

**PP-602 [Beekeeping Technology and Quality]
A Perspective on the Status and Future of Technology and Knowledge Transfer Programs in Apiculture: The Case of Canadian Beekeeping**

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The beekeeping industry in Canada plays a significant role in agricultural sustainability and economic stability, contributing approximately CAD\$7 billion annually through pollination. However, beekeepers constantly face challenges trying to keep operations profitable and ultimately provide pollination services. High annual colony losses are economically untenable; e.g., 45.5% winter mortality was reported in 2021. The multifactorial contributors to poor bee health outcomes are shared by beekeepers globally, including highly virulent and emerging pathogens, exposure to agrochemicals in agricultural landscapes, and changing climate. To address these types of challenges, the Ontario Beekeepers' Association established a technology transfer program (TTP) in the 1990s. The success of this initiative led to the adoption of the TTP model in other provinces: Quebec (2006), Saskatchewan (2010), the Atlantic Provinces (2016), Alberta (2019), Manitoba (2020), and British Columbia (2021). These seven programs facilitate applied research and extension activities and support the commercialization of new technologies, effectively bridging the gap between academia and industry. Unlike conventional technology transfer offices that are often within academia or research institutions, Canadian TTPs are embedded within non-profit industry-led organizations, providing a direct and responsive approach to industry needs. However, Canadian TTPs work collaboratively with existing government extensionists and academic research initiative. This TTP model has proven to be an essential mechanism for knowledge dissemination, adaptive research, and industry-research partnerships. Education and active pathogen surveillance have been shown to be crucial in reducing colony mortality, underlining the potential impact of TTPs in promoting best practices and facilitating inter-institutional and nationwide collaborations that directly impact practitioners. Despite their successes and value to industry stakeholders, the future of these programs in Canada remains uncertain. Here we discuss the strengths and weaknesses of the programs and possible ways to effectively support the beekeeping industry in Canada through extension programs, such as the TTPs, and the potential of adopting this model in other countries.