ASSESSMENT OF HIVE DEVELOPMENT AND PRODUCTIVITY BY MEANS OF ELECTRONIC SCALES

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Dr. Daniela Laurino, Prof. Aulo Manino, Mr. Marco Porporato

University of Turin, Grugliasco, Italia

daniela.laurino@unito.it

The development and productivity of hives are heavily dependent on climatic conditions and the availability of nectar and pollen resources. Global climate change and the profound changes in land use occurring in many parts of the world (urbanization, agricultural intensification, reduction in natural or semi natural areas) pose a challenge to beekeepers who must adapt their businesses to remain competitive. Among the various tools available of the beekeepers to know the trend of families and periods of honey flow, the daily weighing of some of the apiary hives has long been recommended, but it is a laborious task, especially in out apiaries, and is in fact limited to a few research institutes or experimental and/or demonstration apiaries of beekeeper associations. In the apiary of the University of Turin, Faculty of Agriculture, three high-precision electronic scales (capacity 300 kg, resolution 20 g) have set up, certified under the OIML standard (International Organization of Legal Metrology) R76-1, equipped with a data collection system on MMC memory cards that allow us to record continuously the weight of each hive every 10 minutes. The data are periodically downloaded to a PC and can be processed to highlight the trend over time in order to relate it with the development of families, determined by periodic evaluations of the comb surface occupied by adult bees, brood and stocks and with the performance of the main flowering honey plants in the area around the apiary. During 18 months of continuous measurements, since spring 2010, it was possible to verify the absolute reliability of the scales employed and the respondence, both in the long and short-term, of changes in weight with the development of families and the production of surplus honey. The adoption of electronic scales for continuous weighing of the hives by beekeepers may be a useful tool to improve the management of the apiary and optimize the yields.