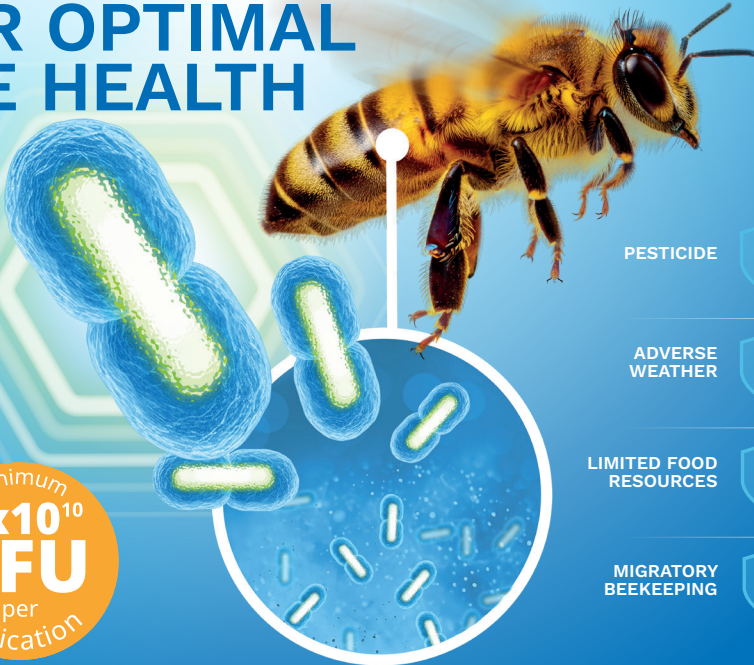


NEW

# Bact<sup>o</sup>bee<sup>®</sup>

By V<sup>é</sup>to-pharma

## SCIENCE-BACKED LIVE PROBIOTICS FOR OPTIMAL BEE HEALTH



Minimum  
**1x10<sup>10</sup>**  
**CFU**  
per  
application

PESTICIDE



ADVERSE  
WEATHER



LIMITED FOOD  
RESOURCES



MIGRATORY  
BEEKEEPING



**1** Probiotic for honey bees, based on ***Pediococcus acidilactici*** live bacteria.

**2** Helps the bees cope with **environmental stressors** such as pesticide exposure, adverse weather conditions, limited food resources or migratory beekeeping.

**3** Promotes **good gut health**, stabilizes microbiota, supports immune function, improves colony performance and productivity, and boosts winter survival.



**Healthy bees  
start with  
a healthy gut!**

V<sup>é</sup>to-pharma  
Bee Science



# WHY GUT HEALTH MATTERS FOR HONEY BEES

The gut microbiota plays a vital role in honey bee health, performing key functions such as:

- **Synthesizing important molecules** like enzymes and vitamins,
- **Activating the immune system**, helping bees defend themselves from disease,
- **Assimilating nutrients**, ensuring they get the energy they need to thrive.<sup>1</sup>

However, stress factors—such as environmental changes, pesticide exposure, diseases, or poor nutrition—can disrupt this delicate balance. These disruptions lead to an imbalance in the gut microbiota, known as **dysbiosis**, where harmful bacteria outcompete beneficial ones.

## THE IMPACT OF DYSBIOSIS ON HONEY BEES

Dysbiosis can affect honey bees in several ways, including:

- **Weakened immunity**, leaving them more vulnerable to pathogens.
- **Reduced nutrient absorption**, impacting their energy and productivity.
- **Digestive issues**, which can lower their overall health and lifespan.

These challenges can compromise the strength of the entire colony, especially during times of stress.

## HOW BACTOBBEE® CAN HELP

This is where **Bactobee®** comes in—a high-quality probiotic specifically designed to restore balance in the bee gut microbiota. By introducing beneficial bacteria, Bactobee® helps honey bees face stressors and maintain optimal health.

## WHAT MAKES BACTOBBEE® UNIQUE?

- It's based on **live bacteria**, unlike many other probiotics that rely on dried fermentation products.
- It contains a scientifically proven strain of bacteria: *Pediococcus acidilactici*, a powerhouse probiotic with demonstrated benefits for honey bee colonies.
- Its formulation is **tailored specifically for honey bees**, ensuring it meets their unique needs.



## HOW TO USE BACTOBBEE

Nurturing your bees with Bactobee® is simple and effective! Follow these steps to ensure your colonies thrive:

### DOSAGE

- Use **5 grams per colony** per application, equivalent to one dosing spoon (included in the bag).
- Sprinkle the powder gently on top of the frames, placing it near the brood area for maximum impact.
- Applications can be repeated every **30 days** if needed.

### RECOMMENDED APPLICATION PERIODS

To give your bees the best support, apply Bactobee during these key times:

- **Spring:** At least once to help your colony prepare for the active season.
- **Fall:** At least once to strengthen your bees for winter.
- **Stressful times:** During dearth periods or migratory events when your bees need extra care.

### IMPORTANT PRECAUTIONS

To ensure the safety and effectiveness of Bactobee:

- **Do not combine** with sugar syrup or protein supplement. **Bactobee is live probiotics**; apply dry, along top bars only.
- **As with all supplemental feeding**, avoid application during peak honey flow.
- Use the product within **24 months of manufacturing**.
- **The live bacteria are highly sensitive to light, humidity, and heat.** After opening your Bactobee bag, ensure it is tightly sealed to protect the product.

