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Primal bee: An innovative hive solution for beekeepers by beekeepers

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Primal Bee

Primal Bee founders, mechanical engineer Gianmario Riganti and his childhood friend and technical expert Alex Gamberoni had trouble when first embarking on their beekeeping journey together. They purchased bees, installed them into their wooden Langstroth hives and followed the recommendations offered by beekeeping books, blogs and beekeeper associations. Unfortunately, each year they were faced with a problem which plagues most beekeepers, their colonies collapsed despite their best efforts as beekeepers. Ironically, while their colonies were having difficulty surviving they were called to collect a colony in a hollow tree that was thriving. This feral colony of honey bees had a strong, healthy population with long combs of brood and stores of honey within the protected cavity of a thick-walled tree.

This inspired the beekeeping duo to develop an insulated and geometric hive that would help honey bees maintain their ideal temperature of 36 (96). Through innovative engineering they modelled many different hive types comparing each for thermal efficiency. Through this study they discovered the design that would become the Primal Bee hive. The Primal Bee hive presents an innovative approach to sustainable beekeeping by leveraging thermodynamic efficiency, superior insulation, and optimized hive design to enhance colony survival, productivity, and adaptability.

With the engineering research results, Primal Bee founders applied to a Swiss start-up competition and won. These grants were used to build the first prototype, proof of concept and an international patent application. The hive was studied through extensive research and field testing in diverse climates including the Swiss Alps, Alaska, Australia, and the Israeli desert. As hypothesized, the insulative qualities and geometric design helped to optimize heat efficiency enabling the bees to mitigate weather impacts. Field results demonstrated significant improvements, including a 500% increase in thermodynamic efficiency, doubled bee populations and honey production, and reduced colony loss. This presentation details the Primal Bee journey from concept to product, testing to market fulfillment. We hope our story serves as an inspiration for beekeepers to generate innovative solutions that go beyond their own hives to support the beekeeping community and honey and pollination industry.