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(AT-O-16) GIS Based Analysis to Support the Beekeeping Planning

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A correct beekeeping planning activity with Geographic Information System (GIS) methodologies seems essential to improve the efficiency and productivity and allows extracting the potential of each region and preserving natural resources. Various problems are related to the mortality of bees namely climate conditions, diseases, surrounding flora, water availability, distance to roads and residential areas, pollution sources nearness and others factors. The mapping construction with all important information allows knowing the current distribution and status of apiary sites on protected areas where beekeeping is allowed, as well the diseases incidence and the productivity and quality in different years (Anjos et al., 2013; Fernandez et al., 2013). The main purpose of this study is to propose a methodology to beekeeper potentiality assessment using GIS and multicriteria analysis. This methodology was applied in a selected area in the central region of Portugal. In this work were developed a spatial multicriteria model in order to produce maps with the potentials areas for beekeeping activity by combining the following spatial data: land use, altimetry, river network, water body, road network, urban areas, bee disease, apiary-location and sources of electromagnetic radiation. The conceptual model used contains three main steps: geographic database creation and management; spatial and multicriteria analysis and process validation. It was verified that some apiaries are not in accordance with the legislation and with a better management of the apiaries location it was possible made a better management of the natural resources for beekeeper. The zones assigned in the planning beekeeper map with low potential for apiculture are identified also as focus of diseases. The establishment of the potential beekeepers zones aid to planning the future apiaries installation.

Fernandez P, Marques J, Anjos O (2013) Cartografia de apoio à tomada de decisão em apicultura. *AGROTEC/Setembro*, pp:41–47.

Anjos O, Marques J, Fernandez P, Neto J, Alves D (2013) Desenvolvimento de uma metodologia SIG para ordenamento apícola. *O Apicultor: Revista de Apicultura* ISSN 0873-2981. 80. p. 2–9.

Key words: beekeeping, GIS; planning, potential beekeepers zones