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ANALYSIS OF THE ENERGY INPUT–OUTPUT OF HONEY PRODUCTION IN THE MOUNTAINOUS AREA OF ROMANIA

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Abstract

The paper offers information on the energy efficiency of the honey production in the mountainous area of Romania. The field research was carried out as a face-to-face interview in 2018, on a representative sample including 134 beekeepers. The main results of the analysis of the energy input–output is: input energy 754.9 MJ/hive, net energy -417.3 MJ/hive, efficient energy use 0.47 and specific energy 27.0 MJ/kg. From the total inputs, direct inputs and renewable inputs account for 38.1% and 5.1%, respectively. The apiaries with less than 50 hives have energy efficiency higher than the larger ones, but this phenomenon is adjusted when the size is over 150 hives. The highest energy output was obtained from the apiaries with a size of over 150 hives, but they are also the ones that involved the highest energy consumption as a result of the hives being moved in areas with high melliferous potential. Among the sources of input energy, the contribution of energy related to diesel fuel was the highest, followed by sugar. These inputs are needed both to ensure the mobility of the apiaries and to counteract the effect of unfavourable natural conditions. The regression analysis shows that compliance with the bee-keeping operations system, optimization of the transport distances and more frequent replacement of the queens with individuals with high genetic potential can lead to higher energy performance of Romania's apiaries.

Keywords: energy efficiency, honey production, input–output energy, mountainous area

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