap brood cells infested with *Varroa destructor* mites. This behaviour has recently attracted attention as a possible selection trait in breeding programs for *V. destructor* resistance due to its high expression rate in honey bee populations naturally resistant to the mite. Assessing the recapping ability of colonies is however time-consuming because each cap must be disconnected from the cell walls using tweezers so that its underside can be examined under a binocular microscope to check the integrity of the larval silk layer. Recently, the 'rapid brood decapping' method, which uses wax strips, was developed to efficiently diagnose *Tropilaelaps mercedesae* infestations. Here, we tested whether this method could also be used to assess the recapping ability of colonies. Wax strip brands were compared to select the most effective and practical. The reliability of the method was compared to that of cell uncapping with tweezers. We also tested the method's efficiency under various conditions, such as on combs of different ages and shapes, and at different ambient temperatures. Additionally, the fate of the uncapped brood was investigated to evaluate the side effects of the method. We present the pros and cons of the 'rapid brood decapping' method for investigating the biological basis of the recapping behaviour and selecting colonies for breeding.