

VYT 2025 Entry #7

The Buzz About Honey Bee Vaccines

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Honey bees are industrious pollinators that fulfil a crucial role in facilitating the pollination of a multitude of plant species essential for food production and stability. But these tiny heroes are facing significant threats.

Pests, diseases and environmental changes have led to a decline in bee populations. Among these threats, the bacterial disease, American Foulbrood (AFB), stands out as particularly devastating.

The only approved method for eradication is the incineration of diseased colonies.

This brings us to my PhD project. The production of a vaccine against AFB. The vaccine will work by feeding harmless fragments of the bacteria into the bee. This then primes their immune system to recognise and combat the real bacterial if they ever encounter it.

Administration is a straightforward process. Beekeepers can mix the vaccine with a sugar solution, which bees then consume.

The introduction of a vaccine not only helps protect individual bees but also strengthens the entire ecosystem. Healthy bees mean better pollination, which leads to thriving plants and more abundant food sources for all.

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