



The Impact Of Technology In Commercial Beekeeping

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Abstract

We survey the current state of software and hardware solutions available to the commercial beekeeping industry based on ten years of experience with the Bee Informed Partnership in the United States and with Hive Tracks. Apiary management software, hive monitoring through a variety of sensors, hive and super identification, Varroa, nosema, and virus sampling data, and secondary digital data sources offer potential economic value to a commercial beekeeping operation, but factors such as cost, reliability, and ease of use influence the adoption of these technologies. Each of these factors provide a framework for evaluating technology feasibility based on the specific circumstances and needs of a commercial beekeeping operation. Case study examples illustrate the experience of current commercial beekeeping operations adopting these technology solutions and how they handle the challenges and obstacles of integrating technology into the fast paced and often chaotic commercial beekeeping workflow. While digital technologies directly impact commercial beekeeping operations internally, a number of new economic opportunities are being created at the intersection of beekeeping operations and various stakeholders including honey buyers, pollinator dependent growers, government agencies, and survey takers. A beekeeping operation supported by data can leverage that information to command higher honey and pollination contract prices, meet regulatory and compliance requirements, and participate in ongoing research and development projects. In addition, reliable and trusted beekeeping data will foster the development of new insurance products and smart contracting options that foster commercial beekeeping business security and continuity.

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