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Methods of mineral engineering in a fight against varroa infestation

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The purpose of previous study centered on introducing minerals into bee colonies was to observe the *Varroa destructor* mites-repelling effect of minerals ("Pszczelarstwo" 6/2016). The results of research published so far confirmed the purpose of using minerals in the fight against *Varroa* infestation. This publication presents partial results of the next stage of research. The purpose of presented research was to observe both the bees' and the *Varroa destructor* mites' reaction to minerals. A method of introducing the minerals into the foundation was used, to achieve direct influence of minerals on bee larvae and female *Varroa destructor* mites entering the bee cells to lay eggs. The foundation was made using 10% mineral and 90% wax in weight ratios. Using foundation enriched with studied minerals in right proportions leads to diminishing the number of

Varroa destructor parasites in bee colonies. It may also contribute to increase in the amount of honey obtained from bees. Foundations with minerals were in most cases correctly filled with larvae, and the new generation of bees didn't show any morphometric or physical-motor aberrations. The effect of minerals in the foundation weakens with time, which requires adequate reaction from the beekeeper. The study showed no negative effect of mineral suspensions added directly to royal jelly of larvae in the swarm cells and worker cells on the development of bees. Additional research was carried out in August and September and led to surprising observations, which are still too early to report. It obliges us to carry out further, extended subject research on a large number of bee colonies in 2017.

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