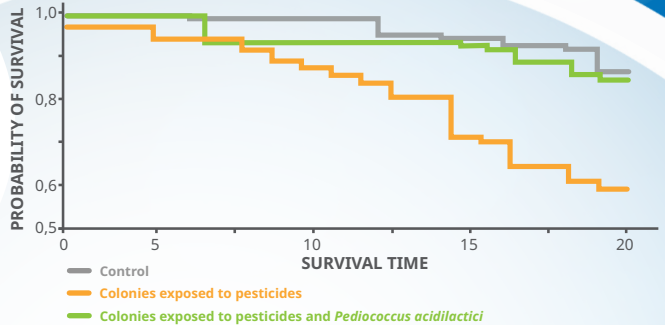
# SCIENCE-BACKED BENEFITS OF *PEDIOCOCCUS ACIDILACTICI*

The benefits of *Pediococcus acidilactici* have been extensively documented in honey bee studies.<sup>1-2</sup> Colonies supplemented with the same carefully selected source of bacteria used in Bactobee showed significant improvements in bee health and overall colony performance:

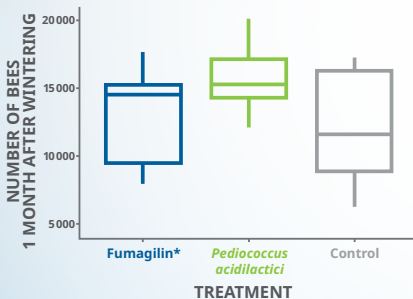
- Restored gut microbiota stability:** The bee microbiota became more resilient, with a stronger and more connected network of beneficial bacterial interactions.<sup>1</sup> This improvement is particularly important during the wintering period, a time when digestive issues frequently arise and can weaken colony health.
- Greater resilience to environmental stressors:** Bees showed improved tolerance to environmental challenges, including pesticide exposure, ensuring better adaptability in difficult conditions.<sup>1</sup>

“A recent study also showed that Bactocell® [the source of *Pediococcus acidilactici* used in Bactobee™] restored the bee microbiota to a state close to the control after the induction of dysbiosis by a stressor factor.”<sup>3</sup>

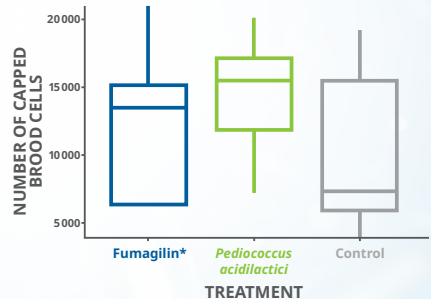
Another study from Peghaire et al.<sup>2</sup> also demonstrated that co-exposure to two pesticides (thiamethoxam and boscalid) was particularly harmful to honeybees. However, treatment with *Pediococcus acidilactici* completely restored their survival rates improving it by **more than 40%!**



**Improved winter survival and spring recovery:** When applied before wintering, *Pediococcus acidilactici* supported better colony recovery in spring, helping to improve winter survival rates.<sup>1</sup>



**Stronger colony growth:** Supplemented colonies showed an increase in the number of bees and capped brood cells, contributing to a healthier and more robust hive.<sup>1</sup>



**Optimized colony performance:** Overall, colonies supplemented with *Pediococcus acidilactici* exhibited enhanced productivity and vitality, underscoring its role in maintaining a thriving hive.<sup>1</sup>

\* Fumagilin is an antibiotic authorized for use in honey bees in North America to reduce the number of organisms associated with digestive issues.

1 - Gaubert, J.; Mercier, P.-L.; Martin, G.; Giovenazzo, P.; Derome, N. - Managing Microbiota Activity of *Apis mellifera* with Probiotic (Bactocell®) and Antimicrobial (Fumidil B®) Treatments: Effects on Spring Colony Strength. *Microorganisms*, 2024, <https://doi.org/10.3390/microorganisms12061154>

2 - Peghaire, E.; Moné, A.; Delbac, F.; Debraas, D.; Chaucheyras-Durand, F.; El Alaoui, H. - A *Pediococcus* strain to rescue honeybees by decreasing *Nosema ceranae*- and pesticide-induced adverse effects. *Pesticide Biochemistry and Physiology*, 2020, <https://doi.org/10.1016/j.pestbp.2019.11.006>

3 - Sbaghli, T.; Garneau, J.R.; Yersin, S.; Chaucheyras-Durand, F.; Bocquet, M.; Moné, A.; El Alaoui, H.; Bulet, P.; Blot, N.; Delbac, F. - The Response of the Honey Bee Gut Microbiota to *Nosema ceranae* Is Modulated by the Probiotic *Pediococcus acidilactici* and the Neonicotinoid Thiamethoxam. *Microorganisms*, 2024, <https://doi.org/10.3390/microorganisms1210192>

**IS MANUFACTURED WITH CARE**  
in France, at our Vétô-pharma facility.



**NON-GMO**



**NO PRESERVATIVES**



**NO ANIMAL  
INGREDIENTS**

**AVAILABLE  
IN NEW ZEALAND FROM  
NEW ZEALAND BEESWAX LTD**



Scan the QR code  
to view the retailer list  
in your country



**Bactobee**<sup>®</sup>  
**IS AVAILABLE  
IN TWO FORMATS:**

**Bag of  
250 g  
(50 doses)**



**Bag of 2.5 kilos  
(500 doses)**



**A -5gram dosing spoon  
is included with each bag.**



**Want to learn more  
about Bactobee<sup>®</sup>  
and *Pediococcus  
acidilactici*?**

Visit our webpage  
for more information  
and additional resources!  
Scan the QR code or go to  
[www.veto-pharma.com](http://www.veto-pharma.com)

**Have a question?**

Check out our FAQ on [www.veto-pharma.com](http://www.veto-pharma.com)  
or contact our team at [info@vetopharma.com](mailto:info@vetopharma.com)