

31. The Influence of Stimulative Feeding of Nurse Bees on Royal Jelly Production

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Abstract:

The aim of the research was to evaluate the influence of stimulative feeding of nurse bees on increasing larval acceptance for rearing queen cell dimensions (diameter, length, and the mass of the queen cell containing royal jelly and the larva), as well as the amount of royal jelly obtained from a single queen cell, per rearing cycle and in total over the course of three cycles. In the first cycle, each experimental colony received one frame containing 45 grafted larvae. In the second cycle, two frames containing 90 grafted larvae were provided, while in the third cycle, three frames containing 135 grafted larvae were introduced. The nurse bees were fed daily with one liter of a mixture consisting of sugar syrup and the biostimulator MF-SIB-49, beginning from the moment the frames with grafted larvae were introduced and continuing for three consecutive days, until the day on which the frames were removed for royal jelly harvesting. This procedure was applied during the second and third cycles as well. Based on the evaluation performed, it was found that, in the absence of a maintenance nectar flow, feeding nurse bees with a mixture of sugar syrup and biostimulator stimulates royal jelly secretion required for the rearing of grafted larvae. This leads to an increase in the number of grafted larvae accepted for rearing, improves the developmental parameters of queen cells (length, diameter, and the mass of the queen cell together with royal jelly and larva), and increases the amount of royal jelly obtained from a single queen cell, both per cycle and in total across three cycles. The total amount of royal jelly obtained from one bee colony over the three cycles was 66.0 g which was 32.0–45.4% higher than in the control group.

Keywords: beekeeping, biostimulator, queen cells, nutrition, colony.